



# I.M.A.G.S.B. NEWS BULLETIN

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## GUJARAT MEDICAL JOURNAL

INDIAN MEDICAL ASSOCIATION, GUJARAT STATE BRANCH

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**STATE PRESIDENT  
AND  
HON. STATE SECRETARY'S  
MESSAGE**



Dear colleagues,

Health is a forefront issue of the society. Unhealthy people will surely lead to unhealthy society and a burden to family, society and to the economy.

**As a doctor it is our prime responsibility to keep society healthy and fit. We should keep our self updated in latest development in the field of medicine.**

The function of the medical professions does not mean only high technology of the curative medicine; the comparable importance goes to the health education, health promotion, disease prevention and rehabilitation as well as the sustainability of the actions.

To reach the ultimate goal of healthy world, medical professions needed to be involved in so many issues such as environment preservation, family life styles, pollution control and so on, which are also the issues amongst the public and policy makers.

Therefore, it is our duty to be united and share our information, knowledge, and experience to prevent and find proper solutions to overcome or to suppress the risks of spreading diseases and illnesses.

Gujarat medical journal is a platform through which you can share your experience and research to your colleagues.

This issue of the Gujarat Medical Journal provides a variety of articles on different subject that will give updated information on all of them. This will be useful to the readers and practitioners in their day to day practice also.

We must congratulate the contributors, not only for their study and analysis of the subject, but also for presenting information and findings, in clear and easy language.

We urge our IMA members to send your best research article for our journal so that it becomes more informative.

**“The life so short, the craft so long to learn.”-Hippocrates.**

**DR. BIPIN M. PATEL**  
*President, IMA GSB.*

**DR. JITENDRA N. PATEL**  
*Hon State Secretary, IMA GSB.*

## FROM THE DESK OF EDITORS



Dear friends,

While putting the second issue of Gujarat Medical Journal in your hands in this year, we regret that, though the issue that was to be published in last July, is being published very late. There was some dispute with the postal department and we had to move the high court of Gujarat and after getting an interim relief from the high court we could start the process of publication. We hope that the next issue of GMJ will be published in February 2014, as per the schedule of its publication.

In last five years of time, many new medical colleges have started in our state and that will create many new doctors to serve the country and the society. At the same time a demand for new academic minded medical teachers is also increasing. Our hospitals and expertise are world class and that pushes the medical tourism in Gujarat far ahead. Our hospitals and institutes are well equipped with world class equipments and infrastructures.

As per the survey carried out by the FICCI and Yes bank, Gujarat is the most favored state for medical treatment in African and European countries. Gujarat is marching to become hub for medical tourism. People from developed and underdeveloped countries come here for treatment and we provide them world best treatment at a cheaper rates than that is available in developed countries. Also we get large number of patients from our own domestic population and this provides ample of opportunities for our colleagues working in hospitals, medical colleges and research institutes for research. GMJ provides them a platform.

You all know our GMJ is an INDEXED JOURNAL. For last few years, indeed, we get more research articles for publication. Without making any compromise in our laid down standards and policy, it has always remained our effort to make GMJ more informative, more interesting and more popular so that large number of our colleagues read it and utilize the knowledge and information provided in it. For this, we welcome your suggestions and comments also.

Our sincere thanks to GSB president Dr. Bipin Patel and hon. secretary

Dr. Jitendra N. Patel for encouragement and suggestions. We are grateful to Dr. Kirtibhai Patel and Dr. Mahendrabhai Desai for their guidance and help. Our particular thanks to GMJ ex. editor Dr. Amitbhai Shah for all sorts of help and guidance that he has provided us time to time.

Promising you the best reading,

With regards,

**DR. K. R. SANGHAVI**  
Editor-IMA-GSB-GMJ

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**CONTENTS**

- \* **State President and Hon. Secretary's Message** .....10
- \* **From the Desk of Editors**.....11

**REVIEW ARTICLE**

- \* **Role of PET scan in Clinical Practice** .....19  
Patel Apurva A\*, Patel Bipin M\*\*, Patel Kirti M\*\*\*
- \* **Pregnancy And General Surgery** .....23  
Dr. Babu S. Patel\*

**ORIGINAL ARTICLE**

- \* **Comparison of Misoprostol and Dinoprostone for elective induction of labor in nulliparous women at full term pregnancy.** .....26  
Masum B Leuva\*, Surbhi Gupta\*, Nilesh A Shah\*\*
- \* **Awareness of Ergonomic Guidelines regarding laparoscopic surgeries, its Practice among Surgeons and Comfort level during and after surgery** .....31  
Dr. Yogendra S. Modi\*, Dr. Manoranjan R. Kuswaha\*\*, Dr. Sumit Pukhraj Dave\*\*\*
- \* **Sero prevalence of HBV, HCV, HIV and syphilis among blood donors at a tertiary Care Teaching Hospital in Western India** .....35  
Dr. Nirali Shah\*, Dr. J.M.Shah\*\*, Dr. Preeti Jhaveri\*\*\*, Dr. Kazoomi Patel\*\*\*\*, Dr. C.K.Shah\*\*\*\*\*, Dr. N.R.Shah\*\*\*\*\*
- \* **Increasing trend of HCV reactivity in healthy blood donors and multitransfused thalassemia patients of Gujarat State** .....40  
Dr. Sangita D. Shah\*, Dr. M. D. Gajjar\*\*, Dr.Nidhi M. Bhatnagar\*\*\*
- \* **Screening for Postpartum Depression**.....46  
Dr. Ashish V Gokhale\*, Dr. Amit Vaja\*\*
- \* **Analysis of 63 patients of MDR TB on DOTS plus regimen : An LG hospital, TB Unit, Ahmedabad experience.** ...52  
Dr. Kapadia Vishakha K.\*, Dr. Tripathi Sanjay B.\*\*
- \* **Trends of Suicidal Poisoning Deaths in Females of Ahmedabad (Gujarat Region)** .....58  
Dr. Prajapati KB\*, Dr. Satani Dipali\*\*, Dr. Prajapati TB\*, Dr. Merchant SP\*\*\*
- \* **Role of Cervical Encirclage in Prevention of Preterm Delivery** .....64  
Dr. Ami V. Mehta\*, Dr. Harshad M. Ladola\*\*, Dr. Bina M. Raval\*\*\*, Dr. Kartik Morjaria\*\*\*\*, Dr. Khushali Gandhi\*\*\*\*\*,  
Dr. Swati Thakker\*\*\*\*\*
- \* **Unstable Intertrochanteric Fractures In High Risk Elderly Patients Treated With Primary Bipolar Hemiarthroplasty: Retrospective Case Series** .....68  
Dr. Nikunj Maru\*, Dr. Kishor Sayani\*\*
- \* **Role of ultrasonography in evaluation of orbital lesions.** .....73  
Dr. Hemang D. Chaudhari\*, Dr. Gurudatt N. Thakkar\*\*\*, Dr. Viplav S. Gandhi\*\*, Dr. Parth J. Darji\*, Dr. Hiral K. Banker\*,  
Dr. Hemadri Rajwadi

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# I.M.A. G.S.B. NEWS BULLETIN (Gujarat Medical Journal)

Vol. : 68

DECEMBER-2013

Issue : 2

- \* **A Study of Prevalence of Hypertension in School Children** .....79  
Dr. Banker Chirag A\*, Dr Jitesh Chavda\*\*, Dr Khyati M. Kakkad\*\*\*, Dr Panchsilla Damor\*\*\*\*
- \* **Study of Incidence of Helicobacter Organisms in Cases of Gastritis**.....91  
Dr. Moxda S. Patel\*, Dr. Alpa A. Shah\*\*, Dr. Himanshu P. Patel\*\*\*, Dr. Deepak S. Joshi \*\*\*\*
- \* **Study of Incidence of Congenital Anomalies In New Borns** .....97  
Dr. Kanan Shah\*, Dr. C.A.Pensi\*\*

## RESEARCH ARTICLE

- \* **Study of Feto-Maternal outcome of Teenage Pregnancy at Tertiary Care Hospital** .....100  
Dr Rajal V Thaker\*, Dr Mian V Panchal\*\*, Dr Rupa C Vyas\*\*\*, Dr Sapana R Shah\*, Dr Parul T Shah\*\*\*\*, Dr Kruti J Deliwala\*\*\*

## CASE REPORT

- \* **Anesthetic management for emergency caesarean hysterectomy in a patient with placenta accreta**.....104  
Smita R. Engineer\*, Chirag Patel\*\*, Mrunalini Patel\*\*, B. J. Shah\*\*\*
- \* **Peutz-Jeghers syndrome**.....106  
Swati B. Parikh\*, Biren J. Parikh\*\*, Hitesh A. Prajapati\*\*\*, C.K. Shah\*\*\*\*, N.R. Shah \*\*\*\*
- \* **Rupture of uterus at 14 weeks pregnancy with adherent placenta- a rare case reportancy " in a rural based tertiary care hospital"** .....109  
Nipa Modi\*, S.B Vaishnav\*\*, Nitin S. Raithatha\*
- \* **A Case of Severe Carbon Monoxide Poisoning Due to Gas Geyser with Cerebeller Involvement**.....111  
Dr Heli S Shah\*, Dr. Shailesh H Darji\*\*, Dr Krunal Padhiyar\*\*\*, Dr Amit P Bhatt\*\*\*\*, Dr Sudhir V shah\*\*\*\*\*
- \* **Goodpasture's Syndrome with Immune Thrombocytopenia: An unusual "Autoimmune Mosaic"** .....113  
Dr. Tripathi Sanjay B.\*, Dr. Kapadia Vishakha K.\*\*, Dr. Jethawa Ashish R. \*\*\*
- \* **Giant Gluteal Pleomorphic Liposarcoma – A rarity**.....115  
Dr. Vikas Bathla\*, Dr. Pukur Thekdi\*\*, Dr. Yogendra D. Shah\*\*\*, Dr. Mukesh Kothari\*\*\*\*, Dr. Archit Patel\*\*\*\*\*,  
Dr. Parth Nathwani\*\*\*\*\*
- \* **Midgut malrotation with incidental nutcracker syndrome in adulthood : case report and literature review** .....118  
Dr. Harish N. Raheja\*, Dr. Hasmukh B. Vora\*\*, Dr. Mahendra S. Bhavsar\*\*\*
- \* **A Case Series of Gestational Trophoblastic Tumor - Benign Mole To Life Threatening Perforating Mole**.....121  
C. S. Vyas\*, M.P. Patel\*, Amar Kukhi\*\*, S.B. Vaishnav\*\*\*
- \* **Congenital Intra-hepatic Porto-systemic Venous Shunt in an adult male**.....124  
Dr. Megha Sanghvi\*, Dr. Yashpal Rana\*\*, Dr. Hemant Patel\*\*\*
- \* **Mandatory Submission Form**.....127
- \* **Instruction of Authors**.....128

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## REVIEW ARTICLE

### Role of PET scan in Clinical Practice

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The Gujarat Cancer and Research Institute\*\*\*, Gujarat Cancer Society\*\*\*

**KEY WORDS :** PET scan, FDG, metastases

#### ABSTRACT

PET scan is an emerging image modality in clinical practice and especially useful for cancer cases. The principal clinical applications, benefits and shortcomings of this imaging technique are reviewed here.

#### INTRODUCTION

Noninvasive imaging is of fundamental and increasing importance in the daily management of the patient in clinical practice. This especially holds true in cancer patients as morbidity is more in such patients and objective imaging tests are required to be used at different times during the course of the disease to monitor disease staging, prognosis, efficacy (or lack of efficacy) of treatment. PET scan is a newer modality of imaging with increasingly newer applications more so in cancer patients.

#### Principles of operation

Positron emission tomography (PET) is a nuclear medical imaging technique that produces a three-dimensional image or picture of functional processes in the body.<sup>1</sup> The system detects pairs of gamma rays emitted indirectly by a positron-emitting radionuclide (tracer), which is introduced into the body on a biologically active molecule. Three-dimensional images of tracer concentration within the body are then constructed by computer analysis. In modern scanners, three dimensional imaging is often accomplished with the aid of a CT scan performed on the patient during the same session, in the same machine.

If radiotracer chosen for PET is FDG, an analogue of glucose, the concentrations of tracer imaged will indicate tissue metabolic activity by virtue of the regional glucose uptake.<sup>2</sup> Using this tracer to explore the possibility of cancer metastasis (i.e., spreading to other sites) is the most common type of PET scan in standard medical care (90%). Now, many other radiotracers are used in PET to image the tissue concentration of many other types of molecules of interest.

#### Clinical Applications

PET is both a medical and research tool. Main clinical fields of PET scan are oncology, cardiology, and neurology.

#### Non oncological applications :

Neurological applications

Presurgical assessment of medically refractory complex partial seizures where MR is normal, equivocal or conflicts with EEG localization

Evaluation of memory loss/neurological signs suggestive of dementia and differentiation of types of dementia in selected patients.

Cardiological indications :

- Assessment of myocardial viability in patients with ischemic heart failure and poor left ventricular function being considered for revascularization, usually in combination with perfusion imaging with sestamibi/tetrofosmin or ammonia/rubidium.

Infection imaging :

- Detection of site of focal infection in immune compromised patients or problematic cases of infection
- Evaluation of vascular graft infection in selected cases

Pyrexia of unknown origin (PUO) :

- To identify the cause of a PUO where conventional investigations have not revealed a source.

#### Oncology applications :

Brain

- To differentiate between tumor recurrence and radiation necrosis in patients treated previously with cranial irradiation.
- Identifying the grade of malignancy where there is uncertainty on anatomical imaging and functional assessment would assist biopsy.<sup>3</sup>

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- Assessment of suspected high grade transformation in low grade glioma.
- Differentiation of cerebral tumor from atypical infection in immunocompromised patients with indeterminate lesions on MR/CT.

#### Head and neck tumors

- Staging of patients where staging is difficult clinically or where there is uncertainty on other imaging or equivocal findings that would preclude radical treatment
- Staging or restaging of patients with a high risk of disseminated disease such as advanced loco regional disease and primary sites with a high propensity for disseminated disease such as nasopharyngeal cancer.<sup>4</sup>
- To identify the primary site in patients presenting with metastatic carcinoma in cervical lymph nodes, with no primary site identified on other imaging.
- Response assessment 3-6 months post chemoradiotherapy in patients with residual masses following treatment.
- To differentiate between radiation induced edematous changes versus active tumor tissue.
- To rule out metastatic disease in locally advanced cancer before major operative procedure.

#### Lymphoma

- Staging of patients with Hodgkin's disease (HD) and Non Hodgkin's lymphoma (NHL) and as baseline for comparison with treatment response scan.<sup>5</sup>
- Interim and end of treatment response assessment of patients with HD and aggressive NHL.
- Evaluation of suspected relapse for FDG avid lymphomas in symptomatic patient.
- Staging of suspected post transplant lymphoproliferative disorder (PTLD).
- Prior to bone marrow transplant to assess volume of disease and suitability for transplant
- To determine extent and identify a suitable biopsy site in patients with low grade lymphomas in whom there is suspected high grade transformation.

#### Lung carcinoma

- Staging of patients considered for radical treatment of non-small cell lung cancer especially mediastinal nodes <1 cm on CT or mediastinal nodes between 1–2 cm on CT or equivocal lesions that might represent metastases such as adrenal enlargement.<sup>6</sup>
- Characterization of a solitary pulmonary nodule

- Especially in the case of failed biopsy, a technically difficult biopsy or where there is a significant risk of a pneumothorax in patients with medical co morbidities
- Assessment of suspected disease recurrence
- To differentiate between treatment effects and recurrent cancer
- Staging of patients with small cell lung cancer with limited disease on CT being considered for radical therapy.
- Pleural malignancy
- To guide biopsy in patients with suspected pleural malignancy
- To exclude extra-thoracic disease in proven mesothelioma in patients considered for multimodality treatment including radical surgery/decortication.

#### Breast carcinoma

- Assessment of multi focal disease or suspected recurrence in breast cancer.<sup>7</sup>
- Differentiation of treatment induced brachial plexopathy from tumour infiltration in symptomatic patients with an equivocal or normal MR.
- Assessment of extent of disease in selected patients with disseminated breast cancer before therapy.
- Assessment of response to chemotherapy in patients whose disease is not well demonstrated using other techniques; for example, bone metastases

#### Hepatopancreaticobiliary cancers

- Staging of potentially operable primary hepatobiliary or pancreatic malignancy (cholangiocarcinoma, gallbladder carcinoma or hepatocellular carcinoma) where cross sectional imaging is equivocal for metastatic disease, who are fit for resection and a positive PET-CT would lead to a decision not to operate.<sup>8</sup>
- Suspected recurrence of hepato-pancreaticobiliary cancer in selected patients, where other imaging is equivocal or negative.

#### Colorectal carcinoma

- Staging of patients with synchronous metastases at presentation suitable for resection or patients with equivocal findings on other imaging; for example, pulmonary or liver lesions.<sup>9</sup>



- Restaging of patients with recurrence being considered for radical treatment and/or metastectomy
- Detection of recurrence in patients with rising tumour markers and/or clinical suspicion of recurrence
- Evaluation of indeterminate presacral masses post treatment.

#### Thymic carcinoma

- Staging of patients considered for surgical resection
- Assessment of indeterminate thymic lesions if being considered for radical treatment

#### Oesophagogastric carcinoma

- Staging/restaging of patients with oesophageal or oesophago gastric carcinoma, suitable for radical treatment, including patients who have received neo adjuvant treatment.<sup>10</sup>
- Evaluation of suspected recurrence of oesophagogastric tumours when other imaging is negative or equivocal

#### Gastrointestinal stromal tumours

- Staging prior to treatment in patients who are likely to require systemic therapy
- Response assessment to systemic therapy

#### Kidney and ureter

- Assessment of metastatic renal and ureteric carcinoma in difficult management situations or when standard imaging is inconclusive
- Assessment of renal carcinoma at staging in selected cases with equivocal findings on other imaging (recognizing that ~50% of renal cell carcinoma may not be FDG avid and that the tracer is excreted into the urinary tract)

#### Gynaecological malignancy

- Staging or restaging of patients with uterine carcinoma (cervix/endometrium) considered for exenterative surgery
- Staging of patients with cervical cancer suspected of having locally advanced disease with suspicious findings such as abnormal pelvic nodes on MR or at high risk of paraaortic nodal or distant metastatic disease.<sup>11</sup>
- Suspected recurrence of endometrial and/or cervical carcinoma when other imaging is inconclusive.

#### Myeloma

- Assessment of patients with apparently solitary plasmacytoma or patients with ambiguous lytic lesions on skeletal survey.<sup>12</sup>
- Suspected relapse in patients with non-secretory myeloma or predominantly extramedullary disease.

#### Skin tumours

- Staging and assessment for distant disease in patients with melanoma when radical dissection is contemplated (nodal or metastatic disease).
- To exclude primary malignancy where dermatomyositis is suspected to represent paraneoplastic manifestation.

#### Musculoskeletal tumours

- Assessment of suspected malignant transformation within plexiform neurofibromas in patients with neurofibromatosis type 1
- Staging of high grade sarcomas, unless already proven to have metastatic disease, especially Ewing's sarcoma, rhabdomyosarcoma, leiomyosarcoma, osteosarcoma, malignant fibrous histiocytoma, synovial sarcoma and myxoid liposarcoma.<sup>13</sup>
- Pre-amputation in the setting of a high grade sarcoma where the detection of distant disease will alter the surgical management
- To stage patients with metastatic sarcoma considered for liver or lung metastectomy where anatomical imaging has not identified any extra thoracic or extra hepatic disease which would preclude surgery
- Response assessment in high grade sarcomas

#### Paraneoplastic syndromes

- To detect an occult primary tumour in selected patients with non metastatic manifestations of neoplastic disease when other imaging is negative or equivocal

#### Carcinoma of unknown primary

- Detection of the primary site when imaging and histopathology has failed to show a primary site, where the site of tumor will influence choice of chemotherapy.

#### Neuroendocrine tumours

- Staging or restaging of selected patients with poorly differentiated neuroendocrine tumours prior to treatment with negative or normal metaiodobenzylguanidine (MIBG) and octreotide scans.<sup>14</sup>

- Assessment of possible multifocal disease in patients with paraganglioma considered for surgery
- Staging and response assessment of osteosarcoma and Ewing's sarcoma in patients with negative bone scintigraphy

PET CT may be helpful in paediatric or adolescent patients with Wilms' tumours, MIBG negative neuroblastoma, Hepatoblastoma, Langerhans' cell histiocytosis.

### Benefits and shortcomings

MRI and FDG-PET scan imaging serve to identify primary or metastatic or paraneoplastic disease and monitor response to therapy.

For most malignancies, FDG-PET will be helpful in the setting of suspected or proven recurrence. Its utility in the primary setting depends on the availability and information derived from structural imaging studies.

Some primary malignancies show relatively low uptake of FDG, which reflects their low glucose metabolism, lower expression of glucose transporters, a high rate of FDG dephosphorylation (e.g., hepatocellular carcinoma), and the histologic composition of the lesion.

Most well-differentiated malignant tumors, including differentiated, iodine-avid thyroid cancer, many primary prostate and renal cancers, also show low FDG uptake.<sup>15</sup> Indolent lymphomas also show relatively low FDG uptake. As these malignancies become more aggressive and clinical disease progresses, they will become detectable on FDG PET, and it can then help in monitoring the response to chemotherapy or experimental therapies (e.g., in castration-resistant metastatic prostate cancer) and also provide prognostic information.

As the normal brain metabolizes glucose almost exclusively as a fuel, FDG uptake will be high. Thus, tumors with glucose metabolism lower than or even equal to that in normal cortex (e.g., low-grade astrocytomas) may not be detected on FDG PET.

False-positive findings may occur due to increased glucose metabolism and FDG uptake within brown adipose tissue,<sup>16</sup> a normal variant, in various granulomatous diseases such as sarcoidosis, in some benign tumors (e.g., paragangliomas, benign bone lesions such as eosinophilic granuloma, nonossifying fibroma, Paget's disease), at sites of infection, or in nonspecific inflammation. The latter sometimes presents a problem when PET imaging is done too early (earlier than 10 weeks) after the end of radiation or chemoradiation therapy.

## CONCLUSION

PET scan with its widespread applications has emerged as an indispensable tool in the detection, staging, treatment monitoring, and identification of recurrent disease in a large number of malignancies.

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**Pregnancy And General Surgery****Dr. Babu S. Patel\***

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**KEY WORDS** : Spinal anesthesia, Intrathecal Clonidine, Postoperative analgesia

About 0.75-2% of pregnant women undergo non obstetric surgery during their pregnancy. Changes in maternal-fetal physiology, the enlarging gestation, and changes in maternal organ placement can make diagnosis and treatment challenging<sup>1</sup>.

Although the decision to operate may at times seem complicated, it can be simplified. According to Dr. J. M. T. Finney, there are only three valid reasons to operate<sup>2</sup>:

1. To save life (haemorrhage, peritonitis)
2. To relieve suffering (cholelithiasis, cancers)
3. To correct significant anatomical deformities (Intestinal obstruction, stones)

The most common non obstetrical surgical emergencies complicating pregnancy are acute appendicitis, cholecystitis, intestinal obstruction, incision and drainage of pus, dental problems, vehicular and other injuries and burns. Other conditions that may require surgery during pregnancy include ovarian cysts, masses or torsion, symptomatic cholelithiasis, adrenal tumors, splenic disorders, etc.

Acute appendicitis occurs with the same frequency in gravid and non gravid females of the same age and is the most common cause of acute surgical abdomen during pregnancy, leading to appendectomy in 1 out of every 2000 pregnancies. Diagnostic delay and subsequent appendiceal perforation is the cause of preterm labor and fetal loss in as many as 35% of cases<sup>3, 4</sup>. When appendicitis is suspected, the decision to operate should be based on clinical grounds, just as in the non pregnant patient.

Symptomatic cholelithiasis is the second most common non gynecological condition requiring surgery during pregnancy. Many studies have shown that multiparty and abnormal gallbladder motility during pregnancy increase the risk of developing gallstones. The management of cholelithiasis is controversial in terms of surgery versus medical. Those with obstructive jaundice, acute cholecystitis failing medical management, gallstone pancreatitis, or suspected peritonitis should be treated surgically<sup>5</sup>.

Choledocholithiasis accounts for only 5% of jaundice during pregnancy and is seen in less than 10% of all

pregnant patients undergoing cholecystectomy<sup>6</sup>. These patients may be managed with ERCP (Endoscopic Retrograde Cholangio Pancreato-graphy) and ES (Endoscopic Surgery) in all three trimesters with no increase in fetal morbidity or mortality or congenital abnormalities<sup>7</sup>. Pancreatitis during pregnancy is rare, occurring in 0.05% of all pregnancies<sup>8</sup>. Gallstones account for over 90% of pancreatitis seen in the pregnant patient.

Urolithiasis is commonly encountered during pregnancy. The risk during pregnancy ranges from 0.03% to 0.53%<sup>9</sup>. Pregnancy results in numerous normal anatomic and physiologic changes that may increase the risk for renal stone formation. When conservative therapy fails patient should be considered for the appropriate line of management depending on the site of stone. In modern surgical approach if the stone is proximal, the preferred way is diversionary procedure- ureteral stent placement and percutaneous nephrostomy. Ureteroscopy has become popular treatment modality for distal stone.

**Diagnostic Imaging**

In certain situations, diagnostic radiology is an unavoidable part of evaluation of the pregnant surgical patient and the benefits should be weighed against an accurate assessment of risk. Although there is a concern about teratogenicity of exposure from 5-10 rad, serious risk to the fetus is known to occur only above 10 rad<sup>10</sup>.

ACOG has issued the following guidelines concerning the use of an X-ray examination or exposure during pregnancy.

- Exposure to less than 5 rads has not been associated with an increase in fetal anomalies or pregnancy loss.
- Concern about possible effects of ionizing radiation exposure should not prevent medically indicated diagnostic X-ray procedures from being performed on a pregnant woman.
- During pregnancy, other imaging procedures not associated with ionizing radiation should be considered instead of X-rays when appropriate.

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## Maternal and Fetal Risks

The safe time to operate on the pregnant patient is during the second trimester, when the risks of teratogenesis, miscarriage, and the preterm delivery are lowest<sup>11</sup>. The abortion rate is highest in the first trimester (12%). During the second trimester, there is about 5% to 8% rate of preterm delivery, which increases to 30% of all pregnant patients undergoing non gynecological surgery in the third trimester. Finally the gravid uterus in the second trimester is not yet large enough to obscure the operative field, as occurs in the third trimester. Pregnancy itself does not increase the risk of surgical maternal mortality, rather morbidity and mortality are increased when the correct diagnosis is missed, when surgery is delayed, or when postoperative complications occur. This can increase the maternal mortality rate to as high as 15% and the fetal loss rate up to 60%, which is usually caused by maternal hypoxia and hypotension.

## Fetal Considerations

Fetus is a hidden patient in the womb of the pregnant female and its health should be considered by surgeon and anesthetist both. Some points should be kept in mind<sup>11</sup>:

- Maintain uteroplacental blood flow and oxygenation. Decreased uteroplacental blood flow may be due to maternal hypotension or increase in uterine artery resistance.
- Avoid teratogenic drugs during anesthesia. Diazepam and nitrous oxide are considered safe during pregnancy as no teratogenicity has been detected.
- Avoid preterm labor. Manipulation of uterus should be minimum possible.

## Fetal Monitoring during Surgery

- Intermittent or continuous fetal heart monitoring should be considered.
- Tran abdominal monitoring may not be possible during abdominal procedures or when the mother is very obese. A vaginal probe may be considered in selected cases.
- Loss of beat to beat variability and decreased baseline FHR are common after administration of anesthetic agents but decelerations suggest fetal hypoxemia.
- An unexplained change in FHR mandates evaluation of maternal position, blood pressure, oxygenation, acid-base status, and inspection of the surgical site to ensure that neither surgeons nor retractors are impairing uterine perfusion. Monitor maternal temperature perioperatively.

- A multidisciplinary plan is necessary in the event of persistent fetal distress, e.g., performing an emergency caesarean delivery.
- Tocolytics should not be used prophylactically, but when signs of preterm labor are present in coordination with obstetric consultation.

## Laparoscopy in Pregnancy

Laparoscopic procedures such as diagnostic laparoscopy, adnexal surgery, appendectomy, splenectomy, cholecystectomy and management of ectopic and heterotrophic pregnancies are relatively safe and effective during pregnancy, if certain precautions are taken.

## Pneumoperitoneum during Pregnancy

In pregnant patient the pneumoperitoneum increases the intra-abdominal pressure and this causes decreased inferior venacaval return to the heart, hence decreased cardiac output. This also leads to decreased uterine blood flow in turn cause fetal hypoxia and fetal death. Pneumoperitoneum decreases the diaphragmatic movement and causes increase in peak airway pressure, decrease in functional reserve capacity, increased ventilation perfusion mismatch, decreased thoracic compliance and increased pleural pressure. CO<sub>2</sub> used during pregnancy gets absorbed across the peritoneum and leads to respiratory acidosis in patient and her fetus<sup>12</sup>.

## Precautions for safe Laparoscopic Surgery during Pregnancy<sup>2</sup>

- Surgery should be done in second trimester. In third trimester, surgery should be postponed if possible until after delivery.
- Nasogastric incubation is a must in all cases to prevent aspiration into lungs.
- Dorsal lithotomy position in first half of pregnancy is safe, but in second half, to prevent inferior venacaval compression, lateral recumbent position is ideal.
- Hypotension should be avoided and proper fluid replacement should be done.
- Ideal method of commencing pneumoperitoneum is open Hasson trocar method.
- Tocolysis is indicated if signs of uterine irritability are present.
- Decrease operation time by using adequate number of ports and most experienced surgeon.
- Maternal hyperventilation to maintain end-tidal CO<sub>2</sub> pressure at 32 mmHg.
- Lower CO<sub>2</sub> insufflation pressure of less than 12 mmHg to avoid fetal acidosis.

- Electrocautery should be used with care and the smokes containing carbon monoxide should be evacuated promptly to avoid fetal acidosis.
- Entry of all instruments should be under direct vision to avoid injury to uterus.
- All specimens should be removed with endobag to avoid spillage.
- Manipulators should never be fixed to cervix or vagina.

### **Postoperative Care**

The FHR and uterine activity should be monitored during recovery from anesthesia. Adequate analgesia should be obtained with systemic or spinal opioids. Regional anesthesia may be preferable because systemic opioids may reduce FHR variability. The routine and prolonged use of non steroidal anti-inflammatory drugs is avoided because of potential fetal effects (e.g. premature closure of ductus arteriosus and development of oligohydramnios). Early mobilization and venous thrombosis prophylaxis should be considered as patients are at risk of thromboembolism.

### **Counselling and Reassurance**

A pregnant patient requiring surgery will naturally be extremely nervous and anxious. The patient should be reassured about the safety of anesthesia but should also be warned about the increased risk of first trimester abortions and premature delivery. It is important to document details of the risk discussed in the patient's records.

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## ORIGINAL ARTICLE

# Comparison of Misoprostol and Dinoprostone for elective induction of labor in nulliparous women at full term pregnancy.

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**KEY WORDS :** Misoprostol, dinoprostone, Induction of labor.

### ABSTRACT :

#### Background

Success of labor induction depends largely on the favorability of the cervix at the onset of induction. When the cervix is unfavorable, induction attempts may fail, resulting in prolonged labor and caesarean delivery. These lengthen hospitalization and increase medical cost. In the 1960s, successful induction was observed in 96% of women having favorable cervixes but only in 63% of those having unfavorable cervixes

#### Objective

The objective of this randomized prospective study was to compare the efficacy of vaginal misoprostol 25 mcg every four hours and 0.5 mg dinoprostone, administered every eight hours for a maximum of three doses, for elective induction of labor in a specific cohort of nulliparous women with an unfavorable cervix and more than 40 weeks of gestation.

#### Material and Methods

One hundred pregnant women with more than 285 days of gestation were recruited and analyzed. Primary outcome was number of women who achieved favorable Bishop Score >5 or active labor by day 2. Secondary outcomes were time interval from insertion to delivery, cardiotocographic abnormalities, delivery and neonatal outcome

#### Results

The induction-delivery interval was significantly lower in the misoprostol group than in the dinoprostone group (12.4 h vs. 16.2 h,  $p < 0.001$ ). With misoprostol, more women delivered within 12 hours (60% vs. 32%,  $p < 0.01$ ) and 24 hours (98% vs. 92%,  $p < 0.05$ ), spontaneous rupture of the membranes occurred more frequently (34% vs. 20%,  $p < 0.05$ ), there was less need for oxytocin augmentation (64% vs. 84%,  $p < 0.05$ ) and fewer additional doses were required (6% vs. 20%,  $p < 0.05$ ). Although not statistically significant, a lower Caesarean section (CS) rate was observed with misoprostol (8% vs. 12%,  $p > 0.05$ ) but with the disadvantage of higher abnormal fetal heart rate (FHR) tracings (26% vs. 12%,  $p > 0.05$ ). From the misoprostol group more neonates were admitted to the intensive neonatal unit, than from the dinoprostone group (14% vs. 6%,  $p > 0.05$ ).

#### Conclusions

Vaginal misoprostol, compared with dinoprostone in the regimens used, is more effective in elective inductions of labor beyond 40 weeks of gestation. Nevertheless, this is at the expense of more abnormal FHR tracings and more admissions to the neonatal unit, indicating that the faster approach is not necessarily the better approach to childbirth.

## INTRODUCTION

Induction of labor is carried out for maternal and fetal indications. In the absence of a ripe or favorable cervix, a successful vaginal birth is less likely. Therefore, cervical ripening or preparedness for induction should be assessed before a regimen is selected. Assessment is accomplished by calculating a Bishop score. When the Bishop score is less than 6, it is recommended that a cervical ripening agent be used before labor induction. Among various methods, only the mechanical and surgical methods have proven efficacy for cervical ripening or induction of labor. Pharmacologic agents available for cervical ripening and labor induction include prostaglandins, misoprostol, mifepristone, and relaxin. When the Bishop score as shown in table 1 is favorable,

the preferred pharmacologic agent is oxytocin.<sup>[1]</sup>

One of the most common indications is prolonged pregnancy. An important determinant of pregnancy outcome is the timely onset of labor and birth. Prolonged gestation complicates 5% to 10% of all pregnancies and confers increased risk to both the fetus and mother.<sup>[2]</sup> Thus, there is a growing body of evidence suggesting the elective induction of labor at term gestation can reduce perinatal mortality<sup>[3]</sup>.

Prostaglandin analogues, dinoprostone (PGE<sub>2</sub>) and misoprostol (PGE<sub>1</sub>), are commonly used in "induction of labor" practice for ripening the cervix and stimulating uterine contractions in order to achieve vaginal delivery. Although dinoprostone has been approved by the FDA for cervical ripening in women at or near term, misoprostol is

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not currently approved for such use by the FDA, although it has the advantages of lower cost, no need for refrigeration and probably higher efficacy.

The Cochrane Pregnancy and Childbirth Group (2005), having reviewed 70 randomized studies, concluded that compared with vaginal prostaglandin E<sub>2</sub>, vaginal misoprostol was associated with lower epidural analgesia use and fewer failures to achieving vaginal delivery within 24 hour, but more uterine hyper stimulation as well as meconium stained fluid<sup>[4]</sup>. Uterine Hyperstimulation is a serious complication of labor induction. It is defined as single contractions lasting 2 minutes or more, or five or more contractions in a 10 minute period. It can cause impairment to uteroplacental blood flow, and result in uterine rupture, placental abruption and fetal heart rate abnormalities. Most of the studies included in the previous meta-analysis used the 50 mcg dose for misoprostol at a maximum interval of six hours between the repeated doses, always resulting in higher rates of hyperstimulation.

It is difficult to compare misoprostol with dinoprostone for induction of labor in both complicated and uncomplicated pregnancies, multipara women with nulliparous as well as a wide gestational age (GA) range (37–42 weeks). Moreover, to reduce the risk of side effects, one can either decrease the dose of the drug<sup>[5]</sup> or prolong the dosage interval.<sup>[6]</sup> In addition, Alexander et al. have recently shown that in prolonged pregnancies it was not the induction per se that would increase the risk for caesarean section (CS), but patients related risk factors such as nulliparity and unfavorable cervix and the use of epidural analgesia<sup>[7]</sup>.

This study was undertaken to compare the efficacy of vaginal misoprostol (25 mcg) administered at interval of four hours with that of vaginal dinoprostone (0.5 mg) administered at an interval of eight hours maximum three doses in nulliparous women with an unfavorable cervix and without pregnancy complications.

## MATERIAL AND METHODS

Between May 2011 and June 2012, 100 women were recruited for the study: 50 women in the misoprostol group and 50 women in the dinoprostone group. All of the women were recruited at Civil Hospital Ahmedabad, a tertiary referral center for high-risk pregnancies, with about 6000 deliveries a year. All participants gave their written informed consent after they had been made aware of the purpose of the study. Although the main indication was prolonged pregnancy, some of the inductions were performed at the patient's request after consultation at 40 weeks of gestation, (without any medical indications) and only if they had not delivered by the 285<sup>th</sup> day of gestation. The vaginal administration of prostaglandins was

performed by one of the resident doctors on duty, who was not involved in managing these women in labor or delivery.

Inclusion criteria were: 1) age > 18 years old 2) nulliparity, 3) accurate dating of gestation, including crown rump length (CRL) measurements in the first trimester of pregnancy, 4) singleton viable pregnancy, 5) gestational age  $\geq$  285 days, 6) cephalic presentation, 7) unfavorable cervical status defined as a Bishop score (BS) of  $\leq$  5, 8) intact membranes, 9) reactive non-stress test (NST).

Exclusion criteria were: 1) known contraindications to receiving prostaglandins, 2) placenta previa, 3) prior uterine surgery and 4) any antenatal complications.

Gestational age was estimated by ultrasound biometry (via CRL measurements in the first trimester of pregnancy) in cases where there was more than 3 days difference from that obtained from the last menstrual period (LMP)<sup>[8]</sup>. Uterine tachysystole was defined as more than five contractions per 10 minutes, uterine hypertonus as when one contraction lasted more than 2 minutes and hyperstimulation syndrome as the presence of non-reassuring FHR tracing combined with either tachysystole or hypertonus. Non-reassuring FHR patterns were defined as persistent or recurring episodes of severe variable decelerations, late decelerations, prolonged fetal bradycardia or a combination of decreased beat-to-beat variability and a decelerative pattern<sup>[9]</sup>.

ANST to ensure the well-being of the fetus was performed for each patient at the time of recruitment and admission to the hospital (at least 285 days of gestation) and one hour before the application of the prostaglandin. After the reassessment of the cervical Bishop Score (BS), either 25 mcg misoprostol, or 0.5 mg dinoprostone was administered in the posterior vaginal fornix. The NST was repeated one hourly. If the woman was in active labor, the membranes spontaneously ruptured or the FHR not reassuring, the patient was transferred to the labor room. Otherwise, a second BS evaluation was carried out after 4 hours in misoprostol induction group and after 8 hours in dinoprostone induction group. If the cervix was favorable, (BS  $\geq$  5), the patient was admitted to the labor ward where oxytocin augmentation was carried out if the uterine contractions were unsatisfactory and amniotomy was performed when appropriate. If the cervix was still unfavorable, a second dose of misoprostol or dinoprostone was given and the same evaluation steps as described above were followed. After a total of 8 hours in misoprostol group and 16 hours in dinoprostone group had elapsed, non-responders were given a third dose of prostaglandin. When the third dose was insufficient for initiating spontaneous labor, a trial of labor was offered with oxytocin infusion and if no progress was achieved

within 6 hours (based on digital assessment of the BS), the patient underwent a Cesarean Section.

The outcome measures were divided into "obstetrical" and "neonatal". The primary outcome measures were time from induction to delivery and incidence of vaginal delivery within 12 and 24 hours; the secondary outcomes were the Cesarean Section rate, the need for oxytocin augmentation, the incidence of meconium stained amniotic fluid, the incidence of uterine tachysystole, abnormal FHR tracings, maternal morbidity, the admission to neonatal intensive care within 24 hours and neonatal arterial cord ph, base deficit.

The Chi square test and Fisher's exact test were used to analyze nominal variables in the form of frequency tables. Normally distributed metric variables were tested by the T-test for independent samples, while non-normally distributed metric variables were analyzed by the U test. All tests were two-tailed with a confidence level of 95% (p < 0.05). Values are expressed as mean ± standard error (SEM).

## RESULTS

The two groups were comparable in terms of patients' age (28 years vs.27, p > 0.05) and indication for induction (prolonged pregnancy 82% vs.78%, p > 0.05; social 18% vs. 22 %,) in the misoprostol and dinoprostone groups, respectively. Gestational age (286 days, range: 285–292) and the preinduction BS (2.7 ± 0.1) in the misoprostol group were also comparable to the dinoprostone group (286 days, range: 285–293) and (2.9 ± 0.1), respectively.

**Table I Bishop score**

Cervix	score			
	0	1	2	3
Position	Posterior	Midposition	anterior	-
Consistency	Firm	Medium	soft	-
Effacement	0-30%	40-50%	60-70%	>80%
Dilatation	Closed	1-2 cm	3-4 cm	>5 cm
Station	-3	-2	-1, 0	+1, +2

Total score: 13, favorable score 6-13, unfavorable score 0-5.

**Table II Obstetrical Outcomes**

	Misoprostol n=50	Dinoprostone n=50	Statistical significance
Time from induction to delivery	12 hours	16 hours	P<0.001
Delivery <12h	30(60%)	16(32%)	P <0.01
Delivery <24h	49(98%)	46(92%)	P <0.05
Single dose	47(94%)	40(80%)	
Second dose	3(6%)	9(18%)	
Third dose	0	1(2%)	
Oxytocin required	32(64%)	42(84)	P<0.05

The induction-delivery interval was significantly shorter (12 h vs. 16 h, p < 0.001) in the misoprostol group, with even less need for a second or third dose (6% vs. 18%, p < 0.05) compared to dinoprostone. With misoprostol, more women delivered within 12 h (60% vs. 32%, p < 0.01) and almost all of the women delivered within 24 h (98% vs. 92%, p < 0.05). In addition, spontaneous rupture of the membranes occurred more often after the administration of misoprostol (p < 0.05) and there was a reduced need for oxytocin augmentation in labor: 64% vs. 84% with dinoprostone (p < 0.05). However, uterine tachysystole (p < 0.05) and meconium stained amniotic fluid (p > 0.05) occurred more often in the misoprostol group as did abnormal heart rate tracing (26% vs.12%, p > 0.05) (Table II).

**Table III Mode of delivery and indications for Cesarean section**

	Misoprostol n=50	Dinoprostone n=50
Vaginal	46(92%)	44(88%)
Spontaneous	30(60%)	34(68%)
instrumental	16(32%)	10(20%)
Caesarean section	4(8%)	6(12%)
Non reassuring FHR	3(6%)	2(4%)
Failed induction	0	3(6%)
Cephalopelvic disproportion	1(2%)	0
Others	0	1(2%)

In both groups, the majority of women had vaginal delivery, 92% with misoprostol, and 88% with dinoprostone. There was no statistically significant difference between the two groups with regard to the Cesarean Section rate (Table III). There were no uterine ruptures or other major maternal complications resulting from the use of either of the prostaglandins. One woman in each group had delayed discharge due to persistent pyrexia.

**Table IV Neonatal outcome**

	Misoprostol n=50	Dinoprostone n=50
Birth weight	2.7 kg	2.8 kg
Neonatal resuscitation	6(12%)	5(10%)
O2 supplementation	4(8%)	3(6%)
Ambu ventilation	1(2%)	2(4%)
Intubation	1(2%)	0
Apgar score <7 at 1 min	6(12%)	3(6%)
Hyperbilirubinemia	5(10%)	3(6%)
Birth trauma	0	1(2%)
Perinatal death	0	1(2%)



More neonates in the misoprostol group had first minute Apgar scores lower than 7 (12% vs. 6%,  $p > 0.05$ ), or needed neonatal resuscitation (12% vs. 10%,  $p > 0.05$ ) but none of the babies had birth asphyxia. One neonate had meconium aspiration syndrome in misoprostol group. One neonate in the dinoprostone group had clavicle fracture (Table IV). One perinatal death occurred in dinoprostone group due to congenital heart disease.

**Table V Admission to Neonatal Intensive Care Unit (NICU)**

	Misoprostol	Dinoprostone
Admission to NICU	3(6%)	2(4%)

There was no statistically significant difference in the number of neonates admitted to neonatal intensive care within 24 hours after delivery, between the misoprostol and dinoprostone groups (6% vs. 4%  $p > 0.05$ ) (Table V).

### DISCUSSION

Nowadays, induction of labor is more widely used than ever before. Recent studies have shown that this increase is mainly due to a rise of inductions for marginal or elective reasons. The common indications are elective induction and postdate pregnancy often applied to gestations of 40 to 41 weeks<sup>[10]</sup>. Women may experience distress when labor has not started by the expected date and obstetricians have to withstand pressure from these patients as well as the temptation to use prostaglandins earlier. Appropriate evaluation of the pregnancy and consultation with such patients will lead to the correct selection of those who will benefit most from a labor induction, thus eliminating the risk of post-maturity to the fetus without inducing fetal distress during labor.

To the best of our knowledge, the present study is the only one that compares misoprostol and dinoprostone in such well-homogenized groups. All of the women were nulliparous with intact membranes and at more than forty weeks' gestation with no antenatal complications and all had an unfavorable cervix. In these carefully selected patients, misoprostol at the dose used not only shortened the time between induction and delivery (6vs. 12h), but it also was significantly more effective than dinoprostone. The positive point was that this result was achieved with a very low CS rate even in the dinoprostone group, (8%, and 12%), respectively. A difference of 4% in favor of misoprostol, although not statistically significant, might have clinical importance in terms of patient health and cost effectiveness. The comparative study done by kulshreshtha et al. in 2007 show that mean induction of labor initiation interval was 2.08 +/- 1.46 hours in study group and 2.21 +/- 1.20 hours in dinoprostone group. The Induction delivery interval was 6.92 +/- 4.01 hours in misoprostol group and 12.54 +/- 7.73 in dinoprostone

group, whereas vaginal route of delivery was 95% in misoprostol group and 85% in dinoprostone group. Average dosages required were 1.55 +/- 1.02 in misoprostol group and 1.30 +/- 0.46 in dinoprostone group. All these result were statistically significant.<sup>[11]</sup>

Even though misoprostol improves the kinetics of labor during induction in a more efficient way than dinoprostone, concerns persist with respect to intrapartum fetal "wellbeing". In order to avoid uterine hyperstimulation and abnormal FHR tracings, we used an 8 h interval between the prostaglandin doses. Although we indeed achieved a low rate of uterine hyperstimulation syndrome (4% with misoprostol and 2% with dinoprostone, respectively), we still noticed a trend towards a high rate of abnormal FHR tracings during induction with misoprostol. Our findings, in accordance with the previous Cochrane metanalysis<sup>[12]</sup>, showed that with misoprostol there was an increased probability of meconium staining of amniotic fluid as well as of uterine tachysystole and of abnormal FHR tracings. In the misoprostol group, the majority of women also underwent either a CS or a vacuum operative delivery due to non-reassuring FHR. If neonatal outcomes such as neonatal resuscitation, low Apgar score in the first minute and admittance to the neonatal unit within the first 24 hours (none of the above were statistically significant but they were more frequent with misoprostol) are taken into account, misoprostol may increase these complications in labor. Thus, although our sample size cannot determine safety, misoprostol use is associated with a higher chance of admittance to the neonatal unit within 24 hours even in the absence of asphyxia. This evidence indicates that the faster approach to childbirth is not necessarily the better one.

Attempting an explanation to the aforementioned side effects of misoprostol use, it appears that the increase in clinically relevant adverse effects is not only misoprostol related but it may be dose dependent. Lyons et al. have recently shown in term pregnant rats that a higher dose of misoprostol is needed to induce PGE2 secretion in the cervix than in the myometrium, and furthermore that EP3 receptors (prostaglandin E2 receptors) are differentially expressed in the myometrium (increased) than in the cervix (unaltered) in response to misoprostol<sup>[13]</sup>. The above findings indicate that misoprostol not only acts better on the myometrium than on the cervix, but an even higher dose is needed in order to ripen the cervix. Thus, it seems reasonable that increasing the interval between repeated misoprostol doses should reduce the risk of an asynchrony between a well or even hyper-stimulated uterus and a still not efficiently ripened cervix. Misoprostol probably has a large inter-patient variability in terms of pharmacokinetics, but it is also probable that the 50 mcg dosage may induce asynchrony between immature cervix

effacement and uterine contractions, resulting in a more rapid but also more "stressful" labor. Based on these findings, we propose, a slight modification of the misoprostol protocol used in this study. An initial lower dose of misoprostol (20–25 mcg), followed by 50 mcg should be considered in trying to achieve priming of the cervix without inducing such high uterine contractility and neonatal complications.

It still has to be mentioned that in many of our participants, the vertex was not engaged in the pelvic inlet on the day of admittance and this should have been included as an independent risk factor in the initial study design. There is a need for continuous FHR monitoring during labor induction if regular uterine contractions persist.

### CONCLUSIONS

To conclude, vaginal misoprostol appears to be more effective in inducing labor than conventional methods of cervical ripening and labor induction. 25 mcg misoprostol at a 4 hourly interval is more highly effective in promoting cervical ripening and in inducing labor. However, certain aspects concerning fetal well being during labor induction remain questionable. The apparent increase in uterine hyperstimulation is of concern. The studies were not large enough to exclude the possibility of rare but serious adverse effects, particularly uterine rupture, which has been reported following misoprostol use. Larger prospective studies comparing elective induction to expectant management after a completed 40-week gestation might reveal a subgroup of women, such as nulliparous with an unfavorable cervix, who might benefit from an elective induction, preferably with a 25 mcg misoprostol initial dose.

### ACKNOWLEDGEMENTS

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## ORIGINAL ARTICLE

# Awareness of Ergonomic Guidelines regarding laparoscopic surgeries, its Practice among Surgeons and Comfort level during and after surgery

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**KEY WORDS :** (1) Ergonomic guideline practice. (2) Surgeons comfort. (3) Eye-hand-target axis alignment.

### ABSTRACT

Study is conducted among the surgeons of various fields like digestive, urological, gynaecological, and thoracic, in three medical colleges at ahmedabad, india.

80 questionnaire were sent out of these 50 surgeons responded with respondent rate of 62.5%. mean duration of laparoscopic surgery practice of above surgeons is 7.8 years.

64% surgeons are aware about the ergonomic guideline regarding laparoscopic surgery, but the practice of it in terms of operating surface (table) height and monitor height is lower.

54% and 4% surgeons are following the guideline in operating surface height and monitor height respectively, this is likely to be related with adjustable operating surface height considering particular surgery and built of the patient and placement of monitor on the cart which have fixed height from the floor.

66% surgeons reported arm and shoulder pain while 32% reported neck pain during or after surgery, but no one need medication for it except one who develop trapezitis .

64% surgeons are often using the 14 inch monitor size while 36%, 26 inch size, among these 82% are comfortable with 26 inch size monitor.

### INTRODUCTION

Minimally invasive surgery (MIS) is being widely used in various fields of surgery like digestive, urological, thoracic, gynaecological etc. Minimal invasive surgery is technically more demanding and need more concentration to perform the task than open surgery. Ergonomic integration and suitable laparoscopic operating room environment are essential to improve efficiency, safety, and comfort for operating team(1).

Follow of ergonomic principles are require for better work results in fields which demand productivity. Word ERGONOMIC originate from greek word ergon (labor) and nomog(natural law) that reveal 'knowledge concerning the law of human labour'(2).

Follow of suboptimal ergonomic principles expose surgeons to physical discomfort during and after laparoscopic surgery(3).

HAWTHORNE EFFECT- which has been found applicable to most scientific assessment of human function and hence an integral knowledge of this aspect is essential for ergonomic purposes(4).

Sensorial ergonomics, manipulation and visualisation improve precision, dexterity and confidence while physical provide comfort for surgeons. Together these two elements of ergonomics improve safety, have better outcome and reduce the stress(5).

Proper design of instruments and operating room is critical to avoid human error during MIS(6). During MIS, surgeons hold posture that is more static than in open surgery likely to related with indirect vision, less efficient instruments and mentally merging separate visual and mechanical coordinate system in real time. Static postures have been demonstrated more disabling and harmful than dynamic one because the muscles and tendons form lactic acid and toxins when held in static position (7).

Goal of proper posture is comfort, efficiency of movements and minimization of the risk of musculoskeletal injuries to the surgeons (6).

Ability to achieve this goal is determined by :

1. Height of the operating surface (table)
2. Position of visual display (monitor)

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3. Foot pedal location

4. Selection of hand instruments

Optimal height of operating surface is must for the 'EYE-HAND-TARGET AXIS' alignment. If operating surface is high, the body unconsciously compensates by elevating the ipsilateral shoulder. This restores the right angle at the elbow but produce and undue amount of strain at the shoulder and arm. The surgeon usually is unaware of this and has no discomfort during short duration surgeries. But if the surgery is prolonged, neck, arm and shoulder strain develop. The obvious solution is to lower the operating surface till a comfortable height achieved. Studies have shown that optimal height of instrument handle is at elbow height or 5 cm above it(8).

Table height = surgeon's height\*0.49

Optimum operating surface height is must for the proper port placement along with the task performance. Ports are introduced by keeping in mind BASEBALL-DIAMOND CONCEPT (9).

1. Telescope fixation between working instruments
2. Maintain elevation angle of 30 degree
3. Maintain manipulation angle 60 degree
4. Maintain azimuth angle 30 degree

Misalignment in the 'EYE-HAND-TARGET AXIS' because of limited freedom in monitor positioning is recognised as an important ergonomic drawback during MIS. Realignment of the same improves personal values of comfort and safety as well as procedural values of effectiveness and efficiency (9). Preferred viewing angle for office video terminal display is 10 to 25 degree below the horizontal from users eye level ( standard video monitor are of CRT or LCD kept on separate low cart on ceiling mounted boom system(7)).

### Questionnaire

NAME :

DESIGNATION:

DEPARTMENT :

INSTITUTION :

DURATION OF PRACTICE :

1. HEIGHT OF MONITOR : -

A) AT EYE LEVEL \_\_\_\_\_

B) ABOVE EYE LEVEL \_\_\_\_\_

C) BELOW EYE LEVE \_\_\_\_\_

2. SIZE OF MONITOR YOU ARE USING :-

A) 14" \_\_\_\_\_

B) 26" \_\_\_\_\_

C) >26" \_\_\_\_\_

3. SIZE OF MONITOR YOU ARE COMFORTABLE WITH :-

A) 14" \_\_\_\_\_

B) 26" \_\_\_\_\_

C) >26" \_\_\_\_\_



**Fig.1-layout of laparoscopic surgery operating room (table, monitor, ceiling mounted boom system)(10)**

### AIM OF THE STUDY

Study the awareness of the ergonomic guidelines and its practice in terms of operating surface (table height) and monitor height and comfort level of surgeon during and after surgery

### MATERIALS AND METHODS

The study is conducted among the surgeons of the 3 medical colleges of Ahmedabad, India : B.J.Medical college, N.H.L.Municipal Medical college and AMC-MET medical college.

80 questionnaires were sent to the surgeons of different specialties. Among these 50 responded.

Duration of practising as laparoscopic surgeon was considered.

Operating room factors considered were Operating surface (table) height, Monitor height, Monitor size often using and Monitor size comfortable with(11).

Physical discomfort factors considered were neck pain, shoulder and arm pain, whether it needs medication or not(11).

4. HEIGHT OF TABLE :-

- A) AT UMBILICAL LEVEL \_\_\_\_\_
- B) ABOVE UMBILICAL LEVEL \_\_\_\_\_
- C) BELOW UMBILICAL LEVEL \_\_\_\_\_

5. DO YOU FEEL NECK PAIN DURING OR AFTER SURGERY :- YES \_\_\_\_\_ NO \_\_\_\_\_  
 WHETHER PAIN NEED MEDICATION :- YES \_\_\_\_\_ NO \_\_\_\_\_

6. DO YOU FEEL SHOULDER OR ARM PAIN DURING OR AFTER SURGERY :- YES \_\_\_\_\_ NO \_\_\_\_\_  
 WHETHER PAIN NEED MEDICATION :- YES \_\_\_\_\_ NO \_\_\_\_\_

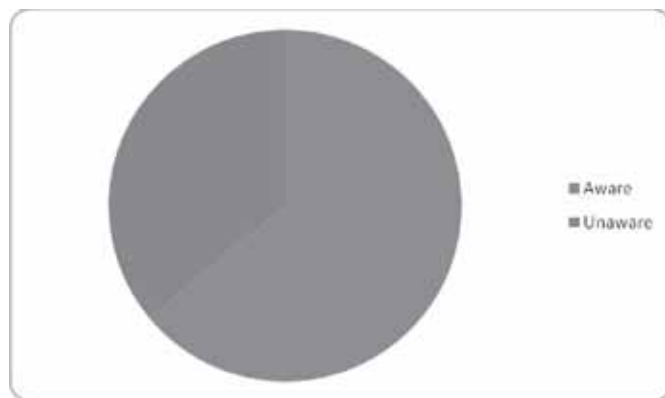
7. ARE YOU AWARE ABOUT ERGONOMIC GUIDELINES REGARDING LAPAROSCOPIC SURGERY :- YES \_\_\_\_\_ NO \_\_\_\_\_

**RESULTS**

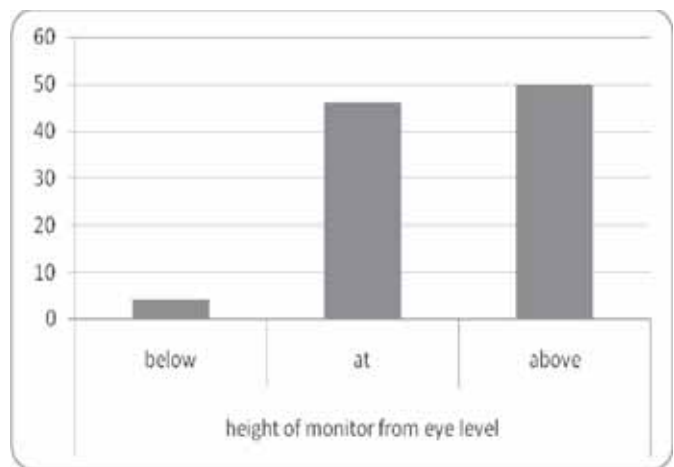
Respondent characteristic : Respondent rate was 62.5%. The characteristic of the respondent considered was the duration of laparoscopic surgical practice which was found as mean duration of 7.8 years.

Awareness : 64% surgeons are aware about the ergonomic guidelines regarding laparoscopic surgery.

Height of monitor : 4% surgeons are using monitors (center) below the eye level.



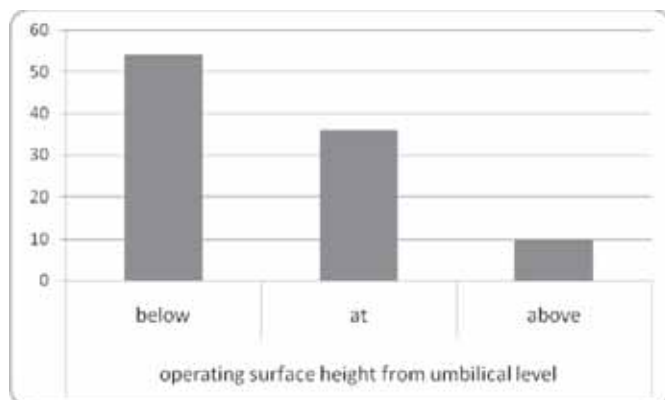
Pie chart-1



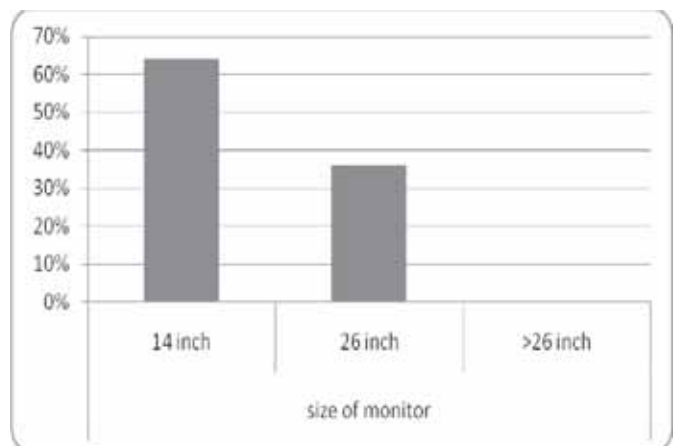
Bar chart-2

Size of monitor often using : 64% often using monitor of 14 inch size while 36% 26inch.

Operating surface (table) height : 54% of surgeons are performing on the surface below the umbilical level.

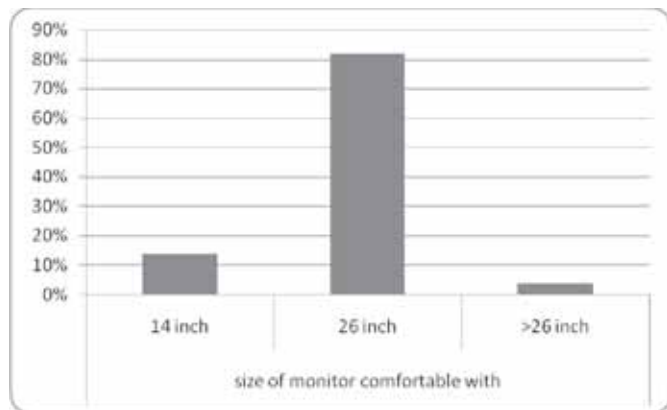


Bar chart-1



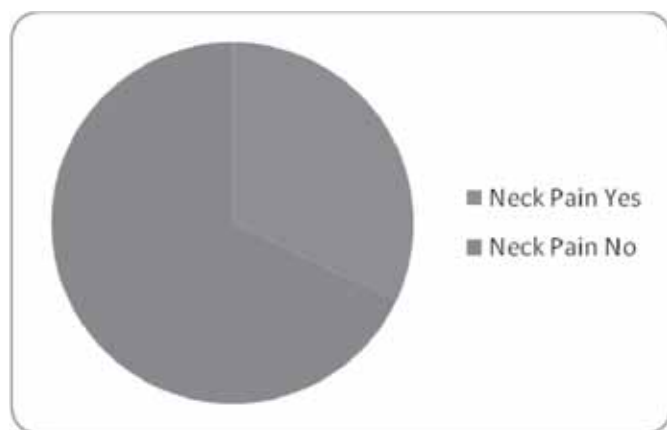
Bar chart-3

Size of monitor comfortable with : 82% surgeons are comfortable with 26 inch size monitor.



Bar chart-4

Neck pain during or after surgery : 32% experience pain in neck but no one need medication for it.



Pie chart-2

Arm or Shoulder pain : 66% experience arm or shoulder pain.



Pie chart-3

### DISCUSSION

64% surgeons are aware about the ergonomic guideline regarding laparoscopic surgery while 54% and 4% are practicing it in terms of operating surface (table) height

and monitor height respectively. The cause of the lower practice and disparity in practice, among both the parameter has not been studied but, likely to be related with the adjustable operating surface height considering particular surgery and built of the patient and placement of monitor on the cart which have fixed height from the floor.

Lower practicing rate might be due to the poor layout of operating room, which demand specially designed operating table for laparoscopic surgery and ceiling mounted boom system for placement of monitor at two different locations, one in front of surgeon and side of patient and another in front of camera assistant to achieve the desirable alignment of EYE-HAND-TARGET AXIS.

66% surgeons reported arms and shoulder pain while 32% reported neck pain during or after surgery but no one need any kind of medication for it except one who develop trapezitis due to maladjusted monitor height ,after initial 5 years of laparoscopic surgery practice.

64% surgeons are often using the 14 inch monitor size while 36%, 26 inch size; among these 82% are comfortable with 26 inch monitor; likely related with larger field of vision.

Minibreaks during surgery are essential to break the static posture and achieve an optimal comfort level to improve work efficiency and prevent human error(7).

### CONCLUSION

Despite awareness of ergonomic guideline among surgeons, its practice is lower than expected.

Surgeons experience more arms and shoulder pain than neck pain but doesn't required medication. 26 inch monitor is more comfortable than 14 inch monitor

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## ORIGINAL ARTICLE

### Sero prevalence of HBV, HCV, HIV and syphilis among blood donors at a tertiary Care Teaching Hospital in Western India

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**KEY WORDS :** (Seroprevalence, HIV, HBsAg, HCV, Syphilis, Voluntary, Replacement Blood Donors)

**Aims :** This study is conducted to evaluate the sero-prevalence of HBV, HCV, HIV and syphilis among blood donors in V.S. General Hospital, Ahmedabad along the duration of seven and a half years. All blood units received from replacement as well as voluntary blood donation at Blood Bank, Sheth V.S. General Hospital, Ahmedabad, Gujarat State, India during the period from January 2006 to July 2013 were selected for the study.

**Materials & Methods :** HBV, HCV and HIV were tested by ELISA methods approved by NACO in voluntary as well as replacement blood donors. RPR was carried out for screening of syphilis.

**Results :** The seroprevalence of HIV, HBV, HCV and syphilis was found to be 0.154%, 0.887%, 0.101% and 0.22% respectively in voluntary blood donors as against the figures of 0.179, 1.16%, 0.123 and 0.26% being the seroprevalence of HIV, HBV, HCV and syphilis in replacement blood donors. It is clear that seroprevalence of HIV, HBV, HCV and syphilis in replacement blood donors is higher than that in voluntary blood donors which is an expected finding. Also the trends of TTIs in both blood donor groups was studied over the years and some interesting facts emerged, particularly with regards to seroprevalence of syphilis in blood donors which showed an increasing and slightly fluctuating trend since year 2009.

**Conclusion :** Voluntary blood donors have been found to be safer than replacement blood donors vis-a-vis markers for HIV, HBsAg, HCV but syphilis shows an increasing prevalence over the years in both blood donor groups since 2009. This may be reflective of changing life style and more open social norms. But this later finding emphasises the ever present need for adopting voluntary blood donation. More detailed history regarding sexual exposure of blood donors is also advocated.

#### AIMS & OBJECTIVES

1. To study the seroprevalence of transfusion transmitted infections amongst voluntary as well as replacement blood donors at Blood Bank, Sheth V.S.General Hospital, Ahmedabad-6.
2. Yearly comparison and study of the trend of incidence of HIV, HBV, HCV & Syphilis positive cases.
3. Comparison with similar other studies.

#### INTRODUCTION

It is a well known fact that transfusion of blood and blood components as a specialized modality of patient management has been saving millions of lives worldwide each year. Amongst the undesirable complications arising out of transfusion of blood and blood products, transmission of certain infections (TTIs) like HIV, Hepatitis B and C and syphilis are most significant for the long term detrimental side effects. Meticulous pretransfusion testing and screening particularly for transfusion transmissible infections (TTI) is the need of the hour<sup>1</sup>

The report of the US Institute of Medicine entitled "To err is human" [Konh LT et al,1999] stated that as many as 98,000 people die each year needlessly due to preventable medical errors.<sup>2</sup> Obviously, the complications arising out of improperly tested/ screened blood units before transfusion are included as integral part of such mistakes.

It should be obligatory on those who are involved in transfusion of blood to a patient for saving his life, that the blood transfusion does no harm to the patient.<sup>3</sup> Morbidity and mortality resulting from transfusion of infected blood have far reaching consequences, not only for the recipients themselves, but also for their families, their communities and the wider society.<sup>4</sup> Only continuous improvement and implementation of donor selection, sensitive screening tests and effective inactivation procedures can ensure the elimination, or at least reduction of the risk of acquiring TTIs.<sup>5</sup>

India is the second most populous nation in the world. The Indian subcontinent is classified as an intermediate Hepatitis B Virus (HBV) endemic (HBsAg carriage 2-7%)

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zone and has the second largest global pool of chronic HBV infections. India has a population of more than 1.2 billion with 5.7 (reduced to 2.5) million Human Immunodeficiency Virus (HIV) positive, 43 million HBV positive and 15 million HCV positive persons. A recent study by Pahuja et al in 2007 revealed alarming high seroprevalence of HIV, anti-HCV, and HBsAg (0.56%, 0.6%, and 2.23%, respectively) among blood donors of a metropolitan city like Delhi.<sup>6</sup>

We report the trends in the seroprevalence of Hepatitis B (HBV), Hepatitis C (HCV), Human Immunodeficiency Virus (HIV) and syphilis over a period of seven and a half years from January 2006 to July 2013 in a tertiary care hospital based study.

### MATERIALS AND METHODS

Duration of study was from January 2006 to July 2013. All blood donors (including voluntary and replacement blood donors) coming to donate blood either at Blood Bank, Sheth V.S.G.Hospital, Ahmedabad as well as at various blood donation drives organised by blood bank were included in this study.

92,778 Serum Samples from Replacement and Voluntary Donors were tested for prevalence of markers for TTIs viz., HIV, HBsAg, HCV antibody & RPR for syphilis.

Hepatitis B surface antigen (HBsAg) was tested by 3<sup>rd</sup> generation ELISA, HIV(1and 2) were tested by 3<sup>rd</sup> & 4<sup>th</sup> generation ELISA & Hepatitis C virus (HCV) was tested by 3<sup>rd</sup> generation ELISA methods using NACO approved commercially available kits. Screening for syphilis was done by Rapid Plasma Reagin (RPR) method.

Donors were selected by taking history, clinical examination (strictly following donor's selection criteria) to eliminate professional donors and including donors who gave voluntary written consent for screening of their blood for TTIs. A detailed pre-donation questionnaire was included in donor registration form. Information regarding risk factors like history of surgery, previous illness, hospitalization, blood transfusion, occupation, high risk behaviour and tattoo marks was collected. All the reactive samples were repeat tested before labelling them sero-positive and respective blood units were discarded as per standard protocols.

### RESULTS

A total of 92,778 apparently healthy adult donors were screened during the study period. Among them 62, 097 (66.9%) were voluntary blood donors and 30681 (33.1%) were replacement blood donors. Table 1 shows the gender distribution in both donor groups.

**Table 1 : Year & Gender wise break up of Blood Donors**

YEAR	VOLUNTARY DONORS			REPLACEMENT DONORS			TOTAL
	M	F	TOTAL (Voluntary)	M	F	TOTAL (Replacement)	Total Blood Donors (Both Groups)
2006	3997	476	4473	8672	79	8751	13,224
2007	7574	357	7931	6458	31	6489	14,420
2008	5557	397	5954	5737	35	5772	11,726
2009	9042	299	9341	1471	01	1472	10,813
2010	9301	257	9558	1701	16	1717	11,275
2011	9736	232	9968	2462	12	2474	12,442
2012	9163	398	9561	2336	16	2352	11,913
2013 UP TO JULY	5255	56	5311	1648	06	1654	6985
<b>GRAND TOTAL</b>	<b>59625</b>	<b>2472</b>	<b>62097</b>	<b>30485</b>	<b>196</b>	<b>30681</b>	<b>92778</b>

**Table 2 : Distribution of sero-positive cases**

INFECTIONS	Voluntary donors (Total no. 62097)	Replacement donors (Total no. 30681)	TOTAL (Total no.92778)
HIV	96 (0.154%)	55 (0.179%)	151(0.162%)
HBV	551 (0.887%)	356(1.16%)	907(0.977%)
HCV	63 (0.101%)	38(0.123%)	101(0.108%)
RPR (Syphilis)	138(0.22%)	80 (0.26%)	218(0.234%)



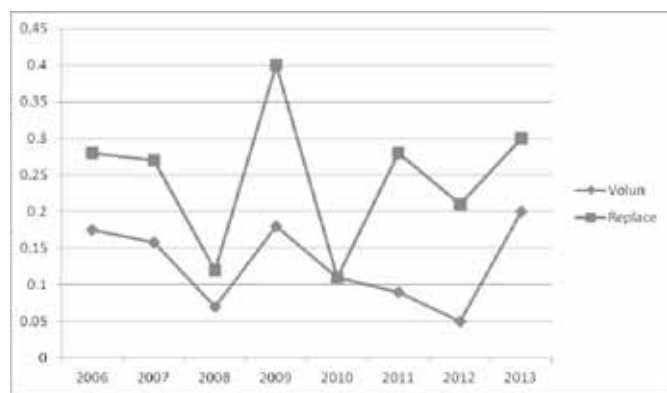
The seroprevalence of HIV, HBV, HCV and syphilis was found to be 0.154%, 0.887%, 0.101% and 0.22% respectively in voluntary blood donors as against the figures of 0.179, 1.16%, 0.123 and 0.26% being the seroprevalence of HIV, HBV, HCV and syphilis in replacement blood donors.

Females comprised of only 3.98% in voluntary blood donor group and 0.63% in replacement blood donor group. Hence only male donors of both groups were included to find out % seroprevalance of TTIs for the purpose of valid and meaningful statistical analysis. The year wise trend of seroprevalance shown in various graphs has thus been derived from the data from male donors only in both the groups.

**Table 3 : Year Wise Trends of Seroprevelance of TTIs:**

YEAR	HIV				HBsAg				HCV				VDRL			
	VOL. (Male)	VOL. (Female)	REPL (Male)	REPL (Female)	VOL. (Male)	VOL. (Female)	REPL (Male)	REPL (Female)	VOL. (Male)	VOL. (Female)	REPL (Male)	REPL (Female)	VOL. (Male)	VOL. (Female)	REPL (Male)	REPL (Female)
2006	07 (0.175%)	0	25 (0.288%)	0	36 (0.9%)	01 (0.21%)	134 (1.55%)	09 (1.89%)	02 (0.05%)	01 (0.21%)	20 (0.23%)	01 (3.22%)	05 (.12%)	0	40 (0.46%)	0
2007	12 (0.158%)	0	18 (0.27%)	0	58 (0.76%)	0	56 (0.86%)	0	05 (0.06%)	00	10 (0.15%)	0	05 (0.06%)	0	09 (.13%)	0
2008	04 (.07%)	0	07 (.12%)	0	41 (0.73%)	0	66 (1.15%)	0	05 (0.08%)	0	08 (0.13%)	0	01 (0.01%)	0	04 (0.06%)	0
2009	17 (0.18%)	0	06 (0.4%)	0	77 (0.85%)	0	16 (1.08%)	0	05 (0.05%)	0	02 (0.13%)	0	20 (0.2%)	0	08 (0.5%)	0
2010	11 (0.11%)	0	02 (0.11%)	0	87 (0.93%)	0	13 (0.76%)	02 (12.5%)	07 (0.07%)	0	03 (0.17%)	0	10 (0.1%)	0	04 (0.23%)	0
2012	05 (0.05%)	0	05 (0.21%)	0	97 (1.05%)	0	27 (1.15%)	0	08 (.08%)	0	02 (0.08%)	0	26 (0.28%)	0	09 (0.38%)	0
2013 (Upto July 2013)	11 (0.2%)	0	05 (0.3%)	0	62 (1.17%)	0	15 (0.91%)	0	10 (.19%)	0	04 (0.24%)	0	17 (0.32%)	0	06 (0.36%)	0

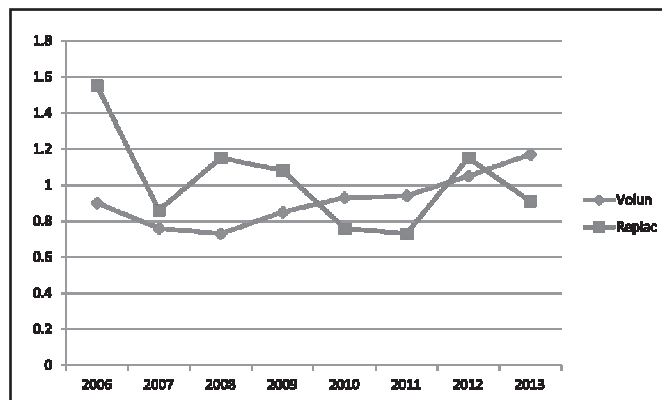
**Graph 1: HIV positivity amongst Voluntary & Replacement Donors**



There seems to be a peak in the prevalence of HIV in the year 2009 otherwise it has shown more or less a steady pattern from 2006 to 2012. There seems to be an increase in HIV positivity which runs parallel to the increase in HCV positivity in current year (from January to July, 2013) Ref. Graph 3. The reason for more HCV positivity might be related to the availability of better diagnostic kits or else could represent a

real increase in prevalence in the society. Again the peak in the prevalence of HIV in the year 2009 correlates well with other sexually transmitted disease (syphilis) in the same year.

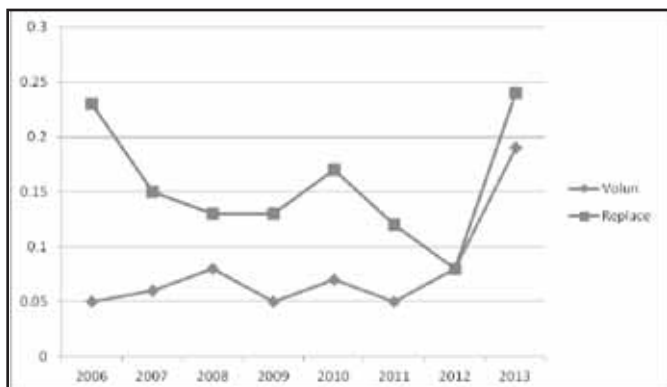
**Graph 2 : HBs Ag positivity in Voluntary & Replacement donors**



Barring the year 2006 when HBsAg positivity is the maximum, it has remained almost uniform in other years and there is no significant shift in the current year. The

disturbing trend here is a gradual and steady increase in the positivity rates of HBs Ag in voluntary blood donors from year 2008. This might be reflective of asymptomatic cases of Hepatitis B in the society and may need attention from health authorities.

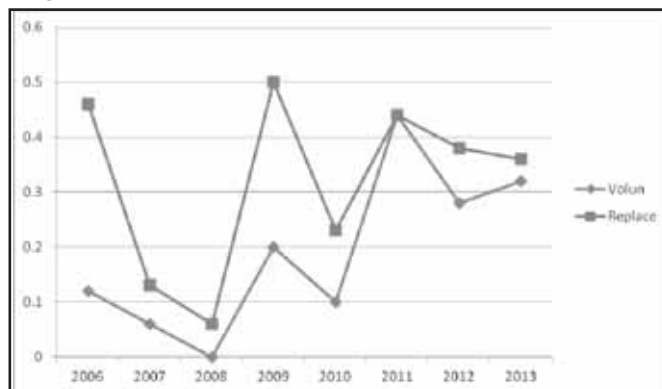
**Graph 3 : HCV Positivity in Voluntary & Replacement Donors**



HCV positivity is showing two peaks at both the ends of study period i.e. year 2006 and year 2013. Increasing prevalence of HCV in both donor populations may be either a real seasonal variation or variation dependent on

the living style of people (when such an increase is seen in association with increase in HIV positivity). The other putative reasons may be the testing material available in the market for HCV testing. Data pertaining to these years in other studies may throw more light.

**Graph 4 : VDRL Positivity in Voluntary & Replacement donors**



There is a constant difference between the seropositivity of RPR amongst voluntary and replacement donors; the prevalence is justifiably higher in replacement donors. Association with higher prevalence of HIV antibodies in year 2009 has been discussed in earlier paragraphs.

**Table 4 : TTI prevalence in India**

Comparison of TTI prevalence rate in different parts of India <sup>1</sup>					
Place	HIV%	HBsAg %	HCV%	SYPHILIS%	Reference
Ludhiana	0.084	0.66	1.09	0.85	Gupta N. et al (2004) 12
Delhi	0.56	2.23	0.66		Pahuja S et al(2007) 8
Lucknow (UP)	0.23	1.96	0.85	0.01	Chandra T et al (2009) 10
Southern Haryana	0.3	1.7	1.0	0.9	Arora D et al (2010) 7
West Bengal	0.28	1.46	0.31	0.72	Bhattacharya P et al (2007),
Bangalore, Karnataka	0.44	1.86	1.02	1.6	Srikrishna A et al (1999) ,11
Present study	0.16	0.98	0.11	0.23	(2013)

Comparing our data, it seems that barring HCV, all other viral markers were more or less correlating with the data from various studies carried out at various centers in Delhi, Ludhiana, Haryana, U.P., West Bengal and Bangalore. Our study reveals an average overall prevalence of HCV antibodies in Blood Donors serum as being 0.11% (ranging from about 0.05% in 2006, 2009, 2011 to a maximum of 0.24% in the current year 2013) which is significantly lower than other regions of India. The reason for this may be either a particular

geographical distribution or declining rate of HCV positivity in healthy population. The wide variations of HCV seroprevalance in different studies in India might be due to the use of different generation of ELISA test kits, having different sensitivities and specificities. Various studies have reported an international HCV prevalence range of 0.42–1.2%.<sup>8</sup>

## DISCUSSION

With every unit of blood, there is 1% chance of transfusion associated problems including TTI. The risk of TTI has declined dramatically in high income nations over the past two decades, but the same may not hold good for the developing countries. The national policy for blood transfusion services in our country is of recent origin and the transfusion services are hospital based and fragmented. Voluntary donors (VD) are motivated blood donors who donate blood at regular intervals and replacement donors (RD) are usually one time blood donors who donate blood only when a relative or a friend is in need of blood.<sup>1</sup>

Various studies in India about the seroprevalence of HCV have shown data ranging from the lowest (0.31% ) in the study by Bhattacharya et al in 2007 to the higher one of 1.09% (Gupta et al, 2004).<sup>1</sup> A significantly lower prevalence of 0.11% has been noted in our study. But at the same time an increase in HCV positivity has been found in current year which may be attributed in part to availability of better diagnostic kits with higher sensitivity.

Sexually transmitted infections are widespread in developing countries and constitute a major public health problem. The VDRL reactivity in our study was 0.23% which is significantly lower value as compared to other studies in India as shown in table 4. There has been a constant difference between seropositivity for RPR amongst voluntary and replacement blood donors.

The current practice of selection of voluntary donors over replacement donors to meet with the need for blood in a general hospital coupled with more numbers of voluntary donor drives in the community as well as availability of better testing reagents (particularly for HIV and HCV infections) is sure to lower down the threats of transmitting TTIs to patients via transfusion of blood and blood products. As is apparent from the results of present study the results of which are comparable to other studies in India, voluntary blood donors have significantly lower rates of prevalence for markers of TTIs as compared to replacement blood donors. Awareness of general population about voluntary regular blood donation should be created to minimize the chances of spreading transfusion transmitted infections. Replacement donors carry a relatively higher risk of transfusion transmitted infections due to chances of missing professional donors during donor screening procedures. Hence blood from replacement donors should be accepted only in cases of dire emergencies when transfusion of blood or blood products would be life saving.

## CONCLUSION

As is apparent from the results of present study, higher incidence of Transfusion Transmissible infections have been observed among Replacement donors compared to

Voluntary donors. Our study is comparable to other studies carried out in India. Efforts should be made to increase the number of voluntary donors and reduce replacement donations to a minimum. Motivation and recruitment of potential local blood donor population would help in effective implementing of voluntary blood donation program in the community.

The major concern in transfusion services today is increased seropositivity among Replacement Donors for HCV, HIV, HBsAg and syphilis. With the advent of nucleic acid amplification techniques (NAT), western countries have decreased the risk of TTI to a major extent. But the cost-effectiveness of NAT is poor. The NAT has added benefits but its high financial cost is of concern, especially in underdeveloped countries like India. Apart from NAT for donor screening, other factors such as public awareness, vigilance of errors, educational and motivational programs is sure to help in decreasing the infections.

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## ORIGINAL ARTICLE

### Increasing trend of HCV reactivity in healthy blood donors and multitransfused thalassemia patients of Gujarat State

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**KEY WORDS :** Trend of Hep C infection, Blood donors, Thalassemia patients

**Background and Aim :** Hepatitis C is transmitted only by blood and blood products, so it is very important to study its prevalence in blood donors. Recently, prevalence of infection has increased. This is alarming as Hepatitis C infection progresses to chronicity and it is not a vaccine preventable disease. This study aims to determine the HCV reactivity trend in Gujarat state and its prevalence in multipully transfused thalassemia patients.

**Materials and methods:** In current study 184238 healthy donors have been screened who have donated blood at the IHBT department, civil hospital, Ahmedabad between 2002 to 2011. 210 beta thalassemia major patients were also screened for anti HCV who are registered in civil hospital Ahmedabad. Test results of all blood samples such as HCV Antibody, HIV Antigen and Antibody, HbsAg (Hepatitis B surface Antigen) Antigen and VDRL Antibody were analysed and documented. (Thalassemia patients were not tested for syphilis.)

**Results:** It was observed that Hep B infection was the most common among all the diseases during whole study (2002-2011). From 2003 onwards Hep B showed a decreasing trend, with prevalence peaking in 2003 (1.67%). The present study revealed that HIV infection was also showing same decreasing pattern. The infection of syphilis was not showing any pattern. Hep C infection showed high prevalence year 2003(0.63%) & 2004(0.75%). During year 2005 (0.22%), 2006 (0.21%) and 2007 (0.22%) it showed steady pattern. It shows a steady increase with the passing years (2008-2011). Total of 210 beta-thalassemia major patient 1 patient (0.47%) was Hep B reactive, 3 patients (1.42%) were HIV reactive and 62 patients (29.52%) were Hep C reactive which is very high. The results also show increasing prevalence of infection with increasing age i.e. increasing number of transfusions.

**Conclusion:** To reduce the incidence of HCV infection stringent donor screening should be adopted along with screening of donor with more sensitive 4<sup>th</sup> generation ELISA methods.

#### INTRODUCTION

Hepatitis C Virus (HCV), first identified in 1989, causes a slowly progressive disease affecting about 170 million (3%) people world wide.<sup>1,2</sup> More than three million new cases of infection are reported annually, and epidemiological studies indicate a wide variation in its prevalence patterns in different continents and countries.<sup>2</sup> In India, the hepatitis C screening test, i.e., HCV Ab ELISA test became obligatory for blood donation from 1998 and it was implicated in our institute since then.

In a vast country like India, a survey of blood transmissible diseases in the country as a whole is very difficult. Individual epidemiological surveys of each state may help us to understand the seriousness of the problem and the changing trends. Among the blood transmissible diseases, hepatitis B (HepB) and hepatitis C (HepC) (both caused by viruses of the family Hepadnaviridae), HIV (Human Immunodeficiency Virus) and syphilis (caused by *Treponemapallidum* subsp. *pallidum*) are major public health problems in developing countries. HepB is transmitted parentally and causes either symptomatic or

asymptomatic disease.<sup>3</sup> HepC is major cause of chronic active hepatitis, hepatocellular carcinoma, and liver cirrhosis.<sup>4</sup> Among HIV infected people, mitochondrial dysfunction in hepatocytes and other infected cells is a leading cause of cellular death.

Thalassemia is an inherited hemoglobinopathies disorder.<sup>5,6</sup> Blood transfusion is a necessary treatment for these patients. However blood transfusion has its own side effects. One major adverse effect of blood transfusion is transfusion transmitted infections, especially hepatitis C.<sup>7,8</sup>

The study was designed to fulfil two objectives. The first was to determine the increasing prevalence of HCV among blood donors over the last ten years (2002-2011) in Gujarat State by testing samples for HCV Antibody, HIV Antigen and Antibody, HbsAg Antigen, VDRL Antibody. The second was prevalence of HCV infection in thalassemia patient who have had multiple transfusions.

#### MATERIAL & METHOD

A total of 184238 blood samples were collected from

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blood donors who donated blood to the IHBT department, civil hospital, Ahmedabad between 2002 to 2011. The population under study included people of diverse backgrounds, cultures, and lifestyles. Blood samples were collected from blood donors within the age group of 18-55 years. Samples were also taken from blood donation camps.

Two hundred ten beta-thalassemia major patients registered in a civil hospital Ahmedabad were included in the study. All patients were under a hypertransfusion regimen and treated with regular transfusion of packed red blood cells, at an interval of about three weeks. All patients were tested for TTI after obtaining informed consent from the guardians of the patients.

The most sensitive and specific ELISA test protocol was used to establish the diagnosis. All the samples were tested for HCV Antibody, HIV Antigen and Antibody, HbsAg Antigen, VDRL Antibody.

Serum samples were tested by using an enzyme immune assay (EIA) for HCV antibodies, HbsAg Antigen, HIV Antigen /Antibodies and by using Rapid test for Syphilis according to the manufacturer's instructions. Reactive samples were retested for 4 times for confirmation by the same kit and repeat testing done by 2<sup>nd</sup> kit. Thalassemia patients were not tested for syphilis.

### OBSERVATION

In this study we have assessed total of 184238 donors who donated blood to the IHBT department, civil hospital, Ahmedabad between 2002 to 2011. Among them, 1957 donors were found to be seropositive for Hep B, a prevalence of 1.06%. The seroprevalence of Hep C was found to be 0.32%, with the total number of cases being 599. The frequency of HIV was 0.33%, with a total of 614 cases. Infection with syphilis was found in 1297 cases, giving a prevalence of 0.73%.

From table 1 and chart 1 we can observe that Hep B infection was the most common among all the diseases during whole study (2002-2011). It showed a relatively low prevalence in the year 2002. From 2003 onwards Hep B showed a decreasing trend, with prevalence peaking in 2003 (1.67%). The present study revealed that HIV infection was also showing the same pattern. It was highest in 2003 (0.52%) and has decreased during recent years. The infection of syphilis was not showing any pattern. The highest prevalence was seen in year 2008 (1.97%) and the lowest was seen in year 2004 (0.16%). Hep C infection showed high prevalence year 2003 (0.63%) & 2004 (0.75%). During year 2005 (0.22%), 2006 (0.21%) and 2007 (0.22%) it showed steady pattern. It shows a steady increase with the passing years (2008-2011).

In this study we have assessed total of 210 beta-thalassemia major patient registered in Civil Hospital,

Ahmedabad. From table 3 we can see that, among them 1 patient (0.47%) was HepB reactive, 3 patients (1.42%) were HIV reactive and 62 patients (29.52%) were HepC reactive which is very high.

From table 4 we can observe that in 0-3 years age group, Hep C reactive patients were 07 (3.33%), not a single patient was Hep B and HIV reactive. Between 4-6 years of age, Hep C reactive patients were 12 (5.71%). HIV reactive and Hep B reactive patients were not found. Between 7-9 years of age, Hep C reactive patients were 18 (8.57%) and HIV reactive patient was only 01 (0.47%). Again there was no Hep B reactive patient. In 10 to 12 years age group Hep B reactive patient was 1 (0.47%), 25 (11.90%) patients were Hep C reactive and HIV reactive patients were 2 (0.95%).

### DISCUSSION

Transfusion-dependent patients are more prone to acquiring various transfusion-transmitted infections such as Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), Human Immune Deficiency Virus (HIV), syphilis and many more.<sup>9</sup> However, HBV and HIV can be transmitted, except blood transfusion, from person to person, especially hepatitis B, which is transmittable from tears, urine, etc.<sup>10,11</sup> Most of those who are HCV positive have a history of parenteral risk such as a history of transfusion or administration of blood products or of intravenous drug abuse. There is little evidence for sexual or perinatal transmission of HCV and the natural routes of transmission are yet to be identified.<sup>12</sup>

Current data suggest that about 50% of infections with HCV progress to chronicity. Histological examination of liver biopsies from asymptomatic HCV-carriers reveals that none has normal histology and that up to 70% have chronic active hepatitis and/or cirrhosis. Whether the virus is cytopathic or whether there is an immunopathological element remains unclear. HCV infection is also associated with progression to HCC.<sup>12</sup>

Hep C poses a threat to society due to its increasing trend. Judging by the seroprevalence rates for the last seven years, it appears to be more of a public health challenge than HIV or even Hep B which showed decreasing trend in the population studied. And among hepatitis infections Hep B is vaccine preventable but there is no vaccine for Hep C infection. The trend of HIV infection is also decreasing due to increased HIV awareness.

The present study was compared with data of other studies. In our study the trend of Hepatitis B and HIV infection is decreasing. In study by Arpitachatterjee et al. also the trend of Hepatitis B and HIV infection is decreasing but the prevalence of Hepatitis B is lower than our study.<sup>3</sup> In both studies the trend of Hep C is increasing. Syphilis does not show any pattern in any study. In our study we have not assessed malarial infection. Table I & II

and chart I&II compares the data of both studies.

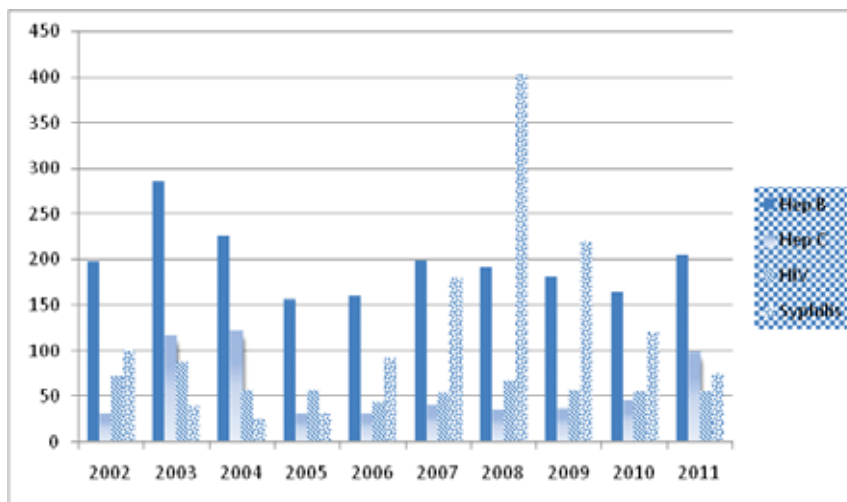
A residual risk of transmitting viral infections during the transfusion of blood products persists despite improvements in donor recruitment, selection, and advances in screening testing. This risk is mainly due to the (1) marker negative window-phase donations, (2) immune variant viral strains, (3) persistent antibody-negative (immunosilent) carriers and (4) procedural testing errors.<sup>13, 14</sup> Therefore transfusion-transmitted infections continue to be a serious problem.

Multitransfused beta-thalassemia major patients are most susceptible population to acquire transfusion-related infections. Including HepC, owing to regular transfusions of one to three units of blood every three to four weeks, which amounts to 12-51 units /year. As the probability of acquiring transfusion-transmitted diseases (TTDs) is related to the probability of being exposed to the infected units of blood,<sup>15</sup> which in turn depends on the prevalence of asymptomatic viremic blood donors in the population and the number of units transfused,<sup>16</sup> hence, the magnitude of risk of TTDs can be appreciated.

**TABLE : I**  
**PREVALENCE OF HEPATITIS B, HEPATITIS C, HIV AND SYPHILIS IN DONORS IN OUR STUDY**

Year	Total Sample	HepB Reactive		HepC Reactive		HIV Reactive		Syphilis Reactive	
		Total	%	Total	%	Total	%	Total	%
2002	17232	199	1.15	32	0.18	73	0.42	102	0.59
2003	17166	287	1.67	118	0.68	89	0.52	41	0.24
2004	16242	227	1.39	123	0.75	57	0.35	26	0.16
2005	14719	157	1.04	32	0.22	57	0.35	33	0.22
2006	15545	161	1.03	32	0.21	45	0.29	93	0.60
2007	18499	200	1.08	41	0.22	55	0.30	180	0.97
2008	20502	192	0.94	36	0.17	68	0.33	404	1.97
2009	20582	182	0.88	38	0.18	58	0.28	221	1.07
2010	20300	165	0.81	47	0.23	56	0.27	121	0.59
2011	23451	187	0.79	100	0.42	56	0.23	76	0.32
<b>Total</b>	<b>184238</b>	<b>1957</b>	<b>1.06</b>	<b>599</b>	<b>0.32</b>	<b>614</b>	<b>0.33</b>	<b>1297</b>	<b>0.73</b>

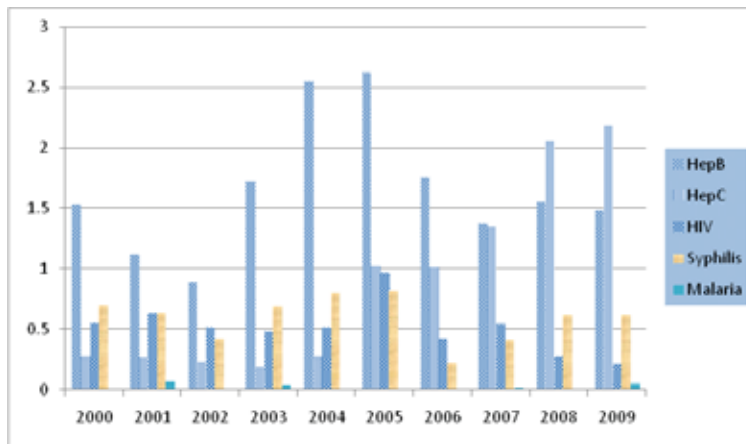
**CHART : I**  
**PREVALENCE OF HEPATITIS B, HEPATITIS C, HIV AND SYPHILIS IN DONORS IN OUR STUDY**



**TABLE : II**  
**PREVALENCE OF HEPATITIS B, HEPATITIS C, HIV AND SYPHILIS AND MALARIA IN DONORS IN OTHER STUDY**

Year	Total Sample	HepB (%)	HepC (%)	HIV (%)	Syphilis (%)	Malaria (%)
2000	1428	1.54	0.28	0.56	0.70	0.00
2001	1864	1.13	0.27	0.64	0.64	0.07
2002	2123	0.89	0.24	0.52	0.42	0.00
2003	2019	1.73	0.19	0.49	0.69	0.04
2004	2118	2.55	0.28	0.52	0.80	0.00
2005	3190	2.63	1.03	0.97	0.82	0.00
2006	3244	1.76	1.02	0.43	0.22	0.00
2007	3625	1.38	1.35	0.55	0.41	0.02
2008	3206	1.56	2.06	0.28	0.62	0.00
2009	4013	1.49	2.19	0.22	0.62	0.05

**CHART II**  
**PREVALENCE OF HEPATITIS B, HEPATITIS C, HIV AND SYPHILIS AND MALARIA IN DONORS IN OTHER STUDY**



In this study (from table III and Chart III) the prevalence of HepC infection is very high in beta-thalassemia major patient as compared to other infections like HepB and HIV. This may be due to (1)The prevalence of HepC infection increasing in population (2) Hep B infection is detected by testing HbsAg antigen, the window period of which is 38.3 days,HIV infection is detected by detecting p24 antigen and HIV antibody,the window period of which is 15.0 days , Hep C infectionis detected by testing HCV antibody, the window period of which is 58.3 days which is longest of all.<sup>18</sup> So chances of infection being transmitted during window period is more. (3) Hep C is very much infective in initialphase,that is during window period of antibody testing kit, than in the later phase.<sup>18</sup>

The prevalence of Hep B and HIV infection is low in thalassemia patient as all patients are given HepB vaccine to each and every thalassemia patient so it will

reduce the infection of HepB infection. And all blood units are tested by 4<sup>th</sup> generation HIV kit, it will test antigen also, so reduce the infection rate of HIV.

In thalassemics with the age, number of transfusion increases. In a study from eastern India, 70 thalassemics and 20 hemophiliacs who received periodic transfusions of packed cells and components,like fresh frozen plasma, were reported to have an increased prevalence of TTD markers with increasing number of transfusions.<sup>17</sup>In the present study, a positive correlation between the number of units transfused and the prevalence of reactivity was observed.

From table IV and Chart IV we have seen that the prevalence of transfusion transmitted infection is increasing with age because of increasing number of transfusions. Reactive cases in Hep C( 07,12,18,25),

HIV(00,00,01,02) and Hep B(00,00,00,01)in age group (0-3,4-6,7-9,10-12) shows increasing trend with age. we do not get proper data of more than 12 year age group patients because large number of thalassemic patients drop out from treatment or died due to some complication by that age. A review of the fate of patients followed between 1960 and 1976 at Cornell Medical Center reported a median survival of thalassemia patient was 17.1 years for patients transfused at low haemoglobin level and not chelated, while for hypertransfused and well-chelated patients the median survival is 31 years.<sup>20</sup>

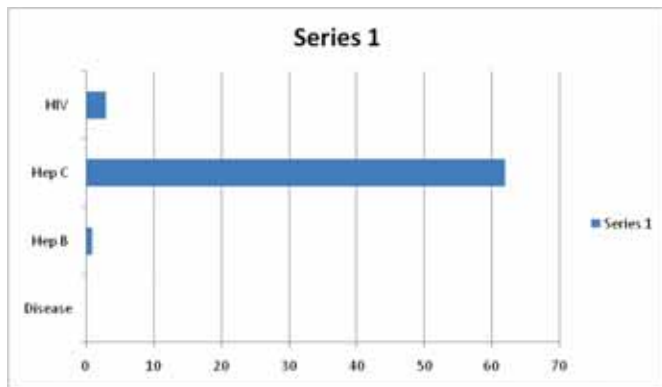
**TABLE: III**

**PREVALENCE OF HEPATITIS B, HEPATITIS C AND HIV IN MULTIPLY TRANSFUSED THALASSEMIA PATIENT**

Disease	Patients reactive	%
Hep B	1	0.47
Hep C	62	29.52
HIV	3	2.85

**CHART: III**

**PREVALENCE OF HEPATITIS B, HEPATITIS C AND HIV IN MULTIPLY TRANSFUSED THALASSEMIA PATIENT**

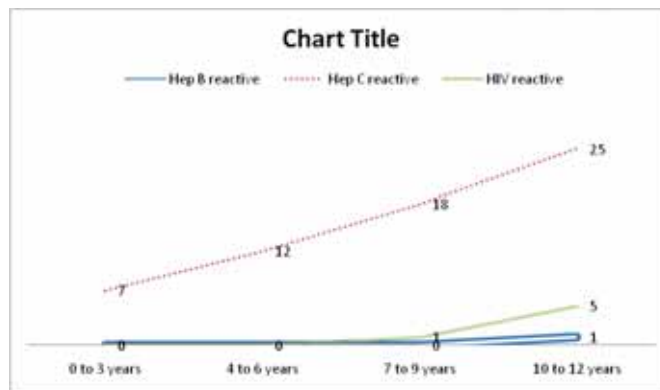


**TABLE : IV**

**PREVALENCE OF HEPATITIS B, HEPATITIS C AND HIV INFECTION IN DIFFERENT AGE GROUP OF THALASSEMIA PATIENT**

Age group	0 to 3 years	4 to 6 years	7 to 9 years	10 to 12 years
Hep B reactive	00	00	00	01
Hep C reactive	07	12	18	25
HIV reactive	00	00	01	02

**CHART : IV  
PREVALENCE OF HEPATITIS B, HEPATITIS C AND HIV INFECTION IN DIFFERENT AGE GROUP OF THALASSEMIA PATIENT**



**CONCLUSION**

As hepatitis C is transmitted only by blood and blood products, it is very important to study its prevalence in blood donors. About 50% of HCV infection progress to chronicity so it is more dangerous than other transfusion transmitted infection. As we have seen that the prevalence of HepC infection is increasing gradually it is very alarming. It's high incidence in thalassemia patient should be taken seriously and appropriate steps should be taken.

To reduce the incidence of HCV infection donor recruitment, selection, and awareness of donor for risk of HCV infection should be strengthened. It will reduce the prevalence of hep C reactive donor. 4<sup>th</sup> generation kit in screening test should be use. This will reduce the window period and thereby reduce the prevalence of infection in thalassemia patient.

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## ORIGINAL ARTICLE

### Screening for Postpartum Depression

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**KEY WORDS :** Postpartum Depression, Edinburg's Postnatal Depression Scoring

#### ABSTRACT

A prospective cross sectional Study was conducted at Dep't of Obstetrics & Gynaecology, Govt Medical College & Sir Takhtsinghji hospital Bhavnagar from August 2007 to July 2009.

Randomly selected women ( 1 in 10 ) who attended the labour room , got delivered & who attended the OPD clinic at Sir T hospital Bhavnagar were requested to participate in the study and written consent was taken. Randomly selected women were screened for post partum depression using Gujarati version of Edinburgh post natal depression (EPDS) rating scale. Women who do not know Hindi / Gujarati / English were not included in this study. Around 200 patients were screened on the first day postnatal. These 200 women were requested to come back again at 6<sup>th</sup> post natal day and on 6<sup>th</sup> postnatal week for rescreening-108 were screened on 6<sup>th</sup> day while 62 were screened on 6<sup>th week</sup> post natal. For women who could not read Gujarati, the EPDS was read out and the responses were recorded and who could read Gujarati, did self report. EPDS is a 10 item screening instrument specially used for screening post natal depression in various cultures. It has been found to be having high sensitivity, specificity and accuracy. Cut off point 12 was suggested for post natal depression. And at this cut off point depression prevalence was derived amongst the women on 1<sup>st</sup> post natal day, 6<sup>th</sup> post natal day & at 6<sup>th</sup> post natal week

All women were interviewed using semi structured proforma including demographic data, obstetric data, relationship related data and economical data. A case control study was carried out where depressed individuals were considered as cases and non depressed individuals were considered as controls and risk factors were compared in these two groups to be statistically significant using chi square test and "p value" testing (derived using Epi info software). If the "P value for a particular risk factor found to be less than 0.05 that particular risk factor was said to be statistically significant for developing postpartum depression in our cases.

Prevalence of depression was found to 11% at 1<sup>st</sup> day post partum, 7.4% at 6<sup>th</sup> day post partum, 3.2% at 6<sup>th</sup> week post partum.

The factors significantly associated with post partum depression were birth of a female child, prim parity, h/o miscarriage, negative feelings during pregnancy, past h/o psychiatric illness.

EPDS question were easy to understand by postpartum woman . Further it being easy to apply for the health care personnel it can be used by primary health care workers ( e.g anganwadi worker or multipurpose health worker with proper training.) so that they can apply the score even at the doorstep of the patient at the peripheral (rural) level and large population of post natal women can be screened. So that timely intervention can be instituted and mothers health, child's cognitive and emotional development can be improved

#### INTRODUCTION

The World Health Organization (WHO) predicts that depression will be the second greatest cause of premature death and disability worldwide by the year 2020.<sup>1</sup> The suffering caused by depression is profound yet often underestimated. It can affect every aspect of a person's being: their feelings, thoughts and functioning.

Postnatal depression is particularly important because it is so common and because it occurs at such a critical time in the lives of the mother, her baby and her family.

For every 1,000 live births, 100-150 women will suffer a depressive illness and one or two women will develop a puerperal psychosis.<sup>2</sup> Failure to treat either disorder may result in a prolonged, deleterious effect on the relationship

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between the mother and baby and on the child's psychological, social and educational development.<sup>3</sup> The relationship between the mother and her partner may also deteriorate.

The morbidity of clinical depression is often prolonged by a delay in diagnosis or an inadequate course of treatment. The stigma and shame felt by the sufferers who may be reluctant to 'confess' their feelings are frequently important factors in delayed diagnosis. Such reticence is particularly common in postnatal depression, when feelings of guilt and failure may be intense. A mother may even fear that she will be thought unfit to care for her child.

Mental illness is also a significant factor in maternal mortality. The UK Confidential Enquiry into Maternal Deaths (CEMD) reports that psychiatric disorders contributed to 12% of all maternal deaths

A small body of evidence points to an association between a mother's depression and the subsequent report of depression in her partner. Untreated postnatal depression is associated with detrimental effects on infant development. The cognitive, emotional, social and behavioral development of the infant all may be affected both in the long and short term<sup>4</sup>. Longer term negative influences of mothers' postnatal depression in the first year of life on infants' language skills, social and emotional development and (particularly in boys) intelligence quotients, have been demonstrated<sup>5</sup>. Cognitive development in the children of postnatally depressed women is not universally impaired. The effect appears limited to those children whose mothers find it difficult to maintain sensitive and active engagement with the infant<sup>6</sup>.

Delay in delivering adequate treatment for postnatal depression or puerperal psychosis is particularly unfortunate since the response to treatment is good<sup>7</sup>. Effective detection and adequate management of these disorders requires co-ordination of a wide variety of primary and secondary care services, including midwives, health visitors, clinical psychologists, community psychiatric services, general practitioners, pharmacists, obstetricians and psychiatrists, with other community agencies, such as voluntary organisations and social services, providing further support<sup>8</sup>.

Post partum depression is a neglected condition in a country like India as it does not produce gross symptoms but that is the reason why the condition may not be detected at all or it may be detected very late. Delay or failure to diagnose the condition may lead to detrimental effect on the child's cognitive, emotional and intellectual

development, maternal suffering or even suicides or poor marital relationship. There are very few studies carried out in India to find out the prevalence of post partum depression and they all show grossly varied results (8-22 % based upon different cut off points and different type of studies & different no. of subjects studied). This may lead to over diagnosis or under diagnosis of the condition. So study conducted to find out the prevalence of post partum depression and the factors associated with post natal depression will be fruitful for mother, child and her family's health.

## MATERIAL AND METHODS

Study was conducted at Dep't of Obstetrics & Gynaecology, Govt Medical College & Sir Takhtsinghji hospital Bhavnagar from August 2007 to July 2009. Randomly selected women ( 1 in 10 ) who registered at Antenatal clinic and those who attended the labour room as an emergency, got delivered at Sir T hospital Bhavnagar were requested to participate in the study and written consent was taken. These women were delivered either abdominally or vaginally, delivered at full term or a preterm, male or female child may or may not be having pathology to her or child, of all age group, of all religion and domicile and from all economical strata of society thus they were representation the whole population of our society

Women were screened for post partum depression using Gujarati version of Edinburgh post natal depression rating scale. Women who do not know Hindi / Gujarati / English were not included in this study. 200 patients were screened on the first day, 6<sup>th</sup> post natal day and on 6<sup>th</sup> postnatal week for rescreening. -108 were screened on 6<sup>th</sup> day while 62 were screened on 6<sup>th week</sup> post natal. For women who could not read Gujarati, the EPDS was read out and the responses were recorded and who could read Gujarati, did self report. EPDS is a 10 item screening instrument specially used for screening post natal depression in various cultures. It has been found to be having high sensitivity, specificity and accuracy. Each item offers a choice of four responses, ranging from 0 to 3 according to severity with the total score ranging from 0 to 30.

EPDS assesses rating of Anhedonia and reactivity. ( I have been able to laugh and see the funny side of things; I have looked forward with enjoyment to things ) self blame, anxiety, panic, coping ( things have been getting on top of me ), insomnia ( due to unhappiness ) sadness, tearfulness and self harm.

Cut off point 12 was suggested for post natal depression.

For all women risk factors associated with post partum depression based on predictive index for post natal depression were specifically inquired (Development and validation of a predictive index for post partum depression – psychological medicine, 1996 ) at 1<sup>st</sup> post natal day. All women were interviewed using semi structured proforma including demographic data, obstetric data, relationship related data and economical data. A case control study was carried out where depressed individuals were considered as cases and non depressed individuals were considered as controls and risk factors were compared in these two groups to be statistically significant using chi square test and “p value” testing (derived using Epi info software). If the “P value for a particular risk factor found to be less than 0.05 that particular risk factor was said to be statistically significant for developing postpartum depression in our cases.

While assessing the women on EPDS scale study also conducted to see any difficulty faced by women during answering the questions of EPDS format and for ease of applying these scale on large sample of women by trained primary health care workers at periphery level.

### OBSERVATIONS & DISCUSSION

**Table 1 Socidemographic characteristic N=200**

Characteristic	N (%)
Age	
-<20 years	3 (1.5)
-20-24 years	92 (46)
-25-29 years	76 (38)
-30-34 years	24 (12)
->35 years	5 (2.5)
Domicile	
-Urban	109 (54.5)
-Rural	91 (45.5)
Religion	
-Hindu	138 (69)
-Muslim	60 (30)
-Others	2 (1)
Family	
-Joint	96 (48)
-Nuclear	104 (52)
Monthly income	
-<3000	138 (69)
->3000	62 (31)
Employment	
-Employed	20 (10)
-Unemployed	180 (90)

Table 1 shows that the depressed and non-depressed women differed with respect to their age, domicile, religion, type of family, monthly income, and status of employment thus the sample was representing the whole population.

**Table 2 pattern of EPDS score**

Score	Patients -N (%) on 1st Post natal day	Patients -N (%) on 6th Post natal day	Patients -N(%) on 6th Post natal week
0-5	158 (79)	90 (83.3)	52 (83.9)
6- 11	20 (10)	10 (9.3)	8 (12.9)
12-17	12 (6)	7 (6.5)	2 (3.2)
18-23	08 (4)	1(0.9)	0
24-29	02 (1)	0	0

**Table 2 shows that:**

On 1<sup>st</sup> day post partum out of 200 patients assessed 158(79%) scored between 0-5, 20 (10%) patients scored between 6-11 ,12 (6%) patients scored between 12-17,8 patients (4%) scored between 18-23 and 2(1%) patients scored between 24-29 on EPDS scale.

On 6<sup>th</sup> day post partum out of 108 patients assessed 90(83.3%) scored between 0-5 ,10 (9.3%) patients scored between 6-11 ,7 (6.5%) patients scored between 12-17, 1 patient (0.9%) scored between 18-23 and ,no patients scored between 24-29 on EPDS scale.

On 6<sup>th</sup> week post partum out of 62 patients assessed 52(83.9%) scored between 0-5 ,8 (12.9%) patients scored between 6-11 ,2 (3.2%) patients scored between 12-17,no patients scored between 18-23 or 24-29 on EPDS scale.

**Figure 1 : prevalence of depression**

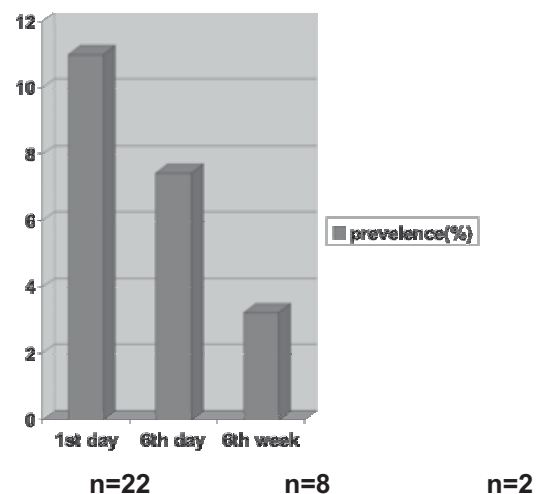


Figure 1- shows the prevalence of depression on EPDS score. At standard cut off score of 12, 22(11 %) women were identified as depressed on EPDS on 1<sup>st</sup> post natal day, 8(7.4 %) on 6<sup>th</sup> post natal day & 4(3.2 %) on 6<sup>th</sup> post natal week.

O' Hara and Swain (1996) did meta- analysis of 59 studies and estimated that the average prevalence rate of post natal depression was 13% TOD (1964) reported a prevalence rate of 2.9% of serious depression during the first post partum year while Watson et al (1984) reported a prevalence rate of post partum depression 22% Thus, there is a wide range of the prevalence rate of post partum depression found in previous studies<sup>8,9</sup>.

**Table 3 : comparison of various studies for the prevalence of post partum depression**

	Subjects	Post partum duration	Prevalence	Method used
Paykel et al (1980) UK	120	5-8 weeks	20%	CIS
Watson et al (1984) UK	128	6 week 12 months	12% 22%	ICD-9
R.kumar and robson (1984) UK	119	3 months 6 months 12 months	14% 11% 6.5%	RDC
O'hara (1986)	99	9 weeks	12%	CIS
Present study	200	1st day	11%	EPDS
	108	6th day	7.4%	
	62	6th week	3.2%	

CIS-clinical interview scale

ICD-international classification of disease

RDC-research diagnostic criteria

EPDS-Edinburgh Postnatal Depression Score.

Thus different studies shows wide variation in the prevalence of depression according to different methods of assessment used, different duration after delivery at which study conducted , geographic location & no. of subjects of study<sup>10,11</sup>.

### Indian Studies

Vikram patel (2002)<sup>17</sup> : 270 mothers recruited during their 3<sup>rd</sup> trimester of pregnancy from a district hospital goa.interview was taken at 34 weeks antenatal, 6-8 weeks and 6 months after childbirth. Depression was found to be in 23 % cases at 6-8 weeks and 22 % at 6 months postpartum

Ghosh Anuradha et al (2011)<sup>18</sup> –used EPDS scale for screening of postpartum depression .they found significant association of depression with poor socioeconomic group, nuclear family structure, single mother, and past history of psychiatric illness, history of abuse, and poor obstetric outcome..

**Table 4 - comparison of demographic characteristic in depressed v/s non depressed women**

Characteristic	Depressed N (%) N=22	Non depressed N (%) N=178	Chi square value
Age			
-<20 years	0	3 (1.7)	Chi square 4.98 P value 0.28
-20-24 years	11 (50)	81 (45.5)	
-25-29 years	11 (50)	65 (36.5)	
-30-34 years	0	24 (13.5)	
->35 years	0	5 (2.8)	
Domicile			
-Urban	14 (63.6)	95 (53.4)	Chi square 0.83 P value 0.36
-Rural	8 (36.4)	83 (46.6)	
Religion			
-Hindu	18 (81.8)	118 (66.3)	Chi square 2.21 P value 0.3
-Muslim	4 (18.2)	59 (33.1)	
-Others	0	1 (0.6)	

Table 4 compares socio demographic characteristic of depressed and non-depressed women. As regards to age, domicile, religion, family types the groups were comparable. No statistically significant differences were observed.(as the p value for each risk factor was found to be less than 0.5 so the differences between depressed and non depressed patients for these risk factors were not significant.)

Earlier, there have been several attempts to identify the characteristics that put women at risk for post partum depression but demographic factor have little association with this risk.<sup>11,12</sup>

**Table 5 comparison of obstetric characteristic in depressed v/s non depressed women**

	Depressed N (%) N=22	Non depressed N (%) N=178	Chi square value
Gender of the new born			
-male	6(27.3)	130 (73.1)	Chi square 18.84 P value 0.00001
-female	16 (72.7)	48 (26.9)	
Parity			
-primi	14 (63.6)	63 (35.4)	Chi square 6.6 P value 0.01
-multi	08 (36.4)	115 (64.6)	
h/o miscarriage			
-yes	10 (45.6)	25 (14.1)	Chi square 13.38 P value 0.001
-no	12 (54.4)	153 (85.9)	
feeling during pregnancy			
-positive experience	14 (63.6)	148 (83.1)	Chi square 4.84 P value 0.02
-negative experience	8 (36.4)	30 (16.9)	
past h/o psychiatric illness			
-yes	2 (9.1)	2 (1.1)	Chi square 6.34 P value 0.01
-no	20 (90.9)	176 (98.9)	
mode of delivery			
-abdominal(LSCS)	2 (9.1)	17 (9.6)	Chi square 0.1 P value 0.9
-vaginal	20 (90.9)	161 (90.4)	
Any congenital malformation/illness to child			
-yes	1 (4.5)	3 (1.7)	Chi square 0.82 P value 0.36
-no	21 (95.5)	175 (98.3)	
associated pathology during pregnancy			
-yes	8 (36.4)	60 (33.7)	Chi square 0.06 P value 0.8
-no	14 (63.6)	118 (66.3)	
family h/o psychiatric illness			
-yes	1 (4.5)	2 (1.1)	Chi square 1.55 P value 0.21
-no	21 (95.5)	176 (98.9)	
feeling tense during pregnancy			
-yes	2 (9.1)	8 (4.5)	Chi square 0.87 P value 0.35
-no	20 (90.9)	170 (95.5)	
feeling depressed during pregnancy			
-yes	2 (9.1)	9 (5.1)	Chi square 0.61 P value 0.4
-no	20 (90.9)	169 (94.9)	

Table 5-shows impact of the gender of new born in causation of post partum depression.it is seen that out of 22 depressed individuals 6 (27.3%) delivered a male child while rest 16 (72.7%) delivered a female child. And out of 178 none depressed individuals 130 (73.1%) delivered a male child while rest 48 (26.9%) delivered a female child. These data gave a p value of 0.00001 (at chi square value of 18.84) which being less than 0.05% indicated that the birth of a female child was a significant risk factor for development of post partum depression in this study.

In this study statistical co – relation between birth of a girl child and post partum depression was found, A similar finding was noted by Vikram et al (2002).<sup>17</sup>

Culturally, in our male dominated Indian society, male children are preferred and this male-bias is deeply rooted. When a girl child is delivered, the mother may be

subjected to antipathy, criticism and even hostility from her spouse and extended family, leading her to major depression is more likely to occur. Women who already had a girl child face greater stress because of social and family pressure to give birth to male child and if the child is a girl again the risk of post partum depression is greater. Such gender bias and the limited control, a woman and over her reproductive health may make pregnancy a stressful experience for her and ultimately lead to post partum depression. This response is a reminder that child birth is more than a biological event, and that the personal experience of child birth is deeply embodied in the socio-moral values of the local culture.

Table 5 compares significance of the history of miscarriage in causation of post partum depression .It is seen that out of 22 depressed individuals 10 (45.6%) had

h/o miscarriage while rest 12 (54.4) had no h/o miscarriage. And out of 178 non depressed individuals 25 (14.1%) had h/o miscarriage while rest 153 (85.9%) patients had no h/o miscarriage. These data gave a p value of 0.001 (at chi square value of 13.38) which being less than 0.05% indicated that h/o miscarriage was a significant risk factor for development of post partum depression in this study.

**Figure 2. significance of feeling during pregnancy**

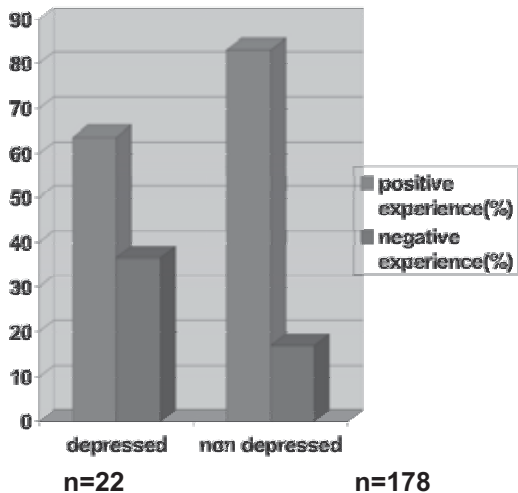


Table 5 (figure 2) compares significance of feeling during pregnancy in causation of post partum depression. It is seen that out of 22 depressed individuals 14 (63.6%) used to have positive experience while rest 8 (36.4%) had negative experiences during pregnancy. And out of 178 non depressed individuals 148 (83.1%) had positive experience while rest 30 (16.9%) patients had negative experience during pregnancy. These data gave a p value of 0.02 (at chi square value of 4.84) which being less than 0.05% indicated that feeling negative during pregnancy was a significant risk factor for the development of post partum depression in this study.

The differences in depressed v/s. non depressed cases for factors like mode of delivery, congenital malformation/illness to child, associated pathology during pregnancy, family history of psychiatric illness, feeling tense during pregnancy, feeling depressed during pregnancy had no statistical significance.

In the present study no significant association was found between feeling particularly miserable and depressed during pregnancy and an increased risk of post partum depression. O' Hara (1995) suggests that depression during pregnancy increases the risk of post partum depression by 35%.<sup>8,18</sup>

EPDS question were easy to understand by postpartum woman. Further it being easy to apply for the health care personnel it can be used by primary health care workers (e.g anganwadi worker or multipurpose health worker with

proper training.) so that they can apply the score even at the doorstep of the patient at the peripheral(rural) level and large population of post natal women can be screened. So that timely intervention can be instituted and mothers health, child's cognitive and emotional development can be improved

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## ORIGINAL ARTICLE

### Analysis of 63 patients of MDR TB on DOTS plus regimen : An LG hospital, TB Unit, Ahmedabad experience.

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**KEY WORDS :** MDR TB, DOTS PLUS, RNTCP

#### Abstract :

#### Aims :

To analyze demographic, clinical, radiological and bacteriological profile, drug sensitivity pattern, adverse drug reactions and treatment outcome in Multi Drug Resistant TB (MDR TB i.e. in vitro resistance to isoniazid and rifampicin) patients treated with DOTS plus regimen.

#### Method and Materials :

From August 2007 to June 2012, 63 MDR TB patients were analyzed retrospectively. Sputum smear and culture examination for tubercle bacilli were performed every month in intensive phase started at the end of third month and then every third month in continuation phase until end of treatment. Regular chest radiography was done at commencement of therapy, at the end of intensive phase and at the end of treatment. Analysis was made for following variables: age, gender, extent of lung lesion, correlation of sputum smear and culture conversion with clinical and radiological improvement, drug sensitivity pattern, risk factors for adverse outcome and adverse drug reactions.

#### Results :

Nine patients (39.13%) were cured, three patients (13.04%) failed, six patients (26.08%) defaulted and five patients (21.73%) died of total 23 patients whose outcomes are available after 30 months of enrolment. Out of remaining 40 patients four patients defaulted, eight patients died and 28 were still on therapy. Mean time for sputum smear and culture conversion were  $4.2 \pm 2.1$  and  $4.29 \pm 2.4$  months, respectively. Extensive lung lesion, cavitations, poor adherence to treatment, high initial bacterial load and BMI less than 18 are variables associated with poor outcome. Thirty six (57.14%) patients experienced adverse drug reactions and 21 of them required drug modifications.

#### Conclusions :

Presence of cavitations, extensive lung lesion, poor adherence to therapy, high initial bacillary load and low BMI are associated with unfavourable outcomes. Sputum smear and culture conversion at the end of third and fourth month are not indicators to predict outcome. Sputum smear and culture conversion are very well correlated with clinical and radiological improvement.

## INTRODUCTION

The emergence of drug resistant mycobacteria has become a significant public health problem world over creating an obstacle to effective TB control. Confirmed Multi Drug Resistant tuberculosis (MDR TB) case is defined as an MDR-TB suspect who is sputum culture positive and whose TB is due to Mycobacterium tuberculosis that are resistant in-vitro to at least isoniazid (H) and rifampicin (R). (The culture and Drug Sensitivity Test results are being done from an RNTCP accredited laboratory). As per the WHO global TB report 2011, estimated number of MDR TB cases out of notified

pulmonary TB cases in India is 64000 (range, 44000 to 84000) annually. Treatment of MDR TB is challenging due to toxicity of second line drugs. In present study we analyzed different factors affecting conversion of sputum smear and culture (Patients will be considered sputum smear/ culture converted after having two consecutive negative results taken at least one month apart), clinical and radiological improvement and their correlation.

## SUBJECTS AND METHODS

Data collection :

Data of 294 patients of MDR suspect (CAT I failure, CAT II sputum smear positive after four month or later and

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sputum positive contacts of MDR TB) were obtained from medical records like treatment card and registers from August 2007 to June 2012.

Guidelines for MDR TB suspect case were revised in May 2012 which includes:

- Criteria A □ All failures of new TB cases (on CAT I), sputum smear positive re-treatment cases who remain smear positive at four month or later (on CAT II), All Pulmonary TB cases who are contacts of known MDR TB case
- Criteria B □ All Re-treatment smear positive at diagnosis & any smear positive follow up of new or retreatment cases
- Criteria C □ Retreatment smear negative cases at diagnosis, HIV TB co-infected cases in addition to the suspects in Criteria B.

History was obtained from patients, health workers, STS, STLS, DOT provider etc... Of these MDR suspects patients 230 sputum samples sent for culture and sensitivity testing and out of them 147 patients (63.91%) were turned out to be DR TB cases which are resistant to mono rifampicin resistant (n=42) or isoniazid plus rifampicin resistant (n=105). As per RNTCP guidelines mono rifampicin resistant cases are also included for DOTS plus treatment. Hence out of total 147 patients, 63 patients were put on DOTS plus regimen. 36 patients refused, 32 patients migrated, and 16 patients died of remaining 84 patients. Non MDR TB patients were continued on CAT II regimen. The details of demographic data, chemotherapy, adverse drug reactions to drugs, regularity of treatment, follow up assessment as well as regular sputum bacteriology and chest radiography results were recorded.

Sputum bacteriology and other investigations:

Sputa were collected in sterile Mc cartney bottles containing cetyl pyridinium chloride (CPC) or falcon tubes. All specimens were subjected to culture for mycobacterium tuberculosis and drug susceptibility testing for isoniazide (H), rifampicin (R), ethambutol (E) and streptomycin (S) on Lowenstein Jensen (LJ) medium which were sent in CPC bottle. Specimen collected in falcon tubes were subjected to Line Probe Assay (LPA) to know sensitivity of H and R only. Sputum culture and drug sensitivity results are available after three to four months in LJ media while LPA is a rapid diagnostic test which gives result within few days. Because of this fact RNTCP has adopted LPA method for diagnosis of MDR TB cases after August 2009. However LPA is not useful for follow up sputum cultures hence follow up cultures are being done by LJ media.

Prior to starting treatment all patients underwent detailed clinical, serological, bacteriological, radiological

evaluation. Thyroid, hepatic, renal function tests and complete blood counts were done. HIV testing by enzyme linked immunosorbent assay done after pre test counselling and informed consent. All patients were referred to DOTS plus site where DOTS plus treatment were started after evaluation.

DOTS plus regimen :

As per RNTCP guidelines this regimen includes six drugs kanamycin (Km), ethambutol (E), pyrazinamide (Z), cycloserine (Cyc), ethionamide (Eto) and ofloxacin(ofx)/levofloxacin (Lfx). These drugs to be taken daily except Km which is to be taken six days per week. Intensive phase includes all six drugs and continued for six to nine months while continuation phase includes four drugs (Cyc, Eto, E, Ofx/Lfx) taken for 18 months. PAS (Para amino salicylic acid) is reserved drug for patients who develops adverse drug reaction or who conceives while on therapy (who cannot be given Kanamycin or Ethionamide).

Patient monitoring :

Patients were regularly assessed for clinical and radiological improvement. Weight done every month, chest radiography was done six monthly and frequent assessments done for adverse events. Sputum smear and culture were done at the end of 3, 4, 5, 6, 7 month and then every 3<sup>rd</sup> month in continuation phase. Renal function test was done every month in intensive phase and then every 6<sup>th</sup> month in continuation phase.

Outcome definitions :

Cure: An MDR-TB patient who has completed treatment and has been consistently culture negative (with at least 5 consecutive negative results in the last 12 to 15 months). If one follow-up positive culture is reported during the last three quarters, patient will still be considered cured provided this positive culture is followed by at least 3 consecutive negative cultures, taken at least 30 days apart, provided that there is clinical evidence of improvement.

Death : An MDR-TB patient who dies for any reason during the course of MDR-TB treatment

Treatment failure: Treatment will be considered to have failed if two or more of the five cultures recorded in the final 12-15 months are positive, or if any of the final three cultures are positive.

Treatment default: An MDR-TB patient whose MDR-TB treatment was interrupted for two or more consecutive months for any reasons.

Data was compiled and analyzed for different parameters like age, gender, socio economic status, co morbid conditions, reason for MDR suspect, method of diagnosis, drug sensitivity to first line anti tuberculosis drugs, adverse drug reactions, sputum smear and culture

conversion, weight gain, radiological improvement. We also analyzed correlation of sputum smear and culture conversion with weight gain and radiological improvement.

## RESULTS

Demographic and clinical profile :

Sixty three patients were put on category IV regimen after diagnosis of MDR TB. Mean age was 34±11.54 years (range, 16 to 62 years). Forty (63.49%) patients were male and 23 (36.51%) were female. Mean body weight was 41.80±10.82 kg (range, 20 to 60 kg). Mean body mass index (BMI) was 18.67±3.45 (range, 14 to 23.5). Concomitant medical diseases were present in 23 patients (36.5%). These included hypertension, COPD, hyperlipidemia, chronic alcoholic liver disease. Six (9.51%) patients were immunocompromised, of which two (3.17%) were HIV positive and four (6.34%) were diabetic. Both HIV positive patients were already known cases and on anti retroviral therapy. In present study no patient was having thyroid abnormality before initiation of treatment. There was not any female with pregnancy before or after initiation of therapy.

Drug sensitivity pattern:

Fifty three (84.12%) patients were of Category II (two failure, eight (12.69%) patients were of Category I or III failure, one (1.58%) patient was contact of MDR TB case and one (1.58%) patient had taken treatment from private sector. MDR TB was diagnosed by LJ culture initially. Newer diagnostic method Line Probe Assay (LPA) was adopted by RNTCP after August 2009. Twenty one (33.33%) patients were diagnosed by LJ culture, of which 12 (57%) were SHER resistant, four (19.04%) were SHR resistant, two (3.17%) were HER resistant and three (14.28%) were HR resistant. Forty two (66.66%) patients

were diagnosed by Line Probe Assay of which 37 (90.24%) were HR resistant and five (9.76%) were mono R resistant.

Adherence to therapy :

Forty nine (77.78%) patients were regular in therapy. Fourteen patients (22.22%) had poor adherence to therapy, which was defined as missing more than 20% of the designated number of doses.

Outcome :

Total 38 (60.32%) patients had completed intensive phase, of which six (15.78%) had taken IP for six months, 13 (34.21%) for seven months, eight (21.05%) for eight months and 11 (28.95%) for nine months. Total 12 patients had completed full course of treatment of which nine were declared cured and three were declared as failure. All patients who failed therapy were suspected as XDR TB (resistance to at least Rifampicin and isoniazid, in addition to any fluoroquinolone, and to at least one of the three following injectable drugs used in anti TB treatment: Capreomycin, Kanamycin and Amikacin) and second line drug sensitivity were sent which revealed non XDR TB (sensitive to ofloxacin) in two patients and remaining one patient was turned out to be an XDR TB case and died afterwards. Total ten patients had defaulted therapy due to social reason (20%), migration to other state or territory (50%) and adverse drug reaction (30%). Amongst defaulter six patients had defaulted before completion of intensive phase. Three patients had history of defaultation in previous therapy also.

Of the variables that might be associated with the adverse treatment outcome is presence of cavitations, BMI < 18, extensive lung lesion, poor adherence to therapy and initial high bacterial load (Table I).

Table I

Demographic, clinical, bacteriologic and treatment characteristics in 23 MDR TB patients with different outcome

Variables	Treatment outcome		P Value	
	Success (n=9)	Failure/death/ default (n=14)		
Age	35.44 (mean)	35.05 (mean)	NS	
Male sex	6 (66.66%)	9 (64.28%)	NS	
Presence of cavity	3 (33.33%)	10 (71.42%)	<0.05	
Extensive disease	3 (33.33%)	9 (64.28%)	<0.05	
Initial bacterial load	3+ n=0	3+ n=5	<0.05	
	2+ n=4	2+ n=4	NS	
	1+/Scanty bacilli n=5	1+/ Scanty bacilli n= 5	NS	
Poor adherence	0	6 (42.85%)	0.0001(HS)	
HIV positivity	0	1 (7.14%)	NS	
Diabetes	0	1 (7.14%)	NS	
Adverse events which needed drug modifications	3 (33.33%)	5(35.71%)	NS	
BMI	≤ 18	3 (33.33%)	10(71.42%)	<0.05

NS= not significant, HS= highly significant

Out of 63 patients 15 patients had not completed treatment up to three months, so follow up sputum smear examination, sputum culture, chest x-rays and weight available for only 48 patients. From these 48 patients 32 (66.66%) and 27 (57.25%) had conversion of sputum smear and culture respectively at end of 3<sup>rd</sup> month. Eight (16.66%) patients had neither smears nor culture conversion throughout therapy they had completed. Remaining eight patients had conversion of sputum smear and culture from the end of 4<sup>th</sup> month to 12<sup>th</sup> month. Thirty (62.5%) patients showed radiological improvement, 15 (31.25%) showed static lesion and only 3 (6.25%) showed radiological deterioration during treatment. Thirty five (72.91%) patients had weight gain, 10 (20.83%) had weight loss and 3 (6.25%) had no change in weight during or at end of treatment. Sputum smear and culture conversion were well correlated with radiological improvement and weight gain.

During treatment 16 patients who were converted negative for sputum smear and culture were again became positive. Of which eight patients were persistent positive till therapy continued. Out of these eight patients second line drug sensitivity were available for three patients who showed that one patient was XDR TB case and remaining two were non XDR TB case, three patients expired and two were defaulter. Remaining eight patients become positive for short period of time after initial conversion.

Analysis of expired cases :

Study revealed that among total 14 expired patients, 11 (78.57%) had far advanced lung lesion on chest

radiography, three (21.42%) had neither sputum smear nor culture conversion throughout therapy they had completed, one (7.14%) patient was diabetic. Five (35.71%) patients developed adverse drug reaction which required modifying treatment, of these one patient developed severe jaundice, altered behaviour and joint pain. One patient had carcinoma glottis and two had chronic obstructive pulmonary disease. Two (14.28%) patients were SHER resistant, nine (64.28%) were HR resistant, one (7.14%) was SHR resistant and two (14.28%) were mono R resistant.

Adverse drug reactions :

Of 63 patients, 36 (57.14%) had adverse drug reactions of varying severity. The most common ones were related to gastrointestinal system and central nervous system. Modification of drug regimen required in 21 patients. Eight of them required to terminate cycloserine treatment after a mean of 4.1± 3.2 months (range, 1 to 9 months) because of depression (n=2), altered behaviour (n=1), suicidal attempt (n=1), insomnia (n=2) and seizure (n=1). Four patients required termination of aminoglycosides after a mean of 2.5± 2.1 months (range 1 to 6 months) because of nephrotoxicity or otovestibular toxicity. Four patients had severe joint pain and so needed to discontinue pyrazinamide. Two patients developed blurring of vision and so ethambutol was withdrawn from therapy. One patient had hypothyroidism after commencement of therapy and ethionamide was discontinued. Hypersensitivity was observed in one patient who required stopping ofloxacin. Various adverse drug reactions observed during therapy are depicted in table II.

**Table II**  
**Adverse drug reactions observed**

System	Manifestations	No of patients (%)	Actions taken for ADR
Gastro intestinal	Nausea, vomiting, epigastric discomfort	14(22.22%)	Symptomatic treatment
Central nervous	Insomnia, depression, seizure, suicidal attempt	8 (12.69%)	Cycloserine stopped in all patients
Skeletal	Joint pain	5 (7.94%)	Symptomatic treatment (n=1) Pyrazinamide stopped, para amino salicylic acid added (n=4)
Otovestibular	Giddiness, tinnitus, impaired hearing	3 (4.76%)	Kanamycin stopped and PAS added (n=3) and kanamycin alternate day (n=1)
Ophthalmic	Visual blurring	2 (3.17%)	Ethambutol stopped
Endocrinal	Hypothyroidism	1(1.58%)	Ethionamide stopped and pyrazinamide added
Renal	Renal function impairment	1 (1.58%)	Kanamycin stopped and PAS added
Dermatologic	Hypersensitivity, rashes	1(1.58%)	Ofloxacin omitted permanently
Hepatobiliary	Jaundice	1(1.58%)	Pyrazinamide and ethionamide stopped temporarily

## DISCUSSION

In our study younger population with lower weight patients are more affected in contrast to other studies<sup>1-3</sup>, while other demographic profile and clinical characteristics were similar to other studies, with male patients' predominance.

Among the variables that were found to be independently associated with adverse outcome of patients, the presence of cavitations might affect drug penetration and thus decrease the efficacy of anti tubercular drugs. It was found that cavitary lesion per se, irrespective of drug sensitivity pattern was associated with poor treatment outcome<sup>4</sup>. Irregularity of treatment linked with adverse outcome is not unexpected and emphasizes that importance of directly observed therapy in the management of tuberculosis, which should be mandatory

for all patients with MDR TB<sup>5</sup>. BMI less than 18 is also associated with poor outcome, which is comparable to one study (unpublished data, DOTS plus pilot project, Gujarat). Similar results were observed in one another study also<sup>6</sup>.

Second line anti tubercular treatment adverse events leading to treatment interruption or defaultation was observed in present study. Most common adverse event was related to gastro intestinal which is also seen in other studies<sup>7, 8</sup>. though severe adverse reactions were frequent, treatment could be continued in most cases with modifications of the treatment regimen. Other studies have reported major adverse reactions ranging from 19-72%<sup>7-10</sup>. Central nervous system related adverse events were second most common which lead to omission of cycloserin in our study.

**Table III**  
**Adverse Drug Reactions (ADR) in different studies**

ADR (system involved)	Wai Yew W. et al <sup>11</sup> (%)	Thomas A. et al <sup>10</sup> (%)	Torun T. et al <sup>9</sup> (%)	Present study (%)
Gastro intestinal	20	67	14	22.22%
Central nervous	17.46	8	31.2	12.69%
Skeletal	7.93	-	11.4	7.94%
Otovestibular	14.28	13	41.8	4.76%
Ophthalmic	3.17	-	-	3.17%
Endocrinal	-	-	-	1.58%
Renal	3.17	-	-	1.58%
Dermatologic	1.58	18	4.5	1.58%
Hepatobiliary	1.58	4	4.5	1.58%

In this cohort study of MDR TB patients, those who responded achieved sputum culture negativity during early months of therapy, usually within four months. This concurs with a study of HIV negative subjects with MDR TB. In our study sputum culture conversion at three to four month was not predictive of eventual cure, which was shown in other series<sup>11</sup>.

The poor cure rate (39.13%) was observed in the current study, is similar to another report from tuberculosis

research centre, where only 36% cure rate was observed<sup>10</sup>. Similarly studies from Argentina, Peru and USA have reported positive treatment outcome of around 45%<sup>1, 12, 13</sup>. The unfavourable outcome shown in these series was strongly associated with greater number of drugs received previously and male sex and resistance to more than five drugs. A report from India had shown 68% cure rate<sup>14</sup>. On the contrary to our study other reports from Vietnam, Korea, Netherland and Turkey had shown cure rate of above 75%<sup>3, 15-17</sup>.

**Table IV**  
**Outcome of MDR TB treatment in different studies**

Outcome	Thomas A. et al <sup>10</sup>	Single R et al <sup>7</sup>	Van Deun A. et al <sup>18</sup>	Johnston JC et al <sup>6</sup>	Present study
Cure (%)	37	61	69	62	39.13
Default (%)	24	18	12	13	26.08
Death (%)	13	19	14	11	21.73
Failure (%)	26	3	5	-	13.04
Transfer out (%)	-	-	-	2	-

In present study poor cure rate was observed mainly due to high default (26.08%, mainly due to migration and adverse drug reactions) and death rate (21.73%, mainly due to extensive lung lesion and low BMI) in spite of high sputum culture conversion rate (74.50%) at the end of intensive phase treatment.

In summary, this study describes meta-analysis of patients on DOTS plus regimen. Migration, alcoholism, drug toxicity are important factors leading to defaultation or poor treatment adherence and ultimately low cure rate in MDR TB treatment. If patient takes drug regularly then failure rate of this treatment is not much high.

Emergence and spread of MDR TB can threaten the global TB control. The treatment of MDR TB is prolonged, expensive and often unsuccessful. Hence prevention of MDR TB is more important rather than treatment. Strengthening the program by intensely evaluating treatment regimens, assuring treatment adherence, supporting true DOTS, aggressive and proactive management of adverse events and infection control are very essential.

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**Trends of Suicidal Poisoning Deaths in Females of Ahmedabad (Gujarat Region)**

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**KEY WORDS** : Suicidal deaths, Autopsy, Poisoning.**ABSTRACT**

**Background** : Pattern of suicidal deaths is a reflection of the prevailing social set up and mental health status of the region. Many cultural and socio-economic factors of a country are responsible for the causation of such deaths in females. Suicidal deaths happen almost everywhere in the world.

**Objective** : The current study was conducted with an objective to understand the magnitude and pattern of suicidal poisoning deaths in female. And to know the various reasons associated with them.

**Methodology** : A two year retrospective study from May 2007 to April 2009 was conducted at the Department of Forensic Medicine & Toxicology in Smt. NHL Municipal Medical College, Ahmedabad. During this period, a total 45 female cases out of 130 of suicidal poisoning related deaths were autopsied conducted in the mortuary of Smt. NHL Municipal Medical College, V. S Hospital campus at Ahmedabad.

**Results** : Study revealed that second most of the victims of fatal poisoning were Hindus, married Females of middle socio-economic status who died due to self ingestion of some poison Preference for organophosphates. Suicidal poisoning was commonly encountered during afternoon hours in females.

**Conclusions** : The result of this study indicates that, by not only a strong legal support network but also opportunities for economic independency, essential education and awareness, alternative accommodation and a change in attitude and mindset of society, judiciary, legislature, executive, men and the most importantly woman herself can lower or prevents the such suicidal deaths.

**INTRODUCTION**

Suicidal death is one type of violent death which is caused by a deliberate act of the decedent with the intent to kill him. Data on such suicidal deaths in a particular geographic area can give the reflection of social and mental status of females. Suicidal deaths of married women have been an increasing trend in Indian society during the recent past years.

The most obvious reason behind such deaths is unending demands of dowry (Cash / Kinds) by their husbands and / or in laws, for which they torture the bride in such a way that she commits suicide, either by burning, poisoning, hanging, jumping from terrace or by some other means. Besides this, family quarrels due to ill-treatment by In-laws, rash and negligent behavior or extra-marital affairs of husband and mal-adjustment and infertility in wives are other reasons behind such deaths. Its increasing incidence is symbolic of continuing erosion and devaluation of women's status in independent by this study, we can know the various causes of suicidal deaths in females and the various motives behind them.

**MATERIALS AND METHODS**

Ahmedabad is a district with population of about 56 lacks

as per 2011 census in an area of 22,473 sq kms. The postmortem center at our hospital is under the department of forensic medicine and caters the need of our City and surrounding rural areas. All the poisoning deaths coming for the postmortem examination to this center are studied, the study being retrospective from May 2007 to April 2009.

The materials comprised 45 autopsy cases of suicidal Poisoning deaths of females of all ages, out of total 130 autopsies of suicidal poisoning done in our mortuary. The cases included not only Ahmedabad city but also from surrounding areas of Ahmedabad region. These 45 autopsy cases of suicidal deaths had taken as study population irrespective of race, religion and caste after taking detailed informed written consent from next to kin of the deceased. Information regarding the name, age, address, occupation, education, socio-economic stat marital status, history of death, apparent motive and the circumstances leading to such deaths of deceased were collected from the relatives / friends of the deceased, hospital records and the concerned investigating agencies. Other information like cause of death from the autopsy reports and final cause of death formed from the reports of samples and viscera, subjected to chemical

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analysis, histopathological examination and other investigations. Proforma for study was prepared and all collected data were put into the master-chart, which was prepared and then feed into the computer in Excel worksheet and then analyzed.

### OBSERVATION

The present study comprised 45 (28.89%) autopsy cases of suicidal deaths of females out of total 130 autopsies of suicidal poisoning. Maximum cases (44.44%) were seen in age group of 14 – 23 years followed by 24.44% and 15.55 % cases in age group of 34–43 and 24–33 years respectively. Minimum cases (04.44%) were seen in fifth/sixth decade (54-63) while no case recorded in child below 10 years. There were more cases seen in urban region (55.55%) than rural (44.44%).

Housewives constituted the largest single category amounting nearly 77.78% and after that laborers (08.88%) and students (06.66%) were involved. Only 3 cases was seen in employed women

Most of females were literate (66.66%) who become victims in such deaths in which 22.23% studied up to primary education, 26.66% up to secondary school, 17.77% up to higher secondary graduation. Rest victims were illiterate (33.34%).

Highest numbers of cases (48.88%) were seen in class II (Middle) followed by 37.77% and 13.34% cases in class III (Lower) and class I (upper) respectively.

Hindus (62.22%) comprised the single largest category followed by Muslims (31.11%). Only 02 (04.45%) cases were belonging to the Christian.

Out of total number of cases, more than half of victims were married (68.89%) while 31.11% were unmarried.

In the total 45 suicidal cases, most common motive for suicidal deaths was mental stress due to unknown reasons (71.11%) followed by family quarrel (08.88%), chronic illness (04.45%), Financial problem Cruelty by husband & in-law( 04.45%), Dowry (04.45%), Failure in love (02.22%), mal-adjustment in marriage life (02.22%), and. In some cases there was more than one motive for suicide.

In about all poisoning route of administration of poisoning was oral. Majority of poisoning cases, 38 above to get hospitalized for various duration before death where as remaining are 7 could not be hospitalized due to various reasons. The poisoning death could be related to dose ingested as well as the time elapsed between ingestion and arrival at hospital. Carbamate propoxur and aluminum phosphide compared were most commonly used for suicidal poisoning because Baygon is easily available and relatively cheap compound. Aluminum phosphide is again easily available and fatal dose required is too small. Both compounds are available in

urban and rural area at chemist shop as well as at number of provision stores <sup>(14,15,20)</sup>

### DISCUSSION

Cases of suicidal, poisoning by various chemical compounds is being reported by very frequently from all parts of India and other countries. With increasing use of chemicals in industries, agriculture and domestic practices, incidence of poisoning are also increasing and a steady incline has been reported not only in developed countries but also in developing countries like India, Sri-Lanka, Philippines, and Pakistan <sup>(16)</sup> Comparison between different studies on cases of poisoning brought for post-partum is difficult because pattern of poisoning is different in various regions. In our study 34.61 % of cases (Females) brought for autopsy were in relation to poisoning.

Banarjee <sup>[12]</sup> who studied the vulnerability of Indian women. They found that the incidence of suicide was 43/100,000 in Bengal and that women (79.3%) outnumbered men. 75% of the victims were below 25 years of age and the commonest cause for suicide in women was quarrel with husband, while in men it was with parents. Ingestion of insecticide was the most common method of committing suicide.

The incidence of poisoning is maximum in 2nd and 3rd decade of life which is similar to the study of KSN Reddy, Gannarda and study of Vinay Shetty, P.R. Shukla. <sup>(17,18,19)</sup> Sharma BR et al (2004)<sup>7</sup>, Mohan Kumar T et al (2006)<sup>8</sup>, Sharma BR et al (2007)<sup>9</sup>, Srivastava AK et al (2007)<sup>10</sup>, Geeta S et al (2008)<sup>11</sup>, Singh AK et al (2009)<sup>12</sup> and Kailash UZ et al (2009)<sup>13</sup> In a study of Vinay Shetty 52.25% of cases of 2nd and 3rd decade of victim<sup>(18)</sup>. It again might be due to reason that this group is more involved in all types of strain, i.e. domestic, educational and un-employment. Thus, it definitely requires a higher emphasis before it may affect the entire nation's economy.

There were more cases seen in urban region (45.38%) than rural (20.0%). This finding was consistent with the findings of Sharma BR et al (2004)<sup>7</sup>. In the study of authors<sup>6, 11, 13</sup> most cases were from rural region, which was totally in disagreement with those of, present study.

Housewives constituted the largest single category amounting nearly 77.78%. This finding was consistent with the findings of others <sup>2, 4,10,11,13</sup> and Statistics of NCBI 2008<sup>15</sup>. Majority of victims were housewives that were dependant on their husbands or in-laws.

Most of females were literate (89.13%) who become victims in such deaths in which 30.44 % studied up to secondary school, 25.36% up to higher secondary, 25.36% up to graduation and only 7.97% were primary education. Rest victims were illiterate (10.87%). This finding was consistent with the findings of Kailash UZ et al

(2009)<sup>13</sup> in which 72.35% of cases were educated less than metric and 12% were illiterates.

This finding was inconsistent with the Statistics of NCBI 2008<sup>15</sup> in which the maximum number of suicide victims was educated up to Primary level (25.3%). Illiterate and Middle educated persons accounted for 20.7% suicide victims and 23.7% respectively. Only 2.6% suicide victims were graduates and post-graduates.

This change may be because of change in life style, socio-economic conditions and population affected in the region of South Gujarat. For the fact, that the mostly affected were immigrants from neighboring states and belonged to lower socioeconomic strata and were from major constituent of laborer class, low literacy rate could have been evident. Authors<sup>4, 6, 10, 11</sup>, in their study had however showed that illiterate women were most vulnerable, which was totally disagreement with those of, present study.

According to Kulshrestha P et al (2001)<sup>4</sup> about half of victims were found to be illiterate and among those who literate, non-matriculantes formed more than half of the graduate and technical/professional combined constituted merely 9.39% of total.

Highest numbers of cases (40.58%) were seen in class II (upper - middle) followed by 36.96% and 13.04 % cases in class III (middle) and class IV (lower-middle) respectively. Only 3 cases were present in class V (lower) while class I (upper) was also involved in 12 cases. This finding was not consistent with the findings of Srivastava AK et al (2007)<sup>10</sup> which shown majority of the victims were belonging to class III (middle) or class IV (lower-middle) socio-economic groups.

Kulshrestha Pet (2001)<sup>4</sup> and Kailash UZ (2009)<sup>13</sup> in their study had however showed that class IV (lower – middle) socioeconomic class was most vulnerable while in the study of Mohanty MK (2004)<sup>6</sup>, Sharma BR (2007)<sup>7</sup> and Geeta S (2008)<sup>11</sup>, class V (lower) socio-economic class were mostly involved, which was in disagreement with those of, present study. The reason for the above said findings may be due to economic instability leading to violence against women in the form of dowry deaths

Hindus (89.86%) comprised the single largest category followed by Muslims (9.42%). Only 1 case was belonging to the Christian. This finding was consistent with the findings of authors<sup>2, 4, 6, 10, 11, 13</sup>. We believed that marital / family discards and dowry problems were less in Muslim due to simple rituals and practice of "Mahr" / "dower" instead of evil practice of "dowry". Very low population and higher and professional qualification and cultural differences may be responsible for only 1 case having been reported from Christian religion. Rahim M et al (1996)<sup>3</sup> in their study had however showed that 95.47% of the unnatural deaths were the Muslims, 4.25% were

Hindu and 0.14% was Christians, which was slightly in disagreement with those of, present study. Reason behind such finding, Bangladesh was Islamic country.

Out of total number of cases, more than half of victims were married (69.57%) while 25.36% were unmarried and 5.07% were widow. This finding was consistent with the findings of authors<sup>6, 11, 13, 15</sup>

In the total 138 suicidal cases, most common motive for suicidal deaths was mental stress due to unknown reasons (51.45%) followed by family quarrel (10.87%), mental illness (10.15%), chronic illness (7.97%), failure in love (7.25%), mal-adjustment in marriage life (6.52%). Srivastava AK (2007)<sup>10</sup> in their study had however showed that ill-treatment by the in-laws, excessive pressure for dowry and negligent behaviour of husband were the main reasons behind suicidal deaths, which was slightly in disagreement with those of, present study.

According to Geeta S (2008)<sup>11</sup>, marital disharmony was the principal reason behind suicide. According to Singh AK (2009)<sup>12</sup>, depression, insecurity and excess work load responsible for the high incidence of suicidal deaths.

According to Kailash UZ et al (2009)<sup>13</sup>, dowry was the most common motive for suicidal deaths. According to Statistics of NCBI 2008<sup>15</sup>, Family Problems and Illness, accounted for 23.8% and 21.9% respectively, were the major causes of suicides among the specified causes. Love Affairs (3.0%), Bankruptcy, Dowry Dispute and Poverty (2.4% each) were the other causes driving people towards suicides.

Self-poisoning is one of the oldest methods tried for committing or attempting suicide, only the substances is used for poisoning change from time to time and place to place. Increasing stress and strains in life and diminished mental strength to cope up with this stress may be the reason behind this; other reasons may be free and easy availability, social problems like marital disharmony, economic hardship, disagreement, scolding, unemployment, adjustment problem, quarrel with other members etc.<sup>(21)</sup>

Carbamate-Propoxure and Aluminum phosphide poisoning deaths are commonest because of being cheap, easily available without any restriction in market as Baygone Spray for Carbamate-Propoxure and Celphos, Alphos, Quickphos, Phostoxin, Phosphotex etc. for Aluminum Phosphide, highly efficacious and non-availability of specific antidote<sup>(8,9,10)</sup>.

In all cases of deaths due to poisoning show cyanosis and presence of froth at mouth and nostrils as prominent features. Whenever these finding are present poisoning should be rule out first. When we find congestion of internal organs with cyanosis and froth chances of detecting poison are more. In our study out of 11(24.44%)



cases shows the presence of froth at nostrils, 24(53.33%) cases shows presence of cyanosis and internal examination liver, kidney congested in all cases. In study of Mrinal haloj, showed externally cyanosis, petechial haemorrhage and froth were found in 64.58%, 27.08%, 43.75% of the cases respectively, kidney (90.62%) was the most common organ showing congestion <sup>(26)</sup>

In our study incidence of aluminum phosphide (33.33%) and carbamate propoxur (20.0%) poisoning was maximum i.e. among known cases of poisoning followed by forate and corrosive compound. Study of KSN Reddy showed 65.3% incidence of organ phosphorus poisoning. In study of Vinay Shetty showed incidence of Aluminum phosphide maximum, whereas study of Sharma showed maximum incidence of sulphuric acid followed by metallic irritant, alcohol and insecticides was commonest findings during 1980-84. But the trend changed and the incidence was maximum due to insecticide followed by alcohol <sup>(22)</sup>

### CONCLUSION

The cause of death profile is an important set of public

health information and forms the cornerstone of the health information system. At provincial level it is needed for health planning and deciding on intervention strategies. A low incidence of suicidal deaths in female should be described in favor of peace, harmony and happiness in society, state as well as in country. In present study, most of the victims were literate Hindu-married females of 21 - 30 years of age belonging to upper-middle socio-economic class and majority of women were died due to poisoning.

The result of this study indicates that, by not only a strong legal support network but also opportunities for economic independency, essential education and awareness, alternative accommodation and a change in attitude and mindset of society, judiciary, legislature, executive, men and the most importantly woman herself can lower or prevents the such suicidal deaths.

The present study includes 45 cases of poisoning in our institute from May 2007 - April 2009 retrospectively. Pattern of fatal poisoning in present study is more or less similar to the pattern observed in most of the

TABLE

#### Age wise Distribution

Age group	Female
14 – 23	20 (44.44%)
24 – 33	07 (15.55%)
34 – 43	11 (24.44%)
44 – 53	04 (08.88%)
54 – 63	02 (04.44%)
<b>Total</b>	<b>45</b>

#### Occupation wise Distribution

Occupation	No of cases
House wives	35 (77.78%)
Laborers	04 (08.88%)
Employed	03 (06.66%)
Student	03 (06.66%)
<b>Total</b>	<b>45</b>

#### Religion wise distribution

Religion	No of Cases
Hindu	28 (62.22%)
Muslim	14 (31.11%)
Christian	02 (04.45%)
Unknown	01 (02.22%)
<b>Total</b>	<b>45</b>

#### Education wise Distribution

Education	No of cases
<b>Literate</b>	<b>30 (66.66%)</b>
Primary	10 (22.23%)
Secondary level	12 (26.66%)
Higher Secondary level	08(17.77%)
<b>Illiterate</b>	<b>15 (33.34%)</b>
<b>Total</b>	<b>45</b>

#### Socioeconomic status wise Distribution

Socioeconomic	No of cases
Upper class	06 (13.34%)
Middle class	22 (48.88%)
Lower class	17 (37.77%)
<b>Total</b>	<b>45</b>

#### Distribution of poisoning cases according To history of ingestion by victim or relatives

Name of ingestion substance	No of cases
Acid	04 (08.88%)
Chlorpyriphos	01 (02.22%)
CUSO4	01 (02.22%)
Organophosphorous	09 (20.0%)
Unknown substance	20 (44.44%)
Unknown liquid	10 (22.23%)
<b>Total</b>	<b>45</b>

**Distribution cases according to apparent motive for poisoning**

Apparent Motive	No of Cases
Mental stress due to unknown reasons	32(71.11%)
Family quarrel	04 (08.88%)
Mental illness	00
Chronic illness	02 (04.45%)
Failure in love	01 (02.22%)
Maladjustment in marriage life	01 (02.22%)
Failure in Exam	01 (02.22%)
Financial problem Cruelty by husband & in-law	02 (04.45%)
Dowry	02 (04.45%)
<b>Total</b>	<b>45</b>

**Distribution of poisoning cases according to presence of smell in stomach contents during autopsy**

Type of smell	No of cases
Bitter	03 (06.67%)
Insecticide	20 (44.44%)
Kerosene	10 (22.23%)
No smell	12(26.66%)
<b>Total</b>	<b>45</b>

**Distribution of poisoning cases according to Marital Status, Residence and Route of Exposure**

Sex	Marital status			Residence		route of exposure		
	unmarried	married	Widow	urban	Rural	oral	inhalation	infusion
Female	14 (31.11%)	31 (68.89%)	00	25 (55.55%)	20 (44.44%)	45 (100%)	00	00

**Distribution of cases according to FSL report finding**

FSL report findings Name of Poison	No. of cases
Aluminium Phosphide	09 (20.0%)
Chlorpyriphos	01 (02.23%)
CUSO4	01 (02.23%)
Endosulfan	01 (02.23%)
Forate	04 (08.88%)
Corrosive	04 (08.88%)
Kerosene	00
Malathion	02 (04.44%)
Monocrotophos	01 (02.23%)
Propoxur	15 (33.33%)
Zinc phosphide	01 (02.23%)
No poison	04 (08.88%)
Pending	02(04.44%)
<b>Total</b>	<b>45</b>

other studies done by various authors. Our study revealed that most of the victims of fatal poisoning were Hindu married Female of middle socio-economic status who died due to self ingestion of pesticide poison.

Reducing deaths from self-poisoning require prevention strategies include treating the problems leading to suicidal behaviors involving pesticides; changing

attitudes, knowledge, and beliefs about pesticides; controlling access to dangerous pesticides, including developing secure storage practices and improving the medical treatment of poisonings

More research is needed to better understand suicides involving pesticides in their cultural contexts and to evaluate the effectiveness of intervention programs, including assessment of possible substitution of methods.

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## ORIGINAL ARTICLE

### Role of Cervical Encirclage in Prevention of Preterm Delivery

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**KEY WORDS** : Preterm Delivery, Cervical Incompetence, Cervical Encirclage

#### ABSTRACT

The present study consists of a prospective cohort study of 100 cases of cervical incompetence seen at antenatal OPD of Dept. of OB & Gyn., at tertiary care hospital and study period was from May 2011 to April 2012. Detailed history was taken. General and obstetric examination was done along with routine hematological and urine investigations. Ultrasound (trans-abdominal and trans-vaginal) was done to rule out Gross Congenital Anomalies, for cervical length and placental localization. Fetal well-being assessment was done by doing daily fetal movement count and serial ultrasound.

The incidence of cervical incompetence is 16/1000. Pregnancy loss included both abortions and nonviable preterm deliveries. Most patients presented in early or late second trimester (78%). Only 4% patients presented after 28 weeks of gestation. Majority of patients were asymptomatic (56%) and the most common symptom was abdominal pain (28%). In majority of patients both external (74%) and internal os (56%) were open. Removal of wire was done electively only in 22% of patients whereas emergency removal of wire was done due to labour pains or premature rupture of membranes in majority of patients (78%). Majority of patients had vaginal delivery (74%). LSCS (26%) was performed for various obstetric indications most common was previous uterine scar (42%). There is a significantly improved peri-natal outcome after encirclage. 80% of encirclage cases delivered at or after 36 weeks of gestation as compared to 56% cases following conservative management.

#### INTRODUCTION

“Recurrent miscarriage is just like losing your motherhood as the ability to have a full term baby and to be a mother is such an intrinsic part of our biological urges...” the exact words of the woman who had experienced recurrent pregnancy loss. A lot of interest has been taken to unfold the root cause of recurrent abortions and premature labour. One of the important causes of such recurrent pregnancy loss is incompetent internal os of cervix. Os incompetence had long been recognized as a potential cause of premature delivery and abortions and has been studied and discussed at length and has produced rewarding results for both patients and obstetricians. But during the last few years, a second school of thought emerged doubting the role of cervical encirclage. By this study we tried to evaluate the role of encirclage in prevention of preterm delivery and the results are encouraging.

#### AIMS AND OBJECTIVES

- To diagnose and treat patients of incompetent internal os of cervix visiting antenatal OPD.
- To evaluate the results of cervical os tightening in cases of incompetent cervix.

- To compare the results of cervical os tightening with complete bed rest along with tocolytic drugs in cases of incompetent cervix.
- To assess improved pregnancy outcome.

#### MATERIALS AND METHODS

The present study consists of a prospective cohort study of 100 cases of cervical incompetence seen at antenatal OPD of Dept. of OB & Gyn., of tertiary care hospital and study period was from May 2011 to April 2012. Detailed history was taken. General and obstetric examination was done along with routine hematological and urine investigations. Ultrasound (trans-abdominal and trans-vaginal) was done to rule out gross congenital anomalies, for cervical length and placental localization. Fetal well-being assessment was done by doing daily fetal movement count and serial ultrasound.

Patients seen in OPD fell in two categories:

First group: (50 patients)

Patients requiring immediate admission and surgical interventions i.e. patients having gestational period of more than 12 weeks with

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- Open internal os and or effaced cervix.
- Patients having bulging membranes through open os.
- History of previous full term delivery effected from cervical encirclage irrespective of condition of cervix in this pregnancy.

Second group: (50 patients)

- Patients with no detectable abnormal cervical findings but with past history of mid trimester abortions.
- These were seen every 15 days in OPD and each time condition of cervix was assessed. USG was done to assess cervical length.
- They were advised complete bed rest with elevation of foot end. If in second trimester cervix was dilated and/or effaced patient was admitted for encirclage.

Any genital or urinary tract infections were appropriately treated. The patients were explained about the type of operation, success rate, limitations, complications and necessity to remove it earlier if premature labour pain starts. Cervical encirclage was done by McDonald's technique<sup>1</sup>. Post operatively patients were given complete bed rest, foot end elevation, tocolytics and on second post op day per speculum examination was done to rule out leaking of amniotic fluid, bleeding or infection. The patients were discharged on second or third post-operative day. Post operatively the patients were counselled for regular follow-up and to report immediately if she had any leaking, bleeding or if labour pain starts. The wire was removed electively at 37<sup>th</sup> to 38<sup>th</sup> week or if the patient presented with true labour pains.

#### OBSERVATIONS AND DISCUSSION:

Due to lack of unanimous criteria for diagnosis of cervical incompetence there are varied incidence quoted by various authors:

Picot<sup>2</sup> and co-workers 3/1000 deliveries

Barter<sup>3</sup> and co-workers 0.6/1000 deliveries

Mayo's clinic<sup>4</sup> 1-2% i.e. 10 to 20/1000 deliveries

TeLinde's Textbook of Operative Gynecology 10<sup>th</sup> edition 1% i.e 10/1000 deliveries.

Present study 16/1000 deliveries i.e. 1.6%

A total of 6250 patients had delivered during the above mentioned time duration. All the units of this hospital had almost similar protocols for the management of cervical insufficiency. The incidence appears higher because our hospital being tertiary centre most of abnormal and specially selected patients are referred and as ultrasound

is becoming an important tool of diagnosis of cervical incompetence, many patients can be benefitted in terms of increased pregnancy duration by offering them timely cervical encirclage before clinical symptoms and signs appear.

Out of 100 patients studied 18 were primigravidae and 82 were multigravidae so incompetence can be congenital as it is also seen in primigravidae patients.

**TABLE NO. I Previous pregnancy loss**

No. of previous loss	0	1	2	3
No. of patients	70	14	14	2

Pregnancy loss included both abortions and nonviable preterm deliveries.

Most patients presented in early or late second trimester, average age being 17 weeks. Only 4 patients presented after 28 weeks of gestation.

**TABLE NO. II Condition of cervix at the time of ultrasonography**

Cervical Length	1.5 to 2.5 cm	2.5 to 3.5 cm	>3.5 cm
	18	44	38
Cervical obliquity	Increasing with strain	Decreasing with strain	
	42	58	
Status of internal os	Open /patulous	Closed	
	56	44	
Bulging membranes	Present	Absent	
	11	89	

**TABLE NO. III Term of pregnancy at the time of circlage**

Term of pregnancy at time of circlage (in weeks)	15	17	18	20	22	24	25	26	27
No. of patients	7	1	1	12	7	6	4	9	3

In our study majority of tightening procedure was done in second trimester as majority of patients had taken first antenatal visit in the second trimester. The procedure was performed after ruling out congenital anomalies. Average duration being 22 weeks.

Majority of patients were asymptomatic and the most common symptom was abdominal pain. The abdominal pain was not associated with uterine irritability.

**TABLE NO.IV Condition of cervix at the time of os tightening**

Condition of cervix	No. of patients	Percentage
External os		
Open	38	76
Closed	1	2
Patulous	11	22
Internal os		
Open	27	54
Closed	23	46
Cervical tear	13	26
Cervical ectropion	1	2

In majority of patients both external and internal os were open. Various factors which influence the outcome after circlage operation are the gestational period at which tightening is done, the method of tightening and the condition of the cervix.<sup>5</sup>

Postop recovery was uneventful for majority of patients (74%) showing that nylon wiring is a relatively safe procedure with minimal complications. None of the patients in the conservative group were subjected to encirclage.

Removal of wire was done electively only in 22% of patients whereas emergency removal of wire was done due to labour pains or premature rupture of membranes in majority of patients (78%).

Average interval between removal of wire and delivery was 6 days. Prolongation of pregnancy after removal of wire ranged from 12 hours to 13 days. Maximum interval was found in patients having elective removal of loop.

Majority of patients had vaginal delivery. LSCS was performed for various obstetric indications. Harger<sup>6</sup> showed that caesarean section rates and subsequent maternal morbidity were more with Shirodkar's<sup>7</sup> operation than with McDonald's operation.

Majority of caesarean section were due to previous uterine scar(42%).

**TABLE NO. V Birth weight**

Birth weight (in kg.)	Mode of treatment	
	Conservative	Circlage
<1.5 kg	1	
1.5 to 2.0 kg	4	4
2.1 to 2.5 kg	22	13
2.6 to 3.0 kg	15	23
3.1 to 3.5 kg	6	9

Majority of the patients who had undergone encirclage had birth weight between 2.6 to 3.0 kg with good perinatal outcome. There is a co-relation with findings of WHO review<sup>8</sup> that following cervical encirclage there is an improvement in peri-natal outcome compared with the study group.

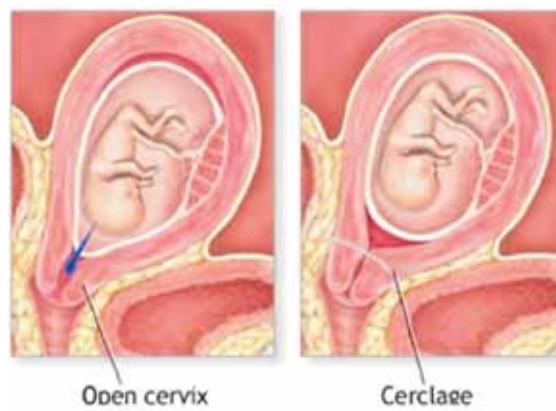
**TABLE NO. VI Comparison between conservative and encirclage cases.**

No. of weeks	28	30	32	33	34	35	>=36
Conservative	1	2	2	4	7	6	28
Encirclage	-	-	1	3	1	5	40

There is a significantly improved peri-natal outcome after encirclage. 80% of encirclage cases delivered at or after 36 weeks of gestation as compared to 56% cases following conservative management. There is a correlation with findings by Bachmann et al<sup>9</sup>, Althusius et al<sup>10</sup> and Odibo et al<sup>11</sup> which all state that cervical encirclage has a definite role in preventing preterm delivery.



**Figure I Open Internal OS With A " U " Shaped Cervix.**



**Figure II**

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## CONCLUSION

- Diagnosis should be made on the basis of past obstetric history, present clinical findings and ultrasonographic findings.
- Timely diagnosis and treatment improves perinatal outcome drastically.
- Foetal salvage rate improved with cervical encirclage as compared to conservative group.
- Out of all surgical procedure of encirclage, McDonald's procedure is very simple, effective, less traumatic with minimum complications. So it is the method of choice in our study.
- Circlage should be done between 16 to 22 weeks (second trimester) of pregnancy after congenital anomalies are ruled out.
- Timely removal of wire is also necessary to prevent cervical trauma, either electively or as soon as labor pains start.
- Mode of delivery (vaginal/caesarean section) is not related to treatment modalities either conservative or circlage.
- In our study perinatal outcome rate was 80% in case of encirclage compared to conservative group 56%, hence proving that os tightening has got excellent result in cases of cervical incompetence.

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## ORIGINAL ARTICLE

# Unstable Intertrochanteric Fractures In High Risk Elderly Patients Treated With Primary Bipolar Hemiarthroplasty: Retrospective Case Series

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**KEY WORDS :** Hemiarthroplasty, unstable intertrochanteric fractures, high risk elderly patients

### ABSTRACT

**Background:** The management of unstable osteoporotic intertrochanteric fractures in elderly is challenging because of difficult anatomical reduction, poor bone quality, and sometimes a need to protect the fracture from stresses of weight bearing. Internal fixation in these cases usually involves prolonged bed rest or limited ambulation, to prevent implant failure secondary to osteoporosis. The purpose of this study is to assess the mortality and morbidity and post operative complication in high risk Intertrochanteric fractures treated by cemented bipolar.

**Material and methods:** We retrospectively studied, 28 elderly patients with preoperative ASA grade-III with unstable intertrochanteric fractures (AO/OTA type 31-A2.2 and 31-A2.3 and Evans type III or IV) by primary hemiarthroplasty using a cemented bipolar prosthesis. All patients were operated by the same surgical team. Bipolar implants were cemented (tapered design, 2nd generation cemented technique, standard length) and trochanteric comminution was circlage to restore abductor mechanism. The assessment was done with emphasis on perioperative mortality, morbidity and complications related to prolonged bed rest.

**Results:** Mean patient age was 75.6 (64-91) years and mean follow-up was 22.3 (5-48) months. 10 patients were able to walk with a walker in the first post-operative week. Rehabilitation was easier and faster and post op morbidity like pressure sore pulmonary complication was significantly low ( $P < 0.05$ ). The mortality (2/28) was significantly low. We obtained 11 excellent and 10 good results after 12 months according to the Harris hip-scoring system.

**Conclusion:** Primary Bipolar Hemiarthroplasty may be a better alternative treatment for unstable Intertrochanteric fractures in elderly moribund patients.

### INTRODUCTION

Intertrochanteric fractures are major cause of disability and death in elderly. The incidence of all hip fractures is approximately 80 per 100,000 persons and is expected to double over the next 50 years as the population ages<sup>1</sup>. Intertrochanteric fractures make up 45% of all hip fractures.

Stable fractures can be easily treated with osteosynthesis with predictable results. However, the management of unstable intertrochanteric (Evans type III or IV and AO/OTA type 31-A2.2 and 2.3).<sup>2,3</sup> fractures in elderly patients is a challenge because of difficulty in obtaining anatomical reduction and associated with high rates of morbidity and mortality, although the results have improved with the use of internal fixation. In these patients however, comminution, osteoporosis, and instability often preclude the early resumption of full weight bearing. Treatment with

primary bipolar arthroplasty rather than internal fixation could perhaps return these patients to their preinjury level of activity more quickly, thus obviating the postoperative complications caused by immobilization or failure of the implant.

Intramedullary interlocking devices have shown reduced tendency for cut-outs in osteoporotic bones and also have better results in cases of unstable intertrochanteric fractures.<sup>4</sup> However, the role of the intramedullary devices in unstable osteoporotic and severely comminuted intertrochanteric fractures is still to be defined. Endoprosthetic replacements have also been shown to achieve early rehabilitation of the patient and good long-term results.<sup>5,6,7,8</sup> However, an ideal treatment method is still rather controversial because of the poor quality of bone mass, comorbid disorders, and difficulty in rehabilitation of these patients.

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Recent publications indicate concern with excessive sliding of these fixation devices when used in unstable intertrochanteric fractures, the excessive sliding can result in unacceptable shortening and external rotation deformity of the limb. Bendo et al<sup>9</sup> reported that most of the patients with moderate or severe collapse had poor functional results. Elderly patients often are unable to cooperate with partial weight bearing, or if allowed full weight bearing, voluntarily limit loading of the injured limb. To allow immediate postoperative full weight bearing and to avoid excessive collapse at the fracture site, some surgeon recommended prosthetic replacements for unstable intertrochanteric fracture.<sup>7</sup>

The purpose of this study was to determine whether cemented hemiarthroplasty using a standard femoral stem is a reasonable alternative method of treatment for elderly patients in unstable intertrochanteric fracture to reduce mortality and morbidity in term of day of full weight bearing and complications related to prolonged bed rest.

#### MATERIAL AND METHODS

Between August 2009 and September 2011, 28 patients who were older than sixty five years, associated with preexisting systemic disease, who are high risk for anaesthesia (ASA Grade III & IV), osteoporosis as asses by Singh's index, (All patients had confirmed osteoporosis on the preoperative bone mineral density scan confirming with the WHO criteria )<sup>10</sup> The fractures were classified according to AO/OTA and Evans classification. Only AO/OTA type 31-A2.2 and 31-A2.3 and Evans type III or IV fractures were included in this study and who had been independently mobile before sustaining an unstable intertrochanteric fracture were treated by the same surgical team at P.D.U. Medical college and hospital Rajkot.

Patients who were unable to walk before the fracture, who were younger than sixty five years old, not associated with any medical disease or who had stable fracture with intact lesser trochanter been not included in the study.

**Operative technique:** We used a posterolateral modified Gibson's approach in lateral position. The fracture anatomy was assessed and a cut was taken high up in the neck (almost subcapital level) to facilitate removal of the femoral head. With the removal of the head, the fracture now had three main fragments namely the greater trochanter, the lesser trochanter, and the shaft with the retained portion of the neck of femur. Thus, the reconstruction was made between greater trochanter, the lesser trochanter, and the shaft were wired together using steel wires in 23 cases while only ethibond sutures were

used in five cases which were severely comminuted. (Anteversion - retroversion of the prosthesis - was determined using the lesser trochanter as a guide after temporarily reducing the lesser trochanter anatomically.) The femoral canal was broached with appropriate anteversion. A fixed bipolar prosthesis was then inserted and trial reduction was done. With the trial prosthesis in situ traction was applied to the leg and compared with the opposite leg for limb length equality. We used the second-generation cementing technique and cement restrictor in all cases. Once the prosthesis was fixed, the broken trochanter and calcar were again retightened by tensioning the wire cables. The sleeve of gluteus medius, greater trochanter, and vastus medialis if reconstructed was now reattached to the shaft by additional wires. The short external rotators were then sutured back using bone tunnels in the greater trochanter with the closure of the superficial layers, as routine over a suction drain after achieving hemostasis.

Prophylactic first-generation cephalosporin and low-molecular-weight heparin (enoxaparin) was started 12 h before operation. Walking exercises were started on the second post-operative day. Patients were followed in 3-month intervals for the first year and 6-month intervals in the second year. During the follow-up patients were evaluated according to the Harris hip-scoring scale. (Patient was evaluated using the Harris hip score (HHS) and were graded as <70 poor, 70-79 Fair, 80-89 Good and 90-100 Excellent). We used the Gingras criteria in determining radiographic loosening<sup>11</sup>. For acetabular erosion the distance from the head of the prosthesis to the superior dome of the acetabulum was measured on the immediate post-operative and follow-up roentgenograms.

To determine movements of the bipolar head we measured the angle between a line parallel to the edge of the outer cup and a line parallel to the longitudinal axis of the femoral stem. We measured the angle between these two lines with the hip in neutral position and in 45° of abduction.

#### RESULTS

There were 13 women and 15 men with an average age of 75.6 (64-91) years. The Singh index was grade 3 in 5 patients, grade 2 in 12, and grade 1 in 11. Average interval between occurrence of fracture and hospitalization was 1.4 days and average interval between hospitalization and operation was 5.7 days. Numerous medical problems were noted upon admission, including hypertension, diabetes mellitus, heart disease, neurological disease, haematological disease, lung disease and others.

The average surgery time was 71 min (range, 55-88 min) with an average intraoperative blood loss of 350 ml (range, 175-500 ml). Out of the 32, two patients expired due to unrelated causes (both due to myocardial infarction). The remaining 30 patients having a minimum one year follow up were evaluated and data was further analyzed for only these 28 patients. The minimum follow up was average of 24.5 months (range, 18-39 months).

The patients started full weight bearing at an average 4.2 days after surgery (range, 3-8 days). One patient refused to walk after surgery and had a poor result (HHS 58). The average stay in the hospital was 10.96 days (range, 5-21 days). One of the patients developed bed sore postoperatively, and required a week more of hospital stay, till the healing of the sore. This patient was operated on 5th day post injury and did not have a pre operative bed sore.

A total of 11 patients were graded as excellent, 10 patients as good, 4 as fair, 3 as poor results. At latest follow-up (mean 24.5 months, range 18 months to 39 months), the mean HHS was 84.8±9.72 (range, 58-97).

At last follow-up, 16 patients were walking without any aid, 10 patients had a limp and used a stick for walking, 1 patient used a walker, and 1 was wheelchair bound. 5 patients had shortening of the operated limb with an average shortening of 1.1 cm (range, 5-15 mm) which was well compensated by giving a shoe raise. A total of 12 patients had an abductor lurch at 3-month follow-up; however, only 3 patients had abductor muscle weakness with a positive Trendelenberg test at final follow-up. Most of these patients however could walk well with the use of a stick.

Among the patients with poor results, one patient had a superficial wound infection which settled down with a course of intravenous antibiotics for 2 weeks. However, the patient continued to have diffuse pain along the incision site and walked with a limp. The second patient of poor results also had pain and limp, but we could not find any obvious reason for the pain. The patient with the failed result was a case of Alzheimer's disease. The patient did not cooperate with the physiotherapy program and refused to walk postoperatively. Eventually, the patient developed a severe adduction contracture and was wheelchair bound.

Deep infection developed in one patient during the 13th month post-operatively, and the prosthesis was removed 1 year later. There was one case of acetabular erosion, 4 patients with non-union of the greater trochanter and 6 with leg-length discrepancy due to high seating of the

prosthesis. In 2 patients we found the circlage wire used for the greater trochanter had broken. There was no dislocation or aseptic loosening. One patient developed pneumonia which settled down with intravenous antibiotics. One patient had a periprosthetic fracture 6 months after surgery which was treated with a locking compression plate. The fracture healed and the patient went on to have an excellent result.

## DISCUSSION

Displaced, unstable, severely comminuted intertrochanteric fractures are associated with notable morbidity and mortality in elderly patients. Internal fixation has drastically reduced the mortality associated with intertrochanteric fractures<sup>12</sup>; however, early mobilization is still avoided in cases with comminution, osteoporosis, or poor screw fixation. Primary hemiarthroplasty offers a modality of treatment that provides adequate fixation and early mobilization in these patients thus preventing postoperative complications such as pressure sores, pneumonia, atelectasis, and pseudo arthrosis. The Indian perspective regarding the use of primary arthroplasty as a modality of treatment for severe comminuted unstable intertrochanteric fractures is been commented on by few authors;<sup>13,14</sup> however, our case series reporting the Indian experience (Mid Term Results) with this technique.

Hemiarthroplasty has been used for unstable intertrochanteric fractures since 1971, however less frequently as compared to femoral neck fractures. Its initial use was as a salvage procedure for failed pinning or other complications. Tronzo claimed to be the first to use long, straight-stemmed prosthesis for the primary treatment of intertrochanteric fractures.<sup>5</sup> Rosenfeld, Schwartz, and Alter reported good results with the use of the Leinbach prosthesis. Since then there are multiple studies showing good results using this technique. Stern and Goldstein reported on 29 patients with intertrochanteric fractures treated with the Leinbach prosthesis with excellent results in 88%. They reported a deep infection rate of 6.8% but no dislocations. Stern and Angerman<sup>16</sup> reported on 105 cases of unstable intertrochanteric femoral fractures treated with Leinbach prosthesis. They reported a deep infection rate of 2.8% but made no comments on dislocations. They obtained a 94% success rate in returning the patient to the pre-fracture ambulatory status.

The earliest comparison of internal fixation and hemiarthroplasty was done by Haentjens et al.<sup>16</sup> showing a significant reduction in the incidence of pneumonia and pressure sores in those undergoing prosthetic

replacement. In a comparative study of cone hemiarthroplasty versus internal fixation, Kayali et al. reached the conclusion that clinical results of both groups were similar. Hemiarthroplasty patients were allowed full weight bearing significantly earlier than the internal fixation patients.

Broos et al.<sup>7</sup> concluded that the operative time, blood loss, and mortality rates were comparable between the two groups, with a slightly higher percentage (73% versus 63%) of those receiving a prosthesis considered to be pain free. The functional outcome was comparable between both groups. Stappaerts et al. found no difference between two groups except a higher transfusion need in the replacement group. In our series the average blood loss was 350 ml with only six patients requiring postoperative blood transfusion and there was no incidence of dislocation.

Rodop et al.<sup>18</sup> in a study of primary bipolar hemiprosthesis for unstable intertrochanteric fractures in 37 elderly patients obtained 17 excellent (45%) and 14 good (37%) results after 12 months according to the Harris hip-scoring system. A total of 18 out of 23 patients in our study had a good to excellent result (71%). If the patients with a fair result were also included, the percentage goes up to 91%. Thus the results of this modality of treatment are definitely promising.

Green<sup>19</sup> reported on 17 patients who had a primary head-neck bipolar prosthetic replacement for unstable intertrochanteric femoral fractures. Average patient age was 82.2 years, average time to ambulation was 5.5 days, and average follow-up time was 13.2 months. Two patients had non-union of the greater trochanter. Overall results were uniformly good with no infections or dislocations. The mortality rate was 20% at the end of the first year.

P. Florian Geiger; P.Monique Zimmermann-Stenzel<sup>20</sup> found that Mortality was significantly influenced by Age, Gender, Amount of Co-morbidities but not by fracture classification.<sup>43</sup>

Mortality rate of bipolar arthroplasty and internal fixation of different study compare with current study are shown in following table.

(Journal of arthroplasty- April2005,Chris Grimsud, Raul J. Monzon et al<sup>15</sup>)

	Mortality at 1 yr
Stern et al <sup>17</sup>	14%
Green et al <sup>19</sup>	20%
Chris Grismud <sup>15</sup>	10.3%
Harwin et al <sup>6</sup>	NR
Haentgens et al <sup>16</sup>	35%
Chan et al <sup>8</sup>	7.3%
Current study	14%

In the short term, unipolar or bipolar hemiarthroplasty seem to give better results than open reduction and internal fixation in the treatment of unstable intertrochanteric hip fractures in terms of mortality and morbidity rates, complications, early rehabilitation and returning to daily living activities. Long-term problems such as loosening, protrusion, stem failure, late infections and late dislocations have not been seen in these series. While these theoretically are potential problems they are seen usually years after the surgery. Although the average patient age in these series was between 74 and 82 years, shorter-term complications seem to be more important than long-term ones. Because life expectancy increases in all countries, long-term disadvantages of the hemiarthroplasty may outweigh its short-term advantages.

Delay in surgery is an important predictor for mortality in patients with proximal femur fracture and also of the postoperative morbidity. We in our study, however, could not comment on these points because of small sample size and this is one of the limitations of our study. Further, inhomogeneous population in terms of existing comorbidity and retrospective nature of our study are the other limitations.

## CONCLUSION

Thus in conclusion, primary hemiarthroplasty does provide a stable, pain-free, and mobile joint with acceptable complication rate as seen in our study; however a larger prospective randomised study comparing the use of intramedullary devices against primary hemiarthroplasty for unstable osteoporotic fractures will be needed.

However, bipolar hemiarthroplasty for unstable intertrochanteric fractures was used as a salvage procedure after primary fixation failure, but primary bipolar hemiarthroplasty may be used as a better alternative treatment for unstable osteoporotic Intertrochanteric fractures in elderly moribund patients for early ambulation and good functional results.

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## ORIGINAL ARTICLE

### Role of ultrasonography in evaluation of orbital lesions.

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**KEY WORDS** : Ultrasonography; Orbital Lesions.

#### ABSTRACT

Ultrasonography is non-invasive non-ionizing imaging modality which provides all information, not available by any other means. The aim of this study is to show how sonography is useful in detection of orbital lesions and also to highlight its usefulness as a simple and cost effective diagnostic tool. Total 100 cases were included in this study. All images were obtained using a standard USG machine equipped with high-frequency probe. Both eyes scanned thoroughly for comparison. At the end of study we concluded that ultrasonography is highly reliable, easily performed examination technique which is very helpful for all patients presented with eye symptoms, can guide further diagnostic testing and monitor the patient's response to therapy.

#### INTRODUCTION

Ultrasonography has become an important diagnostic technique in ophthalmology, particularly during past few years. Ultrasound was first used in the year 1956 by two American ophthalmologists, Mundts and Hughes. The experience about cross-sectional B-scan display of the eye was reported by Baum and Greenwood (1958).[1] The cystic nature of the eye, its superficial location, and high-frequency transducers make it possible to clearly show normal anatomy and pathology of eye and orbits [2]. Sonography is used more commonly by ophthalmologists to evaluate the eye, particularly when direct examination by slit-lamp and funduscopy is not sufficient. Detailed cross-sectional anatomy of the entire globe is possible with conventional sonographic equipment [2,3] Doppler and A-mode sonography [4] are reported to be useful in characterizing masses.

#### AIMS AND OBJECTIVES

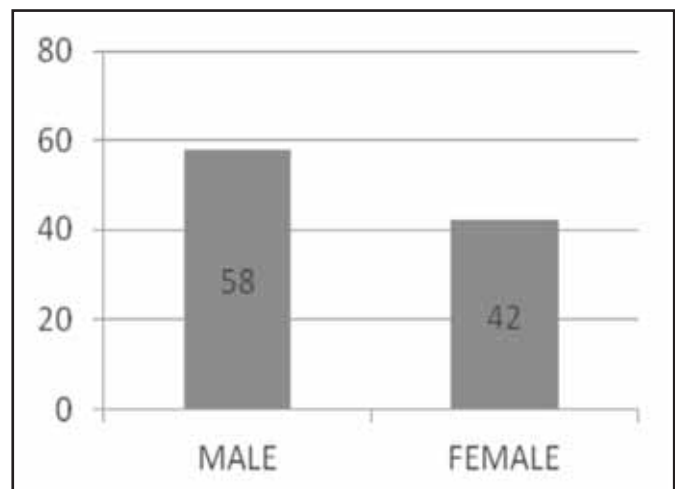
1. To evaluate the role of USG in orbital diseases, in differentiating ocular and extraocular diseases.
2. To evaluate orbital trauma
3. Localization of intraocular foreign body
4. To establish etiology of proptosis
5. To assess tumor location, configuration, extent and relationship to adjacent structure.
6. To evaluate the role of USG in cases with opaque light conducting media where direct vision by ophthalmoscopy is impossible.

#### METHODS AND MATERIALS

This was a case series study which included 100 patients with eye symptoms out of which 58 were male and 42 were female patients. All images were obtained using a standard USG machines (NIDEK echoscan model US-2500 and Wipro GE logiq P5 premium 3) equipped with a 7.5-10 MHz real-time high-frequency probe. The probe was placed over the closed eyelid after application of coupling gel. Both eyes scanned thoroughly for comparison.

#### OBSERAVATIONS

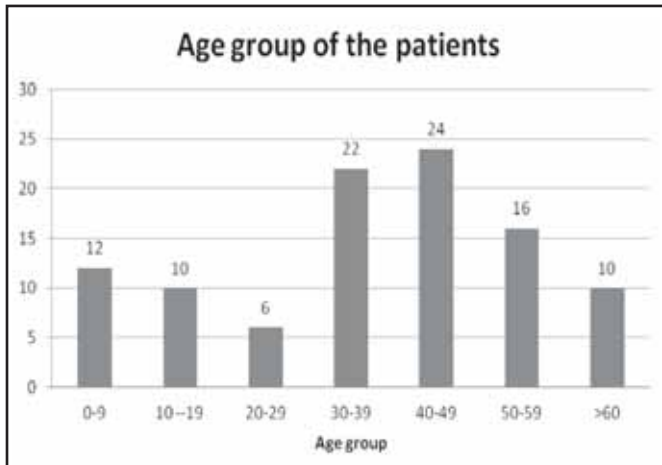
Chart I shows sex distribution of the patients included in study.



Out of 100 patients 58 patients were male and 42 were female.

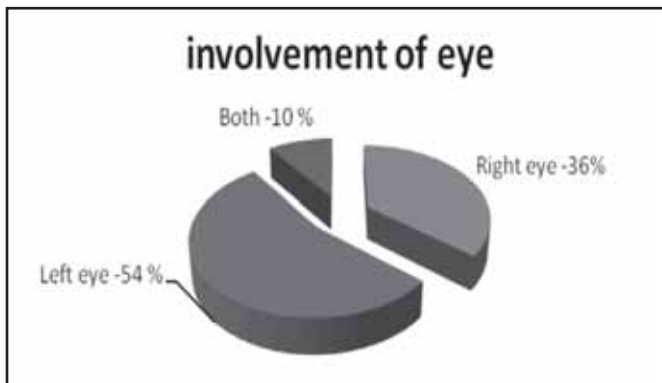
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Doctor Quarters, Room No 22, Smt. S.C.L. Municipal General Hospital, Saraspur,  
Ahmedabad, 380018.

Chart II shows the age distribution of the patients.



Ocular pathologies were observed predominantly in 4th and 5th decade of life.

Chart III shows side of involvement of eye.



Right eye, left eye was involved in 36 and 54 cases respectively while 10 cases showed both eye involvements.

**Table I : Incidence of presenting complaints in the patients.**

Presenting Complaints	Total Cases (N=100)	Percentage
Diminution Of Vision	32	32
Pain, Redness	24	24
Proptosis	16	16
Trauma	20	20
Discharge	4	4
Leukocoria	4	4

The main complaints were diminution of vision (32%), pain and redness (24%).

Out of 100 patients studied intraocular pathologies were observed in 69 patients while extraocular pathologies were noted in 31 patients.

**Table II Incidence of intraocular pathologies (N=69)**

No.	Pathology	Patients (N=69)	Percentage
1	Vitreous haemorrhage	14	20.29%
2	Vitreous degeneration	10	14.45%
3	Vitreous detachment	4	5.80%
4	Choroidal detachment	1	1.45%
5	Retinal detachment	15	21.74%
6	Foreign body	2	2.90%
7	Dislocated lens	3	4.35%
8	Scleritis	2	2.90%
9	Ruptured globe	1	1.45%
10	Retinoblastoma	2	2.90%
11	Endophthalmitis	7	10.14%
12	Coats' disease	1	1.45%
13	PHPV	1	1.45%
14	Optic disc	2	2.90%
15	Hyphema	2	2.90%
16	Normal	6	8.70%

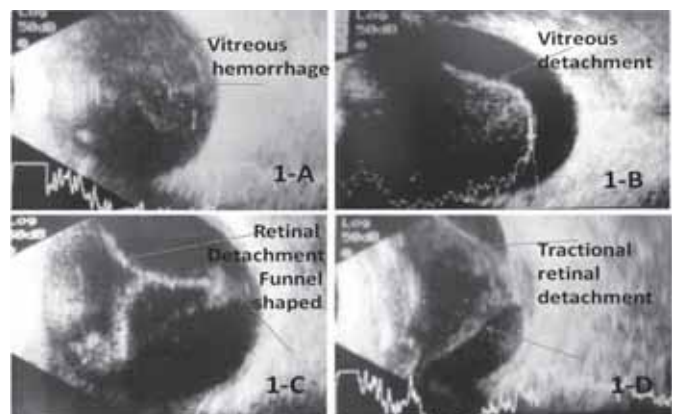
Most common intraocular pathology was vitreous followed by retinal pathology.

**Table III Incidence of various Extraocular pathologies (N=31)**

No	Pathology	Patients (N=31)	Percentage
1	Retro-orbital abscess	7	22.58%
2	Haematoma	9	29.03%
3	Graves' disease	3	9.68%
4	Dermoid	2	6.45%
5	Metastatic tumour	1	3.23%
6	Optic nerve tumour	1	3.23%
7	Others	8	25.80%

Most of the extra ocular pathologies were retroorbital abscess and hematoma.

**Figure -1**



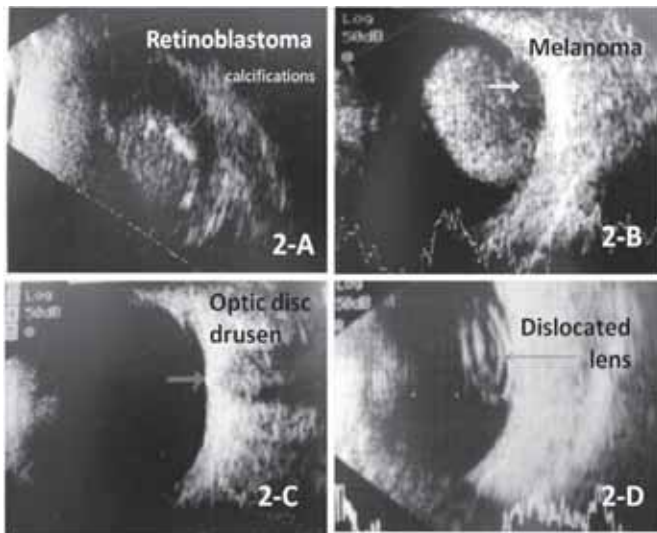
**Fig 1-A :** 16 year old male patient with fresh vitreous haemorrhage. Sonography shows vitreous echoes in form of small dots and short lines, distinct after movement.

**Fig 1-B :** 48 year old woman with posterior vitreous detachment. Sonography shows thin undulating membrane not attached to optic disc.

**Fig 1-C :** 34 year male with closed funnel shaped retinal detachment. Usg shows membrane attached to optic disc posteriorly and anteriorly to ora serata with dense echoes within funnel.

**Fig 1-D :** 49 year old man with tractional retinal detachment. Sonography shows uniform V shaped membrane attached to optic disc posteriorly.

**Figure-2**



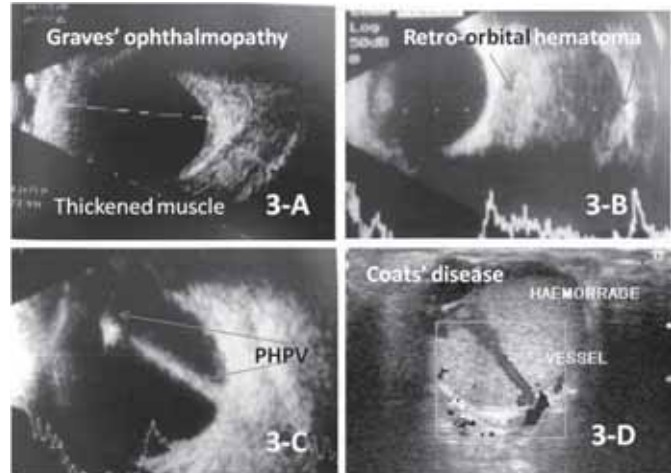
**Fig 2-A :** 2 year old girl with retinoblastoma. Irregular dome shaped mass with mix echotexture and calcification within the vitreous cavity.

**Fig 2-B :** 67 year old male patient with choroidal melanoma. Sonography shows well defined uniform echotexture lesion in subretinal space.

**Fig 2-C :** 66 year old woman with optic disc drusen. Sonography shows characteristically hyperechoic spots at fundus and particularly helpful in revealing drusen buried at optic nerve which are otherwise invisible on funduscopy.

**Fig 2-D :** 55 year old male patient with posterior dislocation of lens. Sonography shows multiple localised dense echoes noted within vitreous cavity.

**Figure-3**



**Fig 3-A :** 50 year old male patient with graves' disease. Sonography shows thick infiltrated inferior rectus muscle.

**Fig 3-B :** 12 year old male patient with retro-orbital hematoma. Sonography shows mix reflective lesion in retro orbital space

**Fig 3-C :** 2 year old female patient with persistent hyperplastic primary vitreous. (PHPV) Sonography shows dense echogenic band extending from posterior capsule of lens anteriorly to the optic disc posteriorly. Band is thin anteriorly near lens and is broad near optic disc.

**Fig 3-D :** 11 year old male patient with coats' disease. High resolution ultrasonography image shows moderate density echoes within posterior vitreous, suggestive of exudation. Membranous echoes with limited after movement attached to disc, suggestive of retinal detachment. Doppler USG showed abnormal retinal vessels.

## DISCUSSION

### INTRAOCULAR PATHOLOGIES

#### ANTERIOR SEGMENT

##### Hyphema :

Hyphema is a collection of blood in the anterior chamber and may occur from conjunctival or sclera vessels due to minor trauma.

In our study, two cases of hyphema were clinically diagnosed and poorly visualized on ultrasonography because of poor visualization of anterior chamber.

#### POSTERIOR SEGMENT

##### VITREOUS PATHOLOGY

##### Vitreous Haemorrhage

In normal eye, the vitreous is acoustically clear. In vitreous hemorrhage, small granular dot like echoes are seen on

the display screen as the beam is directed at involved areas [5]. "Asteroid hyalosis" i.e. accumulation of calcium soaps in vitreous can mimic a dense central vitreous hemorrhage but can be differentiated by a rapid shift of gaze as the vitreous echoes show prolonged after movements. Total 14 cases of hemorrhage were noted in our study (Fig 1 A). These hemorrhages either cleared completely on follow up (2-8 weeks time) or appeared in form of organized membrane.

### **Vitreous Detachment**

Separation of vitreous from retina could be diagnosed on ultrasound correctly in 4 cases in our study. (Fig 1-B) Posterior vitreous detachment presented either a thin sheet of echoes along the posterior hyaloid interface usually inserting into retina just anterior to equator and occasionally showing attachment to optic disc or diffuse or dispersed echoes to one or other vitreous compartment [6].

### **Vitreous Degeneration**

10 cases of abnormal vitreous echoes due to degeneration are observed; out of these, 5 cases due to senile degeneration, 2 cases due to high myopia and 3 cases due to diabetes. Ultrasonically 5 cases presented with dispersed echoes, 3 seen as localized echoes and 1 as diffuse echoes. [6]

### **Persistent hyperplastic primary vitreous(PHPV)**

A retrolental mass composed of mesenchymal fibrovascular tissue is connected to the optic nerve head by persistent hyaloids vessels. The lesion is usually unilateral.

On B-scan a retrolental echogenic mass noted with an absence of any retinal tumour which is regular in shape and small. persistent hyaloids vessels noted as an echogenic line connecting the retrolental mass and the optic nerve head (Fig 3-C). We noted one such case in 2 year old female patient.

### **Dislocated Lens in vitreous**

Dislocation of lens into opaque media is a perfect indication for ultrasound. The abnormally placed lens is easily detected because of its shape and strong reflectivity [Fig 2-D]. In our study, 3 cases of dislocated lens were found amongst 20 cases of ocular trauma.

### **Endophthalmitis**

Endophthalmitis as reported by Munk et al (1991) is a rare and dreaded post operative complication of eye where the vitreous chamber is filled with low amplitude echoes [7]. Out of 7 cases ultrasonography detected 4 cases while 3 cases were diagnosed as vitreous haemorrhage but follow up study revealed to be of endophthalmitis.

## **RETINAL PATHOLOGY**

### **Retinal detachment**

It is of two types,

1. Rhegmatogenous (arising from retinal break or tear)
2. Non-rhegmatogenous (or secondary retinal detachment)

**Rhegmatogenous** retinal detachment appears as thin continuous acoustically opaque line of echoes separate from and anterior to the echoes from the wall of the globe [7]. Old retinal detachment appears as a thick membrane which often shrinks to form a chord like structure from optic disc to ora serrata thus taking a "FUNNEL-SHAPED" or "MORNING GLORY" configuration. (Fig 1 C) **Non-rhegmatogenous** retinal detachment shows a solid choroidal mass behind the elevated retinal detachment. Posterior to detached retina, an acoustically opaque (white) mass lesion is seen instead of an acoustically clear space.

15 cases of retinal detachment were observed in our study. V-shaped or Y-shaped membrane (Fig 1 C, Fig 1 D) attached to ora serrata anteriorly and optic nerve head posteriorly and restricted mobility on dynamic scanning were present.

### **Retinoblastoma**

It is the commonest primary intraocular tumour of childhood occurring 1 in 20,000 live births. It presents with leucocoria (white pupil) in its late stage. 94% of reported cases were sporadic but in 6% positive family history of retinoblastoma was available with autosomal dominant incomplete penetrance. Tumour age is 18 month on average and bilateral involvement in its one third of cases [8]. USG shows echogenic lesion and calcium deposits with optic nerve involvement (Fig 2 A). Two such cases were noted in our study.

### **Coats' disease**

It consists of vascular anomalies within retina leading to leakage from the abnormal vessels into the subretinal space. It occurs predominantly in young males, in the first decade of life. Disease is usually unilateral with male predominance [9]. On b-scan the retina appears detached. Small echogenic opacities are present in subretinal space, representing the red blood cells and the cholesterol deposits (Fig 3 D). One such case of coats disease in 11 year boy was noted in our study.

## **CHOROIDAL PATHOLOGY**

### **Choroidal Detachment**

Here the choroid is elevated and subchoroid space is filled with either fluid or blood. One case was found in our study which showed two opposite echogenic convex lines extending into the vitreous cavity. Retinal attachment was



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also associated. These echogenic lines did not involve the optic nerve head.

### **Choroidal melanoma**

They are composed of densely packed tumour cells and the overlying Bruch's membrane is intact in dome shaped Choroidal melanoma. In mushroom shaped Choroidal melanomas densely packed tumour cells noted. The overlying Bruch's membrane is rupture with a collar-button appearance. On USG they appear as echogenic subretinal mass [10]. One such case in 67 year man was noted in our study. USG shows well defined uniform echotexture lesion in subretinal space. (Fig 2 B)

## **SCLERAL PATHOLOGY**

### **Posterior scleritis**

Inflammation of sclera is a painful condition. Two such cases of our study presented with swelling at corneoscleral junction and a convex margin inwards which was due to localized scleritis because of foreign body incarcerated in the sclera.

## **OPTIC DISC PATHOLOGY**

### **Optic disc drusen**

They are calcified nodules buried within the optic nerve head. One such case was noted in our study in 66 year old woman. Sonography shows characteristically hyperechoic spots at fundus (Fig 2-C) and particularly helpful in revealing drusen buried at optic nerve which are otherwise invisible on funduscopy.

## **EXTRAOCULAR PATHOLOGIES**

### **Optic Nerve Tumor**

Optic nerve tumors include mainly glioma, meningioma and neurofibroma. In our study, one case of optic nerve tumor was seen as a fusiform hypoechoic mass with well defined margins encasing the optic nerve. Calcification was not appreciated on USG.

### **Orbital Pseudotumor**

Orbital pseudotumor is the commonest inflammatory lesion of orbit. The term pseudotumor means idiopathic orbital inflammation. Middle aged disease characterized by a triad of proptosis, pain and impaired mobility. Usually it is unilateral. It is divided into following distinct entities: 1- Myositis, 2- Dacryoadenitis, 3- Perineuritis, 4-Trochlear inflammation, 5- Scleritis, 6- Lymphoid hyperplasia

Myositic type was characterized by thickening of extraocular muscles and was the commonest subtype. Perineuritic type showed inflammation of Tenon's capsule and widening of optic nerve producing characteristic 'T' sign. This sign disappears with steroid therapy.

### **Grave's Ophthalmopathy**

All of our 3 cases of grave's ophthalmopathy were

asymmetrical with inferior rectus being the most common extraocular muscle involvement (Fig 3-A). Dysthyroid orbitopathy, the other name, is most common cause of proptosis. There may be restriction of eye movements but diplopia is rare and pain is uncommon. The disease is bilateral with multiple muscles involvement. The inferior and medial rectus muscles are most commonly involved followed by superior rectus and lateral rectus.

### **Lacrimal Gland Tumor**

Data about the prevalence of lacrimal gland tumor is quite sparse in the literature as this condition is quite rare. Malignant epithelial neoplasm of the lacrimal gland account for approximately 2% of all orbital neoplasms. Similarly, epithelial neoplasms account for only 4% of all lacrimal gland lesions. On sonography lacrimal gland tumour revealed as, a rounded, hypoechoic mass with well defined or ill-defined margin.

### **Metastasis**

Extraocular orbital metastases are uncommon, accounting for 2 - 11% of all orbital neoplasms. 1 case of metastasis was noted in our study in 57 years old woman with proptosis and was known to have breast carcinoma. Sonography revealed solid appearing mass with ill defined margins in superolateral part of orbit with calcification.

### **Dermoid**

Dermoid and epidermoid cysts are examples of choristomas, tumors that originate from aberrant primordial tissue. Berges et al (1992) reported dermoid cyst the commonest developmental cyst [11]. They are benign lesion occurring in the 1st decade of life. They are located supero- laterally under the lid. Dermoids usually contain fat and may contain solid epidermoid structures. Some dermoid cyst contains homogeneous material whereas other contains layers of keratin, hair tuft, calcium etc.

### **Mucocele of Lacrimal Sac**

Mucocele of lacrimal sac is a cyst like enlargement of the lacrimal sac secondary to chronic dacryocystitis [12]. It presented with medial canthus mass lesion which could be confused with granuloma or tumor of lacrimal sac. Mucocele formation occurs due to nasolacrimal duct obstruction with or without canalicular obstruction.

### **Lid Haemangioma**

Haemangioma is a tumor of childhood that forms a soft bluish mass and may involve any part of the orbit including the eyelid. It has female predominance and predilection for upper lid, presents shortly after birth. In some cases there may be intraorbital extension diagnosed on USG / CT. [13]

## **Lid Carcinoma**

Lid carcinoma can arise either from epithelial elements or from adnexal component of lid with basal cell carcinoma on histology. Other lesions could be sebaceous gland carcinoma, squamous cell carcinoma & malignant melanoma. It is more common in upper eyelid. It spreads via lymphatics. Vascular invasion with hematogenous metastasis also occur. It carries a poor prognosis in cases with 10 mm diameter & duration of > 6 months.

## **TRAUMA**

### **Ocular Trauma**

Orbital trauma is classified into contusion injury, perforating injury & foreign body. In present study, 20 patients presented with history of trauma. Vitreous haemorrhage & retinal detachment were the commonest findings followed by lens injury intraocular foreign body and Pthysis bulbi. Other findings were ruptured globe, retrobulbar and soft tissue haematoma, posterior vitreous detachment, choroidal detachment, endophthalmitis. Traumatic eye may become misshapen especially in chronic injury; the globe may lose volume, show scleral thickening and/or calcification and become deformed, referred to as PTHYSIS BULBI. [7]

### **Intraocular Foreign Body**

Ultrasound is useful in the localization of foreign bodies particularly metal, glass or reflective material. They are seen as small bright areas with marked reverberation artifacts posteriorly. Two cases of foreign bodies associated with vitreous haemorrhage were found here. Plain skiagram of orbit showed the presence of foreign body.

### **Ruptured Globe**

One case of ruptured globe was found following severe blunt trauma, with distorted globe on USG. Anterior and posterior segment could not be made out separately, lens was dislocated posteriorly. Vitreous completely filled with haemorrhage. Sclera was ruptured posteriorly with extrusion of vitreous body [14].

### **Retrobulbar haematoma**

One case in our present study affecting left orbit in a 12 years old male following injury had evidence of proptosis & eyelid swelling. Sonography revealed a well defined hypo-echoic mass in retrobulbar area (Fig 3-B). Optic nerve and extraocular masses were not well defined.

## **CONCLUSION**

Sonography of the eye shows a variety of diseases with remarkable clarity. The technique is more cost-efficient than other diagnostic techniques and is well tolerated by the patient. High-frequency transducers make it possible to clearly show normal anatomy and pathology such as

tumors, retinal detachment, vitreous hemorrhage, foreign bodies, and vascular malformations. Ultrasonographic findings were well correlated with clinical, operative & histological observation. Hence B-mode real time ultrasonography with high frequency probes provides cost-effective, non-radiation, non-invasive non-ionizing technique which can be performed in outdoor patient without any use of anesthetics or sedative therapy.

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## ORIGINAL ARTICLE

### A Study of Prevalence of Hypertension in School Children

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**KEY WORDS :** Prevalence, hypertension in school children

#### ABSTRACT :

This study was conducted among 983 school children (490 boys and 393 girls) of age (5-15 years) of Ahmedabad municipal corporation schools and semi government school to find out the prevalence of hypertension in children and its correlation with age, gender, height, and weight of children. In this study mean systolic blood pressure and mean diastolic blood pressure increase with age from 5+ to 12+ year of age. In our study there was no significant difference in mean SBP and mean DBP among boys and girls. It resulted 3.19% of total prevalence of high blood pressure, among which 3.22% was in boys and 3.16% in girls. Highest prevalence of high BP was observed at 12 year of age with prevalence of 10.71% in boys and 5.26% in girls. Alone isolated systolic HBP was found out to be 75.75%, isolated diastolic HBP was not found in any case where as both high SBP and high DBP were found in 24.25% of cases. All children were in pre-hypertension stage, and HBP was directly proportional to increased age, weight, height, and BMI of a child.

#### INTRODUCTION

Systemic hypertension has been considered to be associated with adult population. But off late increase numbers of children are also being affected. Childhood hypertension is an established predictor of adult hypertension and organ damage, and it is underestimated problem in developing countries. An increasing number of healthy children and adolescents across the world are being diagnosed with HTN<sup>21</sup>. Normal blood pressure values for children and adolescents are based on age, gender, and height, and are available in standardized tables. Primary HTN, once considered a rare occurrence in pediatric patients, is seen more often particularly in obese patients. Other factors responsible for increased prevalence of hypertension in children include life style changes such as decrease physical activity, increased intake of high calories, high sodium and low potassium foods, use of caffeinated and alcohol beverages, smoking, mental stress and sleep deprivation<sup>14</sup>. A secondary etiology of hypertension is much more likely in children than in adults, with renal parenchymal disease and renovascular disease being the most common. Children with hypertension should also be screened for other risk factors for cardiovascular disease, including diabetes mellitus and hyperlipidemia, and should be evaluated for target organ damage with a retinal examination, for renal damage and echocardiography. Hypertension in children is treated with lifestyle changes, including weight loss for those who are overweight or obese; a healthy, low-sodium diet; regular physical activity; and avoidance of tobacco and alcohol. Children with symptomatic hypertension, secondary hypertension,

target organ damage, diabetes, or persistent hypertension despite nonpharmacologic measures should be treated with antihypertensive medications. Thiazide diuretics, angiotensin-converting enzyme inhibitors, angiotensin II receptor blockers, beta blockers, and calcium channel blockers are safe, effective, and well tolerated in children<sup>12</sup>.

We present here, an attempt to find out prevalence of HTN in children of 5- 15 years of AMC school and semi government school in respect of their age, sex, height.

#### MATERIAL AND METHODS

While conducting this prospective study, schools were randomly selected after prior permission and consent from the concerned authorities. Samples were selected by random sampling method. Total 983 students of 5-15 years of age were examined. The age was determined from birthdate of school registration record. Blood pressure and anthropometric data was collected. BMI was calculated by the formula  $BMI = \text{weight}(\text{kg}) / \text{height}(\text{m}^2)$ . BP was measured using standardized sphygmomanometer with appropriate size cuff covering two third of the arm. The BP was measured with child in a sitting position, with arm at the level of heart and after a five minute rest<sup>22</sup>. If the SBP and / or DBP were in higher range of blood pressure than 2 additional readings were obtained at an interval of 1-3 weeks. The lowest of these reading was recorded. Those children who had recorded high blood pressure were advised to come at our institution for further evaluation. In our study to identify BP percentiles, first step is to refer to height percentile table and see which percentile of height child has. Then, refer

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the values in BP percentile table corresponding to the child's sex, age, and height percentile. Then according to value in the table and child measurement, child was classified according to it into specific category. Actual BP percentiles assume clinical significance in diagnosis, classification and treatment targets of HTN in children.

Systolic or diastolic BP equal to 95<sup>th</sup> percentile for gender, age, and height for 3 or more occasions is defined as hypertension in children. Pre-HTN is defined as systolic BP or diastolic BP that are equal to 90<sup>th</sup> percentile but <95<sup>th</sup> percentile. Stages 1 hypertension refers to BP from 95<sup>th</sup> percentile to the 99<sup>th</sup> percentile plus 5 mm hg. Stage 2 HTN refers to values above stage 1 HTN<sup>19</sup>. The 50<sup>th</sup> percentile of BP is the target attempted when hypertensive children are subjected to antihypertensive drug therapy.

### RESULT AND DISCUSSION

In our study we include 983 students of 5-15 years of age from different schools, among which 490 were boys and 393 were girls. As shown in table 1 there was increase in mean SBP and mean DBP with age up to 15+ year of age. In girls mean SBP increase with age up to 12+ years and mean DBP increase with age up to 11+ years of age with exception at 10+ years of age. There was no statistically difference in mean SBP and mean DBP among boys and girls which also observed in other study<sup>2,3,23</sup>. Such increase in mean BP due to increase in age may be due to increase in body mass. As shown in table 2 there were 32 students having high BP, high prevalence with 10.71% prevalence at the age of 12+ in boys and in girls at 12+

year of age 5.26% was found. The reason why there was such high prevalence in adolescent age not known but it may be due to some life style modification.

Among them 25 student had isolated high SBP and 8 student had both high SBP and high DBP. None of them had isolated high DBP which also comparable to other study.<sup>24</sup> All student with high BP was had pre HT. among boys it was 20/490 had pre HT and in girls 12/390 had pre HT. During study there were 13 students had high BP recorded on first visit but on 3 successive visits they had normal BP so they not included in prevalence rate.

HTN is a major risk factor for cardiovascular and cerebrovascular diseases. Studies indicate that BP increases with age<sup>7,8,9,10</sup>. Population base epidemiological studies show that primary HT is far more common among apparently healthy children. Although the prevalence of HTN is far less in children than in adults, there is enough evidence to suggest that the roots of essential HT extend into childhood<sup>17,18</sup>.

In the present study, shows that SBP and DBP have a positive correlation with age, height, weight, and BMI which is consistent with the previously reported studies on BP in children<sup>17</sup>. In our study a significant correlation of height was found with SBP as well as DBP, whereas SARIN ET AL<sup>17</sup> reported a significant correlation between BP and weight. And VOORS ET AL<sup>23</sup>, reported that BP correlates more closely to height and body mass than age. An increase in SBP and DBP with age has also been reported in Indian children by other authors<sup>1,6,20</sup>.

**TABLE 1 : Mean SBP and DBP in boys and girls according to age and increment in it.**

Age (in years)	Systolic BP				Diastolic BP			
	BOYS		GIRLS		BOYS		GIRLS	
	Mean	Increment	Mean	Increment	Mean	Increment	Mean	Increment
5+	84.60		86.47		52.44		53.89	
6+	87.88	3.28	88.52	2.05	55.52	3.08	54.52	0.63
7+	87.87	-0.01	89.75	1.23	56.20	0.68	56.75	2.23
8+	91.41	3.54	90.36	0.81	59.00	2.87	60.73	3.98
9+	91.53	0.12	92.57	2.01	59.28	0.21	62.23	1.50
10+	97.44	5.91	95.78	3.21	61.56	2.28	62.18	-0.05
11+	98.70	1.26	104.00	8.22	64.32	2.76	68.05	5.87
12+	104.20	5.5	104.05	0.05	65.61	1.29	65.29	-2.76
13+	97.18	-6.62	103.77	-0.28	62.30	-3.31	63.44	-1.85
14+	103.55	5.57	107.35	3.58	62.73	0.43	65.27	1.93
15+	100.46	-3.09	109.91	2.56	57.24	-5.48	64.00	-1.27

**TABLE 2 : Prevalence of HBP IN boys and girls in different age group**

Age	Boys			Girls		
	No of Student	Student having HT	Percentage	No of Student	Student having HT	Percentage
5+	50	1	2%	19	1	5.2%
6+	33	1	5.03%	23	1	4.34%
7+	15	0	0	18	0	0
8+	41	2	4.87%	22	1	4.54%
9+	53	1	1.88%	35	0	0
10+	88	2	2.27%	65	1	1.53%
11+	50	1	2%	37	1	2.70%
12+	56	6	10.71%	38	2	5.26%
13+	53	2	3.77%	43	2	4.65%
14+	97	3	3.09%	49	1	2.04%
15+	54	1	1.85%	44	2	4.14%
			3.22%			3.16%

### SUMMARY AND CONCLUSION

The prevalence of high BP in school going children of 5-15 years of age was 3.19 % (32/983). The prevalence in boys was 3.22 % (20/490) and in girls was 3.16 % (12/393). All children having high BP were in pre hypertension stage. Among children having high BP, 75.75 % (25/32) had isolated systolic high BP and 24.25 % (8/32) had both high SBP and DBP. Isolated high DBP was not found in any of the children. There was no positive correlation of mean SBP and mean DBP among boys and girls. Age, height, weight, and BMI were positively correlated with both SBP and DBP. Prevalence of overweight was 2.03 % and there was no positive correlation between high BP and overweight.

As there is enough evidence to suggest that roots of essential HT extend into childhood, this emphasize routine screening particularly in adolescent age group to detect HT timely as in present scenario where risk factor for HT in the childhood like change in physical activity pattern, obesity, high calorie intake, use of caffeinated and alcohol beverages, smoking, mental stress etc. are present.

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## ORIGINAL ARTICLE

### Study of Incidence of Helicobacter Organisms in Cases of Gastritis.

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**KEY WORDS :** Helicobacter Pylori, Gastritis

#### ABSTRACT

Helicobacter is a gram negative curved rod. Helicobacter was previously termed as campylobacter. Since the bacteria were initially found only in the region of the pyloric part of the stomach, they received the species name "pyloridis" which was later changed to the grammatically correct form "pylori" (menge et al, 1987).<sup>2</sup> H. Pylori plays a pathogenic role in the aetiology of gastritis rather than colonizing an already inflamed gastric mucosa. H. Pylori only colonizes gastric type, it is not found colonizing intestinal type mucosa in the stomach susceptible animal models inoculated with a suspension of H. Pylori have developed histologically proven gastritis.<sup>4</sup>

There are mainly two major forms of gastritis. Type A gastritis, which involves the fundus is associated with pernicious anaemia and Type B gastritis, for which mainly the H. pylori is the aetiological agent.<sup>3,4,5</sup>

Total 50 cases were studied during three years at L. G. Hospital. Majority of the symptomatic cases were in the age group of 31 – 40 years. However the incidence of H. Pylori was found to be highest in the 41 – 50 years of age group. Helicobacter Pylori infection is frequently associated with antral gastritis. The incidence of Helicobacter pylori is found to be highest in cases of histologically diagnosed chronic diffuse gastritis. The incidence of H. Pylori infection is found to be more common with moderate degree of gastritis. The male sex is associated with both a higher incidence of gastritis as well as H. Pylori infection. Symptomatic cases normal on endoscopy may show chronic gastritis histologically. Serology is more sensitive and specific than urease and histological confirmation for H. Pylori infection. This obviates the necessity of a gastric biopsy and serology for H. Pylori IgG antibody in all patients with upper gastrointestinal tract symptoms.

#### INTRODUCTION

Helicobacter is a gram negative curved rod, or also U-shaped coccoid, measuring about 1.5-5µm in length and 0.3-0.5 µm in diameter, having 4-6 unipolar, polytrichous flagella with rounded thickening at the distal end.<sup>1,2</sup>

Helicobacter was previously termed as campylobacter. In 1983 Warren and Marshall have shown that the inflammatory activity of gastritis is significantly correlated with a characteristic type of stomach specific bacterium (Marshall at 1985, Morris and Nicholson, 1987) they cultivate the bacteria from biopsy material and classified the micro-organisms to the genus campylobacter. Since the bacteria were initially found only in the region of the pyloric part of the stomach, they received the species name "pyloridis" which was later changed to the grammatically correct form "pylori" (menge et al, 1987).<sup>2</sup>

H. Pylori plays a pathogenic role in the aetiology of gastritis rather than colonizing an already inflamed gastric mucosa. H. Pylori only colonizes gastric type, it is not found colonizing intestinal type mucosa in the stomach susceptible animal models inoculated with a suspension of H. Pylori have developed histologically proven gastritis.<sup>4</sup>

There are mainly two major forms of gastritis. Type A gastritis, which involves the fundus is associated with pernicious anaemia and Type B gastritis, for which mainly the H. pylori is the aetiological agent.<sup>3,4,5</sup>

#### MATERIAL AND METHODS

The present study consists of the bio-chemical and histopathological interpretation of gastric biopsy for helicobacter organisms. Serological confirmation of helicobacter IgG antibodies is also done in my study. A total number of 50 cases were reviewed during the course of this present study and findings in each case were collected.

As H. Pylori have been reported to be most numerous in the gastric antrum<sup>6</sup> the site of biopsy in all cases was the pyloric antrum.

All patients studied come to the outpatient department with upper gastrointestinal complaints of dyspepsia, vomiting, epigastric, heart burn etc. routine investigation were carried out and ultrasonography and barium meal examination were done wherever necessary.

A total of four gastric biopsies were taken from within a few

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centimetre of each other. Two biopsies were taken in normal saline for the urease test and two biopsies in buffered formation for histopathology examination.<sup>17</sup>

The urease test employed by L.G. laboratory consists of immediate incubation of the two gastric biopsies together in a home made buffered urea phenol red agar gel.

The biopsies were inoculated and incubated at 37 °c. At the end of one hour, a change in colour of the media from yellow to pink was considered as positive.



After noting the result the biopsy material from positive cases were retrieved. From the tube and two squash smears were prepared, fixed and stained with Gram's stain. Smears positive for bacteria were noted as gram negative, spiral organisms.<sup>8,10</sup>

The other two biopsies were processed for histopathological examination, they were processed for paraffin section and stained with Haematoxylin and Eosin and sections were then studied to note the various changes in the mucosa. Each biopsy specimen was assessed for the presence of acute superficial gastritis (acute inflammatory changes involving pits and surface epithelium) and chronic gastritis (chronic inflammatory changes involving glandular compartment). The gastritis was further graded as either mild, moderate or severe (mild = superficial inflammation with less than 25% pits involved; moderate = superficial inflammation involving 25 % to 50 % of pits with or without deep inflammation, sever = superficial inflammation involving more than 50 % of pits with deep inflammation and / or pit abscesses.)<sup>7</sup>

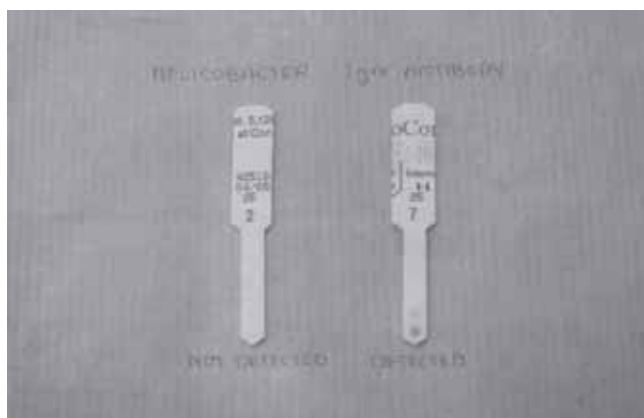
The other stains were Giemsa and Carbol-fuschin (Giemnez stain).

H. Pylori is seen as spiral, bright red organism overlying the surface epithelium in the pits.



Serological testing is generally accepted as a valid, non-invasive screening method for the detection of H. Pylori infection<sup>5</sup> Together with standard prenatal screening and blood analysis, one ml venous blood was taken for serology. The sera were tested using the Immunocomb® II Helicobacter Pylori IgG test, an indirect solid phase EIA<sup>11</sup>

At the outset of the test, serum or plasma specimens are prediluted 1:11 and added to the diluent in the wells of row-A of the developing plate. The comb is then inserted in the wells of row A. Antibodies to H. Pylori, if present in the specimens, will specifically bind to the H. Pylori antigens on the lower spot on the teeth of the comb. Simultaneously immunoglobulin's present in the specimens will be captured by the antihuman immunoglobulin on the upper spot (Internal Control). Unbound components are washed away in row B. In row C the anti H. Pylori IgG captured on the teeth will react with anti human IgG labelled with alkaline phosphatase. In the next two rows unbound components are removed by washing. In row – F, the bound alkaline phosphatase react with chromogenic components. The results are visible as gray-blue spots on the surface of the teeth of the comb.





The kit includes a positive control and a negative control. At the end of the test the positive control should show two gray-blue spots and the negative control should show the upper spot and either no other spots or faint lower spot.

The upper spot should also appear on all other teeth to confirm that the specimen was added.

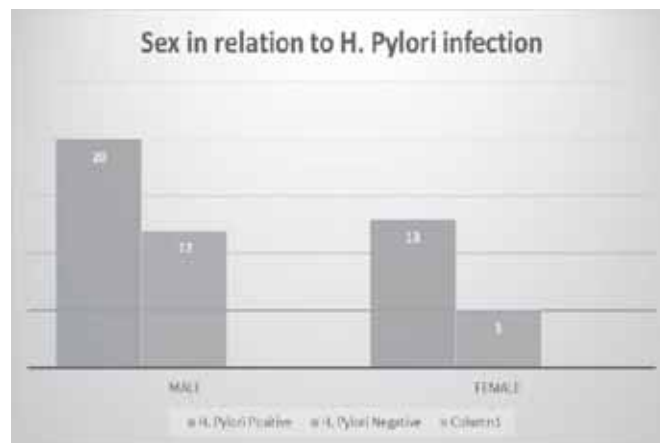
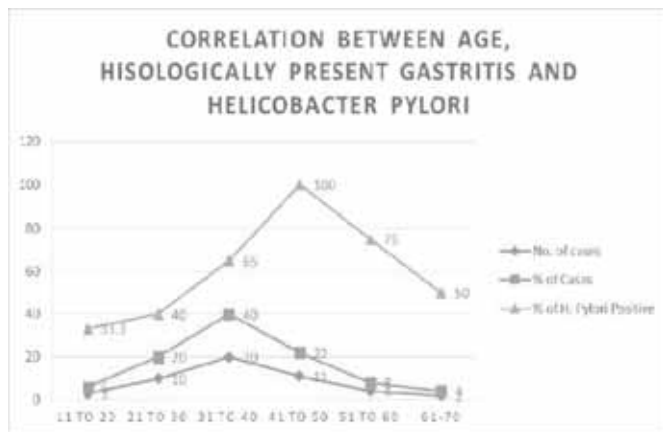
**OBSERVATIONS & RESULT**

Number of cases studied : 50

The result of the present study are listed below

**Table – 1 Correlation between Age, Histologically present Gastritis and Helicobacter Pylori**

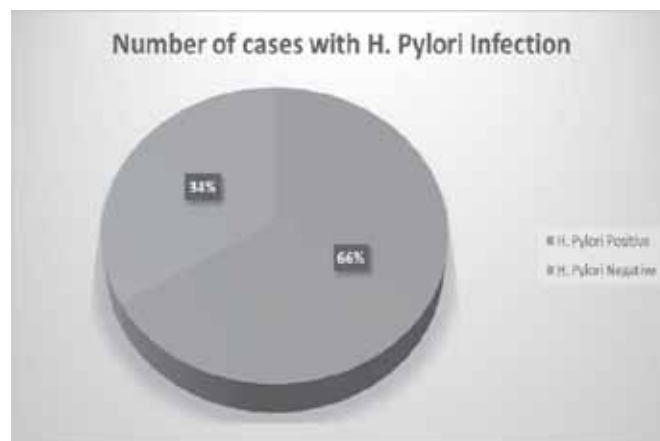
Age Group in years	No. of cases	% of cases	Gastritis		H. Pylori Positive
			Mild	Moderate	
11-20	03	06%	66.7%	33.3%	33.3%
21-30	10	20%	60%	40%	40%
31-40	20	40%	55%	45%	65%
41-50	11	22%	--	100%	100%
51-60	04	08%	50%	50%	75%
61-70	02	04%	50%	50%	50%



The above table indicates that majority of the symptomatic cases (40%) were in the age group of 31-40 years. However the incidence of H. Pylori was found to be highest in the 41-50 years age groups (100 %) though they form only 22% of total number of cases.

This study Men dominated in both, sex -32 cases (64%) and positivity for H. Pylori infection (60.6%).

The incidence of mild changes of gastritis is highest in the 11-20 years age group (66.7 %) while that of moderate gastritis is highest in the 41-50 years age group (100%).



**Table – 2 Sex in relation to H. Pylori infection**

Total No.	H. Pylori Positive (33)		H. Pylori Negative (17)	
	Male	Female	Male	Female
50 cases	20	13	12	05
	60.6 %	39.4 %	70.6 %	29.4 %

Of the total number of cases 66% of them were associated with H. Pylori infection.

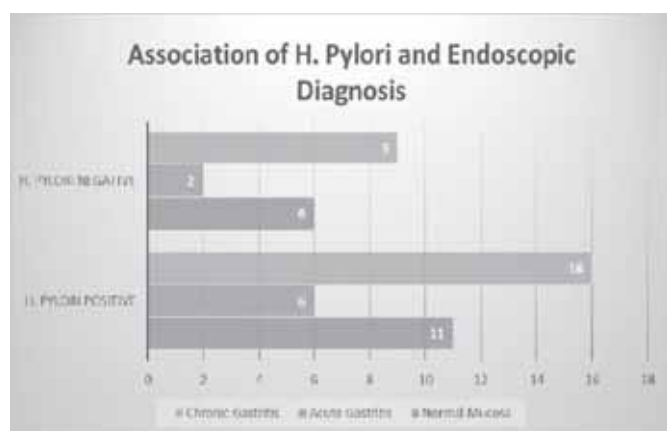
**Table – 4 Correlation of HLO with presence of histologically diagnosed gastritis.**

Helicobacter	Gastritis	
	Mild	Moderate
H. Pylori Positive	12(36.4%)	21 (63.3%)
H. Pylori Negative	10 (58.8%)	7 (41.2%)

H. Pylori infection was more common with moderate degree of gastritis (63.3%) as compared to mild gastritis.

**Table – 5 Association of H. Pylori and Endoscopic Diagnosis.**

Endoscopic Gastritis	H. Pylori Positive	H. Pylori Negative	Total cases
Normal Mucosa	11 (64.7%)	6(35.3%)	17(34%)
Acute Gastritis	6(75%)	2(25%)	08(16%)
Chronic Gastritis	16(64%)	9(36%)	25(50%)



Normal appearance of mucosa on endoscopic examination were positive for H. Pylori infection in about 64.7% cases.

**Table – 6 Association of Histological gastritis and endoscopic diagnosis.**

Endoscopic Diagnosis	Histological Diagnosis			
	Chronic Superficial Gastritis	Chronic Diffuse Gastritis	Chronic Atrophic Gastritis	Chronic Active Gastritis
Normal Mucosa	9(52.9%)	7(41.2%)	1(5.9%)	-
Acute Gastritis	2(25%)	3(37.5%)	1(12.5%)	2(%)
Chronic Gastritis	15(60%)	5(20%)	4(16%)	1(%)

None of the cases with a normal appearance on endoscopy were associated with a normal histology. 52.9 % of the cases with a normal endoscopic diagnosis were associated with chronic superficial gastritis histologically.

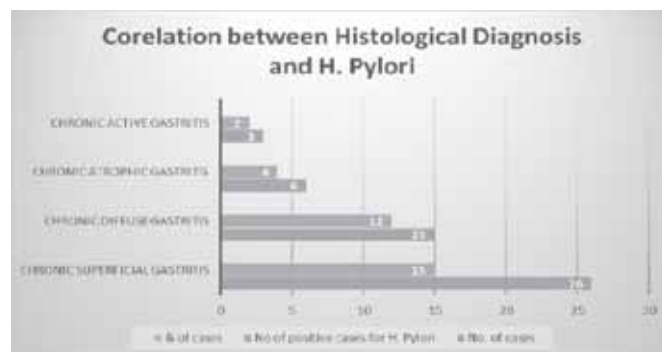
**Table – 7 Histological Diagnosis of total cases studied.**

No.	Histological Diagnosis	No. of Cases	% of cases
1	Chronic Superficial Gastritis	26	52 %
2	Chronic Diffuse Gastritis	15	30 %
3	Chronic Atrophic Gastritis	06	12 %
4	Chronic Active Gastritis	03	06 %

The next common lesion found on histological interpretation was chronic superficial gastritis (52%)

**Table – 8 Correlation between Histological Diagnosis and H. Pylori**

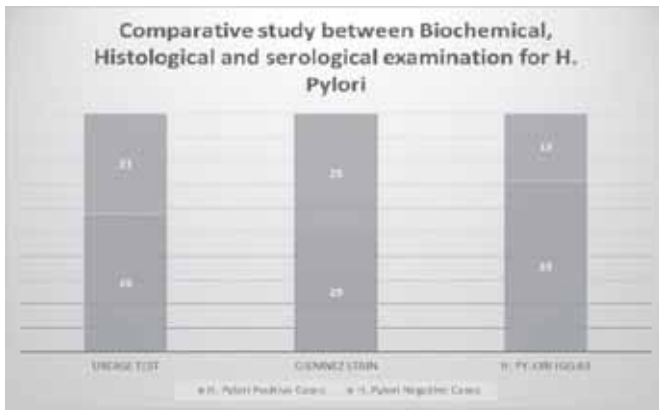
No.	Histological Diagnosis	No. of Cases	H. Pylori Positive	
			No. of cases	% of cases
1	Chronic Superficial Gastritis	26	15	57.7 %
2	Chronic Diffuse Gastritis	15	12	80 %
3	Chronic Atrophic Gastritis	06	04	66.7 %
4	Chronic Active Gastritis	03	02	66.7 %



The incidence of Helicobacter pylori was found to be highest (80%) in cases of histologically diagnosed chronic diffuse gastritis.

**Table 9 – Comparative study between Biochemical, Histological and serological examination for H. Pylori**

Type of Examination	H.Pylori Positive Cases	H.Pylori Negative Cases	% of Positive Cases
Biochemica Examination of organisms (Urease test)	29	21	58%l
Histological examination of organisms by (Giemnez Stain)	25	25	50%
Serological Examination for (H. Pylori IgG Ab)	33	17	66%



From above study, it can be indicated that serology is more sensitive and confirmative as compare to biochemical and histological examination for H. Pylori infection.

### DISCUSSION

The present study was carried out on out patients attending the surgical outpatient department. All of them had symptoms pertaining to the upper gastrointestinal tract.

A total number of four biopsies were taken from the pyloric antrum within a few centimetres of each other. This was found to be sufficient for an accurate diagnosis of various histological types of gastritis.

In present study it was noted that incidence of gastritis increases with age. The younger patients shows mild changes of gastritis histologically. The middle aged group were associated with H. Pylori infection and moderate gastritis on histology. This probably indicates the progress from mild to moderate gastritis with an increase in age.

In present study, 64% of all cases were male and 60.6% of all patients positive for H. Pylori were also male.

Naseer ahmed et al (1991)<sup>10</sup> showed that men predominated their study of 150 cases both in sex (86%) and positive for H. Pylori (87.9%)

No.	Study group	No. of cases	H. Pylori positive
1	Warren and marshall 1983 <sup>12</sup>	-	About-50%
2	Fiocca R et al <sup>13</sup>	310	230(74.5%)
3	Lambent et at <sup>14</sup>	82	50(61%)
4	TAYLOR ET AL <sup>15</sup>	51	22(43%)
5	Naseer Ahmed et al <sup>10</sup>	150	99(66%)
6	Bleker et al <sup>5</sup> (study in asymptomatic subject)	542	120(22.1%)
7	Menelall et al <sup>5</sup>	-	66.7%
8	Present study 1996	50	33(66%)

In the present study 66% of the 50 cases studied were positive for H. Pylori infection.

H. pylori was detected in 63.6% of cases with changes of moderate gastritis histologically.

Warren and marshall<sup>2,10</sup> in 1983 showed that the organisms were always seen with active chronic-gastritis, were fewer in number chronic gastritis and were consistently observed in the gastric antrum.

Bleker et al<sup>5</sup> showed that the serology is a valid non-invasive screening method for the detection of a H-pylori infection. It is improvement for screening of asymptomatic subject.

Rollason et at<sup>16</sup> in a retrospective study described H. Pylori in association with chronic superficial and chronic atrophic gastritis.

The correlation between the endoscopic diagnosis, histological appearance and H. Pylori infection is very poor. About 34 % of cases with normal endoscopic findings were associated with histological changes of gastritis out of which 64.7% cases were H. Pylori positive. The relation between chronic gastritis and H. Pylori can be seen in the following table.<sup>17</sup>

No	Study Group	Active Gastritis			Inactive Gastritis		
		No	H. Pylori +ve	%	No	H. Pylori +ve	%
1	Goodwin et al 1986, Australia	51	47	92	23	8	35
2	Morris et al 1986, New Zealand	28	23	82	7	1	14
3	Rawles et al, 1986, U.S.A.	23	16	70	47	7	15
4	Wyatt et al 1986, U.K.	109	95	87	35	13	37
5	Anderson et al 1987, Italy	74	67	91	16	2	13
6	Fiocca et al, 1987, Italy	239	213	89	124	91	73
7	Jiang et al, 1987, china	49	44	90	72	36	50
8	Present study 1996, India	3	2	66.7	47	31	65.9

The incidence of H. Pylori with active gastritis is about 66.7 % though the prevalence of active gastritis is low. Mc Nulty et al<sup>3</sup> found that the H. Pylori plays a pathogenic role in the aetiology of gastritis rather than colonizing an already inflamed gastric mucosa. H. Pylori only colonizes gastric type mucosa.

## CONCLUSION

Helicobacter Pylori infection is frequently associated with antral gastritis

The incidence of Helicobacter pylori is found to be highest in cases of histologically diagnosed chronic diffuse gastritis.

The incidence of H. Pylori infection is found to be more common with moderate degree of gastritis

The prevalence of H. Pylori infection is found to be the highest in the age group of 41 – 50 years. Majority of cases associated with histologically present gastritis are in the age group of 31 -40 years.

The male sex is associated with both a higher incidence of gastritis as well as H. Pylori Infection.

Symptomatic cases normal on endoscopy may show chronic gastritis histologically.

Serology is more sensitive and specific than urease and histological confirmation for H. Pylori infection.

This obviates the necessity of a gastric biopsy and serology for H. Pylori IgG antibody in all patients with upper gastrointestinal tract symptoms.

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**Study of Incidence of Congenital Anomalies In New Borns****Dr. Kanan Shah\*, Dr. C.A.Pensi\*\***

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**KEY WORDS :** Congenital malformation, anomalies**Abstracts:**

In this study, all the newborns delivered at obstetrics dept. of civil hospital were examined for congenital malformations over a period of nine months. Purpose of study is to find out the overall incidence of clinically detectable congenital anomalies in newborns in hospital deliveries. Four thousand four hundred and fifty six newborn babies of consecutive deliveries were examined at birth for the presence of congenital malformations. The overall incidence of malformations was 2.38%. Neural tube defects were commonly found. The incidence of congenital malformations was higher in still born, low birth weight, male and preterm babies. Also we know immediate outcome in live born malformed babies for study of prognosis of various malformations.

**INTRODUCTION**

In a developing country like India due to high incidence of infectious diseases, nutritional disorders and social stress, the developmental defects are often overshadowed, but the present scenario is changing rapidly. A recent study shows that congenital anomalies contribute to 9% of perinatal deaths as compared to 8% a decade ago. About 2% newborn infants have major anomalies. The incidence is as high as 5% if one includes anomalies detected later in childhood such as abnormalities of heart, kidney, lungs and spine.

Anomalies are more common among spontaneous abortuses. Many anomalies are severe and cause abortion.

Congenital anomalies represent defective morphogenesis during early fetal life. A broader definition includes metabolic or microscopic defects at a cellular level.

Major anomalies have serious medical, surgical and cosmetic consequences.

In this study we have calculated overall incidence of congenital anomalies both in live born and stillborn babies.

**AIMS AND OBJECTIVE**

To study prospectively

- 1) The overall incidence of clinically detectable congenital anomalies in newborns in hospital deliveries.

- 2) The incidence of different congenital anomalies.
- 3) Immediate outcome in live born malformed babies.

**MATERIAL AND METHODS**

It's an observational analytical cross sectional type of study.

Four thousand four hundred and fifty six newborn babies of consecutive new born babies delivered at the Department of Obstetrics and Gynecology, Civil hospital, Ahmedabad were examined at birth for the presence of congenital malformations. They were examined soon after birth for major and/or minor congenital malformations. Baby's gestational age, birth weight, sex and symptoms in postnatal period were noted. The detailed general and systemic examinations of the babies were carried out. As per the proforma made, complete medical, family, antenatal and personal history has taken. Thorough physical examinations of newborn babies were done. High risk newborns were examined in detail within 12 hrs.of birth.

Immediate outcome of all malformed babies were recorded during the period of the mother's hospital stay.

**OBSERVATIONS**

A total of 4456 consecutive births were studied for congenital malformation. There were 106 malformed babies found. The overall incidence of congenital malformations was found to be 2.38% as shown in table I.

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**TABLE –I INCIDENCE OF ANOMALIES**

Total No. of deliveries	4414
Total No. of twin deliveries	40
Total No. of triplet deliveries	1
Total No. of babies born	4456
Total No. of malformed babies	106
Incidence of anomalies	2.38%

Incidence of twin deliveries was 0.9%.

Congenital malformations of the central nervous system were the highest followed by musculoskeletal system, gastrointestinal system, cardiovascular system, Genitourinary system, respiratory system, chromosomal and ear as shown in Table II.

**TABLE—II SHOWING INCIDENCE OF SYSTEMWISE ANOMALIES**

SYSTEM	No. of malformed babies	No. of Live born	No. of Still born	Incidence /1000 births
CNS	46	14	32	10.42
Multiple congenital anomalies	14	03	11	3.17
Musculoskeletal	13	09	04	2.95
Gastrointestinal system	11	07	04	2.49
Cardiovascular system	10	07	03	2.27
Genito urinary system	04	03	01	0.91
Respiratory system	04	03	01	0.91
Chromosomal	02	02	00	0.45
Ear	02	02	00	0.45

**Table III SEXUAL VARIATION IN INCIDENCE OF ANOMALIES**

Sex of baby	Total no. of babies	No. of malformed babies	Percentage
Male	2503	61	2.43
Female	1951	43	2.20
Ambiguous	2	2	1.89
Total	4456	106	

Incidence of malformations in general was found to be apparently more in male (2.43%) than in female (2.20%)

### DISCUSSION

In present study, attempts have been made to find out the total and individual incidence of anomalies in hospital deliveries. The overall incidence of congenital malformations was 2.38% in present study. Compares well with the observations of Marden et al(1964)<sup>1</sup> 2-4%, Goravalingappa & Nashi(1979)<sup>5</sup> 3.13%, Ghose et

al(1985)<sup>4</sup> 1.5%, Graham(1988) 2%, Mishra PC & Baveja R(1989)<sup>7</sup> 1.46%, Mohanty et al(1989)<sup>8</sup> 1.61%, Verma IC et al(1991)<sup>11</sup> 3.6% and Guha AK(1995)<sup>2</sup> 2%.

The relative difference in the occurrence of various malformations might be due to geographic and racial differences. The true incidence of congenital anomalies

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depend upon several factors and therefore two studies are never strictly comparable.

In present study Congenital malformations of the central nervous system were the highest(10.42/1000) followed by malformations of the musculoskeletal system(2.95/1000), malformations of the gastrointestinal system(2.49/1000), malformations of the cardiovascular system(2.27/1000), malformations of the genitourinary system(0.91/1000), malformations of the respiratory system(0.91/1000), malformations of the chromosomal and ear(0.45/1000).

Goravalingappa &Nashi(1979)<sup>5</sup> and Guha AK(1995)<sup>6</sup> also found high incidence of central nervous system malformations. While Mishra PC & Baveja R(1989)<sup>7</sup> found high incidence of multiple congenital anomalies. Ghose et al(1985)<sup>4</sup> and Mohanty et al(1989)<sup>8</sup> found higher incidence of musculoskeletal system malformations.

In present study, it was found that incidence of congenital anomalies was high in babies with birth weight less than 1.5 kg. Mohanty et al<sup>8</sup> and Ghose et al<sup>4</sup> also reported the same.

In present study it was found that incidence of congenital anomalies was much higher in preterm babies as compared to full term babies. Goravalingappa &Nashi(1979)<sup>5</sup> also reported the same.

In present study it was found that incidence of congenital anomalies was high in male babies. Ratio of malformed male to female babies was found 0.58:0.41. Mohanty et al(1989)<sup>8</sup> reported higher incidence of congenital malformations in male babies(1.91%) than in female babies(1.27%)

Incidence of congenital malformed babies appears more now days as compared to past because of advanced diagnostic facilities and availability of neonatal intensive care unit which leads to increase chances of survival of malformed babies.

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## RESEARCH ARTICLE

### Study of Feto-Maternal outcome of Teenage Pregnancy at Tertiary Care Hospital

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**KEY WORDS :** Pregnancy in Adolescent, Adolescent Pregnancy, Teenage Pregnancy

#### Abstract

**Objective:** To study of Feto-Maternal outcome of Adolescent Pregnancy

**Study Design:** Retrospective Observational Study

**Duration of Study:** One year: September 2011 to August 2012

**Patients and Methods:** Data was collected from the case papers of the pregnant adolescents and their feto-maternal outcome was studied.

#### Results:

5851 pregnant patients were admitted for delivery and abortion related care. Out of this, pregnant adolescents were 303. Proportion of adolescent pregnancy was 5.1%. 299 (98.6%) were married, while 4 (1.3%) were unmarried. 298 (98.3%) were above 18 years of age. 48 (15.8%) were illiterate and only 3(0.9%) studied up to higher secondary. Primi, second and third gravida were 270 (89.1%), 27 (8.9%) and 6 (1.9%) respectively. 15 (4.9%) couples ever used some method of contraception. 172(56.7%) of pregnant adolescents had anaemia. Pre term labour occurred in 54 (17.8%). Pregnancy Induced Hypertension and Eclampsia occurred in 21 (6.9%) and 9 (2.9%) respectively. 1(0.3%) of pregnant adolescent girl was infected with Human Immunodeficiency Virus. First and second trimester Reproductive loss was 9 (3%). There were 294(97%) deliveries. Vaginal delivery occurred in 199 (65.6%). 95 (31.3%) had Lower Segment Caesarean Section. Still Births were 28 (9.4%). Low Birth weight babies were 136 (45.9%). 53 (17.9%) babies required admission at Neonatal Intensive Care Unit.

#### Conclusion:

Proper antenatal care, institutional delivery and postnatal care help in reducing maternal and perinatal morbidity and mortality in adolescent pregnancy. Prevention of adolescent pregnancy can only be achieved by education of girl child, marriage at legal age, prevention of unwanted pregnancy along with proper health and life skill education to both boys and girls.

## INTRODUCTION

WHO<sup>1</sup> defines an adolescent as a person aged 10 to 19 years. Ignorance regarding sexuality and reproduction along with adventurous nature and poor negotiation skills predisposes unmarried girls for early sexual activity that may lead to various problems like unwanted pregnancy and STIs that may cause psycho-social-economical problems for the adolescent girl. Adolescent Pregnancy means pregnancy in a woman aged 10-19 years. It can be used synonymously as Teen Pregnancy. About 16 million girls aged 15 to 19 years give birth every year – roughly 11% of all births worldwide. The vast majority of adolescents' birth occurs in developing countries. In our country, where 47.4% of girls and in Gujarat where 38.7% of girls are married before the age of 18 years<sup>2</sup>, there is a high unmet need of contraception, as majority of couples

do not use and are unaware of contraception. Pregnancy and childbirth carry more risk in adolescents than in adults because the adolescent girl is not yet mature physically and emotionally for motherhood. Teenage mothers are more likely to have children with low birth weight, inadequate nutrition and anaemia. And they are more likely to develop cervical cancer later in life. Early motherhood can affect the psychosocial development of the infant. The occurrence of developmental disabilities and behavioral issues are increased in children born to adolescent mothers.

The risk of dying from pregnancy related cause is much higher for adolescents than for older women and greater is the risk for younger the adolescent. The risk of maternal mortality is higher for adolescent girls, especially those under age, 15 compared to older women. Pregnancy in

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unmarried teen not only creates social problem but also there is a high risk of unsafe abortion. 15 % of all unsafe abortions in low and middle income countries are among adolescent girls aged 15-19 years.<sup>3</sup> Pregnancy in this age group adds to the national hazards by contributing to population explosion especially in our country.

### MATERIAL AND METHODS

This retrospective observational study was carried out at Department of Obstetrics and Gynaecology of our institute from 1<sup>st</sup> September 2011 to 31 August 2012 amongst pregnant adolescents. Reproductive outcome was studied in all adolescent girls (completed age less than or equal to 19) who were admitted at our institute. Data was analyzed from their case papers and their fetomaternal outcome was studied.

### RESULTS

During the study period, total number of pregnant patients was 5851 who were admitted for delivery and abortion related care. Out of this, pregnant adolescent were 303. Hence, proportion of adolescent pregnancy in our study was 5.1%. Our study showed that, out of 303 adolescents, 299 (98.6%) were married, while 4 (1.3%) were unmarried.

Out of 303 pregnant adolescents, 211(69.6%) were of 19 years of age and 87 (28.7%) were of 18 years of age. Hence, 298 (98.3%) were above 18 years of age. 2(0.66%) belonged to 17 years of age and 1 (0.33%) each belonged to 13, 14 and 15 years of age. Out of 4 (1.3%) unmarried adolescents, 3 (0.99%) were minors of 13, 14 and 15 years of age and 1(0.3%) was of 19 years of age. Our study revealed that, 48 (15.8%) were illiterate, 200 (66%) had primary education, 52 (17.1%) had secondary education and only 3(0.9%) studied up to higher secondary. None were studying at a college.

270 (89.1%) of pregnant adolescents were primigravida. 27 (8.9%) were second gravida and 6 (1.9%) were third gravida. 15 (4.9%) couples ever used some method of contraception. In present study, 281 (92.7%) had taken at least one Ante Natal Care (ANC)

172(56.7%) of pregnant adolescents had anaemia. Pre term labour occurred in 54 (17.8%). Pregnancy Induced Hypertension (PIH) and Eclampsia occurred in 21 (6.9%) and 9 (2.9%) respectively. 1(0.3%) of pregnant adolescent girl had Human Immunodeficiency Virus (HIV) infection.

First and second trimester Reproductive loss of 9 (2.9%) was reported in our study. Out of this, Medical Termination of Pregnancy (MTP) was performed in 2 (0.6%). 5 (1.6%) had abortion. 2 (0.6%) were diagnosed as missed abortion, hence Dilatation and Evacuation (D/E) was

**Table I: Antenatal problems in Adolescent Pregnancy**

Antenatal problems	No	Percentage
Anaemia	172	56.7
Preterm labour	54	17.8
PIH	21	6.9
Eclampsia	9	2.9
STI/HIV	1	0.3

**Table II: Outcome of Pregnancy**

N = 303	Outcome of Pregnancy	No	Percentage
N = 9 (3%)	MTP	2	0.6
	Abortion	5	1.6
	Ectopic Pregnancy	2	0.6
N = 294 (97%)	Vaginal Delivery	199	65.6
	LSCS	95	31.3

**Table III: Birth Weight**

Birth Weight (kg)N = 296	No.	Percentage
< 1	2	0.6
1- 1.4	18	6.0
1.5 – 1.9	35	11.9
2.0 – 2.4	81	30.8
2.5 – 2.9	115	35.4
> 3	45	15.2

performed. 2 (0.6%) had First trimester and 1 (0.3%) had second trimester complete abortion. Laparotomy for ectopic pregnancy was done for 2 (0.6%).

There were 294 deliveries. There were 3 twins; hence total babies born were 296. Spontaneous vaginal delivery occurred in 199 (65.6%), out of which 54 (17.8%) were preterm vaginal delivery and 145 (47.9%) were full term vaginal delivery. 95 (31.3%) had Lower Segment Caesarean Section (LSCS). Out of 296 babies born, 268 (90.5%) were live birth and 28 (9.4%) were Still births. 53 (17.9%) babies required Neonatal Intensive Care Unit (NICU) admissions. In our study, Low Birth Weight (LBW) babies were 136 (45.9%) where as 160 (54%) of babies were of more than 2.5 kg.

### DISCUSSION

The incidence of teenage pregnancy shows marked variation in developed and developing countries.<sup>3</sup> Births to adolescents as a percentage of all births range from about 2 % in China to 18 % in Latin America and Caribbean. Worldwide, just seven countries account for

half of all adolescent births: Bangladesh, Brazil, Congo, Ethiopia, India, Nigeria and United States of America. As per DLHS III<sup>4</sup> (District level Household & Facility Survey), in India, overall incidence of adolescent pregnancy is 5.6% (rural 6.4% and urban 3.5%) there is a wide range of variation amongst states: West Bengal leads in teenage pregnancy at 14%, followed by Karnataka at 11%, Andhra Pradesh at 10 %, Bihar at 8 % and Chattisgarh at 7 %. Goa and Kerala has lowest adolescent pregnancy rate of 2% and 3% respectively, where as Gujarat has 3.4% of adolescent pregnancy. Our study showed that, out of 303 adolescents, 299 (98.6%) were married, while 4 (1.3%) were unmarried. In a study by Bhalerao et al<sup>5</sup> and Shruti D et al<sup>6</sup>, incidence of pregnancy among unmarried adolescents was 3 % and 5.63% respectively

211(69.6%) were of 19 years of age and 87 (28.7%) were of 18 years of age. Hence, 298 (98.3%) were above 18 years of age. 2(0.66%) belonged to 17 years of age and 1 (0.33%) each belonged to 13, 14 and 15years of age. Out of 4 (1.3%) unmarried adolescents, 3 (0.99%) were minors of 13, 14 and 15 years of age and 1(0.3%) was of 19 years of age. 270 (89.1%) of pregnant adolescents were primigravida. 27 (8.9%) were second gravida and 6 (1.9%) were third gravida.

In our study, only 48 (15.8%) were illiterate, 200 (66%) had primary education, 52 (17.1%) had secondary education and only 3(0.9%) studied up to higher secondary. No one was studying at present.

Early marriage in our society is associated with low levels of schooling and education as well as early pregnancies. Attainment of higher education is associated with better awareness and wisdom, and consequently an urge for professional pursuit and desire for economic independence. This in turn leads to late marriage and conception. Preventing unintended adolescent pregnancies and investing in girls' education, health and rights have powerful effects in other areas of their lives. Girls who are educated are likely to marry later and to have smaller, healthier families. Education helps girls to know their rights and claim them, for themselves and their families. Education can translate into economic opportunities for women and their families. Educated young women offer a powerful boost to their families' wellbeing, contributing to increased household income and savings, better family health and improved opportunities for future generations. Combined, their actions can help lift communities and countries out of poverty<sup>3</sup>.

In present study, 281 (92.7%) had taken at least one ANC which is indeed a good finding. National Family Health Survey (NFHS) 3 data<sup>2</sup> shows that, in India; 77.3% of teenage mothers have taken at least one ANC. All

components of ANC are more likely to be received by women in urban areas.

There are many health risks in adolescent pregnancy. 172(56.7%) of pregnant adolescents had anaemia. This data is comparable to NFHS 3 data<sup>2</sup>, where 55.7% of adolescents were found to be anaemic. In our study, mild, moderate and severe anaemia was present in 139 (46%), 24 (8%) and 9 (3%) respectively. Severe anaemia can lead to preterm labour, low birth weight and related complications, post partum haemorrhage and sepsis<sup>7</sup> in addition to impaired physical and cognitive development, and increased risk of morbidity in children and reduced work productivity in adults. Anaemia contributes to 20% of all maternal deaths. Iron deficiency anaemia is one of the most common causes of anaemia during pregnancy that can be corrected by proper diet and oral iron supplementation. In endemic areas, control of malaria and worm infestation during antenatal period is also recommended.

Pre term labour occurred in 54 (17.8%). Bhalerao A et al<sup>5</sup> and Chahande MS<sup>8</sup> have reported that, 16% had preterm vaginal delivery. Chen XK et al<sup>9</sup> have reported an association between teenage pregnancy and preterm delivery.

PIH and Eclampsia occurred in 21 (6.9%) and 9 (2.9%) respectively. Many studies have concluded that, there is high incidence of PIH and Eclampsia in adolescent pregnancy, but a WHO review concluded that there probably is no special risk to adolescent mothers of hypertension associated with their young age. However, hypertension is the most common complication of pregnancy amongst women having their first child and is therefore a common complication for many adolescent mothers<sup>10</sup>.

In our study, 1(0.3%) of pregnant adolescent girl had HIV. The prevalence of HIV among the youth population is 0.11 percent. HIV prevalence<sup>2</sup> is lower among youth age 15-19 (0.04%) than among both older youth (0.18%) and the older cohort age 25-49 (0.38%)

There were 294 deliveries. There were 3 twins; hence total babies born were 296. Spontaneous vaginal delivery occurred in 199 (65.6%), out of which 54 (17.8%) were preterm vaginal delivery and 145 (47.9%) were full term vaginal delivery. 95 (31.3%) had LSCS. Indications of LSCS were Cephalo-Pelvic Disproportion (CPD) in 43 (45.2%), fetal distress in 15(15.7%), Non progress of labour in 13 (13.6%), PIH and abnormal presentation in 10 (10.52%) each, previous caesarean section and Accidental Haemorrhage in 2 (2.1%) each.

Opinions on modes of delivery by operative interventions in teenage pregnancy differed widely.<sup>11</sup> Al-Ramahi et al<sup>12</sup> have reported that, because of CPD, there is higher rate

of operative interventions and instrumental deliveries. Eure CR et al<sup>13</sup> have reported lower rates of operative interventions due to higher frequency of low birth weight babies.

First and second trimester Reproductive loss of 9 (2.9%) was reported in our study. Out of this, MTP was performed in 2 (0.6%). 5 (1.6%) had abortion. Out of them, 2 (0.6%) were diagnosed as missed abortion, hence D/E was performed. 2 (0.6%) had First trimester and 1 (0.3%) had second trimester complete abortion. In a study by Bhalerao A et al<sup>5</sup>, 8% had spontaneous abortion in 1<sup>st</sup> and second trimester. Laparotomy for ectopic pregnancy was done for 2 (0.6%).

Pregnant unmarried adolescent girls often do not come to tertiary care hospital. In our study, only 4 (1.3%) unmarried adolescent girls with pregnancy were reported. Out of them 3 were minors, of 13 years, 14 years and 15 years of age. All of them were having history of abuse. MTP was performed in 2 (0.6%) and 1 (0.3%) had complete first trimester abortion. One unmarried adolescent girl was of 19 years of age, who was engaged. She was diagnosed with rupture ectopic pregnancy and laparotomy was performed.

In our study, out of 296 babies born, 268 (90.5%) were live birth and 28 (9.4%) were Still births. 53 (17.9%) babies required NICU admissions in a study by Shruti D et al<sup>6</sup>, the total percentage of spontaneous abortion, macerated still births and fresh still births was 9.84% which is quite high compared to 6.97% in general population.

According to WHO, birth weight of less than 2.5 kg is considered as LBW. In our study, LBW babies were 136 (45.9%) where as 160 (54%) of babies were of more than 2.5 kg. Bhalerao A et al<sup>5</sup> I have reported similar finding of 46.2% LBW babies and 53.8% having birth weight of 2.5 kg or more. LBW is a key predictor of malnutrition and an important determinant of child mortality<sup>14</sup>. Prianka M et al<sup>11</sup> have found that the number of LBW babies was more in the case of teenage mothers (38.9%) compared to the adult mothers (30.4%). Babies born to teenage mothers are likely to be premature, and hence, the incidence of low birth weight is higher in them.

15 (4.9%) couples ever used some method of contraception. The contraceptive prevalence rate among 15-19 age group is 13 percent compared to 33 % in age group of 20-24 years.<sup>2</sup>

No maternal mortality was reported in present study.

## CONCLUSION

Proper antenatal care, institutional delivery and postnatal care help in reducing maternal and perinatal morbidity and mortality in adolescent pregnancy. Prevention of adolescent pregnancy can only be achieved by education

of girl child, marriage at legal age, prevention of unwanted pregnancy along with proper health and life skill education to both boys and girls irrespective of whether they live in rural or urban areas.

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## CASE REPORT

### Anesthetic management for emergency caesarean hysterectomy in a patient with placenta accreta

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**KEY WORDS** : Obstetric hemorrhage, Placenta accreta, Transfusion of Blood & Blood Products.

#### ABSTRACT :

Placenta accreta is one of the most feared complications in obstetrics. It occurs when the placenta is abnormally adherent to the uterus, often resulting in complications in the peripartum period such as severe haemorrhage, a possible need for caesarean hysterectomy<sup>1</sup> Preoperative diagnosis of placenta accreta, perioperative management with infusion of blood and blood products help in reducing morbidity and mortality to a greater extent. We hereby present a case of placenta accreta taken for emergency caesarean section which ended up with obstetric hysterectomy.

#### INTRODUCTION

The incidence of placenta accreta among deliveries is low (0.04%). However it accounts for up to 50% of all Caesarean hysterectomies most of which are unplanned. As diagnosis cannot be established definitively with ultrasound, diagnosis can be made only at surgery. This has anaesthetic implications because it is necessary to prepare for the potential danger of major haemorrhage.<sup>1,2</sup>

Anaesthesia management of the haemorrhage consisted of blood and fluid replacement, guided by assessment of the amount of blood loss along with heart rate, urine output and systemic blood pressure. General anaesthesia is preferred due to the longer operating times, massive haemorrhage and need for extension of surgery including iliac vessel exposure.<sup>2</sup>

#### MATERIALS AND METHOD

A 25 year old, weighing 50kg, 3<sup>rd</sup> gravida female presented for an emergency caesarean section. Her past obstetric history included two previous caesarean sections for cephalo-pelvic disproportion under spinal anesthesia uneventfully. There was no significant past medical or surgical history. All routine investigations were within normal limits except Haemoglobin 7.9 gm%. Ultrasonography of abdomen shows low lying placenta with loss of interface between placenta and myometrium suggesting placenta accreta. For emergency caesarean section, general anesthesia with ASA grade IV was planned. In anticipation of massive blood loss, adequate whole blood and blood products were kept ready. A dopamine hydrochloride infusion was available in an event for hypotension.

Patient was taken in the operation theatre with a wedge under the right hip. Monitors (ECG, NIBP and SpO<sub>2</sub>) were applied. Her baseline vital parameters were normal. Two wide bore peripheral intravenous lines were secured. Premedication included inj. Glycopyrrolate 0.2 mg IV, inj. Ranitidine hydrochloride 50 mg IV, inj. Ondansetron hydrochloride 4mg IV. After five minutes of preoxygenation, induction of anaesthesia was done with inj. thiopental sodium 300mg IV. Tracheal intubation was facilitated by inj. succinyl choline 75 mg IV. Anaesthesia was maintained with O<sub>2</sub> (50%), N<sub>2</sub>O (50%), sevoflurane(0.2-1.5%) and inj. Atracurium bisylate. Analgesia was provided with inj. Diclofenac sodium 75 mg IV.

A healthy female baby of 2.1kg with normal apgar score was delivered. Thereafter, inj. Methargine 0.2mg IV and inj. Oxytocin infusion (20 units in 500 ml 5% Dextrose) were started. There was massive bleeding and it was difficult to remove placenta. Immediately obstetrician decided to go for caesarean hysterectomy. During surgery blood loss was more than two liters. Intra-operative tachycardia and hypotension was corrected with colloids, 2 units of whole blood, 3 units of PCV and 3 units of FFP. At the end of surgery neuro muscular block was reversed with inj. Glycopyrrolate 0.4 mg IV and inj. Neostigmine sulphate 2.5mg IV. In immediate postoperative period patient was conscious, cooperative, with adequate muscle tone and power. Her vitals were stable. In the postoperative room O<sub>2</sub> was supplemented with vent mask and 2units of PCV was infused. She had an uneventful postoperative course.

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## DISCUSSION

Placenta accreta refers to a placenta that is abnormally adherent to the uterus. The incidence of placenta accreta is increasing, primarily as a consequence of the increasing caesarean delivery rate.<sup>3</sup> The risk increases from 24% with one previous caesarean section to 67% in women with 3 or more prior caesareans. Other risk factors are uterine scarring from myomectomies, uterine curettages and infections.<sup>4</sup>

Placenta accreta is noted at the time of delivery or C/S with difficulty in separating the placenta from uterine wall. However it may be possible to detect accreta with transvaginal ultrasound, 3- D USG and MRI. Ultrasonography can diagnose 78% to 100% of cases. Antenatal recognition of placenta accreta and careful planning by obstetrician and anesthesiologist can decrease blood loss and reduce serious complications.<sup>3</sup>

In our case, USG abdomen showed possibility of placenta accreta. Therefore we planned for general anaesthesia and blood and blood products were kept ready.

Anesthetic management of caesarean section for placenta accretes is controversial. Many anesthetist believe that general anesthesia is mandatory for caesarean section.. Regional anesthesia depends on position of placenta, urgency of situation and the extent of any continuing antenatal blood loss. Regional anesthesia in presence of uncontrolled hypovolaemia may be fraught with problems.<sup>4</sup>

Pre-operative preparation of the patients suspected of having placenta accreta is important given the potential for rapid and massive blood loss. Failure of the placenta to separate easily resulted in massive and sometimes uncontrolled haemorrhage.<sup>2</sup>

Therefore, it is prudent to place large bore intravenous access prior to the start of surgery and to be prepared with blood products in the room. Colloid solution is more efficacious in fluid. Blood transfusions are required in more than 50% of patients with placenta accrete. Massive transfusion can cause dilutional thrombocytopenia and coagulopathy, which can be treated with appropriate blood component (FFP, Platelet)<sup>2,4,5</sup>. The estimated blood in emergency cesarean hysterectomy was  $2526 \pm 1240$ ml, which is significantly more than in elective cesarean hysterectomy ( $1319 \pm 396$ ml)<sup>4</sup>.

Severe bleeding and the surgical procedures performed in an attempt to control it are the major sources of maternal morbidity and mortality in cases of placenta accreta.<sup>4</sup> Two units of whole blood, three units of fresh frozen plasma and three units of packed cell volume were infused to our patient to maintain intravascular volume.

Unfortunately, most cases of placenta accrete are encountered without warning in women who are not prepared for the possibility of hysterectomy. Control of potentially life-threatening hemorrhage is the first priority; however the patient's desire for future fertility must be taken into consideration before going for hysterectomy.<sup>5</sup>

## CONCLUSION

Anesthetic management of placenta accreta will depend on available personnel, anesthesia equipment for massive transfusion. The goals were to deliver a healthy newborn and to devise a surgical approach which would minimize blood loss and provide a dry surgical field. In this case preoperative diagnosis and the coordination of a multidisciplinary team effort determined successful outcome.

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## CASE REPORT

### Peutz-Jeghers syndrome

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**KEY WORDS :** Peutz-Jeghers syndrome, hamartomatous polyps, mucocutaneous pigmentation

#### ABSTRACT :

Peutz-Jeghers syndrome (PJS) is a rare, autosomal dominant disorder responsible for mucocutaneous pigmentation and gastrointestinal hamartomatous polyps. We present a case of Peutz-Jeghers syndrome with brief review of literature in an 18-year-old female presented with abdominal pain, vomiting & melena. The patient had pigmented lesions on the face, lower lip and buccal mucosa. The imaging studies revealed intussusception with multiple polyps in small intestine. The polyps revealed histological features of hamartomatous polyps.

#### INTRODUCTION

Peutz-Jeghers syndrome is an autosomal dominant inherited condition determined by a mutation localized at 19p13.3; characterized by the occurrence of gastrointestinal hamartomatous polyps in association with mucocutaneous hyperpigmentation. The diagnosis of PJS is based on clinical findings and histopathological patterns of polyps. Peutz-Jeghers syndrome is associated with significant morbidity, variable clinical course and considerable predisposition to gastrointestinal & non-gastrointestinal malignancies. An overall recommendation for PJS patients includes not only gastrointestinal multiple polyps resolution, but also regular lifelong cancer screening. Early detection and proper surveillance are vital to minimize the risk of carcinoma.

#### CASE REPORT

An 18-year-old female was admitted with sharp and intermittent abdominal pain, which was located in the periumbilical region. The patient also reported nausea and several episodes of non-bilious, non-bloody vomiting. The patient had complained blackening of stool for five days. Physical examination revealed multiple, black coloured pigmented lesions on the face, lower lip, and buccal mucosa; which the patient had since childhood (Fig: 1a). On abdominal examination, epigastric and periumbilical tenderness, diminished bowel sounds, and a possible epigastric mass were observed.

Laboratory investigations revealed low hemoglobin concentration: 8.2 g/dL (N: 12 to 16 g/dL). Blood indices & peripheral blood smear examination suggested microcytic hypochromic anemia. Stool examination revealed positive benzidine test for occult blood. Routine blood chemistry reports were unremarkable.

Barium follow through study showed multiple intraluminal filling defects carpeting the small bowel, suggestive of polypoid lesions in small intestine. Spring coiled appearance of jejunum was noted in left upper abdomen, suggestive of intussusception with proximally dilated bowel loops. Abdominal ultrasonography (US) showed a large heterogeneous mass in the upper abdomen that measured 5.3 x 3.5 x 8.6 cm. The mass had a "pseudokidney" appearance with central, high echogenicity;

consistent with mesenteric fat within an intussusception.

The patient underwent an exploratory laparotomy. Small bowel segmental resection with end to end anastomosis was performed. The specimen was sent for histopathology examination. Post-operative course was uneventful.

#### Histopathology examination

The specimen consisted of a 25 cm portion of small bowel that contained multiple pedunculated polyps on mucosal surface (Fig: 1b). The largest polyp measured 3.5 x 2 cm and the smallest measured 1 x 0.8 cm. The cut surface of the polyp was homogenous, white.

Microscopic examination of polyps revealed a core of arborizing smooth muscle that supported non-neoplastic small bowel mucosa, suggestive of hamartomatous polyp (Fig: 2). Aggregates of cystically dilated benign glandular structures and pools of mucin were present within the submucosa and muscularis propria at the base of the polyp, a finding that is consistent with epithelial misplacement in a Peutz-Jeghers polyp. Neither adenomatous change nor malignancy was observed after thorough examination.

On the basis of hamartomatous small intestinal polyposis and clinical manifestation of mucocutaneous pigmentation, the diagnosis of Peutz-Jeghers syndrome was rendered.



1a

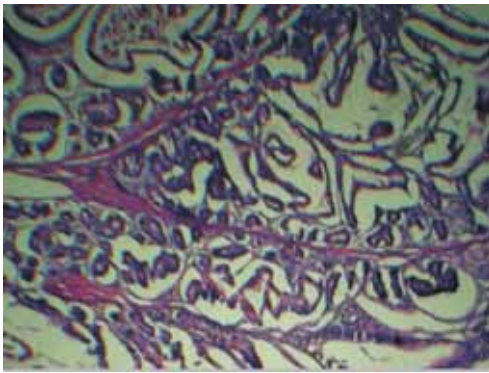


1b

**Figure - 1a :**  
Pigmentations on the buccal mucosa & lower lip in a patient with Peutz-Jeghers syndrome.

**Figure - 1b :**  
Multiple pedunculated polyps in small intestine in a patient with Peutz - Jeghers syndrome.

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**Figure 2 :** PJS hamartomatous polyp demonstrating the arborizing (branch tree like) pattern of smooth muscle proliferation upon which rests the small intestinal mucosa (Hematoxylin-Eosin stain, magnification x100).

### DISCUSSION

The primary description of PJS was published by Peutz in 1921 in one Dutch family (the Harrisburg family) as a gastrointestinal familial polyposis with pigmentations.<sup>(1)</sup> Jeghers specified the description in 10 cases from different families in his work in 1949 and defined the relations between pigmented lesions, gastrointestinal polyposis and increased risk of carcinoma; approximately half of his patients suffered from gastrointestinal malignancy.<sup>(2)</sup>

PJS, as with the other hamartomatous syndromes, has an autosomal dominant pattern of inheritance with both familial and sporadic transmission. The gene associated with PJS is a serine-threonine kinase, the tumour suppressor gene; located on chromosome 19p13.3.<sup>(3)</sup> Hemminki and coworkers and Jenne and associates independently identified the gene in this region as LKB1/STK11 (serine/threonine-protein kinase 11, which is also known as LKB1).<sup>(4, 5)</sup> This gene has been reported in 80% of patients with PJS. Up to 25% of recorded cases of PJS do not have family history. Those sporadic cases probably arise due to new mutation of STK11 gene or low penetration.<sup>(6)</sup> In the present case, there was no positive family history of Peutz-Jeghers syndrome.

The Peutz-Jeghers syndrome consists of two major components: hamartomatous polyposis of the gastrointestinal tract and mucocutaneous pigmentation.<sup>(6, 7)</sup> The incidence of PJS is reported to be 1 in 150,000 to 200,000 individuals.<sup>(8)</sup> Mucocutaneous pigmentation is a characteristic finding of PJS and is present in most, but not all, patients who have the disease. The hyperpigmented lesions contain melanotic deposits and commonly manifest in infancy and childhood. Pigmented lesions could fade during puberty and adulthood.<sup>(6)</sup> The pigmented lesions are often seen

on the lips, around the mouth, eyes, nostrils, on the buccal mucosa; and sparsely on the fingers, soles of the feet, palms, anal area and intestinal mucosa.<sup>(7)</sup> The mucocutaneous lesions of PJS are considered to be hamartomatous in origin and without potential of becoming malignant.

Gastrointestinal hamartomatous polyps are another classic finding of Peutz-Jeghers syndrome. Although these polyps are most commonly found in the small intestine, they can occur anywhere from stomach to rectum. The median time to first presentation with polyps is about 11-13 years of age and approximately 50% will have experienced symptoms by the age of 20 years.<sup>(7)</sup> Patients with PJS often present with a history of intermittent abdominal pain due to small bowel intussusception caused by the polyps. Some intussusceptions spontaneously reduce; others lead to development of small bowel obstruction. Peutz-Jeghers polyps can also ulcerate, leading to acute blood loss or chronic anemia. Although Peutz-Jeghers polyps are most commonly found in the gastrointestinal system, they can also occur in extraintestinal sites such as kidney, ureter, gallbladder, bronchial tree, nasal passages etc.

Individuals with PJS are at risk for the development of gastrointestinal & non-gastrointestinal malignancies. Among the non-gastrointestinal type; pancreas, lung, breast, uterus, cervix, ovary, testis & thyroid being the major sites of malignancies.<sup>(7, 8)</sup> In a study of Hearle N et al,<sup>(9)</sup> 96 cancers were found among 419 PJS patients. This study reported the risks of developing gastrointestinal cancer (31%), breast cancer (31%), gynecologic cancer (18%), pancreatic cancer (7%), and lung cancer (13%) by 60 years of age. Individuals with PJS are also at risk for developing rare sex cord tumors. Women are at risk for sex cord tumors with annular tubules and men are at risk for developing Sertoli cell tumors.

The Peutz-Jeghers polyp varies in size from <1 cm to >3.5 cm in diameter, and may be pedunculated or sessile. Because it appears to be composed of non-neoplastic tissue normally found at the site, the Peutz-Jeghers polyp is generally considered a hamartomatous polyp but with an abnormal growth pattern. The most characteristic feature of a Peutz-Jeghers polyp is a central core of smooth muscle that extends into the polyp in an arborizing fashion (Christmas tree like appearance) and that is covered by either normal or hyperplastic mucosa native to the involved site. Adenomatous & carcinomatous changes have been described in Peutz-Jeghers polyps.<sup>(10)</sup>

Epithelial misplacement, also referred to as pseudoinvasion, is another feature seen in some Peutz-Jeghers polyps. It is characterized by cystically dilated benign glands and supporting lamina propria within the submucosa, muscularis propria, or subserosal layers of the gut adjacent to a polyp and extravasated mucin pools.

This feature can mimic the appearance of invasive adenocarcinoma. However, noting the lack of epithelial dysplasia, the presence of supporting lamina propria and the absence of a desmoplastic stromal reaction can help avoid this interpretive error.

The diagnosis of PJS is established by the presence of histopathologically confirmed hamartomatous polyps and at least two of the following clinical criteria: a family history of PJS, the presence of mucocutaneous pigmentation and the presence of small-bowel polyps.<sup>(6)</sup>

Typical imaging features of Peutz-Jeghers syndrome consist of multiple polypoid lesions involving the stomach, small bowel and colon. Although the polyps are often detected with barium studies, they can also be identified with US or CT. Some authors have suggested using US or magnetic resonance (MR) imaging for follow-up imaging to reduce the lifetime radiation burden.<sup>(11)</sup> Another important imaging finding in Peutz-Jeghers syndrome is intussusception.

Over the years, the standard therapy for Peutz-Jeghers syndrome has been laparotomy and bowel resection to remove symptomatic gastrointestinal polyps that cause persistent or recurrent intussusceptions. However, some patients require multiple surgical resections, which can lead to short gut syndrome. Because of this, it has been recommended that endoscopy be performed to remove all polyps. During each laparotomy, the small bowel should be examined by means of intraoperative enteroscopy (IOE). Nowadays, double balloon enteroscopy (DBE) in combination with capsule enteroscopy are the gold standard for the diagnosis and treatment of the small bowel hamartomatous polyps.<sup>(7,8)</sup>

### CONCLUSION

Peutz-Jeghers syndrome is a rare, autosomal dominant disorder characterized by mucocutaneous pigmentation & gastrointestinal hamartomatous polyps. Because of the increased risk of both gastrointestinal and non-

gastrointestinal malignancies in PJS, careful screening of the patients is recommended. It is necessary to investigate all first-degree relatives of the patient.

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## CASE REPORT

### Rupture of uterus at 14 weeks pregnancy with adherent placenta- a rare case reportancy " in a rural based tertiary care hospital"

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**KEY WORDS :** Rupture of Uterus, Pregnancy, Placenta,

#### INTRODUCTION

Rupture uterus is one of the catastrophies faced by an obstetrician in which every second of time is of vital importance. In India, incidence is High due to greater number of unbooked obstetric emergencies (Incidence of 1: 224). Among booked cases are 12.5% of total number of rupture uterus cases.

#### CASE REPORT

A 28yrs old 6<sup>th</sup> gravida patient with previous one LSCS was admitted on 11/8/08 evening with history of 3 months of amenorrhea with severe abdominal pain, localised to epigastrium, since past 4 hrs and history of vomiting once. There was no history of leaking or bleeding per vaginum. She is a G<sub>6</sub>P<sub>1</sub>A<sub>4</sub>L<sub>1</sub>, 1<sup>st</sup> pregnancy – only one female live by FTLSCS, 9 years old. ( Indication: ? fetal distress).

History of 4 MTPs at 3, 1.5, 2.5, 2 MA at the gap of 1.5-2 years. This one is the present pregnancy. she is 14 wks 4 days. On examination, her vitals were normal. On abdominal examination, the uterus was of 14-16 weeks size. Scar of previous LSCS was present with no scar tenderness. There was no abdominal distension, guarding or rigidity. The fetal heart sounds were present and regular by Doppler. On per speculum examination, there was no bleeding or leaking. On per vaginum examination, the cervix was non-dilated, non-effaced, posteriorly placed and soft. Her basic investigations were normal. In obstetric USG, 15 wks 4 days with fetal heart rate 156/min at 5:15 PM on 11/8/09. So provisional diagnosis was G<sub>6</sub>P<sub>1</sub>A<sub>4</sub>L<sub>1</sub> with 14 wks pregnancy with abdominal pain under investigation. Exactly 3-3.5 hours after admission patient's condition deteriorated. She developed abdominal distension with guarding and rigidity and epigastric tenderness. USG abdomen and pelvis with urgent physician reference was advised to rule out any other cause of acute abdomen. USG report suggested moderate amount of free fluid in the pelvis and ? blood and ? uterine rupture, which was not there in previous USG. Patient looked more pale than at the time of admission. Decision was taken for laparotomy. On opening the abdomen, gross hemoperitoneum with 850 ml of blood + 500 gms of clots were removed from the

peritoneal cavity and full length horizontal rupture was present exactly on the old (previous) LSCS scar and through which placenta and abortus were coming out. It was a fresh rupture without ragged margins. Placenta and abortus with scar were removed manually because the placenta was adherent at the site of previous scar and relatives were not ready for obstetric hysterectomy, so repair of ruptured scar was done. Patient was shifted to the ward. Exactly after 5 hrs of laparotomy, again active vaginal bleeding started, with increase in the drain output. Relaparotomy was done and total obstetric hysterectomy with drainage of broad ligament hematoma was done. Patient's PT and aPTT were altered. Thus, patient was in DIC with Acute renal failure. Patient was shifted to SICU. Patient developed ARDS with ARF and ultimately after so many blood transfusions and hemodialysis, patient survived and got discharged after 1 month of surgery. Total 20 units of PCV, 13 units of FFP, 4 units of PRC were given. Uterus and other specimen were sent for histopathological examination, and the report suggested placenta percreta.

#### DISCUSSION

Rupture of uterus during labour is not uncommon. Most of them occur following a previous cesarean section and involve dehiscence of lower segment<sup>6</sup>.

Abnormal placental implantation in which

Accreta → adherence to uterine wall

Increta → villi actually invade the myometrium

Percreta → penetrate through the myometrium

Abnormal placental adherence is found when decidual formation is defective. Associated condition include implantation in the lower uterine segment over a previous C.S. Scar, implantation over other previous uterine incisions and implantation after uterine curettage. Other risk factor include nulliparity, previous in cession, MRP, & myomectomy. The risk factors include hemorrhage, shock, infection & rarely inversion of uterus.

Successful treatments depends upon immediate blood replacement therapy and prompt hysterectomy.

Our case in unusual and interesting because in a woman with previous scar in lower uterine segment, rupture of

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the uterus occurred during early pregnancy with out any labour pains due the placenta percreta. Probably placenta percreta in this case was due to multiple uterine curettage (MTPs) [5]

Placenta percreta usually presents as postpartum hemorrhage when the placenta is manually extracted from the underlying myometrium. Postpartum hemorrhage occurs in 40% of cases <sup>[1] [5]</sup> Uncontrolled hemorrhage usually repairs aggressive blood volume resuscitation and/or hysterectomy. Placenta percreta can also present as hemoperitoneum during the antepartum period when the chorionic villi completely invade the myometrium, resulting in rupture of the uterine wall. Intrapartum rupture of the uterus typically occurs during the second trimester of pregnancy but has been reported as early as 12 weeks gestation. <sup>[1][6]</sup> Placental invasion is a painless process and may not present clinically until the uterine wall perforates or ruptures. Initial presentation may include hemorrhagic shock, acute abdominal pain, or fetal demise. Placental attachment and invasion to adjacent abdominal structures may also occur. Painless hematuria may be the presenting complaint when the placenta penetrates through the uterus and into the urinary bladder <sup>[7] [8]</sup>. Risk factors include previous cesarean section; uterine curettage; placental abnormalities, including placenta accreta; placenta previa; delivery requiring maternal extraction; irradiation; neoplasm; caustic drugs; congenital anomalies; and cornual implantation of placenta <sup>[9][10][11][12][13]</sup>

Hemoperitoneum and uterine rupture secondary to placenta percreta requires aggressive surgical management. Immediate cesarean section followed by hysterectomy yields the lowest mortality studies show a fourfold increase in the mortality rate of conservatively treated groups compared with patients treated with hysterectomy <sup>[1][6][11]</sup>.

### Summary :

Placenta percreta results in abdominal pain, hemorrhagic shock and / or fetal demise. Although an uncommon occurrence, the emergency physician should consider the diagnosis in the gravid patient with abdominal pain, because aggressive surgical management reduces maternal mortality.

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## CASE REPORT

### A Case of Severe Carbon Monoxide Poisoning Due to Gas Geyser with Cerebellar Involvement

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**KEY WORDS :** Carbon Monoxide Poisoning; Gas Geyser, Cerebellar

#### ABSTRACT :

Carbon monoxide is responsible for a large number of accidental domestic poisoning and deaths throughout the world. Diffuse hypoxic brain injury due to carbon monoxide poisoning while using gas geyser is very well known. We report a case of young male patient presented with hypoxic brain injury due to carbon monoxide poisoning while using gas geyser in bathroom which didn't have proper ventilation. There is involvement of bilateral cerebellum, which is very rare in such cases. Patient was treated with hyperbaric oxygen therapy and showed improvement on follow-up after three months.

#### CASE REPORT

**HISTORY :** 30 year male science professor Mr. PC was found unconscious in bathroom at one government guest house at Anand city, Gujarat in January 2013. He went to take bath and was found unconscious in the bathroom by guest house staff. He was alone in room and last he was seen in room thirty minutes before he was found unconscious. The door had to be broken to rescue him. Apparently he was taking bath with hot water using gas geyser. He was brought to local hospital in comatose state and was given IV Fluids and primary treatment and then shifted to one corporate hospital for further management. Patient regained consciousness within twelve hours but remained in a state of altered sensorium for next twelve hours. He could not remember any events of the incident. After that patient developed profound anterograde as well as retrograde amnesia. No complaints of seizure or any weakness of any limbs.

**EXAMINATION :** Patient was conscious. His Mini-mental state examination score was 14/30 and Addenbrookes score was 51/100. Patient was having mild confusion with disorientation to time, place and person and inability to register and recall things. He was having language dysfunction in the form of difficulty in comprehension and anomia. Otherwise no other neurological deficit.

**INVESTIGATIONS :** All routine investigations including renal and liver function tests were normal. Arterial blood gas analysis was suggestive of acidosis with pCO<sub>2</sub> 50.1 mmHg. EEG suggestive of diffuse encephalopathy. MRI brain s/o bilateral symmetrical hyper intensity in T2 and FLAIR and restricted diffusion in bilateral basal ganglia and bilateral temporal cortical gyri and bilateral cerebellar hemisphere s/o severe hypoxic encephalopathy.

**MANAGEMENT :** After two days of the event patient was subjected for hyperbaric oxygen (HBO) therapy for 7 days

in appropriate doses. Patient was kept on neurocognitive, neurobehavioral therapy and speech therapy.

**FOLLOW-UP :** On follow-up after three months patient had some improvement in language and memory function however still he was not able to do his job. His Addenbrookes score was improved to 76/100.

#### DISCUSSION

Carbon monoxide (CO) is responsible for a large number of accidental domestic poisoning and deaths throughout the world<sup>1</sup>. CO is a colourless and odourless toxic gas produced as a by-product of incomplete combustion of carbon-based fuels and substances. The neurologic sequelae are the most frequent form of morbidity<sup>2</sup>. The pathophysiologic mechanisms of CO toxicity can be divided into hypoxic and cellular theories<sup>3</sup>. The affinity of CO for heme protein is approximately 250 times that of oxygen, and the formation of carboxyhemoglobin reduces the oxygen-carrying capacity of blood, causing tissue hypoxia<sup>4</sup>. CO inhibits the mitochondrial electron transport enzyme system and activates polymorphonuclear leukocytes, which undergo diapedesis and cause brain lipid peroxidation, leading to the delayed effects of CO poisoning. The clinical presentations and imaging features of CO poisoning are diverse.

Acute and intense CO poisoning can lead directly to diffuse hypoxic-ischemic encephalopathy predominantly involving the gray matter there is a predilection for the temporal lobe and the hippocampus. Basal ganglia mainly globus pallidus and occasionally caudate nucleus, putamen, and thalamus are involved in CO poisoning<sup>5</sup>. Involvement of the brainstem and cerebellum may be a reflection of more severe poisoning because the posterior structures are more resistant to hypoxia. The lesions usually appear as asymmetric hyperintense foci on T2-

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weighted and FLAIR images. Cerebeller involvement predicts poor prognosis in such patients as its suggestive of severe hypoxia<sup>6</sup>.

Such cases occurred when water used for bathing was heated by gas geysers fitted within ill-ventilated small bathrooms, and there was a clustering of such cases in winter months<sup>7</sup>.

The mainstay of treatment is 100% oxygen. In 1895, Haldane demonstrated that a mouse could be kept alive by exposure to HBO at the same time as CO. This seminal experiment established role of HBO<sup>8</sup>. HBO has many benefits. The half-life of carboxyhaemoglobin at 3 absolute atmospheres of oxygen is only 23 minutes. It showed improved mitochondrial function, impairment of platelet adhesion in the capillaries and inhibition of lipid peroxidation. But contrary to expectation, clinical trials of HBO have given conflicting results. Previous study demonstrated that HBO therapy reduced the incidence of neurological sequel and also demonstrated that neither clinical history nor the carboxyhaemoglobin level predicts which patients may show sequel after CO poisoning<sup>9, 10</sup>. But a recent Cochrane review suggested that firm guidelines regarding the use of HBO cannot be established<sup>11</sup>. Ongoing trials will soon provide further information. In the absence of firm evidence most centres continue using HBO for severe neurological deficit including coma and for myocardial ischaemia. The decision about HBO will often depend on ease of access to a hyperbaric facility. The time-frame within which hyperbaric oxygen is most effective is not known<sup>12</sup>.

Recently extracorporeal membrane oxygenation (ECMO) suggested for patients with respiratory failure of a reversible etiology including CO poisoning<sup>13</sup>. The association between ECMO and improved neurologic function is uncertain. The effect of ECMO on cerebral blood flow or oxygenation metabolism is controversial<sup>14</sup>.



Image-1 : Flair hyperintensity in Globus pallidus



Image - 2 : Flair hyperintensity in Temporal lobe

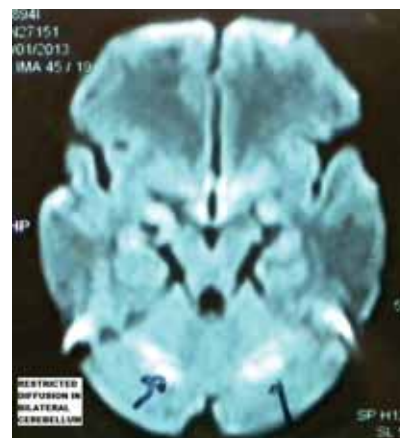


Image - 3 : Diffusion restriction in cerebellum

While use of ECMO for severe potentially reversible cardio-respiratory failure could be a rescue strategy, we need more well-designed studies of ECMO compared to HBO in the context of neurological sequel. The availability of ECMO compared to HBO might be an important issue.

In present case bilateral cerebellum involvement was suggestive of severe hypoxic injury due to CO poisoning and he was benefited with HBO therapy as shown on follow-up with improved clinical status and Addenbrookes score.

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## CASE REPORT

### Goodpasture's Syndrome with Immune Thrombocytopenia: An unusual "Autoimmune Mosaic"

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**KEY WORDS** : Goodpasture's syndrome, thrombocytopenia, alveolar hemorrhage

#### ABSTRACT

Our case report is about a 28-year-old male who developed alveolar hemorrhage and thrombocytopenia without significant renal involvement. He was diagnosed to have Goodpasture's syndrome by the demonstration of increased titer of anti-GBM antibodies. The evaluation of the thrombocytopenia ruled out TTP due to the absence of a microangiopathic hemolytic anemia. While it was difficult to rule out a drug-induced thrombocytopenia, the most likely cause was an immune thrombocytopenia. This case portrays an unusual development of immune mediated thrombocytopenia in a patient with Goodpasture's syndrome.

#### INTRODUCTION

Antiglomerular basement membrane (anti-GBM) disease (Goodpasture's syndrome), the prototype of pulmonary renal syndromes, accounts for 18 to 32 percent of immunemediated diffuse alveolar hemorrhage caused by circulating auto antibodies against alpha 3 chain of type IV basement membrane collagen. Simultaneous both renal and pulmonary involvement occur in 60-80% of the patients, isolated glomerulonephritis occurs in 10-30% of patients and isolated diffuse alveolar hemorrhage occurs in 5-10% of patients<sup>1</sup>. The patient in this case report was presented with history of hemoptysis and breathlessness of 20 days duration. Patient was diagnosed to have Goodpasture's syndrome on the basis of anti-glomerular basement membrane antibodies (IgG) along with microscopic hemoglobinuria (in plenty). The unusual aspect of this case was that the patient also developed a concomitant immune mediated thrombocytopenia. Thrombotic thrombocytopenic purpura (TTP) was unlikely as there were no evidence of a microangiopathic hemolytic anemia. This case report confirms previously reported findings which were noted in a very few sporadic case reports about the possible association between Goodpasture's disease and thrombocytopenia. In addition, it adds to our current understanding of the pathophysiology of autoimmune diseases in general and supports the theory of an autoimmune mosaic, which has also been noted in various other autoimmune diseases.

#### CASE REPORT

A 28 years old male patient presented with history of hemoptysis and progressive breathlessness of 20 days duration without any significant past and family history. Patient was admitted to ICU of our institute. On examination, patient had tachycardia, BP 160/96mmHg and was severely dyspnic with respiratory rate 44/min, without any significant chest finding except few crept. At the time of admission his hemoglobin level was 13.9gm%;

WBC count was 14900/cumm; platelet count was 136000/cmm. His routine biochemistry investigations were normal including electrolytes. His blood urea was 40 mg/dl, serum creatinine was 1.5 ng/ml. Routine urine examination revealed proteinuria(2+, Dipstick) however gross haematuria was absent and urine output was adequate.

Arterial blood gas analysis (ABG) revealed pH-7.42; SpO<sub>2</sub>-74%; PaO<sub>2</sub>-58 mm Hg; PaCO<sub>2</sub>-22 mm of Hg. As the condition deteriorated, Bi PAP support was initiated with 100% FiO<sub>2</sub>. With further deterioration patient was intubated and mechanical ventilation was started under Fantanyl and midazolam sedation which improved the ABG. Chest radiograph showed bilateral patchy dense opacities with air bronchogram but without any evidence of fibrosis or cavity. Sputum (collected through endotracheal tube) or ET smear examination for acid fast bacilli was negative on repeated examinations. Culture of sputum revealed normal flora. Frequent attacks of moderate hemoptysis; dyspoea disproportionate to chest radiography findings along with failure to wean from ventilators warn us to suspect other etiology of alveolar hemorrhage. His repeat blood count showed platelet count -82000/cmm. IgG and IgM for Dengue fever was negative. Patient was treated with four units of platelet rich concentrate (PRC) (because of active haemoptysis and decreasing platelet count) without any improvement in platelet count which in fact decreased to 68000/cmm which favours immune mediated thrombocytopenia destructing patient's as well as donor's platelets and ruling out drug induced thrombocytopenia. Test for Dengue antibodies was negative. Urine showed microhemoglobinuria (in plenty). His anti-GBM antibody (IgG) titer was positive suggesting Goodpasture's syndrome and p-ANCA & c-ANCA were negative ruling out vasculitis. His BT, CT and PT were normal. His USG was inconclusive and Broncoscopy done at ICU to get bronchoalveolar lavage(BAL) revealed bloody fluid

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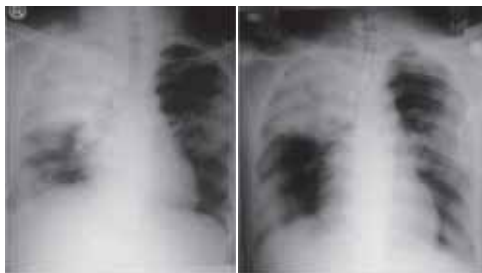
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bilaterally consistent with diffuse alveolar emorrhage. TTP was unlikely as there was no evidence of microangiopathic hemolytic anemia based on the dearth of schistocytes and normal corrected reticulocyte count.

We continued ATT without Rifampicin as patient was already on ATT before admission at our institute. Because of this though it is very difficult to rule out Rifampicin induced thrombocytopenia, platelet count never improved – in fact, deteriorated even one week after withholding Rifampicin. Patient was treated with higher antibiotics and hydrocortisone initially and then shifted to methylprednisolone in addition to other supportive treatment including ventilator support and platelet rich concentrate (PRC). Plasmapheresis facility was not available at our institute and considering poor patients condition we cannot shift the patient on ventilator for plasmapheresis. Unfortunately patient succumbs with massive hemoptysis.

### Serial X-rays showing bilateral alveolar infiltrates



### DISCUSSION

During the 1918-1919 influenza pandemic, the pathologist Ernest Goodpasture (1866-1960) reported about two patients with rapidly progressive and ultimately fatal syndrome characterized by hemoptysis, anemia and renal failure. In 1950, Stanton and Tange described a series of patients with pulmonary–renal syndrome. It is not known whether these cases, or indeed if Goodpasture's original case, had anti-GBM antibodies because the techniques for detecting these antibodies were not yet available at that time.

Today the term Goodpasture's syndrome is used to describe the combination of glomerulonephritis and lung hemorrhage in the absence of another specific cause (like Wegener's granulomatosis), whether or not there are circulating anti-glomerular basement membrane antibodies<sup>2</sup>. Goodpasture's syndrome is associated by auto antibodies to the noncollagenous-1 domain of alpha 3 chain of type IV collagen in the basement membrane of glomerular and alveolar tissue. Anti-GBM disease typically affects individuals between 20 and 45 years of age with a distinct male predominance. Exposure to cigarette smoke, hydrocarbon-containing solvents, hard-metal dust, influenza A2 virus, chlorine gas, and d-penicillamine have been associated with anti-GBM disease. Most patients present with progressive dyspnea, widespread alveolar infiltrates, and hypoxemia; hemoptysis occurs in 80 to 94 percent. A cardinal feature of Goodpasture's syndrome is the presence of GN. Microscopic hematuria, red cell casts, or proteinuria are almost always present. Chest radiographs typically reveal

dense bilateral alveolar infiltrates, often with air-bronchograms. The demonstration of anti-GBM antibodies in tissue (typically kidney) or in serum is the cornerstone of the diagnosis.

Thrombocytopenia is a rare manifestation of Goodpasture's syndrome. There are very few previous case reports of thrombocytopenia associated with Goodpasture's syndrome, all of them reported as thrombotic thrombocytopenic purpura (TTP)<sup>3-5</sup>. There is evidence that helper T (Th) cell-associated cytokine, interleukin (IL)-12 is involved in the pathogenesis of thrombotic thrombocytopenic purpura<sup>6,7</sup>. Furthermore, Kalluri et al. developed a new mouse model of human anti-GBM disease, in which crescentic glomerulonephritis and lung hemorrhage were associated with emergence of IL-12/Th1-like T-cell phenotype<sup>8</sup>.

There was no evidence that our patient had TTP since his corrected reticulocyte count was normal and he did not have a microangiopathic hemolytic anemia (absence of an elevated reticulocyte count and the absence of a significant number of schistocytes on the peripheral smear).

This case further supports the theory of a “mosaic of autoimmunity” as it incorporated emergence of multiple autoimmune pathologies in the same individual<sup>9</sup>. Immune mediated thrombocytopenia has also been observed in association with idiopathic pulmonary hemosiderosis in a case reported by Buchanan et al. with good response to corticosteroid and splenectomy<sup>10</sup>.

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## CASE REPORT

### Giant Gluteal Pleomorphic Liposarcoma – A rarity.

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**KEY WORDS :** Giant, Liposarcoma, Pleomorphic

#### ABSTRACT

Liposarcoma is the second most common soft tissue sarcoma in adults with a peak incidence between the fourth and sixth decade of life and slight preponderance towards male gender. Pleomorphic liposarcoma is a variant of liposarcoma defined morphologically by the presence of pleomorphic lipoblasts, is the rarest subtype. We report a case of giant gluteal liposarcoma which was treated with surgical excision and postoperative radiotherapy. A 35 year old female was admitted with painless rapidly growing mass in left gluteal region. The patient was managed by wide local excision. Pathological diagnosis was pleomorphic liposarcoma. Patient had postoperative radiotherapy and was free of disease for one year. Wide local surgical excision and postoperative radiotherapy is the most favoured treatment plan for pleomorphic liposarcoma. For such an unusual giant rapidly growing pleomorphic liposarcoma, a longer follow up is required to evaluate the recurrence and metastasis.

#### INTRODUCTION

Liposarcoma is the second most common soft tissue sarcomas in adults. This tumour originates from multi potential primitive mesenchymal cells rather than mature adipose tissue<sup>1</sup>. The peak age incidence is between 4<sup>th</sup> and 6<sup>th</sup> decade of life with slight preponderance towards male gender<sup>1</sup>. They often present as relatively slow growing asymptomatic masses generally located in thigh, gluteal region, retroperitoneum, leg, inguinal, paratesticular and shoulder area<sup>2,3</sup>. Chest wall, breast, mediastinum, small intestine, omentum and mesentery may be involved<sup>2,3</sup>. Liposarcoma can be divided according to clinico-pathological and cytogenetic characteristics into three distinct subtypes : well differentiated, myxoid/round cell and pleomorphic liposarcoma<sup>4,5</sup>. Pleomorphic liposarcomas are the rarest type<sup>6</sup>. We describe an unusual case of a rapidly growing giant gluteal pleomorphic liposarcoma which is very-very rare.

#### CASE REPORT

A 35 year old female presented to the outpatient department with 9 month history of rapidly growing mass in left gluteal region. Though the mass was significantly interfering with her routine activities, walking, perineal and perianal hygiene and even with defecation, the patient did not seek for the treatment until that date when it became unavoidable because of overlying skin necrosis, ulceration and foul discharge. Physical examination revealed a soft, nontender, well defined, round, mobile, fleshy mass of size 25x20x15 cm. Overlying skin was

necrosed with multiple patches of ulceration and fungation with foul discharge. No pulsation or thrill was present. The systemic clinical examination was within normal limits. Haematological and biochemical profile was normal. X-ray chest was normal. Due to the giant size and rapid growth of lesion with necrosis of overlying skin, decision was taken to do wide surgical excision. Total excision of the lesion was done with a 2 cm free margin down to deep sub fascial plane exposing the gluteus maximus muscle which was found to be free of the disease. Primary closure was done after raising adequate flaps. Negative drain was kept which was removed after three days. Stitches were removed on 10<sup>th</sup> postoperative day. Rest of the post operative period was uneventful. Surprisingly, final pathology showed yellow to white firm serial section with occasional necrotic foci. Tumour was microscopically composed of spindle or oval shaped cells arranged in haphazard manner and in wavy bundles. The cells had prominent atypia with nuclear pleomorphism and hyperchromasia. There were few lipoblasts with cytoplasmic vacuoles indenting the nuclei of cells forming eccentric atypical nuclei. There were presence of plenty of large bizarre giant cells with aggressive hyperchromatic large nuclei. Extensive areas of necrosis are also seen. The microscopic histopathology revealed clear margins of the tumour in resected specimen. The final histopathological diagnosis was high grade pleomorphic liposarcoma. Radiotherapy was given after six weeks with a total dose of 50 Gy in 25 fractions. Patient was followed up for about one year showing no evidence of recurrence or metastasis.

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## DISCUSSION

Pleomorphic liposarcoma is a rare neoplasm<sup>6</sup>. Pleomorphic liposarcoma is a clinically, histologically and cytogenetically distinct form of liposarcoma and is the rarest subtype<sup>7</sup>. It is known that this neoplasm is usually aggressive, occurring in adulthood and usually in limbs<sup>9</sup>. Pleomorphic liposarcoma can occur in mediastinum, liver, orbit, paratesticular region and also as a pure dermal tumour<sup>8</sup>. It usually present as a painless deep seated tumour as mass<sup>8</sup>. Because it is so uncommon and is often difficult to differentiate from other high grade sarcoma<sup>7</sup>. It can be easily misdiagnosed because of the great variety of histological presentations<sup>8</sup>. Histological hallmark of pleomorphic liposarcoma are pleomorphic lipoblast which form less than 10% of the tumour<sup>8</sup>. Immunohistochemistry has limited value in diagnostic procedure<sup>5</sup>. Differential diagnosis includes dedifferentiated liposarcoma, myxofibrosarcoma, pleomorphic leiomyosarcoma, pleomorphic rhabdomyosarcoma, malignant fibrous histiocytoma<sup>8</sup>. Histologically, pleomorphic liposarcoma is characterized by a predominance of pleomorphic spindle cells with occasional multi nucleated giant cells often arranged in a storiform growth pattern with focal collection of pleomorphic lipoblasts having cytoplasmic vacuoles with eccentric nuclei with extensive area of necrosis<sup>7</sup>. Pleomorphic liposarcoma is generally considered to be a high grade sarcoma given its high rate of recurrence and metastasis<sup>7</sup>. Most common site of metastasis is lungs<sup>7</sup>. Local recurrence largely depends on the margin status at the time of surgery<sup>8</sup>. Intralesional or marginal resection with which the margins run through the tumour or pseudocapsule has recurrence rates of 40-100%<sup>9</sup>. Surgery with radical margins is preferred treatment options with 1-10% recurrence rates<sup>9</sup>. In addition Mankin et al suggested radiotherapy is often helpful in decreasing the local recurrence rate post operatively<sup>10</sup>.

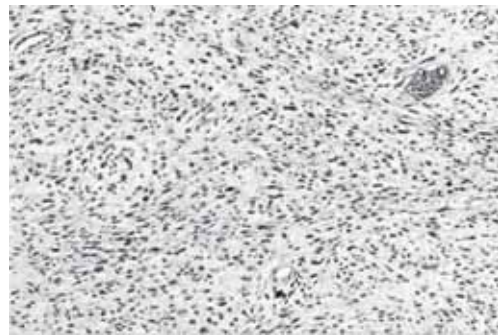
**FIGURE 1 – Showing mass in the left gluteal region**



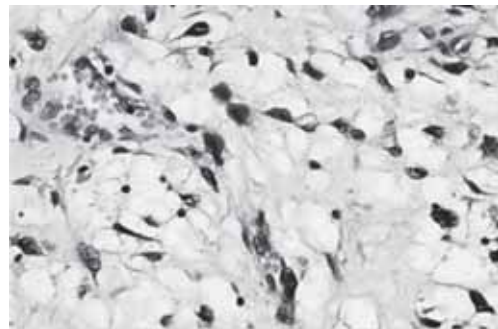
**FIGURE 2 – Excised specimen**



**FIGURE 3 – At the bottom a high grade pleomorphic cell and spindle cell proliferation is seen.**



**FIGURE 4 -Clusters of lipoblasts representing lipogenic differentiation is seen at top left - Hallmark of pleomorphic liposarcoma.**



## CONCLUSION

Pleomorphic liposarcoma is a rare neoplasm and to our knowledge this is the first reported case of giant pleomorphic liposarcoma of gluteal region. Complete surgical excision and adjuvant radiotherapy appears to prolong the survival and improves the quality of life in these patients with careful follow up. This case is being contributed to the literature stressing giant gluteal pleomorphic liposarcomas are very rare and a longer follow up is needed to evaluate the outcome in these cases.



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## CASE REPORT

### Midgut malrotation with incidental nutcracker syndrome in adulthood : case report and literature review

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**KEY WORDS :** Malrotation of Gut, Nutcracker Syndrome.

#### Abstract :

Malrotation of midgut is generally regarded as paediatric pathology with majority of patients presenting in childhood. The diagnosis is rare in adults which sometimes delayed in diagnosis and treatment.

Initial presentation of symptomatic midgut malrotation is rare in adults. However, a significant number of cases remain quiescent during childhood. Incidental diagnosis may then occur in adulthood; when imaging investigations are carried out for other symptoms or, during surgery for unrelated pathology. It has been reported that the incidence of malrotation in adults is approximately 0.2%.

Malrotation presented with nutcracker syndrome (left renal vein which was compressed between Superior mesenteric artery and aorta) is also very unusual presentation.

#### INTRODUCTION

Mid gut malrotation is a congenital anomaly in the embryological development of the fetal intestine rotation. It has been estimated that it affects approximately 1 in 500 live births<sup>1</sup>. However the true incidence is difficult to determine as a substantial number of cases are undetected throughout life. 85% of cases were detected in the first 2 years of life<sup>2</sup>. Most adult diagnosed of mid gut malrotation are asymptomatic patients, they are found during imaging investigation for unrelated conditions or at operation for other pathology<sup>3</sup>. The true diagnosis in this age group is difficult especially because the typical presentation is with non specific symptoms and the fact that in adults, surgeons usually have low index of suspicion and may not consider the diagnosis a possibility in the initial evaluation of the adult population with abdominal pain.

We are reporting a case of adult patient with acute presentation of midgut malrotation with the dilemma of preoperative diagnosis as supported by review of literature.

#### CASE REPORT

A 28 year old female was admitted in department of gastroenterology with H/O of vomiting and mild pain in abdomen since 7 days. She was passing flatus and motions regularly. There was no associated symptoms and no history of similar complaints.

On examination the patient was afebrile and hemodynamically stable. The abdomen was soft, scaphoid, mild tenderness in the central, epigastric region. Routine admission, blood test including serum electrolytes, arterial blood gas analysis, liver function test, clotting profile was normal. However a full blood count demonstrated a HB level to be 13.5gm/dl with slightly raised total white cell count of  $14.9 \times 10^3/\mu\text{L}$  and a neutrophil of  $9.7 \times 10^3/\mu\text{L}$ .

Abdominal x-ray did not show any dilated bowel loops in centre of abdomen and appear gas filled. The diagnosis remains clueless until emergency Computerized tomography (CT) scan was obtained which demonstrate feature s/o malrotation (figures I&II). The patients also underwent upper gastrointestinal endoscopy and showed features of dilated first and second part of duodenum.

The patient was resuscitated with fluid and prepared for the laprotomy. The findings at operation included dilated small bowel loops in the upper abdomen, on right side of abdomen; caecum was at the epigastrium and left side of upper abdomen (figure IV). There was fibrous band over the distal part of the duodenum (figure V), on right side of duodenum confirming mid gut malrotation. Incidentally, intraoperatively, dilated left renal vein which was compressed between Superior mesenteric artery and aorta was noted. Retrospective examination of Computerized tomography scan (figure III) confirmed the same.

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We offered a modified Ladd's procedure to our patient by performing a division of Ladd's bands and an appendicectomy.

Our patient has been completely symptom free during 12 months of follow-up.

### DISCUSSION

Intestinal malrotation is a rare condition and the diagnosis of malrotation in adults is difficult and usually not readily considered as the cause of intra-abdominal symptoms. Initial presentation of symptomatic midgut malrotation is rare in adults.

Midgut malrotation is broadly considered a deviation from the normal 270 degree counter clockwise rotation of the gut during embryonic development during fourth week of foetal development<sup>3</sup>. It leads to various degrees of anomaly including the entire small bowel remaining on the right side of the abdomen, the caecum, appendix and colon on the left and an absent ligament of Treitz. In addition, the small bowel mesentery may develop a narrow vertical attachment and the peritoneal fibrous bands fixing the duodenum and caecum to the abdominal wall may persist. These congenital bands extend from the right lateral abdominal wall, across the duodenum and attach to the undescended caecum and are known as Ladd's bands<sup>4,5,6,7,8</sup>. Ladd's bands compress the duodenum and can potentially cause duodenal obstruction. Two distinct patterns of adult presentations have been reported in the literature<sup>4,5</sup>: acute and chronic. Chronic presentation is more common in adults. The symptoms may be highly nonspecific. However, the range of clinical presentations, underlines the need for a high index of suspicion of midgut malrotation, when investigating the cause of intermittent and varying abdominal symptomatology in a healthy young adult.

Moldrem et al<sup>9</sup> reported that 48.5% of their thirty-three patients presented with an acute abdomen. Acute presentation may be due to volvulus of the midgut or ileocaecum, reported as the most common cause of bowel obstruction in adults with gut malrotation.

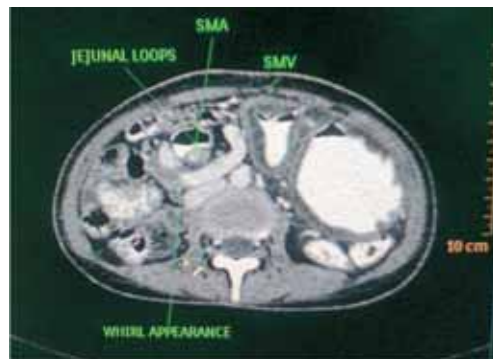
We can expect an increase in the incidental diagnosis of gut malrotation with increasing and widespread use of radiological investigations. Diagnostic features of midgut malrotation can be identified using plain abdominal radiograph, ultrasound scan (USS), computerized tomography (CT) scan, magnetic resonance imaging (MRI) scan and mesenteric arteriography<sup>9,10</sup>. Abdominal colour doppler USS may reveal malposition of the superior mesenteric artery, raising the suspicion of gut malrotation with or without the abnormal location of the hollow viscus<sup>9,10</sup>.

Computerized tomography scan is now considered the investigation of choice; providing diagnostic accuracy of

80%<sup>9</sup>. Deviation from the normal positional relationship of superior mesenteric vein and superior mesenteric artery was originally described by Nichols and Li as a useful indicator of the diagnosis of midgut malrotation. However, abnormal orientation of the superior mesenteric artery-superior mesenteric vein relationship is not entirely diagnostic of malrotation; it can also be seen in some patients without the pathology and a proportion of patients with malrotation may have a normal superior mesenteric artery-superior mesenteric vein relationship<sup>10</sup>. The shortened mesentery allows the small bowel and mesentery to twist and wrap around the narrowed superior mesenteric artery pedicle to create a distinctive 'whirlpool' appearance on computerized tomography scan.



Computerized tomography (CT) scan image shows abnormal position of duodenal jejunal flexure on right side.



Computerized tomography (CT) scan showing inverse relationship of SMA to SMV and jejunal loops on right side.



Computerized tomography (CT) scan image shows compression of left renal vein between aorta and SMA.



**Per op image shows high caecum and appendix located on left side of the abdomen**



**Per op image shows Ladd's band encircling duodenum.**

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## CASE REPORT

### A Case Series of Gestational Trophoblastic Tumor - Benign Mole To Life Threatening Perforating Mole.

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**KEY WORDS :** Gestational trophoblastic neoplasia, Invasive Mole

#### ABSTRACT

Gestational trophoblastic neoplasms (GTN) are proliferative as well as degenerative disorders of placental elements. Over the last four decades, GTN has developed from one of the most fatal malignancies to one of the most curable disease. A simple serum HCG may be all that is needed to clinch the diagnosis. It is important that the condition be diagnosed early for intervention and chemotherapy, which is curative in almost all cases.

#### INTRODUCTION

Gestational trophoblastic neoplasms (GTN) are proliferative as well as degenerative disorders of placental elements and include complete or partial hydatidiform mole (90%), invasive mole (5-8%) which could also be metastatic, villous or avillous choriocarcinoma (1-2%), and placental site tumor (1-2%).<sup>1</sup> Over the last four decades, GTN has developed from one of the most fatal malignancies to one of the most curable, with the advent of a very sensitive tumor marker (HCG), identification of prognostic factors, development of effective chemotherapy and finally the judicious use of surgery and radiotherapy for selected patients. Here we report such three rare cases of 1: Complete mole, 2: Invasive mole, 3: perforating invasive mole with their successful management.

#### Case 1—Complete Mole

A, 40 year old female, G9P8A0L8 at 4 months of amenorrhoea was admitted on 11.10.2011 in the emergency ward of Obst & Gynec department, PSMC, Karamsad with the chief complain of bleeding per vagina for last 1 month, moderate in amount and associated with clots. There was no other positive history. T: normal PR: mo<sup>1</sup>-26/m-in BP: 110/90 mmHg, RR: 20/min. On Per Abd us was 28-30 wks size, relaxed, doughy feel. Noren ute afetal parts felt, FHS not found. Per Vagina: Cervical os was open, bleeding was present and grape like structure al were coming out. P-rovis-ional diagn-osis -was of -Vesi-cu r Mole. I- nvestigati- ons -wer-e: Hb 2.3g-m%, T-C: 11000/cumm, P-latelet C-ount: -236000/cumm, with m Bdly al-tered -coagulation p-rofile-. Basel-ine seru-m meta hCG was 104000 IU/L. USG- was s-ugges-tive- of -Co ,plete Vesicular On examination she was severely pale

w Total 0 -PCV we-re gi-ven. U-nder GA- USG gu-ided S&E otas done after ob-taining in-formed & -written co-nsent. H-is tpathology sh-owed th-e fe-atu-res of- co-m-plete hy-da tidiform mo-le. S-he wa-s tre-ated wi-th si-ngle ag-ent ch-em therapy i,- e, 0 courses of- Me-thotrexate (1-mg/kg bo-dy wwe-ight) a-nd fo-llic ac-id. S-erum Be-ta hC-G af-ter S&E oas 12-160 IU/L -and af-ter co-m-pletion of- ch-em dtherapy se-ru-m Be-ta hC-G wa-s 39-23 IU/L.- Patient wa-s .is-charged on 10th day of evacuation.Mole

#### Case 2 ----Invasive Mole

,A 20 year old female from low-er socio-economic-al class report-ed-on 22.09.2011 -to t-he gynecolo-gy outpatie-nt department of PSMC, with the chief complain-of bleedin-g per vagina f-or la-st-10 da-ys.-On evaluati-ng histo-ry, D&E ,was done for 10 weeks-of gestati-on-at a priva-te hospita-l o-ne & ha-lf mont-hs ba-ck & -at th-at ti-me produc-ts-of concep-tion were suggesti-ve of vesicula-r mole, -no furth-er repo-rt w-as availab-le. S-he w-as 4<sup>th</sup> gravi-da wi-th 2 li-ve issues. On admission her vital stat-us & gener-al conditi-on .was stable. On abdominal palpitation there was no ma-ss .-On p-er specul-um examinati-on spotti-ng w-as prese-nt Bimanual examination reveal-ed a bul-ky uter-us wi-th fr-ee )fornices. Her serum Be-ta h-CG w-as rais-ed (21600 -IU/L Ultrasonography w-as suggesti-ve-of Invasi-ve mole. Her chest X-ray, L-FT & R-FT we-re norm-al. -As findin-gs we-re suggesti-ve -of invasi-ve mole & -as h-er fami-ly w-as complet-ed, s-he decid-ed -to under-go operati-ve interventi-on. Tot-al abdomin-al hysterecto-my w-as do-ne und-er -SA. Histopatholo-gy confirm-ed presen-ce -of invasi-ve mole. S-he w-as treat-ed wi-th sing-le age-nt .chemotherapy, 2 doses of Methotrexate a-nd follin-ic ac-id On follow up her repeat serum Beta hCG after -10 da-ys-of .surgery was 1800 IU/L

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## Case 1--- Perforating Invasive Mole

A 20-year-old female from lower socioeconomic class presented at PSMC, Karamsad, on 10.10.2010 in shock with chief complaint of bleeding per vagina for last 1 month, fever for last 2 days & uncomfortable feeling for 1 hour. Patient had complained of vaginal bleeding off & on for last 1 month following 2 months of amenorrhoea. She was also having chest pain and generalized weakness. Her obstetric history was G4P4L1 with history of 1 LS-CS. On admission her vital status and general condition were poor; showing severe degree of pallor tachycardia (122/min on monitor), 22 breaths/min and B.P. was not recordable. On abdominal palpation guarding was present. On per speculum examination excessive bleeding was present. On bimanual examination cervical ballooning was present, cervix was 5cm dilated, products of conception felt in vagina. Urgent bedside U-SG was done, which was suggestive of ? Cervical Vesicular Mole or ? Cervical pregnancy. Her base-line investigation showed Hb 6 gm%, TLC 11000/cumm, and total platelet count 1.5 T 10000/cumm. Coagulation profile was slightly altered. LFT, RFT, serum Electrolytes & X-ray chest were normal. Serum Beta hCG was raised 2993 IU/L. After resuscitation she was taken for D&E with informed consent for culdhysterectomy, keeping adequate blood & blood products ready. D&E was done; products were suggestive of Vesicular Mole. Tormentinal hemorrhage started after curteting and therefore laprotomy was done. On opening the abdomen, intraperitoneal hemorrhage was present. It was invasive mole, perforating at the region of isthmus tachypnoea ((left uterine vessels) (as shown in figure 1) ; total hysterectomy was done as a life saving measure. The gross appearance of the bisected uterus showed a necrotic mass inside the endometrial cavity at the level of isthmus which was penetrating to the myometrium and perforation was present. Histopathology of hysterectomy specimen confirmed Invasive cervical hydatidiform mole. Post operatively patient was shifted to ICU on ventilator support with other supportive management, with broad spectrum antibiotics. She developed ARDS on 1st post operative day. She was kept in ICU on ventilator for total 12 d CPs. In intra & post operative period she received total 4 units platelet concentrate & 4 FFP. Gradually patient improved and she was shifted to ward on 12th post operative day. Her repeat serum Beta hCG after 4 weeks was 126 IU/L and after 6 weeks it was 1 IU/L.

## Perforating Mole



## DISCUSSION

Molar pregnancy is characterized histologically by abnormalities of chorionic villi consisting of varying degrees of trophoblastic proliferation and edema of villous stroma. Some of these molar pregnancies fail to regress following primary treatment and result in GTN which can be invasive mole, choriocarcinoma, persistent trophoblastic tumor and placental site trophoblastic tumor.

Invasive mole usually presents with following symptoms irregular vaginal bleeding, theca luteine cyst, uterine subinvolution or asymmetric enlargement and persistently elevated serum hCG levels/S/E. It can develop both before & after treatment by D&E or T. The trophoblastic tumor may perforate the uterine myometrium resulting in intraperitoneal bleeding and vaginal bleeding. Treatment may include single or combined chemotherapy according to patient profile and risk status. Our case of invasive mole had reported to us with complaint of persistent vaginal bleeding and showed constant rise of serum Beta hCG after D&E. Other case of perforating mole presented with intraperitoneal hemorrhage & shock. In both the patients histopathology report confirmed invasive mole. Choice of treatment of molar pregnancy is suction evacuation, followed by sharp curettage. Evacuating large uterine can be complicated by the onset of ARDS, believed to be due to release of molar tissue into the circulation. Our case of perforating mole developed ARDS post operatively. In most patients, the HCG levels become negative within 1 to 12 weeks after evacuation of the mole. If the values remain persistently high or plateau for more than 2 weeks, then the patient is considered to have malignant

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## CONCLUSION

Considering the rarity of the cases and similar clinical presentation, these case reports are unique. A simple serum HCG may be all that is needed to clinch the diagnosis. It is important that the condition be diagnosed early for intervention and chemotherapy, which is curative in almost all cases. Single drug chemotherapy is often sufficient. The optimal management of GTN depends on prompt diagnosis, correct stratification of the risk category and appropriate treatment using various modalities such as chemotherapy and surgery. It requires multimodality approach. As it is an uncommon disease, it is best that all patients be referred to experts in referral centre familiar with their management. It is this expertise that has converted an almost uniformly fatal disease into a very curable one.

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## CASE REPORT

### Congenital Intra-hepatic Porto-systemic Venous Shunt in an adult male.

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**KEY WORDS :** Porto-systemic shunt, adult, congenital.

#### ABSTRACT :

Intrahepatic porto-systemic venous shunt is rare [1–3]. Early diagnosis is important as the condition can lead to hepatic encephalopathy [2]. To our knowledge, very few cases of congenital intrahepatic porto-systemic venous shunt have been reported.

We report one such case of a patient, who presented with history of occasional loss of consciousness and was diagnosed with a congenital porto-systemic venous shunt [1].

#### CASE REPORT

A 40-year-old male weighing 60 kg was referred to our hospital for CT scan of abdomen and pelvis for evaluation of episodes of loss of consciousness. The patient was otherwise normal. The patient had no complaints of abdominal pain, fever or convulsions. There was no history of liver surgery or biopsy.

At physical examination, no evidence of hepatosplenomegaly or congestive hepatic failure was found. Laboratory studies showed a total bilirubin level of 0.8 mg/dL, conjugated bilirubin level of 0.4 mg/dL, serum alkaline phosphatase level of 40 U/L, serum aspartate transaminase level of 30 U/L, and serum alanine transaminase level of 30 U/L.

The findings on echocardiography were normal.

Abdominal sonography showed mild hepatomegaly with the liver exhibiting an altered echotexture. A well defined cystic lesion was seen in the right lobe of liver which showed communication with the intrahepatic INFERIOR VENACAVA on colour doppler study. However, the right and left portal veins, right, middle and left hepatic veins showed normal caliber and normal phasic flow.

Multislice 64 Slice CT imaging with reformatted images was performed using sub millimeter thin contiguous axial scan of abdomen and pelvis with I.V. contrast. The study revealed evidence of mild hypertrophy of caudate lobe with heterogeneous liver parenchyma. A few hypodense minimally enhancing lesions were seen involving both lobes of liver. Collaterals were seen at porta, peri-pancreatic and peri-splenic regions. Communication was seen between intrahepatic segment of main portal vein & inferior venacava. However, the intrahepatic portal flow

was preserved. These findings suggest type-IIb porto-caval fistula. The portal vein at porta was 15 mm in diameter and splenic vein at splenic hilum - 9 mm.

Screening MRI of liver confirmed the above findings of CT. In addition, it revealed presence of multiple discrete altered signal intensity lesions in both lobes of liver. The lesions appeared hypointense on T2W images, suggest regenerative nodules.

#### DISCUSSION

Porto-systemic venous shunts within the hepatic parenchyma are extremely rare and are caused by either a congenital vascular malformation or a collateral pathway secondary to cirrhosis of the liver and portal hypertension or post-traumatic variety [3].

#### EMBRYOLOGY

Congenital anomalies of the portal venous system result from abnormal coalescence of the vitello-umbilical venous plexus during embryogenesis. They may be associated with congenital cardiac defects or abnormalities of the hepato-biliary system, like abnormal lobulation of the liver, hepatoblastoma, and extrahepatic biliary atresia.

#### CLASSIFICATION

Morgan and Superina [2] introduced a classification system for extrahepatic portosystemic shunts.

Type I Abernethy malformation - Congenital absence of the portal vein occurs frequently in girls and is associated with other anomalies [3,4]. Liver transplantation, which offers the only option for cure, is reserved for patients with refractory symptoms despite medical management.

Type II PSS have more variability for anatomy, clinical

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## DIAGNOSIS

features, and treatment options. Hyperammonemia, which is due to shunting of blood away from the portal circulation, has been a commonly reported problem [5,6] as was seen in this patient. Subtle symptoms of encephalopathy manifest in adulthood [5,7]. Regenerative liver lesions and pulmonary hypertension have been also been associated [3,4,7].

Intrahepatic porto-systemic shunts are classified into four morphological types.

Type I – most common type, a single large vessel of constant diameter connecting the right portal vein to inferior venacava.

Type II – localized peripheral shunt in which single or multiple communications are found between peripheral branches of portal and hepatic veins in one hepatic segment.

Type III – an aneurysmal communication between the peripheral portal and hepatic veins.

Type IV – multiple communications between portal and hepatic veins distributed in both lobes of liver.

Color Doppler combined with pulsed Doppler sonography is a highly efficient noninvasive procedure for diagnosis of intrahepatic porto-systemic venous shunts that obviates angiography[2].

A diagnosis of congenital intrahepatic porto-systemic venous shunt was made on color Doppler sonography and Contrast enhanced CT scan in the present case. However, the early changes of cirrhosis in the liver with the development of regenerative nodules were visualized only on MR imaging.

The choice of treatment of intrahepatic porto-systemic venous shunts is controversial. The vascular anomaly may regress spontaneously during infancy. Patients with type II congenital PSS are benefited by occluding the abnormal communication by surgical banding or coil embolization using stainless steel or platinum coils. Successful shunt closure can alleviate symptoms of hyperammonemia and neurologic symptoms, result in resolution of regenerative liver nodules, reverse growth impairment, and improve coagulopathy. However, semi-

**Table 1 - Classification of congenital extra-hepatic PSS**

I	No intrahepatic portal flow (CAPV or type I Abernethy malformation)
II	Partial shunt with preserved hepatic portal flow (type II Abernethy malformation)
Ila	Arising from left or right portal vein (includes PDV)
Ilb	Arising from main portal vein (including its bifurcation or splenomesenteric confluence)
Ilc	Arising from the mesenteric, gastric, or splenic veins
	CAPV indicates congenital absence of the portal vein.
<b>CAPV- CONGENITAL ABSENCE OF PORTAL VEIN</b>	

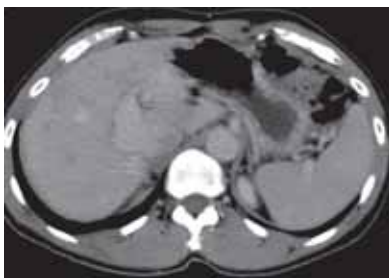
**Table 2 - Classification of congenital intra-hepatic PSS**

I	A single large vessel of constant diameter connecting the right portal vein to inferior venacava
II	Localized peripheral shunt in which single or multiple communications are found between peripheral branches of portal and hepatic veins in one hepatic segment
III	Aneurysmal communication between the peripheral portal & hepatic veins
IV	Multiple communications between portal and hepatic veins distributed in both lobes of liver

### FIGURES LEGENDS

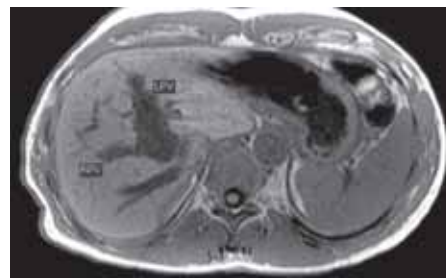
**FIGURE 1**

Axial Contrast enhanced CT scan images reveal dilated main portal vein with communication between the main portal vein and IVC.



**FIGURE 2**

T1W MRI AXIAL images show presence of right and left portal veins, dilated main portal vein showing communication with the intrahepatic IVC.



**FIGURE 3:**

T2W AXIAL MRI images reveal well defined hypointense lesions in the right lobe of liver that suggest regenerative nodules.



closure of the shunt is performed because completely suturing the shunt might result in life-threatening complications related to severe portal hypertension if the intrahepatic portal venous system could not accommodate the sudden restoration of normal blood flow.

### CONCLUSION

Type II congenital intrahepatic porto-systemic shunt is a rare condition which may be asymptomatic until adulthood. However, early diagnosis by imaging is necessary to prevent misdiagnosis as psychiatric or neurologic disorder and for early treatment which can prevent changes of cirrhosis and appearance of symptoms of hepatic encephalopathy in the patient.

**FIGURE 4 :**

Volume rendered images in coronal plane reveal the fistula between the main portal vein and intrahepatic IVC.



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