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

Estd. On 2-3-1945

GUJARAT MEDICAL JOURNAL

INDIAN MEDICAL ASSOCIATION, GUJARAT STATE BRANCH

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GMJ

STATE PRESIDENT AND HON. STATE SECRETARY'S MESSAGE

Dear Friends,

It is a great pride for all of us at IMA Gujarat State Branch having publication of indexed journal. We are publishing this journal twice in a year. Publication of journal is a part of scientific activity which is the backbone for our association.

Indian Medical Association has taken up an ambitious project of IMA Knowledge where our member practicing in a rural area can also get an updated knowledge through online. We all are professionals and it is our duty to keep our knowledge updated in the present scenario particularly. This will definitely help us in enhancement of our knowledge & reduce the litigation.

This journal contains interesting articles and discussions on various subject including case reports by our members. There are many medical colleges in our state & now our journal receives many original research works for publications.

Every year our journal reaches a new height and the credit for this goes to entire Editorial Team of Gujarat Medical Journal. Our heartiest compliments to the entire team especially editor Dr. K. R. Sanghavi, Joint Editor Dr. Harshad C. Patel & Hon. Secretary Dr. B. I. Patel. Without their sincere & committed efforts, this beautiful journal may not be possible.

Wish you a happy reading.

Indian Medical Association HQ has initiated many projects & schemes including IMA Pension Scheme and IMA National Health Scheme. The local branch presidents and Hon. Secretaries have been briefed regarding this. As per our first communication to you, we request all the local branches to keep the programmes on the topics mentioned there on like vector born diseases, prevention of blindness in Diabetes Mellitus, Reduction in maternal mortality, Mental Health, Communication Skill, Disaster Management, Safe Sound initiatives etc. The details will be given to you through our monthly news bulletin.

Friends, "Strength and growth come only through continuous effort and struggle". We from IMA Office are doing our best, what we require is your co-operation, help, time and commitment.

Always with you,

Together we will achieve.

DR. CHETAN N. PATEL
President, IMA GSB.

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

We are all more capable than we think we are

FROM THE DESK OF EDITORS



Dear friends,

We are thankful to all the central council members of GSB IMA for putting their faith, trust and confidence in us and giving the charge of prestigious Gujarat Medical Journal (GMJ) for this year also. On our side, we promise to see that the faith and trust that is put in us is full filled and for that, we shall try our best. GMJ is entering in its 70th year of publication and in these years it has carved out its name as a journal of research oriented and academic minded people, in the medical field. All the editors in past, have tried their best to give a name and fame to this journal and we are enjoying their fruits. It is also creditable for GSB IMA that its publication, "Gujarat Medical Journal", is regularly published for seven decades. Credit goes to all the past presidents, hon. Secretaries and all other office bearers of GSB IMA and also the ex- editors and entire editorial board of GMJ of yester years. We are aware, that this increases our responsibility also, we shall have to maintain that standard of our journal and for that we shall have to work hard and will have to be vigilant.

Our country and particularly, Gujarat has entered in the field of medical tourism. People from developed and under developed countries come here for treatment and we provide world best treatment to them at a cheaper rates then that is available in developed countries. Apart from big cities of Gujarat like Ahmedabad, Surat. Vadodra and Rajkot-Bhavnagar, even small centers like Anand and Nadiad provide world class treatment in the field of cardiology and nephrology. Our hospitals and expertise are world class and that pushes the medical tourism in Gujarat far ahead. From our own domestic population also we get large number of patients. This provides opportunities for research to our doctors. Now we have better infrastructure facilities for data collection and access to world data, for comparison. It has provided a big boost to research wok in our state. We appeal our colleagues to send their research articles and papers for publication in GMJ. This will help our other colleagues and also government in handling and controlling certain diseases. Government will also be able to determine where more efforts are required.

In this issue, you will find Original articles and Case studies on various subjects. Without making any compromise in our laid down policy and standards, we have made all the efforts 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. Chetan Patel and hon. secretary Dr. Jitendra N. Patel for encouragement and suggestions. We are grateful to GSB past presidents Dr Kirtibhai Patel, Dr. Bipinbhai 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.

With regards,

DR. K. R. SANGHAVI	**DR. B. I. PATEL**	**DR. HARSHAD C. PATEL**
Editor-IMA-GSB-GMJ	Hon. Secretary -IMA-GSB-GMJ	Jt. Editor-IMA-GSB-GMJ

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ORIGINAL ARTICLE

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CASE REPORT

ORIGINAL ARTICLE

Efficacy of limbal conjunctival autograft surgery with stem cells in primary and recurrent pterygium.

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KEY WORDS : - Conjunctival autograft, Pterygium, Stem cells

ABSTRACT

To determine the efficacy of limbal-conjunctival autograft surgery with stem cells in the management of primary and recurrent pterygium and determine the best corrected visual acuity after surgery.

Materials and Methods : Surgical excision of pterygium and limbal-conjunctival autograft were done in 75 patients having primary pterygium and 25 patients having recurrent pterygium. Autologous conjunctival graft taken from the superotemporal bulbar conjunctiva was used to cover the sclera after pterygium excision while maintaining limbus to limbus orientation. All patients who underwent surgery were followed up for 18 months to 42 months. **Result :** Recurrence noted in 2 (2.7%) patients in primary pterygium and in 1(4%) patient in recurrent pterygium. We found no statistically significant difference when the conjunctival autograft was performed in both type of pterygia whether primary or recurrent. We observed a significant reduction in astigmatism which resulted in significant improvement in best corrected visual acuity. **Conclusion :** Limbal-conjunctival autograft surgery, including stem cells, appears to be an effective surgical technique in preventing pterygium recurrence and it can help in improving the best corrected visual acuity.

INTRODUCTION

A pterygium is a fibrovascular wing shaped encroachment of the conjunctiva on the cornea. Ultraviolet light induced damage to the limbal stem cells with subsequent conjunctivalisation of the cornea is the currently accepted etiology of pterygium. [1,2] Prevalence rate range from 0.7% to 31% in various population around the world and the condition is more common in warm, dry, sunny climate. [3] Pterygium is common in Gujarat. The main histopathology changes in primary pterygium are elastotic degeneration of conjunctival collagen.[4] Treatment of pterygium is surgical (excision). Recurrence after pterygium excision with bare sclera is frequent and aggressive. Indication for surgical excision include impending or manifest visual loss due to involvement of central cornea, irregular astigmatism, restriction of ocular motility, recurrent inflammation etc. The simple pterygium excision with bare sclera has high recurrence rate[5, 6.] To prevent recurrence, adjunctive therapies are considered which reduces recurrence rate significantly. These include application of Mitomycin C, radiotherapy, conjunctival or limbal conjunctival autograft, and amniotic membrane graft.[7] Comparatively surgical results are better in excision with conjunctival auto grafting but as technique is more difficult and time consuming therefore, many advise it for recurrent pterygium only. The present study was done to determine the recurrence rate, visual acuity improvement and astigmatic changes after pterygium excision and conjunctival autografting using limbal stem cells in both the primary and the recurrent pterygium.

MATERIAL AND METHODS

A prospective study was carried out, which involved 75 patients having primary pterygium (Group A) and 25 patients having recurrent pterygium (Group B). A formal approval was obtained from the Institute's Ethical Committee.

All surgeries were done by two surgeons, under peribulbar anesthesia under operative microscope between the periods August 2009 to January 2012.

Before surgery the best corrected visual acuity, intraocular pressure and detailed slit-lamp examination were recorded.

Patients with other ocular pathology were excluded from this study. None of the patients had previously

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undergone any ocular surgery. Informed consent was obtained from all patients.

Patient data collected include age, sex, past ocular, medical and surgical history, visual acuity, refraction before and after surgery, surgical technique and complications, postoperative medications, postoperative complications and recurrence. Characteristics of pterygia including location, size and extent across the cornea were recorded. Recurrence was defined as fibrovascular tissue crossing limbus and on to clear cornea in the area of previous pterygium.

A standard surgical technique essentially similar to the one described by Kenyon et al [7] was followed in all patients with few minor modifications.

The excision was done starting 1 mm corneal to the head of pterygium with crescent knife up to limbus. The body of pterygium with involved tenon's capsule was excised. Then, the dimension of bare sclera was measured. Superior temporal conjunctiva of the same eye approximately 1mm greater than bare sclera was measured and marked. Then this marked area was inflated with normal saline. Advantage of this was the ease of dissection of the conjunctiva from the tenon's capsule and to obtain the thinnest possible conjunctival graft.

The autograft which included the limbal stem cells was tranferred to the scleral bed by handling with two tying forceps maintaining limbus to limbus orientation. Conjunctival graft was then sutured to adjacent conjunctiva with four to five interrupted stitches with 8.0 vicryl. Donor area was covered by pulling the forniceal conjunctiva forward and anchoring it to the limbal episcleral tissue with two interrupted 8.0 vicrly sutures.

Postoperatively topical moxifloxacin with betamethasone drops 4 hourly, 2% hydroxy propyl methyl cellulose gel 8hourly, ciprofloxacin eye ointment at bed time was given. We tapered steriod drops every week. Sodium Chloride 6% eye ointment was given whenever significant graft edema occured. Patients were examined on 1st postoperative day, at 1 week, 2 weeks, 1 month, 6 months, then twice yearly after surgery.

Statistical analysis was done using paired t-test for pre and postoperative findings.

Table 1 : Showing demographic data of patients undergoing limbal conjunctival auto graft surgery with stem cells

	GROUP A	GROUP B
Number of patients	75	25
Male: Female	48:27	15:10
Laterality (R: L)	39:36	13:12
Age (years)	24:60	24:52
Mean Age (years)	54.6	41.4
Period of follow up (months)	18:42	18:42

Table 2: Showing complications of limbal conjunctival auto graft with stem cells

Clinical finding	Group A		Group B	
	Number	Percentage	Number	Percentage
Recurrence	2	2.7	1	4
Corneal scarring	5	6.7	3	12
Dellen formation	1	1.3	-	-
Suture gaping	1	1.3	1	4
Papillary conjunctivitis	1	1.3	-	-

Table 3: Success rates reported in literature following conjunctival autografting in pterygium surgery

Author	Year	No. of eyes (primary; pterygium)	Average follow up (months)	Recurrence rate % (eyes)	Inclusion of limbal tissue in the graft
Kenyon	1985	57(16;41)	24	5.3(3)	Yes
Lewallen	1989	19(17;2)	15	21.0(4)	No
Simona	1992	14(13;1)	13	35.0(5)	NA
Koch	1992	22(18;4)	8.7	9.0(2)	Yes
Figueiriedo	1997	63(40;23)	14.4-27.9	14.3 (9)	No

OBSERVATION

In Group A, 48(64%) were male and 27(36%) were female. In Group B,15(60%) male and 10(40%) female. Mean age of Group A was 54.6 years and Group B was 41.4 years.

The postoperative follow up of these patients (Group A and B) ranged from 18 months to 42 months. This is shown in Table I.

No significant intraoperative complications were noted. Recurrence occurred in 2 (2.7%)patients in Group A and in 1(4%) patient in Group B. Peripheral corneal scarring at the site of pterygium occurred in 5(6.7%) patients in Group A and 3(12%) in Group B. Suture gaping was seen in 1 patient in Group A and Group B both.

Corneal dellen was noted in one eye in Group A in the first post operative week secondary to graft edema which resolved on treatment with antibiotic ointment and pressure patching. In 1 eye in group A and also in Group B, suture cut through with retraction of conjunctiva at the graft-host junction were noted. No active treatment was instituted and the exposed area epithelialized adequately on follow up without compromising surgical or cosmetic results. The upper lid developed giant papillary conjunctivitis due to irritation of suture in 1 eye in group A which resolved with suture removal. These complications are shown in Table II.

Mean age in the Group B (recurrent pterygium) was 41.4 years as opposed 54.4 years in Group A (primary pterygium). The preoperative astigmatism in Group A 1.87±2.26 D and 1.94±2.32 D, which reduced postoperatively to 0.74±1.14 D in Group A and 0.85±1.04 D in Group B. Statistically this reduction was found to be significant in both groups (<0.05). When we compare complication rate of Group A and Group B, p value was not significant (>0.05).

The most common postoperative complain was irritation followed by photophobia, foreign body sensation, and hyperemia. Hyperemia was seen to decrease and resolve over a period of 2 months.

DISCUSSION

Simple excision of pterygium is associated with a high recurrence rate ranging from 30% to 70%.[5,6] To reduce this high recurrence rate, different methods like application of Mitomycin C, Amniotic membrane graft, Beta radiation have been used.[4, 11] However, serious complications such as secondary glaucoma, uveitis, scleromalacia and corneal perforation are associated with these methods[4,7.] Contamination of amniotic membrane is a potential risk that cannot be overlooked despite of low recurrence rate [8]. On reviewing the published literature, we feel that surgical technique is the single most important factor in influencing the recurrence. Various studies have described the inclusion of limbal tissue in the graft and have demonstrated low recurrence rate [5.9] (Table III). The importance of limbal grafting in ensuring low recurrence rates have been stressed by Figueiredo et al .[10]The importance of limbal stem cell in this condition is highlighted by work of Dushkh et al.

We have reviewed many studies about success rates in conjunctival autografting. In our study, we have noticed that recurrence rate significantly lowers when limbal tissue is included in graft. But major drawback for limbal conjunctival autograft transplantation is that it is technically more time consuming and so many surgeons

advise this procedure for the treatment of recurrent pterygium only. We have conducted this study on limbal conjunctival autograft as an effective procedure in treating primary as well as recurrent pterygium.

In our study, recurrence rates were 2.7% in primary pterygium (Group A) and 4% in recurrent pterygium (Group B). Using different procedures to prevent recurrence other studies have shown varying degrees of recurrence rate that ranges from 0 to 15% .[8, 13.] While in the conjunctival autografting without inclusion of limbal tissue in the graft, recurrence rate were noted 14% and 35% in three studies.[12, 14, 15.] None of the donor sites in this study developed vascularisation of cornea or conjunctival fibrosis.

All 3 recurrences occurred in patients aged 42 years or younger also corroborates earlier reports of increased recurrence rate in younger patients[14, 15.]

Statistical analysis of the study data using paired t-test show significant p-value (<0.005) for reduction in preoperative astigmatism after surgery. Also there was significant statistical observation that the recurrence of pterygium occurred more in age group <42 years.

We observed improvement in astigmatism correction in 70% of our patients which is slightly lower than that demonstrated by Oguz and colleagues who showed that 75% improvement after pterygium surgery in their study[8]. In 2 patients in whom visual acuity decreased, the causes were not related to the surgical procedure. Complications were almost same in both groups. Furthermore, we found no statistically significant difference when the conjunctival autograft was performed in both types of pterygia whether primary or recurrent. We also observed a significant reduction in astigmatism which resulted in significant improvement in best corrected visual acuity.

In conclusion, the most important risk factor noticed in recurrence was young age.

Limbal autoconjunctival graft appeared to be an effective procedure in preventing recurrence in both primary and recurrent pterygium. So, we should go for limbal autoconjunctival grafting as procedure of choice for the surgical management of both primary and recurrent pterygium.

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ORIGINAL ARTICLE

Role of Multidetector Computed Tomographthy in Pancreatitis.

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KEY WORDS : MDCT / PANCREAS

ABSTRACT

Multiphase MDCT is useful tool for assessing acute and chronic pancreatitis. oedematous parenchyma, necrosis peripancreatic inflammation and acute fluid collections are signs of acute pancreatitis on MDCT. Pancreatic parenchymal calcification, MPD dilatation and calculi, parenchymal atrophy, pseudocysts etc are features of chronic pancreatitis on MDCT. Modified Atlanta classification, CTSI, MCTSI are used to classify pancreatitis. According to my study MDCT is the imaging modality of choice in acute pancreatitis and pancreatic parenchymal phase is the optimal phase for assessment for necrosis.

INTRODUCTION

Acute pancreatitis is an acute , mainly diffuse , inflammatory process of the pancreas which is most commonly caused secondary to gallstone disease or alcohol abuse.[1,2,3]Chronic pancreatitis is a chronic inflammatory process of which .A dual phase technique (pancreatic and portal venous phases) is commonly used for imaging in pancreatitis. [4]

MATERIAL AND METHOD

The study was conducted in the Department of Radio diagnosis, VS general hospital, Ahmedabad for a period of 24 months from November 2011 to November 2013. 42

MDCT FINDINGS IN PANCREATITIS

		Final Diagnosis		
		Interstitial Pancreatitis (n=20)	Necrotizing Pancreatitis (n=15)	Total (Percentage)
Normal pancreas		1		1 (2.85%)
Bulky pancreas	DIFFUSE	9	9	18 (51.42%)
	FOCAL	8	6	14 (40%)
Atrophic pancreas or changes of chronic pancreatitis		2		2 (5.71%)
Inflammation of peripancreatic fat		19	15	34 (97.14%)
Pancreatic Necrosis	<30%		4	4 (11.42%)
	30-50%		6	6 (17.14%)
	>50%		4	4 (11.42)
Gas in pancreas or peripancreatic region			1	1 (2.85%)
Duct discontinuation			3	3 (8.57%)
Fluid b/w pancreas and splenic vein		15	14	29 (82.85%)
Single peripancreatic fluid collection		3		3 (8.57%)
Two or more peripancreatic fluid collections		10	13	23 (65.71%)
Fatty liver		5	4	9 (25.71%)
Gall stone		2	3	5 (14.28%)
Extrapancreatic complications	Ascites	12	13	25 (71.42%)
	Pleural effusion	12	11	23 (65.71%)
	Gastrointestinal complication	4	5	9 (25.71%)
	Vascular complication	1	3	4 (11.42%)
	Parenchymal complication	2	1	3 (8.57%)

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patients with clinical history, laboratory findings and/or USG findings suggestive of pancreatitis were prospectively evaluated by 64 slice MDCT. Contrast enhanced CT scan was performed using 1.5mg/kg of non ionic iodinated contrast media administered at a flow rate of 2.5ml/sec. Dual phase CT (pancreatic parenchymal phase at 40 sec and portovenous phase at 70 sec)was performed in adult patients whereas single portovenous phase was done in paediatric patients following non contrast scan. The Atlanta classification system is most commonly used to classify acute pancreatitis as either mild or severe.

RESULT

Thirty two patients (4 children, 28 adults) out of 42 were diagnosed as acute pancreatitis and 10 patients (all adults) as chronic pancreatitis. Three patients had acute on chronic pancreatitis, so included in both acute and chronic pancreatitis.Alcohol intake and gall stones were found to be the most common etiological factors in adults whereas in children blunt abdominal trauma was the predominant cause.Diagnostic serum amylase level (Three times or more of normal) was seen in majority of acute pancreatitis cases and two patients of acute on chronic pancreatitis.

Outcome factor	CT Severity Index		
	Mild(0-3 points)	Moderate(4-6 points)	Severe(7-10 points)
No. Of patients	10	14	10
Hospital stay(days)	5.7	9.2	16.8
Intervention or Surgery			2
Infection			1
Organ failure			5
Death		1	2

Outcome factor	Modified CT Severity Index		
	Mild (0-2 points)	Moderate (4-6 points)	Severe (8-10 points)
No. Of patients	4	18	12
Hospital stay(days)	5.75	7.8	15.6
Intervention or Surgery			2
Infection			1
Organ failure			5
Death		1	2

*One patient with NCCT only not included

MDCT findings in chronic pancreatitis (Total 10 patients)	
Imaging findings	No of patients
Acute on chronic pancreatitis	3 (30%)
Diffuse gland atrophy	5 (50%)
Mass formation with or without proximal gland atrophy	5 (50%)
Groove pancreatitis	2 (20%)
Calcification -Within mass/Within pancreatic parenchyma/Within pancrearic duct	6(60%)
Dilated main pancreatic duct	9 (90%)
Duct to gland ratio in patients with dilated MPD (<.5)	9
Double duct sign	3 (30%)
Duct penetrating sign	3 (30%)
Vascular complication	2 (20%)
Gestrointestinal tract complication	3 (30%)
Free fluid in abdomen	2 (20%)

FIGURE 1

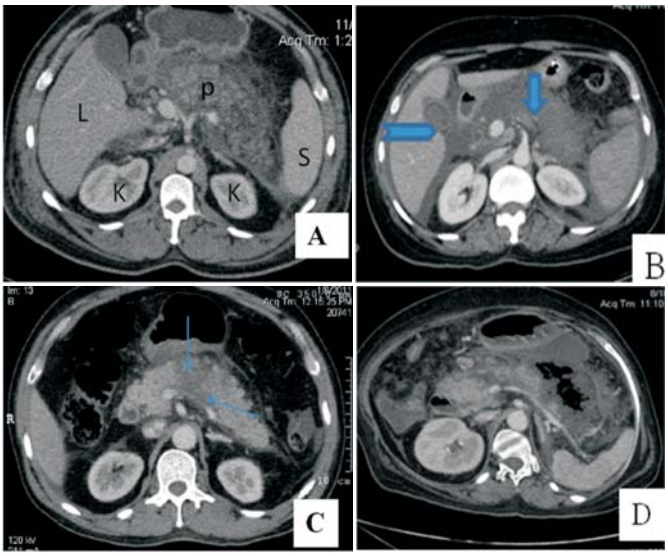

FIGURE 1

[A] Contrast enhanced CT at portovenous phase showing diffusely edematous pancreas with peripancreatic fat stranding

[B] CECT pancreatic parenchymal phase image show diffusely enlarged pancreas with necrosis involving almost the whole gland with peripancreatic fat stranding and thickening of bilateral lateroconal fascia, GB calculi, Splenic Vein thrombosis.

[C] CECT pancreatic parenchymal phase image show bulky body and tail of pancreas with focal pancreatic body necrosis (<30 %) with possible pancreatic duct discontinuation and fluid along splenic vein .

[D] CECT pancreatic parenchymal phase images reveal bulky pancreas with necrosis, intrapancreatic and extrapancreatic gas foci suggestive of infected pancreatic necrosis

FIGURE 2

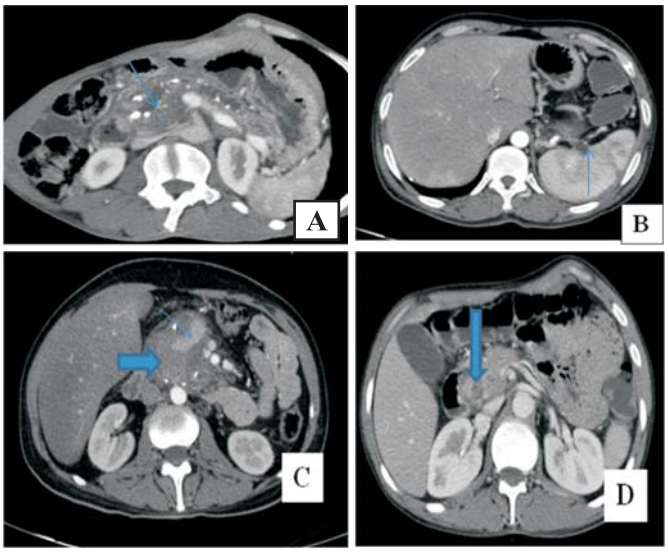

FIGURE 2

[A] CECT pancreatic parenchymal phase image favouring inflammatory mass over neoplastic mass as- irregular dilated MPD, dilated duct traversing through the head mass, intraductal and parenchymal calcifications, duct width to gland width ratio < .5, gradual tapering of dilated CBD and same density of atrophied gland and pancreatic head mass, are well depicted in axial curved planar image..

[B] CECT pancreatic parenchymal phase image show atrophy of the pancreas with Evidence of hypodense lesion in spleen suggestive of infarct. Vascular complication in the form of splenic vein thrombosis is seen.

[C] CECT pancreatic parenchymal phase image reveal mixed density pancreatic head mass with enhancing tubular area having density less than aorta s/o pseudoaneurysm formation.

[D] CECT parenchymal phase image show hypodensity in pancreatoduodenal groove and pancreatic head region suggestive of groove pancrestitis.

DISCUSSION

Acute pancreatitis is classified as mild (edematous or interstitial) or severe based on the presence of local complications and organ failure.[3] O'Connor OJ, Buckley JM, Maher MM. study shows necrosis in 6 to 20% in patients of acute pancreatitis. In present study 35%of patients with acute pancreatitis shows necrosis . The pancreas enhances uniformly in mild acute pancreatitis whereas enhancement less than 30 signify pancreatic necrosis . (4,5) The pancreatic parenchymal phase is the optimal phase for assessment of necrosis. CT scans performed 3 days after clinical onset of pancreatitis shows higher accuracy in depiction of necrotizing pancreatitis.[6] Presence of gas locules within areas of parenchymal necrosis as seen in one of the our case signifies infection, a major complication of pancreatic necrosis .[7,8] Koo BC, Chinogureyi A, Shaw AS. study shows severe pancreatitis in 20 to 30% of cases and 50% mortality in severe pancreatitis.In present study 29 to 30% of cases shows severe pancreatitis and 20% mortality in severe pancreatitis. Balthazar et al.(1990) proposed CT Severity Index (CTSI) based on pancreatic inflammation and necrosis on CECT to give prognosis of patient based on imaging. Mortele et al.(2004) simplified it and gave modified CT severity index (MCTSI) incorporating extrapancreatic complications .[6,9] In present study both indices were equal predictor of patient outcome however MCTSI was more simple and convenient to be used. Bollen et al (2011) observed similar findings.[10] The Marseille-Rome meeting subclassified chronic pancreatitis into two major forms: a) chronic calcifying pancreatitis (CCP) b) chronic obstructive pancreatitis (COP).[11]Although parenchymal calcification is non-specific finding diffuse parenchymal calcification and intraductal calcification favours chronic pancreatitis.[12] A multidetector-row CT analysis. Clinical Radiology 2009;64:903-911. study shows The specificity of pancreatic calcifications for chronic pancreatitis with coexisting intraductal and parenchyma lcalcifications 100%.in present study only 60% patients shows coexisting intraductal and parenchymal calcifications. Chronic pancreatitis including groove pancreatitis can manifest as a focal inflammatory mass, often in the pancreatic head, there by mimicking adenocarcinoma. Features favouring focal pancreatitis over pancreatic

adenocarcinoma are nondilated or smooth tapering of pancreatic and bile ducts traversing through the mass ("duct penetrating sign", pancreatic duct irregularity, and the presence of pancreatitic parenchymal calcification.[13]

CONCLUSION

MDCT is the imaging modality of choice in acute pancreatitis. It also allows better detection of calcification, ductal dilatation and gland atrophy in chronic pancreatitis. The pancreatic parenchymal phase is the optimal phase for assessment for necrosis.

Acute pancreatitis can be graded by giving CTSI or MCTSI which are equally helpful for predicting patient outcome.

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ORIGINAL ARTICLE

Comparative study of low dose bupivacaine-fentanyl Vs. conventional dose of bupivacaine in spinal anaesthesia for orthopedic procedures in elderly patients

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KEY WORDS : fentanyl, bupivacaine, spinal, orthopedic, elderly

ABSTRACT

Background : The purpose of the study was to compare low dose bupivacaine - fentanyl and conventional dose of bupivacaine in spinal anaesthesia for orthopaedic procedures in elderly patients. **Materials and methods :** 60 elderly patients of either sex belonging to ASA I, II & III undergoing elective orthopedic lower limb surgeries under spinal anaesthesia were studied in this prospective, randomized double blinded study. First group A (n=30) was given inj. Bupivacaine 3 ml (15mg) &group B (n=30) was given inj. Bupivacaine (2 cc) + 25 mcg fentanyl. Parameters like time for adequate level of analgesia (T10), peak sensory level reached, time for motor block to receed to L3-L4 level (modified bromage scale), duration of sensory block and incidence of complications are noted in both groups. **Result :** The time of onset of adequate level of sensory block (T10) was longer for group B than group A. Duration of sensory block was slightly more for group A. Duration of motor block was longer in group A than group B. **Conclusion :** It is concluded that subarachnoid block with 2cc bupivacaine 0.5%H and 25mcg fentanyl is a more safer and better option for elderly patients undergoing lower limb surgeries.

INTRODUCTION

It is universally agreed that anaesthesia of choice for lower limb surgery is subarachnoid block producing less post-op confusion and delirium than General Anesthesia. However spinal anaesthesia has got its own inherent complications, especially related to cardiovascular stability. Perioperative hypotension may affect postoperative recovery and also the high incidence of coronary disease, increases risk of ischemia secondary to hypotension. Vasopressor and IV fluids are used to treat or prevent hypotension. Another technique is by using very small titrated dose of local anaesthetic but it may not provide acceptable anaesthesia for sufficient duration.

Studies have established that opioids and local anaesthetics administered together intrathecally have potent synergestic analgesic effect, enhancing the sensory blockade without altering the degree of sympathetic blockade ensuring better hemodynamic stability[16,18,21].

The goal of this study was to compare hemodynamic and sensory effects of low dose bupivacaine-fentanyl in spinal anaesthesia versus conventional dose of bupivacaine in elderly patients undergoing surgical repair of lower limb fractures.

MATERIALS AND METHODS

After approval of institutional ethical committee and informed consent, 60 patients of ASA I,II,& III with age > 50 years of both sexes undergoing elective lower limb orthopedic surgeries were included in this double blind randomized trial. Patients with history of allergy to local anesthetics, severe cardiac or respiratory diseases and uncontrolled hypertension were excluded. After routine and special investigations (if required) are done, patients were randomly allocated to group A (Bupivacaine-15mg, 3ml) & group B (Bupivacaine-10mg, 2ml + 25 mcg [1ml] fentanyl). Demographic data were comparable in age, height and duration of surgery(Table-1). Patients were fasted 8-10 hours and in operation theatre preloading with 8ml/ kg Ringer lactate done and standard monitors applied.

From previous studies, low dose of bupivacaine and fentanyl was identified. Those studies are as below.

(1) Diana Fernander, Monterrat Rue et al (1996) 12.5 mg plus saline or 25 mcg fentanyl.

(2) Ben David and Miller et al (2000)

(3) Ben David, frankel et al (2000) 4 mg bupivacaine plus 20 mcg fentanyl

(4) Atallah et al (2006)

Under all aseptic and antiseptic precautions lumbar puncture was performed in sitting position in L3-L4 space

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by 23 Gauge Quincke point needle. Both the groups were given respected drugs and sensory level of T6-T8 was achieved. Patients were given oxygen by ventimask at 4L/minute.

Pulse rate, blood pressure and SpO2 were measured intraoperatively every 2 minutes for first 10 minutes and every 5 minutes for next 30 minutes and every 15 minutes there after till 1 hour postoperatively.

Hypotension was defined as SBP of < 90 mm of Hg or a decrease of more than 30% from baseline mean arterial pressure which was treated with an incremental IV bolus of mephentermine 6 mg. Bradycardia (heart rate< 60bpm) was treated with IV atropine(Graph-2,3).

Other parameters like time for adequate level of analgesia, peak sensory level reached, time for motor block to receed to L3-L4 level, duration of sensory block(Table-2) and incidence of complications like Nausea, vomiting, pruritus, sedation, shivering were assessed and compared(Table-3).

Motor block was assessed using modified Bromage scale.

0 -- No paresis – full movements of lower limbs
1 – Partial paresis – flex knees and ankles
2 – Partial paresis – flex ankles
3 – Partial paresis – flex toes only
4 – Full paresis – no movement
Sedation status was assessed using
0 – Awake and alert
1 – Respond to voice
2 – Respond to painful stimuli
3 – No response

RESULTS

The study was done in a double blinded, prospective randomized manner in 60 patients scheduled to undergo elective orthopedic lower limb surgeries under spinal anaesthesia. The demographic data (age, weight, sex & ASA grading) were comparable and statistically non significant (Table-1). Average duration of surgery was 120 to 150 minutes. Equal distribution of males and females in both groups was done and majority of them were ASA II. Student's t-test was used for statistical analysis.

- The time of onset of adequate level of sensory block (T10) was longer for group B (128 +/- 8.3sec) than group A (95 +/- 10.32sec) and was statistically significant (Table-2).
- Duration of motor block was longer in group A (162.5 +/- 7.5min) as compared to group B (129.4 +/- 9.9min) and was statistically significant. (P<0.05).
- Lower pulse rates and less fall in blood pressure was noted in group B than group A, thus there is better hemodynamic stability in group B(Graph-1).
- Incidence of hypotension and use of vasopressors was much higher in group A and was found to be statistically significant(Graph-2,3).
- Total duration of sensory block was slightly more for group A but was not found to be statistically significant.
- Incidence of bradycardia and pruritus was common in group B.
- None of the patients had nausea, vomiting and respiratory depression.
- Shivering was higher in group A
- Sedation score was used to assess sedation intraoperative and postoperative.

DISCUSSION

Maintenance of body physiology as near normal as possible during anaesthesia is one of the primary goals of anesthesiologist. Marked hemodynamic derangements are often seen following subarachnoid block especially in trauma and elderly patients. Neuraxial opioids are not associated with sympathetic nervous system denervation, skeletal muscle weakness or loss of proprioception. They predominantly act at the mu receptors present in substantia gelatinosa of spinal cord to exert its synergistic analgesic effect more specifically for visceral pain.

The recommended level of regional anaesthesia for lower limb surgery is T10. Standard recommended dose of 0.5% Hyperbaric bupivacaine is 3cc (15mg).

In our present study, we have added 25 mcg fentanyl, a highly lipophilic opioid to lower doses of 0.5 % hyperbaric bupivacaine and compared hemodynamic parameters like blood pressure, heart rate changes, side effects of fentanyl and motor and sensory profiles of block.

In our study 12 patients of group A developed hypotension and needed vasopressors compared 3 patients of group B. these findings are in agreement with findings of Ben David et al (2000), Ben David, Frankel et al (2000) and Matyr et al (2001)(Graph-2,3).

There was significant increase in time for onset of adequate block in group B (128 +/- 8.3sec) as compared to group A (95+/-10.32sec). Addition of fentanyl reduces the pH of hyperbaric bupivacaine. This may be reason for delay in onset of adequate block(Table-2).

The total duration of sensory block for group A was 227.6 +/- 9.8min while group B was 211.5 +/- 14.2 min. The differences between two groups were statistically insignificant as per Boucher et al (2001)& Rajesh Mahayan, V K Grover et al (2005). Addition of fentanyl enhances duration of sensory block in which dose of bupivacaine-H was same. But in our study dose of bupivacaine in fentanyl group is much lower which can be the reason for slightly lower duration of sensory block(Table-2).

The duration of motor blockade was higher for group A than group B and none of the patients required any supplementary anaesthetic interventions during surgery(Table-2).

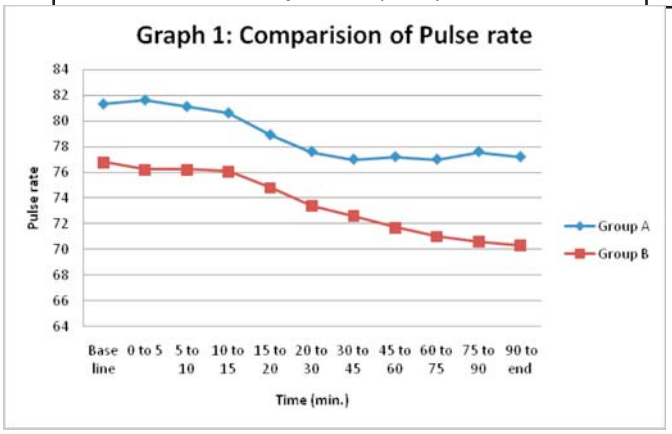
There was no incidence of sedation or respiratory depression in 2 groups. Fentanyl abolishes shivering by central mechanism in group B. Pruritus is most common side effect of intrathecal opioid. In our study 3 among 30 in group B had pruritus which was treated by ondansetron. Nausea and vomiting were not seen in any of these groups(Table-3). Addition of fentanyl reduces the pH of hyperbaric bupivacaine. It may be the reason for an observed delay in onset of adequate block

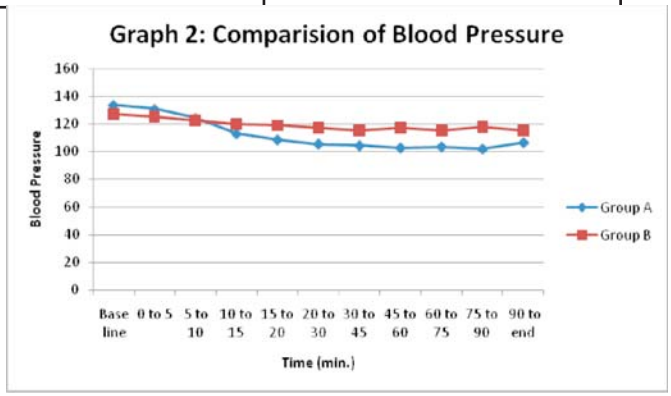
TABLE 1 : DEMOGRAPHICS

Parameters	Group A	Group B
Age (yrs)	69.0 ± 8.4	69.7 ± 7.2
Height (cm)	164.3 ± 5.8	163.4 ± 5.5
Duration of Surgery (min.)	135 ± 30.6	128.8 ± 32.4
Male : Female	19 : 11	19 : 11
ASA Grade II : III	19 : 11	18 : 12

TABLE 2 : CHARACTERISTICS OF SPINAL BLOCK

	Group A	Group B
Time of onset of adequate block-T 10 (sec)	95 ± 10.32	128 ± 8.3
Duration of motor block (min.)	162.5 ± 7.5	129.4 ± 9.9
Duration of sensory block (min.)	227.6 ± 9.8	211.5 ± 14.2





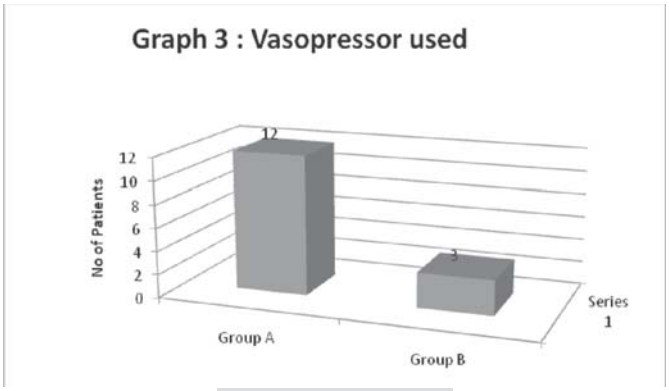


TABLE 3 : COMPLICATIONS

	Group A	Group B
Hypotension	12 (40%)	3 (10%)
Bradycardia	1 (3.3%)	2 (6.6%)
Pruritus	0	3 (10%)
Sedation	0	0
Nausea & Vomiting	0	0
Shivering	3 (10%)	0
Respiratory depression	0	0

CONCLUSION

From current study, it was concluded that subarachnoid block with 2 cc bupivacaine 0.5% H and 25 mcg fentanyl is more safer and better option, both in terms of maintaining hemodynamic stability and lower incidence of complications without compromising the surgical condition for elderly patients undergoing orthopedic lower limb surgeries. B+F can be a safer alternative for elderly patients, who may have more hypotension after conventional dose of bupivacaine, which can be reduce after adding fentanyl in low dose bupivacaine. After completing this study, we will study for other doses.

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ORIGINAL ARTICLE

Incidence of HIV in low risk population - antenatal women and rate of vertical transmission.

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KEY WORDS : HIV, HAART, CD4 count

ABSTRACT

Background

There is rapidly increasing incidence of HIV infection worldwide needs evaluation of HIV infected population. HIV infection in antenatal patients increases the incidence of HIV infected neonates by vertical transmission and so needs evaluation. **Objective** The objective of present study is to determine prevalence of HIV infection in patients coming to tertiary hospital for antenatal care, routine as well as emergency case and to know the vertical transmission rate in HIV infected patients. **Material and Methods** The present study was carried out in all antenatal patients coming to Sheth L. G. general hospital as OPD and emergency case from May 2008 to April 2013. **Results** The incidence of HIV with pregnancy is 3.9 /1000 births. 59 % of HIV positive patients took antenatal visits from the first trimester. Incidence of HIV infection among urban women was 70% and rural women was 30%. 50% of patients were from the age group of 21 to 25 yrs. 96% of patients had sexual mode of transmission. 66% were nulliparous. CD4 count of 65 patients was more than 350. 11 patients had CD4 count less than 350. Out of 76 patients 35 had normal vaginal delivery whereas 41 had undergone LSCS. Out of 35 normal delivered patients 11% neonates had HIV infection. Out of 41 patients who had undergone LSCS 2% had HIV infection. **Conclusions** Universal screening of all ante-natal patients should be done to detect and initiate Highly Active Anti-retroviral therapy in HIV infected patients. Timely diagnosis and treatment reduces the peri-natal transmission.

INTRODUCTION

Maternal HIV and associated neonatal adverse outcomes are one of the significant causes of preventable morbidity and mortality. Neonatal adverse outcome includes broad spectrum adverse outcomes like spontaneous abortion, IUGR, low birth weight, premature delivery, still birth and Perinatal death.

HIV infection can often be life threatening and fatal. This infection is transmitted vertically.

Early diagnosis and intervention according to NACO guide lines in PPTCT, VCTC centres in such cases can have better prognosis by regular follow up.

Hence this study is undertaken to throw more light on the incidence of HIV in ante-natal patients and incidence of vertical transmission in HIV positive mother.

AIMS AND OBJECTIVES

- To determine the prevalence of HIV infection amongst the ante-natal patients visiting the hospital.
- To initiate Highly Active Anti-retroviral therapy in such patients.
- To know the incidence of neonatal HIV transmission.

MATERIALS AND METHODS

All the patients coming to tertiary hospital for ante-natal care, routine as well as emergency care were included in the study. All patients were subjected to HIV counseling and testing at the first visit and then repeat test was done in the third trimester. All the patients who were seropositive were subjected to testing of CD4 counts and HAART was initiated. The patients were followed up till term and routine ante-natal protocols were followed. The emergency patients were given a dose of Tab Nevirapine 200 mg stat at the onset of labor. Universal precautions were taken during perinatal period.

Neonates were given Nevirapine syrup 2mg/kg within 72 hours after birth. Neonates were tested at 6 weeks and 6 months for HIV. None of the infants were breastfed. Analysis was done.

OBSERVATIONS AND DISCUSSIONS

Prevalence of HIV infection amongst patients in our tertiary hospital is 0.39 %

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Prevalence among antenatal women in India is 0.3%[6]

Out of total HIV positive patients 70% were from urban & 30% were from rural area.

The findings are comparable with those of Solomon et al[10] and unicef[11] data that show an increase in incidence of HIV prevalence among urban women as compared to rural women.

Table -1 : Age distribution of women

Age	18 to 20 yrs	21 to 25 yrs	26 to 30 yrs	>30yrs
Number	10	38	19	9
Percentage	13%	50%	25%	12%

As can be seen from the table, 50% of patients were from the age group of 21 to 25 yrs. It is comparable with the data provided by Giriet al[4]. It states that the majority of adult HIV infected females were in age group of 20 to 25 years and mean age was 22.2 years.

Table - 2 : Mode of transmission

Mode of transmission	Sexual	Blood transmission
Number	73	3
Percentage	96%	4%

As can be seen from the table ,96% of patients had sexual mode of transmission. It is comparable with data given by unicef[11] that shows 86% of prevalence of HIV in India is transmitted through sexual contact.

Table - 3 : Parity

Parity	0	1	2	3
Number	50	20	5	1
Parity	66%	26%	6.7%	1.3%

As seen from the table majority , 66% were nulliparous.

CD4 count

Cd4 count of 65 patients was more than 350.

11 patients had CD4 count less than 350.

As per RCOG Green top guidelines 2010[9] it is now recommended to initiate HAART in each and every ante-natal HIV positive patient, second trimester onwards irrespective of CD 4 count.

Table - 5 : Mode of delivery and neonatal HIV prevalence.

Mode of delivery	Normal delivery		LSCS	
Neonatal status	Neonate positive	Neonate negative	Neonate positive	Neonate negative
Number	4	31	1	40
Percentage	11%	89%	2%	98%

Out of 76 patients 35 had normal vaginal delivery whereas 41 had undergone LSCS. Out of 35 normal delivered patients 11% neonates had HIV infection. Out of 41 patients who had undergone LSCS 2% had HIV infection.

As per RCOG Green top guidelines 2010[9]if anti- retroviral therapy during antenatal period, elective LSCS at term and breastfeeding is avoided then rate of transmission can be decreased from 33% to 2%.

CONCLUSION

Majority of HIV infected patients were of 21 to 25 years of age , the principal mode of transmission was sexual and common in urban population. Universal screening of antenatal patients, timely started HAART, timely performed caesarean section, avoiding breast feeding and timely Nevirapine to neonates can reduce peri-natal transmission of HIV.

Abbreviations

CD 4 cells - Cluster Differentiation 4 cells

HAART - Highly Active Anti-retroviral therapy

HIV - Human Immunodeficiency Virus

NACO - National AIDS Control Organization

PPTCT - Prevention of Parent to Child Transmission

VCTC - Voluntary Counselling and Testing Centre

Acknowledgement AMC AIDS CONTROL SOCIETY.

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ORIGINAL ARTICLE

Discordance between clinical and histopathological findings in cases of chalazion

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KEY WORDS : chalazion, sebaceous gland carcinoma, hp findings in chalazion.

ABSTRACT

The present study was performed to determine the discordance of the clinical diagnosis of chalazion in relation to its histopathological (hp) findings and establish the importance of hp confirmation of the clinical diagnosis in 157 cases.

A limited number of single case reports or small series, discussing misdiagnosis of malignant lesions masquerading as chalazion, have appeared in the literature [2]. Many times a recurrent chalazion has more chances of getting malignant. Thus an, accurate and prompt diagnosis is crucial since it is one of the most malignant lesions of the eyelid.

Discordance between clinical and histopathological diagnosis were found in 29.9% of 157 cases in our study. Out of these clinically misdiagnosed cases, according to hp study 28% were benign and 1.9% were diagnosed as malignant and premalignant lesions. Sebaceous gland carcinoma was the case that was confirmed by histopathology and was misdiagnosed clinically as recurrent chalazion.

INTRODUCTION

Eyelid is a complex structure, thus tumors of lids form a heterogeneous collection [1] ranging from benign, premalignant to malignant ones. Chalazion – a chronic inflammatory lesion of tarsal gland can simulate a number of these benign, premalignant or malignant lesions [2,3].

A chalazion (a small hail stone) is a chronic inflammatory granuloma caused primarily by the retention of the secretion of a tarsal gland[1]. Previous studies have revealed that chalazion is one of the most common inflammatory lesion of the eyelid.[2] It was formerly regarded as a meibomian cyst analogous to the atheromata of the sebaceous glands of the skin but as retention cysts of meibomian glands is very rare; a truer analogy is with acne rosacea of the skin wherein the sebaceous glands play a part comparable to that of the meibomian glands in the development of a chalazion.[1] It starts slowly and in symptomless manner appearing as a nodule and although it seems easy to diagnose clinically, yet certain malignant lesions can be misdiagnosed as chalazion.

Sebaceous cell carcinoma can arise from any of the types of sebaceous glands. However, it classically arises from the Meibomian glands of tarsal plate. The upper eyelids, accounts for approximately 2/3 of cases. Less commonly, it is found in the Glands of Zeiss and the lower eyelids. The clinical presentation may vary across a wide spectrum. The most common presentation is a small, rubbery, firm nodule that looks like a chalazion or a recurrent chalazion[4]. This is complicated by the fact that sometimes there is true chalazion formation secondary to obstruction of the Meibomian ducts by a mass [5].

A limited number of single case reports or small series, discussing misdiagnosis of lesions masquerading as chalazion, have appeared in the literature [2] . Many times a recurrent chalazion has more chances of getting malignant. Thus an accurate and prompt diagnosis is crucial since it is one of the most malignant lesions of the eyelid and leads to metastasis in lymph nodes and liver.

AIM

This present study was performed to determine the discordance of the clinical diagnosis of chalazion in relation to its histopathological (hp) findings and establish the importance of hp confirmation of the clinical diagnosis in 157 cases.

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MATERIAL AND METHOD

A retrospective study of 3 years (2009 – 2011) was done in M. P. Shah Medical College, Jamnagar wherein the OT records of eye department and the corresponding records of histopathology section of pathology department were traced and scrutinized.

Firstly the records of ophthalmology OT were surveyed for finding out the cases of chalazions operated and then their corresponding data was traced in histopathology for finding out the hp report of the same to establish the correlation of the clinical diagnosis with the hp findings.

In the given setup chalazion cases are operated on OPD basis after clinically establishing the diagnosis, by the Method of incision and curettage and excision of the cyst if curettage is not possible. The material excised through excision or the small lump obtained during curettage is sent to Histopathology for reporting. The specimens in histopathology were processed as routine paraffin embedding method and stained with Hematoxylin and Eosin stains.

The data was compiled under various headings which follow below and the correlation was made between the clinical findings and the hp findings. The discrepancy between the clinical findings and the hp findings was noted and was also classified on the basis of the finding established in the hp reporting.

RESULTS

TABLE-I AGE GROUP

Age group(years)	No. of Cases
0-10	05
11-20	57
21-30	64
31-40	15
41-50	08
51-60	04
>60	04
Total	157

TABLE-II GENDER INCIDENCE

Gender	No. of Cases
Male	93
Female	64
Total	157

TABLE- III SITE OF CHALAZION

Site	No. of cases
Upper lid	98
Lower lid	59
total	157

TABLE-IV CLINICAL DIAGNOSIS

Clinical diagnosis	No. of Cases
Primary chalazion	141
Recurrent chalazion	16
total	157

TABLE- V CLINICAL AND HISTOPATHOLOGICAL DISCORDANCE

Confirmation by histopathology	No. of Cases
Diagnosis confirmed	110(70.1%)
Discordance with hp	47(29.9%)
total	157

TABLE- VI HISTOPATHOLOGICAL DIAGNOSIS OF CLINICALLY MISDIAGNOSED CASES

Histopathological diagnosis	Nature of lesion	clinical diagnosis	No. of cases
Chronic inflammation	Benign	Primary chalazion	24
Epithelial inclusion cyst	Benign	Primary chalazion	08
Sebaceous gland hyperplasia	Benign	Primary chalazion	07
Granulomatous foreign body reaction	Benign	Recurrent chalazion	04
Chronic inflammation with mitotic activity & dysplasia	Premalignant	Recurrent chalazion	02(4.4%)
Sebaceous gland carcinoma	Malignant	Recurrent chalazion	01(2.1%)
total			47

As seen in the table IV , out of 157 cases there were 16 cases of recurrent chalazion and 7 of the recurrent chalazion were misdiagnosed as seen in table VI. The clinical diagnosis of the rest 9 recurrent chalazion was in accordance with the hp finding. Out of the 7 clinically misdiagnosed chalazion 4 were benign lesions, 1 premalignant lesion and 1 was malignant lesion as per the hp finding.

DISCUSSION

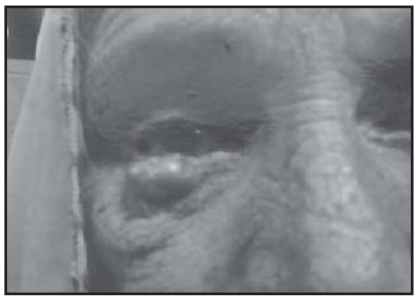
Clinical misdiagnosis is frequent with eyelid lesions because of diversity of tissues that are present in the eyelid. Many types of benign and malignant tumors can occur in the eyelids [6].

A chalazion is a common benign inflammatory eyelid lesion having slow and painless growth [7]. Many conditions like Sebaceous gland carcinoma of eyelid [8,9] microcystic adnexal carcinoma[10], Merkel cell tumor[11], and neurilemoma[12] have been reported masquerading clinically as chalazion.

Discordance between clinical and histopathological diagnosis were found in 29.9% of 157 cases in our study. Out of these clinically misdiagnosed cases, according to hp study 28% were benign and 1.9% were diagnosed as malignant and premalignant lesions. Sebaceous gland carcinoma was the case that was confirmed by histology and was misdiagnosed clinically as recurrent chalazion. Findings of our study were compared with other study as follows:

Table: VII – Comparison for the rate of clinical misdiagnosis

Author	Rate of clinical misdiagnosis with histopathological diagnosis		
	Benign%	Malignant/ premalignant %	Total %
Domarus et al(13)	16.6	7.2	23.9
Holliwich et al(14)	14.6	9.1	23.6
Kersten et al(15)	-	2.0	-
Margo C E(16)	4.6	1.6	6.2
Our study	28.0	1.9	29.9



Upper photograph shows the pre-operative eye of the patient having lower lid swelling mimicking multiple chalazion.
Lower photograph shows the post-operative look.

This photograph is showing the histopathological section of the above case wherein we can see the malignant changes of the sebaceous gland.

We found that though the incidence of malignant and premalignant lesions is very low but without histopathological study such lesions can be misdiagnosed clinically and thus there may be delay in the right and timely treatment thereby leading to metastasis and other complications enhancing the suffering of the patients.

CONCLUSION

All clinically looking chalazion are not always chalazion.

Sebaceous gland carcinoma is having low incidence but having high chances of clinical misdiagnosis as recurrent chalazion.

The possibility of malignant lesions increases in recurrent chalazion therefore it should be mandatory to confirm the clinical diagnosis of recurrent chalazion by histopathological examination of the tissue obtained.

Histopathological evaluation of all chalazion samples is the safest approach to avoid the missing of malignant lesions like Sebaceous gland carcinoma.

For cases of chalazion in which collection of tissue is not possible as only fluid material oozes during incision and curettage, some provision should be made to collect the fluid specimen and send for cytological examination so as to confirm the clinical diagnosis.

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ORIGINAL ARTICLE

Study of Combined Femoral and Sciatic Nerve Blocks for Lower Limb Surgical Procedures

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KEY WORDS : Peripheral Nerve Block, Lower Limb Surgery

ABSTRACT

Background and Aim: The opportunity to interrupt pain pathways at multiple anatomic levels and ability to provide excellent operating conditions without undue sedation or obtundation makes specific peripheral nerve blocks ideally suited for surgery of the lower extremity. Low incidence of perioperative complications, superb postoperative analgesia and increased operating room efficiency, all have accounted for the substantial resurgence of interest in these techniques. Hence, the aim of this study was to assess the suitability of this simple and safe technique for various unilateral lower limb surgeries and to assess the hemodynamic stability of the patients after this procedure. **Materials and Method:** This randomized study involved 50 patients from June 2010 to June 2012, in the age group of 21-80 years, scheduled to undergo elective and emergency lower limb surgeries under combined femoral and sciatic nerve blocks. A sciatic nerve block was given by the posterior approach of Labat, and a femoral (3in 1) block was given by Winnie's inguinal perivascular approach using a mixture of lidocaine, ropivicaine, and saline. **Results:** Complete block was achieved in 92% of the patients. None of the patients had any complications and there was no significant difference between the pre-operative and post-operative vitals (pulse and blood pressure). 84% of the patients preferred to undergo the same anesthetic technique, if they need in the future. **Conclusion:** Combined femoral (3-in-1) and sciatic nerve block is a simple, safe, and efficient technique with very low incidence of side effects and a negligible failure rate.

INTRODUCTION

Peripheral nerve blocks (PNBs) have been extensively used in patients with poly-trauma posted for emergency surgeries and for patients with critical co-morbidities who cannot tolerate even the slightest alteration of hemodynamic status.

Recently several developments have led to an increased interest in lower extremity PNBs, including recognition of transient neurological symptoms associated with spinal anesthesia and evidence of improved rehabilitation outcome with lower limb PNBs.It is desirable to provide effective anesthesia, rapid and an uneventful recovery, persistent postoperative analgesia and early ambulation to patients.

Peripheral nerve blocks are ideally suited for lower limb surgeries because of the peripheral location of the surgical site and the potential to block pain pathways at multiple levels. In contrast to other anesthetic techniques such as general or spinal anesthesia, properly conducted PNBs avoid hemodynamic instability and, facilitate postoperative pain management, and assure a timely discharge of the patient.[1]When long-acting local anesthetics are used, peripheral nerve blocks can be used to provide excellent anesthesia and postoperative analgesia in patients undergoing a wide variety of surgical procedures.

This study was therefore done to assess the suitability of this simple and safe technique for various unilateral lower limb surgeries and also to assess the hemodynamic stability of the patients after the block was given.

MATERIALS AND METHODS

This randomized study involved 50patients, in the age group of 21-80 years, scheduled to undergo elective and emergency lower limb surgeries under combined femoral and sciatic nerve blocks. The exclusion criteria included allergies, bleeding disorders, localized infection, neurological disease and morbid obesity. All the patients provided a written and informed consent.

All the patients were given inj. Glycopyrolate 0.2mg iv before the procedure. Furthermore, they were given inj.

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Midazolam 0.2mg/kg iv and inj. Fentanyl 1mcg/kg iv for sedation. Following this, a sciatic nerve block was given by the posterior approach of Labatusing a 27mL mixture of 15mL 1% Lignocaine with adrenaline, 10mL 0.375% Ropivicaine, and 2mL soda bicarbonate. As the needle is advanced, twitches of the gluteal muscles are observed first. These twitches merely indicate that the needle position is still too shallow. Once the gluteal twitches disappear, brisk response of the sciatic nerve to stimulation is observed (hamstrings, calf, foot, or toe twitches). After the initial stimulation of the sciatic nerve is obtained, the stimulating current is gradually decreased until twitches are still seen or felt at 0.2 - 0.5 mA. This typically occurs at a depth of 5-8 cm. After negative aspiration for blood, 15-20 mL of local anesthetic is slowly injected. Any resistance to the injection of local anesthetic should prompt needle withdrawal by 1mm. The injection is then reattempted. Persistent resistance to injections should prompt complete needle withdrawal and flushing to assure its patency before the needle is reintroduced.

A femoral (3in1) block was given by Winnie's inguinal perivascular approachusing a 22mL mixture containing 10ml of 1% Lignocaine with adrenaline, 10ml of 0.375% Ropivicaine and 2mL soda bicarbonate.A standard 10cm insulated needle, connected to a nerve stimulator, was inserted to elicit the response to nerve stimulation. Visible or palpable twitches of the hamstrings, calf muscles, foot, or toes, or a palpable twitch of the quadriceps muscle at 0.2-0.5mA current were looked for. Precautions to avoid arterial or venous puncture were taken. An assessment was done every 30 seconds for the initial 10 minutes and then every minute till the onset of block. Postoperatively, all the patients were followed up until complete recovery of sensory and motor function of the limb was regained.

OBSERVATION

Fifty patients, of either sex, 21-80 years of age and American Society of Anesthesia (ASA) risk grade of I-IV who were posted for either an elective or an emergency lower limb surgery, were studied during the period of June 2010- June 2012 at our institute. 56% were emergency surgeries and so the patients could not be prepared for general or spinal anesthesia.

Table 1 : Quality of Block

Operation	No. of Patients	Percentage (%)
Complete	46	92
Incomplete	4	8
Failed	0	0
Total	50	100

Complete block was achieved in 92% of the patients and only 8% of cases had an incomplete effect in whom surgeries were proceeded with general anesthesia.

Table 2 : Sensory Block of different nerves

Nerves Block	No. of Patients	Percentage (%)
Complete	46	92
Femoral Nerve	50	100
Obturator nerve	48	96
Lateral Cutaneous Nerve	48	96
Sciatic Nerve	46	92

In one patient sciatic and obturator nerve was spared while in other one sciatic and lateral cutaneous nerve was spared.

Table 3 : Hemodynamic Parameters

Parameters	Pre-Op		Post-Op	
	Range	Mean	Range	Mean
Heart Rate (per min)	64-122	88.84 +/- 12.82	68-98	85.24 +/-8
Systolic Pressure (mmHg)	110-190	146.88 +/- 20.61	112-170	143.28 +/- 13.58
Diastolic Pressure (mmHg)	70-110	88.48 +/- 10.42	76-98	86.88 +/- 6.11

Table shows that there is no significant difference between pre-operative and post-operative vitals (pulse and blood pressure) of patients in our study. ($p > 0.05$)

Table 4 : Duration of Surgery

Time (Min)	No. of Patients	Percentage (%)
30-60	28	56
61-90	6	12
91-120	8	16
121-150	8	16
TOTAL	50	100

The mean duration of surgery was 72.2 min. In one patient the surgery lasted for 140 min without any problem.

The minimum and maximum age groups were between 21-30 years and 71-80 years respectively. The mean age was 52.84 +/- 14.51 years. 80% of the patients were males and 20% were females in the study.

The minimum and maximum weight groups were between 61- 70 kg and 91-100 kg respectively. The mean weight was 77.08 +/- 7.35 kg.

In our study, 40 patients were of ASA risk grade III and IV (64% and 16% respectively) out of which 26 patients were taken as an emergency surgery who could not have tolerated the adverse effects of general or spinal anesthesia.

Complete block was achieved in 92% of the patients and only 8% of the cases had an incomplete effect and hence in them surgery was proceeded with general anesthesia. In one patient sciatic and obturator nerve was spared while in another sciatic and lateral cutaneous nerve was spared.

None of the 50 patients in the study had any cardiovascular or neurological complications. There was neither a vascular puncture nor did any patient have pain at the injection site. There was no significant difference between the pre-operative and post-operative pulse and blood pressures of the patients.

DISCUSSION

The present method of PNB is an extremely useful and effective alternative technique for lower limb operative procedures in which whole of the lower limb can be anesthetized by using the two-puncture technique. This can be applied to any patient undergoing extensive lower limb surgery irrespective of whether he is fit for spinal or general anesthesia. In our study, 80% of the patients were having relative contraindications.

The primary aim of this study was to asses the combined femoral (3-in-1) and sciatic nerve block for unilateral lower limb surgery in terms of onset of time for sensory and motor blockade, result of the block, complications of the procedure and hemodynamic stability.

Historically, for obscure reasons sciatic nerve blocks have been among the least performed procedures. Davies and Mcglade have shown that without a nerve stimulator, sciatic nerve blocks are frequently unsuccessful.[2] Therefore, vast majority of sciatic nerve blocks are performed using insulated needles and nerve stimulators. In our study, every block was givenwith the use of a nerve stimulator. The success rate was 92%.

In 1930, Labat first proposed a posterior approach to sciatic nerve block.[3] In the present study of 50 cases, the classical posterior approach of Labat was used in all patients because it is easy to apply, less painful and more convenient to the patients.[3]

Femoral nerve block is a basic nerve block technique that is easy to master, carries a low risk of complications and has significant clinical applicability for surgical anesthesia Winnie described the femoral (3-in-1) block using a single injection of a local anesthetic solution which blocks the femoral, lateral cutaneous and obturator nerves.[4]When combined with sciatic nerve block, anesthesia of almost the entire lower extremity from the mid thigh level can be achieved.

In this study, we used a 27mL mixture of 15mL 1% Lignocaine with adrenaline, 10mL 0.5% Ropivicaine, 2mL soda bicarbonate for the sciatic nerve block, and a 22mL mixture containing of 10ml of 1% Lignocaine with adrenaline, 10ml of 0.5% Ropivicaine and 2mL soda bicarbonate for the femoral block. Most of the patients in the study were from 51 to 70 years of age with a mean age of 52.84 +/- 14.51 years because we wanted to assess the effectiveness of the PNB by avoiding the risk and disadvantages of general anesthesia (GA)/ central nerve block (CNB) in patients with cardiac, respiratory and renal diseases.

Rajkumar et al reported the use of combined sciatic and femoral 3-in-1 blocks in high-risk elderly patients for lower limb amputations (mean age 70.71 +/- 8.73 years).[5]

Amongst the selected patients, 64% of them had anASA risk of grade III and 16% had an ASA risk of grade IV. This implies that most of the patients had a high risk of anesthesia in whom we used a PNB without any consequent complications or significant hemodynamic changes.

A. Singh et al also concluded that combined sciatic and femoral (3-in-1) block can be given by choice in critically ill and hemodynamically unstable patients in place of a central neuraxial block.[6]

Gligorijevic and Brown also concluded that in emergency and highrisk patients, a combined sciatic and femoral 3-in-1 block can be extremely usefuland effective for any surgery on the lower limb.[7]

The onset time for sensory block was defined as the time from injection of the local anesthetic (LA) to point 1 scale of sensory block in any area supplied by femoral, obturator, lateral cutaneous and sciatic nerves.In this study, it was found to be 8.04 +/-- 6.77 min which was comparable to the study done by A. Singh et al who reported the onset of time for sensory block was 12.56 +/-- 5.36 min.

In other studies, V. Chakrvarthy et al reported that the onset of time for analgesia was 2.03 +/-- 4.7 min but they used 50ml of 1% lignocaine and B. Urbanek reported sensory onset time of 27 min in the bupivacaine group in his study of 3-in-1 block.[8,9]

The onset time for motor block was defined as the time from injection of a LA to point 1 scale Bromage.In this study, it was 14.41 +/-- 3.11 min.while A. Singh et al found that onset time for motor block was 21.3 +/-- 9.94 min with 1% lignocaine and 0.25% bupivacaine in their study.[6] The difference in the results was due to the use of different drug mixtures. The onset of sensory blockade was seen to precede onset of motor block. This is because of the fact that motor fibers are thick and located in the center of the nerve.

Another point checked was the duration of sensory block. Factors that influence the duration of sensory block are the LA drug, dose and the concentration, which were kept constant in all patients in this study group. It was defined as the time from the onset of sensory block to the first analgesic demand by the patient. In this study it was 274.87 +/-- 13.25 min. Our study results are comparable with studies by V. Chakravarthy et al who reported duration of sensory block was 203.1 +/-- 29.8 min and Fournier et al who reported 4-6 hours of sensory block after 3-in-1 block.[8,10]

Duration of the motor blockade was 387.45 +/- 14.42 min. V. Chakravarthy et al 42 reported that motor block regression time was 180 +/- 22.5 min with 50 mL 1% Lignocaine for the combined sciatic and femoral 3-in-1 block.[8] Whereas, we used 25mL 1% Lignocaine with Adrenaline 1:2,00,000 and 20 mL 0.5% Ropivicaine.

In our study, the pulse, systolic BP and diastolic BP were recorded during the pre-operative, intra-operative and post-operative periods. All these parameters did not change significantly ($p>0.05$).

Our study results are comparable with the study by Raj Kumar et al, A. Singh et al, V. Chakravarthy et al, Fowler et al, Gligorijevic et al, Zaric et al, Barton et al, Cassati at al, Fanelli et al and Singelyn et al.[5,6,7,8,9,10,11,12,13,14,15]

Success of the PNB requires proper technique of nerve localization, needle placement and LA injection. We performed this technique using the nerve stimulator technique.

Out of the 50 patients, 46 patients had a complete effect while only 4 patients had an incomplete effect (success rate of 92%) in whom the surgery was proceeded by general anesthesia with endotracheal intubation and controlled ventilation and they were maintained with O_2 + N_2O + isoflurane + muscle relaxant.

A. Singh et al also reported the high reliability and relatively low failure rate (4%) in their study.[6] Raj kumar et al also reported 99.44% success rate in their study. Our study results are comparable with both of them.

The complications associated with this block are local anesthetic toxicity, neuraxial block due to proximal spread, neurological complication which can be related to a PNB include needle trauma, intraneuronal injection and neuronal ischemia. Infectious complications like cellulitis, neuritis, skin infection around the injection site are more associated with continuous nerve block techniques rather than a single injection technique.

In our study, none of the patients had any complications either intraoperative or postoperative. Our study results are comparable with the following studies: Zaric et al reported that incidence of side effects was very low ($p<0.05$) in the PNB group compared to the epidural group; Singelyn et al observed that continuous 3-in-1 block induces nearly 4 times fewer side effects than epidural analgesia; Fowler et al reported that PNB may provide effective unilateral analgesia with lower incidence of opioid related and autonomic side effects and fewer serious neurological complication compared with epidural analgesia; Raj kumar et al also found no complication intraoperative or postoperative.

CONCLUSION

Out of 50 patients, 46 patients had complete effect of the block and the surgery was completed without any complaints of pain or discomfort. In all the 46 patients having a successful block, the surgeon's opinion and patient's experience throughout were satisfactory.

These results indicate that peripheral nerve blocks can replace general anesthesia and central neuraxial block for lower extremity surgery and perhaps are ideal for high-risk patients who cannot tolerate the adverse consequences of even the slightest attenuation of hemodynamic response.

Hence, combined femoral (3-in-1) and sciatic nerve block is a simple safe, and efficient technique with very low incidence of side effects and a negligible failure rate. It is very likely that in the near future, skillfully performed PNBs will replace general anesthesia and central neuraxial blockade for lower limb surgeries.

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ORIGINAL ARTICLE

Histo-Pathological study of testicular lesions

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KEY WORDS : Histopathology, Testis, Neoplasm

ABSTRACT

Introduction: Incidence of testicular neoplasm in western countries has been rising since past 50 years. The testicular tumors although relatively rare, constitute 4th most common cause of death from neoplasia in a younger male. **Aim:** The present study is undertaken to determine the incidence and age wise distribution of testicular lesions in our tertiary care hospital. **Material and method:** A descriptive study of 100 consecutive patients of all orchidectomy specimens was conducted over a period of thirty two months; between April-2011 to November-2013 in the department of pathology of this hospital. Histopathological examination was done after routine processing and staining with Haematoxylin & Eosin. **Results:** Non-neoplastic lesions of the testis are most common in the second decade of the life while malignancy is common in 3rd and 4th decade of life. The youngest patient was at birth and oldest was 71 years of age showing 1%. Unilateral involvement is more common than the bilateral involvement; particularly right sided involvement is common than the left side involvement. Non-neoplastic lesions were (85%) were more common than the neoplastic lesions (15%) of testis. Out of all non-neoplastic lesions, vascular lesions like torsion and infarction are the most common findings (55.29 %) followed by tuberculous abscess (16.47 %). Among the neoplastic lesions malignant lesions (80%) are more common than the benign lesions (20%). Out of all neoplastic lesions, seminoma is the most common finding (40 %) in the present study. **Conclusion:** Despite new techniques in imaging and tumor marker assay the diagnosis of testicular lesions is primarily dependent upon histopathological examination.

INTRODUCTION

Testicles are a very delicate part of male body. Testis is a paired oval organ that lies within scrotum suspended by spermatic cord.[1]

There are various testicular lesions, ranging from pediatric to adult age groups. They usually present with scrotal swelling, pain in scrotum and mass per abdomen. Testicular lesions are categorized under non-neoplastic and neoplastic lesions. Non–neoplastic lesions include cryptorchidism, epididymo-orchitis, torsion of testis, among which cryptorchidism accounts for approximately 1% of 1 year old boys. It is unilateral in 80% of cases. Torsion of testis is a surgical emergency commonly seen in 10-25 years of age.

The testicular tumors although relatively rare, constitute 4th most common cause of death from neoplasia in a younger male. It is usually found in age groups 15-35 years which accounts for < 1% of all malignancies in males.[2] Incidence of this neoplasm in western countries has been rising since past 50 years (Bergstorm et al. 1996).[3] Cancer of testis is common in white worldwide with Hispanics & Asian at intermediate risk and blacks at lowest risk. Testicular carcinoma follows a reverse pattern to most cancers with decreasing incidence rate with increasing age. Cryptorchidism, Klinefelter syndrome and strong family are the predisposing risk factors in development of testicular germ cell tumors.

Significant advances in the understanding of diseases, various investigative modalities per say, Routine tests, X-ray, Ultrasound, CT scan, Intravenous urography, tumor marker assay and finally histopathological examination is of useful guide. Despite new techniques in imaging and tumor marker assay the diagnosis of testicular lesions is primarily dependent upon histopathological examination.

Treatment of testicular lesions includes operative procedures like orchidectomy, retroperitoneal lymph node dissection etc., radiation therapy and

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Table I : Age incidence of testicular lesions

Sr. No.	Age in years	Non-neoplastic lesions		Neoplastic lesions			
		No. of cases (n=85)	Percentage (%)	No. of cases		Total no.of cases (n=15)	Percentage (%)
				Benign	Malignant		
1	0-10	3	3.53	2	1	3	20
2	11-20	24	28.24	1	2	3	20
3	21-30	15	17.65	0	3	3	20
4	31-40	15	17.65	0	3	3	20
5	41-50	11	12.94	0	1	1	6.66
6	51-60	11	12.94	0	0	0	0
7	61-70	5	5.88	0	2	2	13.33
8	>71	1	1.18	0	0	0	0
	Total	**85**	**85**	**3**	**12**	**15**	**15**

Table II : Mode of presentation of testicular lesions

Sr. No.	Mode of presentation	No. Of cases (n=100)	Percentage(%)
1	Testicular Swelling	83	83
2	Testicular Pain	20	20
3	Lower Abdomen Pain	21	21
4	Lower Abdomen Lump	35	35
5	Fever	60	60
6	Weight Loss	26	26
7	Anorexia	15	15

Table III : Laterality of testicular lesions

Sr. No.	Laterality	Side	Non-neoplastic lesions		Neoplastic lesions	
			No. of cases (n=85)	Percentage (%)	No.of cases (n=15)	Percentage (%)
1	Unilateral	Right	49	57.64	10	66.66
		Left	34	40	5	33.33
2	Bilateral		2	2.35	0	0
	Total		**85**		**15**	

Table IV : Histopathological diagnosis of non-neoplastic lesions

Sr. No.	HPE diagnosis	No. of cases (n=85)	Percentage (%)
1	**Congenital lesions**		
	i)Undescended testis	7	8.24
2	**Inflammation and Infection**		
	i)Specific		
	a)T.B Epididymo-orchitis	8	9.41
	b)Granulomatous Orchitis	1	1.18
	ii)Non-Specific		
	a)Testicular Abscess	14	16.47
	b) Non Specific Epididymo-orchitis	8	9.41
3	**Vascular Lesion**		
	Torsion and Infarction	47	55.29
	Total	**85**	

Table V : Histopathological diagnosis of neoplastic lesions

Sr. No.	HPE diagnosis	No. of cases (n=15)	Percentage (%)
1	**Benign**		
	i)Mature Teratoma	3	20
2	**Malignant**		
	i)Seminoma	6	40
	a)classical	4	26.66
	b)spermatocytic	1	6.66
	c)anaplastic	1	6.66
	ii) Yolk Sac Tumour	1	6.66
	iii) Immature Teratoma	2	13.33
	iv) Non-Hodgkins Lymphoma	2	13.33
	v)Mixed Teratoma and Seminoma	1	6.66
	Total	**15**	

Table VI: Comparison of percentage incidence of benign and malignant lesions

Sr. No.	Authors (years)	Benign	Malignant
1	Haas GP et al[4] (1986)	31%	69%
2	Kressel K et al[5] (1988)	13.6%	87.4%
3	Robertson GS[6] (1995)	31.5%	68.4%
4	Present study (2013)	20%	80%

Table VII: Side of involvement of Testicular Lesions

Sr. No.	Authors (years)	Side	
		Right	Left
1	W. Duncan[7] (1987)	55.8%	44.2%
2	Reddy & Ranganayakamma[8] (1966)	64.3%	35.7%
3	Moghe K.V. et al[9] (1970)	54.2%	45.8%
4	Present Study (2013)	59%	39%

Table VIII: Relative percentage of different histological types of Testicular Germ Cell tumors

Tumor type	Kurohara et al[12] 1968	Friedman & moore[13] 1946	Moghe K.V.[9] 1970	Present study 2013
Seminona	49.5%	35%	41.6%	40%
Teratoma	42%	42%	36.4%	33.33%
Yolk sac tumor	-	7.9%	-	6.6%

chemotherapy has tremendous influence on management of all testicular lesions.

Clinical data, operative findings and gross features of lesions may provide important and at times decisive diagnostic clues.

The present study is undertaken to study the diverse histopathological patterns of testicular lesions and thus offering a specific diagnosis which is of paramount clinical significance.

AIMS & OBJECTIVES

1. To study the incidence of testicular lesions
2. To study the various histopathological patterns of testicular lesions.
3. To study the relative incidence of various testicular lesions among different age groups.
4. To find out incidence of neoplastic testicular lesions and to study their different morphological patterns. Correlation of histophology of tumor with serological tumor marker study.

MATERIALS & METHODS

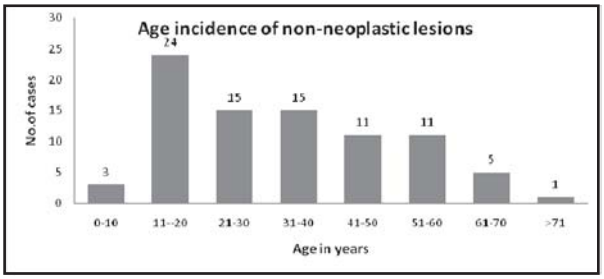
The present study was carried out at Tertiary Care Teaching Hospital, Gujarat. All radical orchidectomy specimens are received from Department of Surgery of our hospital. In this study the orchidectomy specimens which had been sent for infertility had been excluded.

The present study was carried out from April-2011 to November-2013. A total of 100 cases are studied.

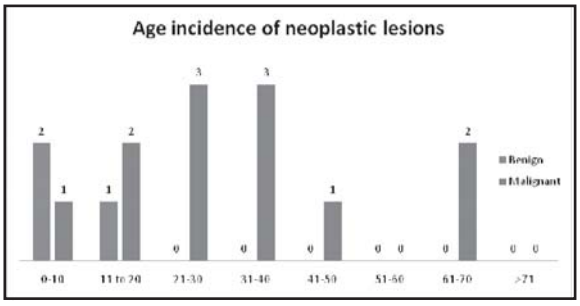
Due importance was paid to record a brief clinical history with age, registration no, biopsy no, presenting signs & symptoms. All patients were investigated with Routine haemogram, X- ray chest, Ultrasound of abdomen, when required serum marker assay for Alpha-fetoprotein, β-human chorionic gonadotropin and CT scan were done.

Thorough Gross examination was carried out and salient features were noted down. The Gross specimens received were fixed in 10% neutral buffered formalin for overnight fixation. Next day morning, Gross examination of fixed specimen is done and the sections are taken from representative sites. These sections are further processed into automated tissue processor. After processing, sections are imbedded in paraffin to make paraffin blocks. These blocks are then cut serially in three to five micron thickness using rotatory microtome to prepare slides. Slides are then stained using routine Haematoxylin & Eosin stain and then mounted with DPX. Special stain is not carried out.

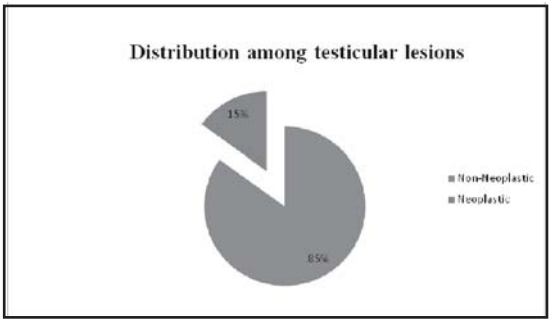
Graph I: Age incidence of non-neoplastic lesions



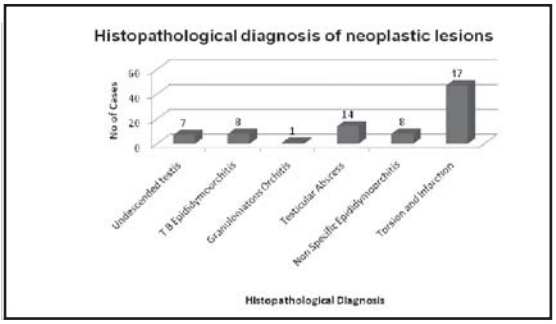
Graph II: Age incidence of neoplastic lesions



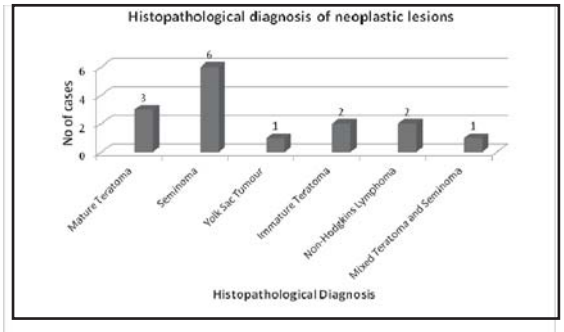
Graph III: Distribution among testicular lesions.



Graph IV: Histopathological diagnosis of non-neoplastic lesions.



Graph V: Histopathological diagnosis of neoplastic lesions.



RESULTS

Many of the patients had been diagnosed and treated at our hospital over a period of 32 months, i.e. from April-2011 to November-2013 were taken into consideration. This study consists of 100 cases among which 85 cases are non-neoplastic and 15 cases are neoplastic lesions.

Table 1 showed age wise distribution of non-neoplastic lesions of testis. Our youngest patient was at birth while the oldest patient was 67 year male. Maximum numbers of patients presented in second decade of life (28.24%). Second highest age incidence was found in 3rd and 4th decade of life, comprising 17.65% each.

Table 1 showed age wise distribution of neoplastic lesions also. Our youngest patient was at birth while the oldest patient was 68 year male. Maximum numbers of malignant lesions are presented in third and forth decade of life (40 %).

Patients with testicular lesions presented with varied symptoms accounting testicular swelling, fever, lower abdominal lump and other vague symptoms. Majority of patients were found to be complaining about testicular swelling (83%).

Among non-neoplastic lesions, 83 cases were found to be unilateral involvement while 2 cases (2.35 %) have bilateral involvement. Right sided lesions (57.64 %) were relatively more common than left sided lesions (40 %). Among all neoplastic lesions, 15 cases were found to be unilateral involvement while none of the lesion is bilateral. Right sided tumors (10 cases, 66.66%) were relatively more common than left sided tumors (5 cases, 33.33 %).

Out of all non-neoplastic lesions maximum number of cases was of torsion and infarction accounting for 55.29% followed by testicular abscess 16.47 %. Thus, torsion and Infarction, the most commonly found abnormality constituted 47 out of 85 cases (55.29%) in the present study. Age ranging from birth to 62 years. Mean age 26.5 years. Testicular abscess was found in 14 cases out of 85 cases (16.47%) in the present study. Age ranging from 22-70 years. Mean age being 48 years.

Seven cases of undescended testis out of 85 cases (8.24%) had been identified. Age range was about 18-49 years. For Tuberculous epididymo-orchitis, 8 cases had been identified (9.4%). Age was ranging from 18-65 years. Mean age was found to be 49.6 years. (Table IV) There were 8 cases of Non-specific epididymo-orchitis out of 85 cases (9.4%). Age ranging from 21-60 years

In case of neoplastic lesions, malignancy is more common than benign lesions. Out of all neoplastic lesions of testis, maximum number of cases were seminoma (40 %) followed by teratoma (33.33 %).

Tumor marker study is important for clinical significance, diagnosis and management of germ cell tumors. Out of 6 patients of seminoma, AFP (Alpha Fetoprotein) and β-Human Chorionic Gonadotropin was elevated in 3 patients. In case of yolk sac tumor elevation of AFP while β- HCG is normal.

DISCUSSION

Various authors studied the incidence of benign and malignant lesions, which were compared with the present study. In present study malignant lesions constituted 80 % and benign lesions constituted 20 % which are almost equal to the earlier studies, which is comparable with the earlier studies (Table VI). Testicular swelling constituted 83% in the present study; the same results are obtained by Robson[10] et al and W. Duncan[11] et al.

Non-Hodgkin's lymphoma is uncommon disease. It comprises 5% of all testicular neoplasm. It is most common testicular tumor in elderly, among which diffuse large B-cell lymphoma variant is most common. In the present study 2 cases of Non-Hodgkin's lymphoma is diagnosed (13.3%) out of which one was 30 years male having Small cell lympho-plasmacytic type and other was of 65 years male having Diffuse large B-cell type.

In the present study, for tuberculous epididymo-orchitis mean age was 49.6 years; which is similar to Suankwan U et al.[14]

In the present study, a case of granulomatous orchitis whose age was 52 years which is similar to the study given by Grunberg H[15] who found the prevalence to be most common in 5th to 6th decade.

There were 8 cases of Non-specific epididymo-orchitis out of 85 cases (9.4%). Age ranging from 21-60 years which is similar to the study given by Kaver et al.[16]

The most commonly found abnormality, torsion and Infarction constituted 55.29% in the present study with the mean age 26.5 years which is similar to study given by Cuckow et al.[17]

Though neoplastic lesions are most common in 4th decade of life; in the present they are found in 1st, 2nd, 3rd and 4th decade consisting of 20 % each. Similar results are also obtained by Reddy and Ranganayakamma.[8] Other

studies done by Moghe et al[9] in 1970 showed 17.7% and Collins and Pugh[18] 1964 showed 17.6% which coincides with our study. Table VIII shows comparison of difference in the histopathological types with other studies, our study shows 40 % are seminoma and 33.33 % are teratoma, which are comparable to other authors.

SUMMARY & CONCLUSION

- Incidence of different types of testicular lesions both neoplastic and non-neoplastic was correlated with other studies.
- Non-neoplastic lesions of the testis are most common in the second decade of the life while malignancy is common in 3rd and 4th decade of life. The youngest patient was at birth and oldest was 71 years of age showing 1%.
- The most common complaint at the time of presentation is testicular swelling.
- Unilateral involvement is more common than the bilateral involvement; particularly right sided involvement is common than the left side involvement.
- Non-neoplastic lesions were (85%) were more common than the neoplastic lesions (15%) of testis.
- Out of all non-neoplastic lesions, vascular lesions like torsion and infarction are the most common findings (55.29 %) followed by tuberculous abscess (16.47 %).
- Among the neoplastic lesions malignant lesions (80%) are more common than the benign lesions (20%).
- Out of all neoplastic lesions, seminoma is the most common finding (40 %) in the present study.
- It is conclude that, despite new techniques in imaging and tumor marker assay the diagnosis of testicular lesions is primarily dependent upon histopathological examination.

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ORIGINAL ARTICLE

Radiology – A helping hand in dermatology

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KEY WORDS : Radiology Dermatology Help

ABSTRACT

Skin disease and its treatment may have radiological connotations. It provides an eclectic selection of some common and some rare clinical entities, which the practicing dermatologist may find difficult to recognize. Radiology not only helped in diagnosing the disease but also in predicting the outcome at very early stage when dermatological manifestations were not evident. The study comprises of 100 patients with various dermatological conditions and their correlation with various radiological signs. Approximately 28% of patients showed infective etiology with male preponderance and leprosy being most common. Nevi and developmental defects comprise 22%, genodermatosis 13%, connective tissue disorders 15%, vasculitis 5%, malignant diseases and metabolic diseases 3 % each and blistering diseases 2% showing radiological manifestations. Adoption of radiological support can direct dermatologist towards early diagnosis and predicting the outcome of the dermatoses having multisystem involvement.

INTRODUCTION

Dermatology and radiology directly deal with observing the lesions and reaching diagnosis. There are many congenital, genetic or autoimmune diseases which have both radiological and dermatological manifestations.

Most of congenital dermatoses have radiologic manifestation. The same way, the autoimmune diseases is one more domain in which alliance of these two branches is of utmost importance.

Onset of disease does not predict outcome in the majority of patients as shown by various studies. In psoriasis, skin and nail disease severity do not correlate with severity of joint involvement. Bony involvement in SAPHO syndrome should be diagnosed at early stage for better prognosis. Severe acne patient having spondyloarthropathies have also been reported.

In Paget's disease of breast, imaging procedure plays a vital role in diagnosis the underlying malignancy. In dermatomyositis, interstitial lung disease detected on CT scan may present as initial manifestations.

Therefore it is extremely important to know radiologic manifestations associated with a particular dermatoses and modalities to be used for this purpose, so that the condition doesn't escape the notice of clinician.

MATERIAL AND METHODS

Total of 100 patients were enrolled in the study who attended outpatient department over a period of two years for the possible radiological findings in various dermatoses. History age, gender, family history, present complaints and systemic complaints were noted and examined thoroughly. Radiological investigations like Chest X Ray, X Ray Local Part, Ultrasonography, Colour Doppler Study, Barium Swallow, CT scan, MRI scan done according to symptoms and clinical findings.

OBSERVATION & DISCUSSION

The present study comprises of 100 patients from huge number of cases presented to our outpatient department from June 08 to June 10. The analytical observations are as follows:

Table 1: Number of patient in different dermatoses.
100 patients were enrolled.

No.	Classification	No of Patients
1	Genodermatoses	13
2	Nevi And Developmental Defects	22
3	Infections	28
4	Inflammatory Diseases	08
5	Connective Tissue Disorder	15
6	Vasculitis	05
7	Malignant Disease	03
8	Metabolic Disease	03
9	Blistering Disease	02
10	Miscellaneous	01
	Total	100

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GENODERMATOSES

Table - 2 Patients with genodermatoses and radiological findings. X-ray were performed in both antero-posterior and lateral view in neurofibromatosis patients. MRI: Magnetic Resonance Imaging, USG: Ultrasonography.

NO	Genodermatoses	M	F	TOTAL	Radiological findings
1	Neurofibromatosis	5	2	7	-Kyphoscoliosis in 50% of patients.
2	Tuberous Sclerosis Complex	3	3	6	-Angiomyolipoma of kidney in 2 patients (66.66%) on USG. -Subependymal Tubers in 2 patients (66.66%) in MRI brain. -Cortical tubers in 1 patient (33.33%) -Hamartomas in kidney in 1 patient (33.33%)
		8	5	13	

NEVI

Table 3 – Patients with nevi and radiological findings. Phlebolith appears as focal calcification.

No	Nevi	M	F	TOTAL	Radiological Finding
1	Melanocytc Nevi	2	1	3	MRI - Arachanoid Cyst in 1 patient.
2	Vascular Nevi	4	8	12	X-ray - Phlebolith seen in 8 patients.
	Total	6	9	15	

DEVELOPMENTAL DEFECT

Table 4 – Patients with developmental defects and radiological findings. Enlarged lateral ventricals were seen in CT scan of patient with meningomyelocoele. CT: Computerised Tomography

NO	Developmental Defect	M	F	TOTAL	Radiological Finding
1	Meningomyelocoele	2	0	02	CT Scan – Hydrocephalus in 1 patient.
2	Spina Bifida	0	5	05	X-ray - Closed posterior midline defect
	Total	2	5	07	

INFLAMMATORY DERMATOSES

Table 5 – Patients with inflammatory dermatoses and radiological findings. Psoriasis patients may present with wide range of radiological abnormality and thus requires various imaging modalities

NO	Inflammatory Diseases	M	F	TOTAL	Radiological findings
1	Psoriasis	6	1	7	-Degeneration, Joint space reduction, Ankylosis, Subluxation, Osteophytes, flexion deformity and Osteopenia seen in 5 patients. Enthesitis seen in 1 patient.
2	Acne Conglobata	1	0	1	-Reduction of joint space seen in 1 patient.
	Total	7	1	8	

INFECTIONS

Table 6 – Patients with infections and radiological findings. Infections can take long time to developed bony abnormalities. X-ray:tapered appearance of end of bone was seen due to resorption in leprosy patient. Bone is destroyed and remodelled in Madura foot patient.

NO	Bacterial	M	F	TOTAL	Radiological findings
1	Congenital Syphilis	0	1	1	- Sabre Tibia, Saddle Nose, Frontal Bossing.
2	Leprosy	15	4	19	-Resorption of foot and hands seen in 8 patient of lepromatous leprosy. -Neuropathic joint in 8 patient.
	Total	15	5	20	
NO	Fungal	M	F	Total	Radiological findings
1	Madura Foot	2	0	2	Lytic & sclerotic changes of Bone in foot in both patients.
2	Actinomycotic Mycetoma	5	1	6	Lytic & sclerotic changes with soft tissue swelling in 2 patients on X-Ray.
		7	1	8	

CONNECTIVE TISSUE DISORDERS

Table 7 – Patients with connective tissue disorders and radiological findings. HRCT of scleroderma patient showed bilateral ground glass opacity and honey combing. HRCT: High Resolution Computed Tomography.

No	Connective Tissue Diseases	M	F	Total	Radiological findings
1	Lupus Erythematosus	2	1	03	Periarticular osteopenia seen in all three patients in X-ray local part.
2	Scleroderma	1	7	08	Systemic sclerosis X-ray-Periarticular Osteopenia -Erosion -Resorption -Flexion Deformities of Hand Seen in 5 patients. HRCT-Bilateral Reticular Lung Opacities seen in 3 patients.
3	Rheumatoid Arthritis	0	1	01	-Periarticular osteopenia -Swan neck deformity -Boutonniere deformity in X-ray hand.
4	Werner Syndrome	1	0	01	-Restricted passage in cervical esophagus in Barium swallow.
5	Progeria	1	0	01	-Short clavicle, frontal bossing, micrognathia, epiphyseal widening in X-ray.
	Total	5	9	14	

MALIGNANT DISEASES

Table 8 – Patients with malignancy and radiological findings. Majority of the features were seen on X-ray.

No	Malignant Diseases	M	F	Total	Radiological findings
1	Histiocytosis	3	0	3	-Metastasis of bone as Vertebral sclerosis in X-ray in one patient. -Multiple irregular lucent area with margins of sinuses ill defined in X-ray skull -Lytic lesion with cortical destruction at metaphyseal end of femur in X-ray in one patient.
	Total	3	0	3	

VASCULITIS

Table 9 – Patients with vasculitis and radiological findings. Maxillary CT scan of Wegener's Granulomatosis patient showed heterogeneously enhancing lesion with surface ulceration lip nasal septum & small nodes on left side in both patient.

No	Vasculitis	M	F	Total	Radiological findings
1	Erythema Nodosum	2	0	2	Fibrocavitary lesion & well defined soft tissue in 1 patient.
2	Palpable Purpura	0	1	1	Opacity in chest x-ray.
3	Wegener's Granulomatosis	2	0	2	Multiple variable sized rounded homogenous soft tissue opacity in lower lobe Maxillary bone was involved in CT scan.
		4	1	5	

METABOLIC DISEASES

Table 10 – Patients with metabolic disorders and radiological findings. X-ray was prime modality which showed lysis, resorption, sclerosis.

No	Metabolic Diseases	M	F	Total	Radiological findings
1	Gout	1	0	01	In Asymmetric polyarticular involvement of joint in hand with reduction in joint space & subluxation of MIP joint -X ray of Joint.
2	Porphyria	1	0	01	Resorption of distal phalanges s/o acroosteolysis-X-ray hand.
3	Mucopolysacharidosis	1	0	01	Frontal and occipital hyperostosis, J-shaped sella turcica Adenoid hypertrophy, Large skull, Thickened and sclerotic calvarium in X-ray skull.
		3	0	03	

VESICULOBULLOUS DISEASES

Table 11 – Patients with vesicobullous disorders and radiological findings. Castle's man tumour is suspected when retroperitoneal mass is seen in association with paraneoplastic pemphigus.

No	Vesiculobullous Diseases	M	F	Total	Radiological findings
1	Pemphigus Vulgaris	1	0	1	X ray –Hyperlucent areas & sclerosis in head of Femur with narrow joint s/o Avascular necrosis.
2	Paraneoplastic Pemphigus	1	0	1	CT Scan –Well defined solid enhancing mass s/o primary retroperitoneal mass.
	Total	2	0	2	

OBSERVATION & DISCUSSION

- A total of 100 patients were included in the study, 67 were males and 33 were females, male to female ratio of 2.03:1. Maximum number of patients were below 9 years of age
- Family history was positive in total 5 patients.
- Most common diseases involving bone was infections -28% followed by various nevi and developmental defects- 22%, genodermatoses- 13%, connective tissue diseases- 12%, inflammatory diseases- 8% and vasculitis-5% including other- 11%.
- Among the bacterial infection, lepromatous leprosy and borderline leprosy with trophic ulcer and deformity formed the largest chunk of 62.06% patients. Incidence of mycobacterial infection was 6.89% with more findings in x ray chest. Classic case of congenital syphilis was seen in 3.44% of patient, whereas in deep fungal infection actinomycetoma was seen in 20.68%, followed by eumycotic mycetoma in 6.89% of total cases.
- In leprosy erosion seen in 44.44%, resorption in 16.66% and finding of neuropathic joint were present in 44.44% patients.

- In actinomycosis lytic and sclerotic changes were observed in half of the patient, similar changes were present in all patients with Madura foot.
- Soft tissue opacity on X ray chest in cutaneous mycobacterial infection was found in 100% patients.
- Early periosteal reaction was observed in upper limb bone in case of congenital syphilitic infection.

- Out of 22 patients, patients of melanocytic nevi were 13.63%, vascular nevi 54.54% and developmental defect 31.18%.
- No bony abnormality was observed in hemangioma on X-ray local part.
- In KlippelTrenauny syndrome phlebolith was observed in 66.66% cases.
- Spina bifida was observed with striking female predominance in closed posterior midline defect in 71.42%
- Degeneration, joint space reduction, ankylosis, subluxation, osteophytes, flexion deformity osteopenia found in psoriasis in 71.42% cases.
- In connective tissue diseases commonest finding was periarticular osteopenia seen in 33.33% of cases.
- Primary solid retroperitoneal mass was detected in a case of paraneoplastic pemphigus.

  Ca lung was detected in case of connective tissue disorder that had chronic renal failure whereas in a case of disseminated discoid lupus erythematosus thymoma was an incidental finding.
- Steroid induced avascular necrosis of femur presented as multiple hyperlucent areas and sclerosis of head of femur with narrow joint space in one case of pemphigus vulgaris.
- In Histiocytosis, lytic and sclerotic lesions were noted in Langerhans cell histiocytosis and eosinophilic granuloma respectively.
- In vasculitis well defined soft tissue opacity was observed on chest x ray in 50% cases, which responded well to anti tubercular therapy.
- Resorption of fingers in congenital erythropoetic porphyria and soft tissue nodules with erosion of small joints were observed in gout in one case each.

CONCLUSION

Clinical signs and symptoms aided by radiological evidence not only help in reaching the diagnosis but also result in detection of disease at early stage. This is particularly useful in those dermatoses which have only few dermatological manifestations, but pronounced radiological evidence early in course of their disease.

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ORIGINAL ARTICLE

The effect of experimentally induced anisometropia on binocularity and bifoveal fixation.

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KEY WORDS : : anisometropia, binocularity, stereopsis, bifoveal fixation

ABSTRACT

Background and Aim : Anisometropia causes a decrease in stereoacuity. The precise mechanism for this is not clear. We did a study to experimentally induce anisometropia and evaluate its effect on binocular function and bifoveal fixation. **Materials and Methods :** This prospective interventional experimental study was done on 10 medical students. All students had been spectacle corrected before and had a best corrected visual acuity of 6/6 (Snellen's chart) in both the eyes. Anisometropia was induced in all participants by putting myopic, hypermetropic or astigmatic lens of 1.0, 2.0 or 3.0 diopter (D) in front of right eye. A thorough ophthalmological and ocular motility examination was done. Binocularity was tested using Worth 4 dot test and Bagolini's glasses. TNO test was used for stereoacuity assessment. 4 Prism Diopter (PD) base out test was done to find out bifoveal fixation. **Results :** Mean age was 18.6 ± 0.7 years (18-20 years). Mean difference in line acuity on inducing a hypermetropic anisometropia of 1.0 D, 2.0 D and 3.0 D was 0.3, 1.5 and 3.1 lines respectively. Mean stereopsis for -1.0 D, -2.0 and -3.0 D anisometropia worsened to 78 ± 37.94, 258± 165.04 and 1313.33± 790.6 seconds of arc respectively. On inducing a myopic anisometropia of 1.0 diopter (D), 2.0 D and 3.0 D mean difference in line acuity was 3.8, 5.1 and 6.3 lines. Mean stereopsis worsened to 133.33 ± 40, 566.67 ± 542.58 and 1813.33 ± 500 seconds of arc respectively. On inducing ~~with~~ against the rule astigmatic anisometropia (by adding a negative cylinder X 180) of 1.0 D, 2.0 D and 3.0 D mean difference in line acuity was 1.5, 3.4 and 4.4 lines respectively. Mean stereopsis for 1.0 D, 2.0 D and 3.0 D anisometropia worsened to 130.90 ± 35.2, 372 ± 173.89 and 1680 ± 632.45 seconds of arc respectively. On inducing with the rule astigmatic anisometropia (by adding a negative cylinder X 90) of 1.0 D, 2.0 D and 3.0 D mean difference in line acuity was 1.1, 3.4 and 4.5 lines respectively. Mean stereopsis worsened to 84 ± 39.5, 294± 170.8 and 1530 ± 724. 56 seconds of arc respectively. On inducing oblique astigmatic anisometropia (negative cylinder X 45) of 1.0 D, 2.0 D and 3.0 D mean difference in line acuity was 1.3, 3.4 and 4.5 lines respectively. Mean stereopsis in 1.0D, 2.0 D and 3.0 D anisometropia worsened to 84 ± 35.1, 318± 179 and 1530 ± 724. 56 seconds of arc respectively. **Conclusion :** The Bagolini glasses and Worth 4 dot test may show binocularity despite a negative 4 prism diopter test in anisometropia. We suggest that an anisometropia of 3 or more diopters is significant for development of both loss of stereoacuity and bifoveal fixation.

INTRODUCTION

Anisometropia is a one of the etiological factors in the pathogenesis of amblyopia. The depth of amblyopia is related with the amount of anisometropia in previously untreated patients.[1] However, the data on the prevalence of anisometropia and its complications in children is rare and conflicting. [2-5] It has been recommended that (mentioned in AAO preferred practice patterns) beyond the age of 3 years a myopic anisometropia of more -2.0 D should be prescribed, a hyperopic anisometropia of more than +1.0 and astigmatism of 1.0 D should be prescribed.[6]

Microtropia is defined as a manifest deviation of less than 5° in which abnormal retinal correspondence (ARC) (giving rise to abnormal binocular single vision (ABSV)), normal motor fusion, and reduced or absent stereoacuity are found. In addition, amblyopia, a foveal suppression scotoma, and uniocular eccentric fixation are present and there is a close association with anisometropia.[7] Parks[8] introduced the term monofixation syndrome, to describe an absence of bifoveal fusion with maintenance of normal retinal correspondence (NRC) associated with an enlarged Panum's fusional area. Reduced stereopsis is an invariable finding in microtropia.[8]

The precise mechanism by which anisometropia causes a decrease in stereoacuity is not clear. It has been suggested that foveal suppression in the defocused eye is the cause of decreased stereopsis.[2] This decreased

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stereopsis whether it is secondary to loss of visual acuity or loss of bifoveal fixation is not known.

AIM OF THE PRESENT STUDY

1. To find out the result of 4 prism dioptre base out prism test on experimentally produced anisometropia
2. To find out the effect of induced anisometropia on stereopsis, Bagolini's glasses and Worth 4 dot test and its correlation.

MATERIALS AND METHODS

This experimental study was done on 10 medical students. All students had been spectacle corrected before and had a best corrected visual acuity of 6/6 (Snellen's chart) in both the eyes.

INCLUSION CRITERIA

1. 6/6 best corrected vision in both eyes and the participant must be having a stable refraction in last 6 months
2. Minimum stereopsis of 60 seconds of arc on TNO (Lameris, Bilstraat) random dot test.
3. Participants with bifoveal fixation were included in the study.

EXCLUSION CRITERIA

1. Participants with heterophoria >4 prism diopter were excluded from the study.
2. Participants with anisometropia (> 0.5 D sphere or cylinder) were excluded

Refraction of all patients was done by one of the investigators under 1% cyclopentolate on a prior date. Fogging technique was used to ensure that patients did not have excessive minus power. A trial frame was used to create the anisometropia with the experimental lens placed over the right eye. Four different types of anisometropia were induced, in random order, by placing trial lenses of 1-3 D over the right eye [1-3 D of hypermetropia, 1-3 D of myopia, unilateral astigmatism -1 to -3 D axis 90°, axis 180^0 and axis 45°]. For inducing a myopic anisometropia of 1.0 D, 2.0 D and 3.0 D a +1.0 D, +2.0 and +3.0 D was placed in front of the right eye and for anisohyperopia a -1.0, -2.0 and -3.0 D lens were used for inducing a hypermetropia of 1.0, 2.0 and 3.0 D. Visual acuity was tested using Snellen's chart. Normal room lighting was used for all sensory testing.

Bagolini lenses were used at reading distance with the striations oriented at 135^0 over one eye and 45^0 over the other. The patient was asked to fixate on a near spotlight and draw what he or she saw on a piece of paper. A normal binocular response was noted when the light was crossed by two stripes forming an X, with no portions missing.

The 4 prism dioptre base out prism test of Irvine-Jampolsky was used for the diagnosis of the presence or absence of bifoveal fixation. While a 4 prism was placed or removed before one eye, the observation of a fixation movement, in the direction of the prism's apex to make the image fall on fovea, was interpreted to be the presence of foveal fixation and the positive result for that eye. If no movement was present, there was not foveal fixation and the test was negative in that eye.[9,10]

Worth-four dot test for distance and near was used to assess if the patient had suppression scotoma. For Worth 4 Dot test (W4DT), red green glasses were worn by the patients over their corrective glasses. It was performed at a distance both for near and distance. The position of filters was exchanged to reveal the possibility of different responses caused by the red green filters. The results were same under both the conditions.

The stereoacuity was measured by using the TNO stereo test. The test was performed at a distance of 40 cm in the frontoparallel plane of the patient. The TNO test contains three screening plates (retinal disparity, Gross stereopsis or 1980 seconds of arc) and three quantitative plates (retinal disparities ranging from 15- 480 seconds of arc) as well as a suppression test. The normal value of stereoacuity was considered as 60 seconds of arc or better. Because random dot stereo tests consist of figures that are visible only in depth, they have been used for stereopsis.[11] Titmus test has been found to be unreliable due to its many monocular clues and was not used. [12-13]

RESULTS

Mean age was 18.6 $\pm$ 0.7 years (18-20 years).All the tests were carried out by single observer (JJ). 4 (40%) of participants did not have any refractive error. Mean stereopsis was 33$\pm$ 17.74 sec of arc (range 15- 60). 4 prism dioptre base out prism test was positive in all the participants in both eyes. (Table 01)

Hypermetropic anisometropia (Table 2)

Only 3 (30%) showed a deterioration of one line in the visual acuity in right eye on inducing a hypermetropic anisometropia of 1.0 diopter (D). Mean difference in line acuity was 0.3 lines. Mean stereopsis for -1.0 D anisometropia is 78 $\pm$ 37.94 seconds of arc. The stereoacuity worsened by a mean of 45 $\pm$ 34.6 seconds of arc. All participants had a positive 4 prism dioptre base out prism test. On inducing an hypermetropic

Table 1. Shows the normal distribution of the participants, their stereoacuity and spectacle correction

Participant number	Spectacle correction						Stereo in sec of arc
	RE			LE			
	Sph	Cyl	Axis	Sph	Cyl	Axis	
1	-2.75	0	0	-2.75	0	0	30
2	0	-0.75	180	0	-0.75	180	30
3	0	0	0	0	0	0	60
4	+1.0	0	0	+1.0	0	0	30
5	-1.0	0	0	-1.0	0	0	30
6	0	0	0	0	0	0	15
7	0	0	0	0	0	0	30
8	-2.0	0	0	-2.0	0	0	30
9	+1.5	0	0	+1.5	0	0	60
10	0	0	0	0	0	0	15

Table 2. Shows the results in participants, with induced **hypermetropic** anisometropia

	Induced anisometropia -1.0						Induced anisometropia -2.0						Induced anisometropia -3.0					
Subject number	Va	W4 DT	Stereo	Diff in stereo	Bagl	4 PD	Va	W4 DT	Stereo	Diff in stereo	Bagl	4 PD	Va	W4 DT	Stereo	Diff in stereo	Bagl	4 PD
1	6/6	N	120	90	fusion	+	6/9	N	480	450	fusion	+	6/12	N	1980	1950	fusion	+
2	6/9	N	60	30	fusion	+	6/12	N	60	30	fusion	+	6/12	N	1980	1950	fusion	-
3	6/6	N	60	0	fusion	+	6/9	N	240	180	fusion	+	6/18	N	Nil	N P	fusion	-
4	6/6	N	60	30	fusion	+	6/12	N	120	90	fusion	+	6/24	N	480	450	fusion	+
5	6/9	N	120	90	fusion	+	6/12	N	480	450	fusion	+	6/24	N	1980	1950	fusion	-
6	6/6	N	30	15	fusion	+	6/9	N	120	105	fusion	+	6/18	N	480	465	fusion	-
7	6/6	N	60	30	fusion	+	6/9	N	240	210	fusion	+	6/18	N	480	450	fusion	-
8	6/9	N	120	90	fusion	+	6/12	N	480	450	fusion	+	6/24	N	1980	1950	fusion	-
9	6/9	N	120	60	fusion	+	6/12	N	240	180	fusion	+	6/24	N	1980	1920	fusion	-
10	6/6	N	30	15	fusion	+	6/9	N	120	105	fusion	+	6/18	N	480	465	fusion	-

PD is prism diopters N is the normal response Va is visual acuity

Bagl is Bagolini's glasses Stereoacuity is in seconds of arc NP is not possible

Table 3. Shows the results in participants, with induced induced myopic anisometropia

	Induced anisometropia +1.0						Induced anisometropia +2.0						Induced anisometropia +3.0					
Subject number	Va	W4 DT	Stereo	Diff in Stereo	Bagl	4 PD	Va	W4 DT	Stereo	Diff in stereo	Bagl	4 PD	Va	W4 DT	Stereo	Diff in stereo	Bagl	4 PD
1	6/24	N	120	90	fusion	+	6/36	N	1980	1950	fusion	+	6/60	N	1980	1950	fusion	+
2	6/24	N	1980	1950	fusion	+	6/60	N	Nil	NP	fusion	-	4/60	N	Nil	NP	fusion	-
3	6/36	N	120	60	fusion	+	6/60	N	240	180	fusion	+	5/60	N	1980	1920	fusion	-
4	6/18	N	120	90	fusion	+	6/36	N	240	210	fusion	+	6/60	N	480	450	fusion	+
5	6/24	N	120	90	fusion	+	6/36	N	480	450	fusion	+	6/60	N	1980	1950	fusion	-
6	6/24	N	120	105	fusion	+	6/36	N	480	465	fusion	-	6/60	N	1980	1950	fusion	-
7	6/24	N	240	210	fusion	+	6/36	N	480	450	fusion	-	6/60	N	1980	1950	fusion	-
8	6/18	N	120	90	fusion	+	6/36	N	480	450	fusion	+	6/60	N	1980	1950	fusion	-
9	6/18	N	120	60	fusion	+	6/24	N	240	180	fusion	+	6/60	N	1980	1950	fusion	+
10	6/24	N	120	105	fusion	+	6/36	N	480	465	fusion	-	6/60	N	1980	1950	fusion	-

PD is prism diopters N is the normal response Va is visual acuity

Bagl is Bagolini's glasses Stereoacuity is in seconds of arc NP Not possible

Table 4 a Shows the results in participants, with induced against the rule astigmatic anisometropia

Subject number	Induced anisometropia -1.0 X 180						Induced anisometropia -2.0 X180						Induced anisometropia -3.0 X 180					
	Va	W4 DT	Stereo	Diff in stereo	Bagolini	4 PD	Va	W4 DT	Stereo	Diff in stereo	Bagolini	4 PD	Va	W4 DT	Stereo	Diff in stereo	Bagolini	4 PD
1	6/6	N	120	90	fusion	+ve	6/12	N	480	420	fusion	+ve	6/12	N	480	450	fusion	+ve
2	6/9	N	120	90	fusion	+ve	6/18	N	480	420	fusion	+ve	6/24	N	1980	1950	fusion	+ve
3	6/9	N	60	0	fusion	+ve	6/24	N	60	0	fusion	+ve	6/36	N	1980	1920	fusion	+ve
4	6/9	N	60	30	fusion	+ve	6/18	N	120	90	fusion	+ve	6/36	N	1980	1950	fusion	+ve
5	6/9	N	120	90	fusion	+ve	6/18	N	240	210	fusion	+ve	6/24	N	1980	1950	fusion	-ve
6	6/9	N	30	15	fusion	+ve	6/24	N	240	225	fusion	+ve	6/36	N	1980	1965	fusion	-ve
7	6/9	N	120	90	fusion	+ve	6/24	N	480	450	fusion	+ve	6/36	N	1980	1950	fusion	-ve
8	6/9	N	120	90	fusion	+ve	6/18	N	240	210	fusion	+ve	6/36	N	1980	1950	fusion	-ve
9	6/12	N	60	0	fusion	+ve	6/24	N	120	60	fusion	+ve	6/36	N	480	420	fusion	+ve
10	6/12	N	30	15	fusion	+ve	6/24	N	480	465	fusion	+ve	6/36	N	1980	1965	fusion	-ve

PD is prism diopters N is the normal response Va is visual acuity

Stereoacuity is in seconds of arc

Table 4 b. Shows the results in participants, with induced with the rule astigmatic anisometropia

Subject number	Induced anisometropia -1.0 X 90						Induced anisometropia -2.0 X 90						Induced anisometropia -3.0 X 90					
	Va	W4 DT	Stereo	Diff in Stereo	Bagolini	4 PD	Va	W4 DT	Stereo	Diff in Stereo	Bagolini	4 PD	Va	W4 DT	Stereo	Diff in Stereo	Bagolini	4 PD
1	6/6	N	120	90	fusion	+ve	6/12	N	480	450	fusion	+ve	6/12	N	480	450	fusion	+ve
2	6/9	N	60	30	fusion	+ve	6/18	N	480	450	fusion	+ve	6/24	N	1980	1950	fusion	+ve
3	6/9	N	60	0	fusion	+ve	6/24	N	120	60	fusion	+ve	6/36	N	1980	1920	fusion	+ve
4	6/9	N	60	30	fusion	+ve	6/18	N	120	90	fusion	+ve	6/36	N	1980	1950	fusion	+ve
5	6/12	N	120	90	fusion	+ve	6/18	N	480	450	fusion	+ve	6/24	N	1980	1950	fusion	-ve
6	6/12	N	30	15	fusion	+ve	6/24	N	480	465	fusion	+ve	6/36	N	480	465	fusion	-ve
7	6/12	N	60	30	fusion	+ve	6/24	N	480	450	fusion	+ve	6/36	N	1980	1950	fusion	-ve
8	6/12	N	120	90	fusion	+ve	6/18	N	480	450	fusion	+ve	6/24	N	1980	1950	fusion	-ve
9	6/12	N	60	0	fusion	+ve	6/24	N	120	60	fusion	+ve	6/36	N	480	420	fusion	+ve
10	6/12	N	30	15	fusion	+ve	6/24	N	480	465	fusion	+ve	6/36	N	1980	1965	fusion	-ve

PD is prism diopters N is the normal response Va is visual acuity

Stereoacuity is in seconds of arc

Table 4 c. Shows the results in participants, with induced oblique astigmatic anisometropia

Subject number	Induced anisometropia -1.0 X 45						Induced anisometropia -2.0 X 45						Induced anisometropia -3.0 X 45					
	Va	W4 DT	Stereo	Diff in Stereo	Bagolini	4 PD	Va	W4 DT	Stereo	Diff in Stereo	Bagolini	4 PD	Va	W4 DT	Stereo	Diff in Stereo	Bagolini	4 PD
1	6/6	N	120	90	fusion	+ve	6/12	N	480	450	fusion	+ve	6/12	N	480	450	fusion	+ve
2	6/9	N	120	90	fusion	+ve	6/18	N	480	450	fusion	+ve	6/24	N	1980	1950	fusion	+ve
3	6/9	N	60	0	fusion	+ve	6/24	N	60	0	fusion	+ve	6/36	N	1980	1920	fusion	+ve
4	6/9	N	60	30	fusion	+ve	6/18	N	120	90	fusion	+ve	6/36	N	1980	1950	fusion	+ve
5	6/9	N	120	90	fusion	+ve	6/18	N	240	210	fusion	+ve	6/24	N	1980	1950	fusion	-ve
6	6/12	N	60	45	fusion	+ve	6/24	N	480	465	fusion	+ve	6/36	N	480	465	fusion	-ve
7	6/12	N	120	90	fusion	+ve	6/24	N	480	450	fusion	+ve	6/36	N	1980	1950	Fusion	-ve
8	6/9	N	120	90	fusion	+ve	6/18	N	240	210	fusion	+ve	6/36	N	1980	1950	Fusion	-ve
9	6/12	N	60	0	fusion	+ve	6/24	N	120	60	fusion	+ve	6/36	N	480	420	Fusion	+ve
10	6/12	N	30	15	fusion	+ve	6/24	N	480	465	fusion	+ve	6/36	N	1980	1965	Fusion	-ve

PD is prism diopters N is the normal response Va is visual acuity

Stereoacuity is in seconds of arc

Table 5. Comparison of myopic, hypermetropic and astigmatic anisometropia in terms of loss of visual acuity (Mean difference in line acuity) and mean stereopsis

Hypermetropic anisometropia				Myopic-anisometropia			Astigmatic anisometropia			
	Line acuity	Mean Stereo acuity	Diff in stereo	Line Acuity	Mean Stereo acuity	Diff in stereo		Line acuity	Mean Stereo acuity	Diff in stereo
1 D	0.4	78	45 ± 34.6	3.8	133	285 ± 586.51	-1.0 X90	1.1	84	39 ± 36.9
							-1.0X180	1.5	131	51 ± 41.9
							-1.0X45	1.3	84	54 ± 40.1
2 D	1.5	258	225 ± 163.7	5.1	567	533.3 ± 546.7	-2.0X90	3.4	294	339 ± 185.9
							-2.0X180	3.4	372	255 ± 173.8
							-2.0X45	3.4	318	285± 190.8
3 D	3.1	1313	1283.33 ± 783.5	6.3	1813	1780 ± 498.8	-3.0X90	4.5	1680	1497 ± 726.1
							-3.0X180	4.4	1530	1647 ± 638.9
							-3.0X45	4.5	1530	1497 ± 726.1

Table 6. Comparison of myopic, hypermetropic and astigmatic anisometropia in terms of stereopsis and participants with negative 4 prism diopter test (n=10).

Hypermetropic anisometropia			Myopic anisometropia		Astigmatic anisometropia		
	Stereoacuity	4 PD test -ve	Stereoacuity	4 PD test -ve		Stereoacuity	4 PD test -ve
1 D	78	0	133	0	-1.0 X90	84	0
					-1.0X180	131	0
					-1.0X45	84	0
2 D	258	0	567	4	-2.0X90	294	0
					-2.0X180	372	0
					-2.0X45	318	0
3 D	1313	7	1813	7	-3.0X90	1680	5
					-3.0X180	1530	7
					-3.0X45	1530	5

anisometropia of 2.0 D the mean difference in line acuity was 1.5 lines. Mean stereopsis worsened to 258± 165.04 seconds of arc. The stereoacuity worsened by a mean of 225 ± 163.7 seconds of arc. All showed a positive 4 PD test. All of them had normal binocular response on bagolini's glasses and on Worth 4 dot test.

On inducing an anisometropia of 3.0 D the mean difference in line acuity was 3.1 lines. Mean stereopsis was 1313.33± 790.6 seconds of arc 9 participants. One had nil stereopsis. The stereoacuity worsened by a mean of 1283.33 ± 783.5 seconds of arc in 9 participants. Only 3 participants had 4 PD test positive. All of them however, had normal binocular response with Bagolini's glasses and Worth 4 dot test.

Myopic anisometropia (Table 3)

On inducing a myopic anisometropia of 1.0 diopter (D), mean difference in line acuity (reduced in right eye) was 3.8. Mean stereopsis for +1.0 D anisometropia is 133.33 ± 40 seconds of arc in the 9 participants. 1 (10%) only had gross stereopsis. The stereoacuity worsened by a mean of 285 ± 586.51 seconds of arc. All participants had a positive 4 prism dioptre base out prism test.

On inducing a myopic anisometropia of 2.0 D the mean difference (reduced in right eye) in line acuity was 5.1 lines. Mean stereopsis worsened to 390 ± 128.28 seconds of arc. One case did not have any stereopsis. One had only gross stereoacuity. The stereoacuity worsened by a mean of 533.3 ± 546.7 seconds of arc. 4 participants showed a negative 4 PD test. All of them had normal binocular response on Bagolini's glasses and a normal response on Worth 4 dot test.

On inducing an anisometropia of 3.0 D the mean difference (reduced in right eye) in line acuity was 6.3 lines. Only 1 participant had stereoacuity of 480 seconds of arc. Mean stereopsis worsened to 1813.33 ± 500 in 9 participants. 1 participant did not have any stereopsis. The stereoacuity worsened by a mean of 1780 ± 498.8 seconds of arc. All of them however, had normal binocular response on Bagolini's glasses and a normal response on Worth 4 dot test. 7 (70%) participants had 4 prism dioptre base out prism test negative.

Astigmatic anisometropia (Table 4)

a. Against the rule (ATR) (by adding a negative cylinder X 180) (Table 4a)

On inducing the astigmatic anisometropia (ATR) of 1.0 D mean difference in line acuity (reduced in right eye) was 1.5 lines. Mean stereopsis for 1.0 D anisometropia is 130.90 ± 35.2 seconds of arc. The stereoacuity worsened by a mean of 51 ± 41.9 seconds of arc. All participants had a positive 4 PD (prism diopter) test positive.

On inducing an anisometropia of 2.0 D the mean difference in line acuity (reduced in right eye) was 3.4 lines. Mean stereopsis worsened to 372 ± 173.89 seconds of arc. The stereoacuity worsened by a mean of 255 ± 173.8 seconds of arc. All showed a positive 4 PD test. All of them had normal binocular response on Bagolini's glasses and a normal response on Worth 4 dot test.

On inducing an anisometropia of 3.0 D the mean difference in line acuity (reduced in right eye) was 4.4 lines. 3 (30%) participants had stereoacuity of 480 seconds of arc. Mean stereopsis worsened to 1680 ± 632.45 seconds of arc. The stereoacuity worsened by a mean of 1647 ± 638.9 seconds of arc. All of them however, had normal binocular response on Bagolini's glasses and Worth 4 dot test. 7 (70%) participants had 4 prism dioptre base out prism test negative.

b. With the rule (WTR) (negative cylinder X 90) (Table 4b)

On inducing the astigmatic anisometropia (WTR) of 1.0 D mean difference in line acuity (reduced in right eye) was 1.1 lines. Mean stereopsis for 1.0 D anisometropia is 84 ± 39.5 seconds of arc. The stereoacuity worsened by a mean of 39 ± 36.9 seconds of arc. All participants had a 4 prism dioptre base out prism test positive.

On inducing an anisometropia of 2.0 D the mean difference in line acuity (reduced in right eye) was 3.4 lines. Mean stereopsis worsened to 294 ± 170.8 seconds of arc. The stereoacuity worsened by a mean of 339 ± 185.9 seconds of arc. All showed a positive 4 PD test. All of them had normal binocular response on Bagolini's glasses and Worth 4 dot test.

On inducing an anisometropia of 3.0 D the mean difference in line acuity (reduced in right eye) was 4.5 lines. 2 (20%) participants had stereoacuity of 480 seconds of arc. Mean stereopsis worsened to 1530 ± 724. 56 seconds of arc. The stereoacuity worsened by a mean of 1497 ± 726.1 seconds of arc. All of them however, had normal binocular response on Bagolini's glasses and Worth 4 dot test. 5 (50%) participants had 4 prism dioptre base out prism test negative.

c. Oblique astigmatism (negative cylinder X 45) (Table 4 c)

On inducing the astigmatic anisometropia of 1.0 D mean difference in line acuity (reduced in right eye) was 1.3 lines. Mean stereopsis for 1.0 D anisometropia is 84 ± 35.1 seconds of arc. The stereoacuity worsened by a mean of 54 ± 40.1 seconds of arc. All participants had a 4 prism dioptre base out prism test positive.

On inducing an anisometropia of 2.0 D the mean difference in line acuity (reduced in right eye) was 3.4 lines. Mean stereopsis worsened to 318 ± 179 seconds of arc. The stereoacuity worsened by a mean of 285 ± 190.8 seconds of arc. All showed a positive 4 PD test. All of them had normal binocular response on Bagolini's glasses and Worth 4 dot test.

On inducing an anisometropia of 3.0 D the mean difference in line acuity (reduced in right eye) was 4.5 lines. 3 (30%) participants had stereoacuity of 480 seconds of arc Mean stereopsis worsened to 1530 ± 724. 56 seconds of arc. The stereoacuity worsened by a mean of 1497 ± 726.1 seconds of arc. All of them however, had normal binocular response on Bagolini's glasses and Worth 4 dot test. 5 (50%) participants had 4 PD test negative.

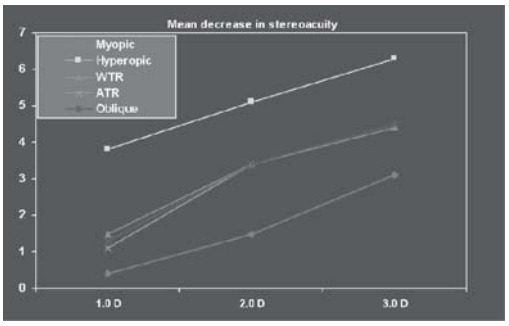

Figure 1a. Line diagram showing the distribution of decrease in line acuity in relation to the type and amount of anisometropia induced. Note that the decrease is linear in the entire group but is higher in induced anisomyopic group

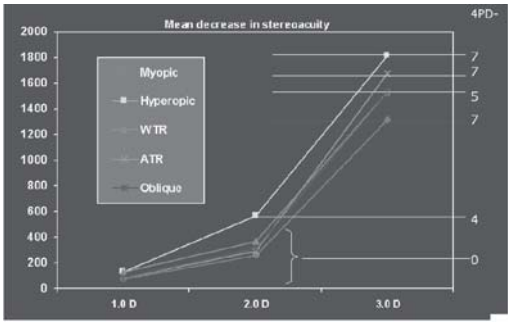

Figure 1b. Line diagram showing the distribution of decrease in stereoacuity in relation to the type and amount of anisometropia induced. Also, the number of participants that had 4PD test negative at various levels is indicated. Note that the decrease is steep once it crosses the 2.0 D. No such steep rise is seen in Figure 1a

DISCUSSION

The precise mechanism by which anisometropia causes a decrease in stereoacuity is not clear. It has been suggested that foveal suppression in the defocused eye is the cause of decreased stereopsis.[2, 5] However, other factors such as contrast and density of fusional details may also play an important role.[14] Oguz and Oguz [5] found that the extent of foveal suppression depends directly on the degree of anisometropia. Our data suggests that the loss of visual acuity in hypermetropic anisometropia is less compared to myopic anisometropia (Table 05). The loss of visual acuity is linear (Figure 1a), There was co-relation between stereoacuity and vision although it was not statistically significant. In the myopic induced anisometropia, the loss of line acuity (reduced in right eye) is higher but the loss of stereoacuity is not different from other groups (Table 05). (Figure 1a and b)

It was found that 4 prism dioptre base out prism test becomes negative (loss of bifoveal fixation) once the anisometropia increases to more than 3 diopters. In anisomyopic group this change was noted at 2 diopters in 4 participants. This implies that the participants started losing bifoveal fixation once the anisometropia was > 3 D. (Figure 1b) Therefore, patients with anisometropia $\geq$ 3 D are at a higher risk of developing amblyopia, owing to loss of bifoveal fixation, if these results can be extrapolated on kids. Scott and Mash suggested that bifoveal fixation is required to achieve 40 seconds of arc of stereoacuity or better.[9] Our data suggests that once the stereoacuity is worse than 480 seconds of arc bifoveal fixation can be questioned and may be absent. (Figure 1b)

The loss of stereoacuity could be secondary to optical blur posed by the anisometropia. This may be disrupting the bifoveal fusion. However, the Bagolini and W4DT are not affected by the optical blur and have a positive or normal response.

There is disagreement regarding whether the depth of amblyopia correlates with the difference in refraction in 2 eyes. In a series of 29 patients with primary microtropia,[15] 54% had stereopsis of 400" of arc or less, while 42% demonstrated between 100 and 400" of arc using non-random dot tests. With random dot tests 100% of these patients demonstrated stereo-negativity. [15] Stereoacuity is more sensitive to unilateral changes than bilateral symmetrical changes in the visual acuity within the 20/ 20 to 20/40 range. [10, 16] Brooks et al [17] found that anisometropic patients have peripheral binocular response as measured by Bagolini's glasses. Our data is in agreement with these studies since all our patients' demonstrated normal binocular response with Bagolini's glasses even in absence of stereoacuity and negative 4 PD test.

The findings and results of this study could not be directly applied to children with anisometropia. All the participants seen were adults and a normal developed (mature) retinal system. Also, these participants did not have any adaptation time for anisometropia. This would vary widely in children who may be able to adapt to anisometropia and may escape monofixation or amblyopia.

CONCLUSION

We believe that the loss of visual acuity is more with the induced myopic (hypermetropic blur) anisometropia. The effect of this is neither on the stereoacuity nor on the bifoveal fixation. Also the response of Bagolini and Worth 4 dot test shows binocular response despite negative 4 prism diopter base out prism test. A stereoacuity worse than 480 seconds of arc is indicative of loss of bifoveal fixation. We suggest that an anisometropia of 3 or more diopters should be considered as significant for development of both loss of stereoacuity and bifoveal fixation.

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ORIGINAL ARTICLE

Proximal humerus fractures treated using the Deltoid-Splitting Approach

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KEY WORDS : Proximal humerus – deltoid splitting – fracture

ABSTRACT

Introduction : Treatment of proximal humerus fractures is routinely done using a deltopectoral approach, however the deltoid splitting exposure also provides a comparable if not better alternative for treatment of these complex fractures where there is a retracted greater tuberosity fragment. **Material and Methods :** We present a study of patients having proximal humerus fractures operated using the deltoid splitting approach with fixation using locking plates for proximal humerus. The patients were evaluated using radiographs and clinically using the Constant shoulder score. **Results :** 25 patients were operated in a 3years period. Neer classification was used. There were no significant adverse complications regarding axillary nerve palsy as previously thought by literature. There were no nonunions. There was a progressive increase in the Constant shoulder score during the follow up period with a mean of 77. Younger patients had a better Constant score as compared to the elderly. **Conclusion :** Deltoid-splitting approach is a good alternative to the standard deltopectoral approach when fixing proximal humerus fractures. It is a safe approach and if the axillary nerve is well protected and identified, it does not amount to an increased rate of complications. The displaced greater tuberosity can be easily reduced and plate fixation on the lateral aspect of the proximal humerus is easier than the classic deltopectoral approach.

INTRODUCTION

Displaced complex Proximal humeral fractures are commonly treated by open reduction and internal fixation using the deltopectoral approach.[1,2,3] However this approach causes extensive soft tissue stripping and in fractures involving a displaced greater tuberosity the reduction is also difficult. Prolonged retraction during surgery may cause ischemia to the deltoid muscle as well as extensive damage to the soft tissue may increase the risk of avascular necrosis of the already injured bone fragments. Hypothetical injury to the axillary nerve was one of the reasons for the less utilization of this approach to fix these fractures in the past. In recent literature there has been a shift towards the deltoid splitting approach for the fixation of proximal humeral fractures due to the increased visualization of the posterior fragments as well as the less amount of soft tissue stripping.[4] We used the deltoid splitting approach to evaluate the feasibility and outcomes as regards to axillary nerve injury, complications and functional deficits.

MATERIAL AND METHODS

Over a 3 years period spanning from 2010 to 2012 we treated 32 patients at our institute using the deltoid splitting approach out of which 25 patients were included in the study. All patients were operated using the deltoid splitting approach and fixation of the fractures was done using locking proximal humerus plates. Patients were then evaluated radiologically and clinically at set intervals.

SURGICAL TECHNIQUE

All patients were operated in the supine position under regional or general anaesthesia. The patients were administered broad spectrum antibiotics before induction and were continued for 48 hrs postoperatively. A vertical incision in line with the humeral shaft was put from the lateral border of the acromion to 10 -12 cm distally. The deltoid muscle was split in line with the humeral shaft for a distance of 3 cm proximally. The subacromion bursa was identified and vertically divided. A finger was inserted along the under surface of the deltoid through the split and the axillary nerve location was identified by palpating along the under surface of the deltoid. The axillary nerve is located generally at a distance of 5-7 cms from the tip of the acromion.[5,7] Using the finger as a guide the deltoid was split above and below the nerve keeping a cuff of 1 cm of deltoid muscle over the axillary nerve. This created two windows, one proximal to the nerve and one distal to the nerve. Through the proximal window the reduction of the fragments was carried out while the distal window was

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used for fixing the plate to the shaft of the Humerus. Through the proximal window the tuberosities was tagged using ethibond No. 2 to control them and help during reduction. After appropriate maneuvers to reduce the fracture with help of k-wire by which provionaly fix the fracture, they were fixed using locking proximal humerus plates passed underneath the axillary nerve. Under fluoroscopic control screws were inserted post reduction of the fracture. Post fracture stabilization further fluoroscopy was used to determine that none of the screws were perforating the articular margin as well as the stability of the fracture reduction during different movements.

EVALUATION

All fractures were classified according to Neer classification.[8] All patients were followed up at 1 month 2 month 4 month 6 and 1 yr follow ups. Standard AP in neutral rotation x-rays and transaxillary lateral x-rays were taken. Radiographs were evaluated for union, loss of reduction, implant penetration loosening, pullout or breakage. Surgical and other general complications such as wound infections or soft tissue problems like frozen shoulder, impingement and nerve palsies were evaluated. The Constant shoulder score was used to evaluate functional recovery of the patients and grading was done by comparing with the normal side.[9]

RESULTS

A total of 32 patients were operated between 2010 to 2012. 7 patients lost to follow-up due to migration to other places or refusal to come for follow-up, were not included in the study giving us 25 patients for the results. Patient mean age was 45 years with sex distribution of 16 males and 9 females. Fall at home 60% followed by vehicular accidents 40% were the common causes of fractures. The dominant extremity (64%) was more affected then the non dominant extremity. No patient had bilateral proximal humeral fractures. The Neer classification system for proximal humerus was used to classify the fractures. 8 patients were type 2(32%) , 14 patients (56%) type 3, 3 patients were type 4 (12%). The most common was the 3 part fracture with displacement of the greater tuberosity.

Total patients

Sex	Number	Percentage
Male	14	64
Female	9	36
Total	25	100

NEER TYPE 2

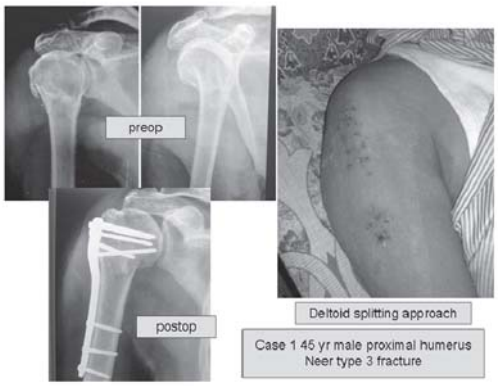
Sex	Number	Percentage
Male	5	62.5
Female	3	37.5
Total	8	100

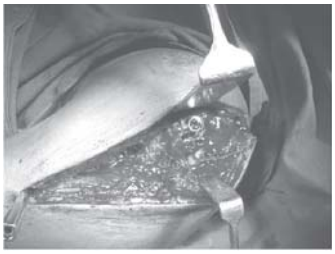
NEER TYPE 3

Sex	Number	Percentage
Male	9	65
Female	5	35
Total	14	100

NEER TYPE 4

Sex	Number	Percentage
Male	2	66.7
Female	1	33.3
Total	3	100





The deltoid splitting approach showing the plate underneath the axillary nerve (another patient)

Complications

1 patient had penetration of the screw into the joint which required removal of the screw. There were no cases where complete removal of all the screws and plate was done.

2 patients has superficial infection during the early postoperative period which resolved with the use of proper cultures and antibiotics with no recurrence in the follow up stages

3 patients developed postoperative varus deformation however all of them went for complete unions

FUNCTIONAL OUTCOMES

No nonunions occurred during the follow-up in this series of patients. One patient had delayed union however at 1 yr follow-up this fracture was healed.

No patient developed significant deltoid wasting. No patient had axillary nerve palsy as assessed by neurological examination. Over all the mean Constant shoulder score improved significantly during the follow-up periods with significant improvements during the follow-up at 6 months and 1 yr. average union time 6 months According to grading by the Constant shoulder score 12 patients had excellent, 9 patients good and 3 patients fair outcomes.

The mean Constant score was 77. Patients without any complication reached a significantly higher Constant score compared with patients suffering for at least 1 complication. 88% of patients had returned to their pre-injury occupation by the time of 1 yr follow-up.

DISCUSSION

The outcome of any fracture surgery depends upon stability and accuracy of the reduction. This can only be possible when there is good direct visualization of the displaced fragments. The conventional deltopectoral approach though offering a direct view of the lateral surface of the humerus is not able to offer a direct access to the posteriorly displaced greater tuberosity leading to a compromised reduction. The direct view provided by the deltoid splitting approach overcomes this difficulty offering a chance for accurate reduction and fixation of the displace fragments. The visualization of the lateral surface of the humerus is hampered by the crossing axillary nerve, however by making two windows above and below it and protecting the nerve by a cuff of muscular tissue prevents the nerve from being damaged and also provides adequate space to carry out definitive fixation. We were concerned that retraction of the nerve for fixation of the plate may lead to paresis of the deltoid muscle due to axillary nerve injury. However in this study there were no incidences of nerve palsy or significant muscle weakness following the procedure. Clinical examination and testing for sensory deficits and motor power following the procedure did not reveal significant adverse functional results. Initially the deltoid function was weak due to pain of surgical trauma, but by the time of six months the function was almost comparable to the normal side.

Limitation of the study was the relatively small number of patients and there was no direct comparison with patients treated with a standard deltopectoral approach. Future randomized controlled studies comparing the two approaches with similar implants and similar type of fractures would be of benefit. Also this approach has clinical application in the form of minimal invasive plating and fixation of fractures of this region.[10,11]

In conclusion the deltoid splitting approach is a useful alternative to the conventional deltopectoral approach. It provides good visualization of the fractures and does not hamper reduction. There are no significant complications as regards to nerve injury and functional disabilities if done properly with adequate care to identify and isolate the axillary nerve.

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ORIGINAL ARTICLE

A self made diagram and personalized grading for preoperative surgical planning of technique of phacoemulsification.

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KEY WORDS : Self made diagram ,cataract grading

ABSTRACT

Aim: To explore a simple method of assessment of cataract via a self made diagram for pre-operative evaluation and henceforth to choose and tailor technique of phacoemulsification best suited to the cataract. **Material and Methods :** 50 cases of cataract were enrolled for the study.Ineach case a self made diagram was made and nuclear sclerosis was graded.The diagram was used for preoperative planning of technique of phacoemulsification. Phacoemulsification was performed in each case. **Observations :** Phacoemulsification was successful in all cases with good visual outcome. **Conclusion :** We have presented a self made diagram for grading of nuclear sclersis which compliments other grading systems and is useful for planning technique of phacoemulsifiucation and its power modulation.

INTRODUCTION

Phacoemulsification is the technique of choice for cataract surgery today and is suitable for all kinds of cataract grading.

A plethora of techniques are available for cataract phacoemulsification. Grading of cataract is essential for power modulation and choice of technique in phacoemulsification.

The Lens Opacities Classification System III (LOCS III) and the Oxford Clinical Cataract Classification and Grading System(OCCCGS)represent some of the cataract grading systems.[1,2]We have devised a simple diagrammatic representation and grading of the cataract pre operatively. It has economic and practical value especially in primary care hospital of less developed districts. Clinical trial shows that it performs well and is easy to use.

AIM

To explore a simple method of assessment of cataract via a self made diagram for pre-operative evaluation and henceforth to choose and tailor technique of phacoemulsification best suited to the cataract.

MATERIAL AND METHODS

Fifty cases (24 males) & (26 Females) with visually significant cataract were enrolled. The study was carried out at M&J Institute of Ophthalmology ,Ahmedabad from May 2014 to September 2014.

Ethical approval was obtained from the institutional review board. Informed consent was obtained from each enrolled subject for the surgery.

The mean age was 59.7 + 15.3 Years old. These cases had various Nuclear densities(2-4) and Posterior Subcapsular, Cortical and Capsular opacities.(Table 1)

Patients with ocular co-morbidities as Glaucoma, Anterior Uveitis, Retinal Detachment were excluded from the study. Patients with purely capsular and subcapsular cataract and no nuclear sclerosis were excluded from the study.

The pre operative BCVA was between light perception and 6/12. The cases had no other ophthalmic diseases

Drawing of Diagram and Proposed Cataract Grading:

Paper and pencil were taken. A diagram was drawn stepwise after making a slit(width-75micrometers) &angle between viewing and illuminating arms 30 degrees to mark the nuclear sclerosis(NS).

Retro illumination was used for post subcapsular and capsular & cortical opacities.

The nuclear sclerosis was marked on the diagram.

The diagram is drawn to scale .

Pupillary dilation was ensured while making the diagram.

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A pencil and plain paper was used for the sketch. The color pencil was used to mark the cataract.

Cataract	Pencil Color (Camlin ,kokoyu Camlin Ltd.)
White=NS1+	None
Yellow=NS2+	Yellow
Amber=NS3+	Brown
Brown=NS4+	Black

A Simple ruler is placed to gauge the diagram.

Another diagram against the red glow was made to mark cortical, Subcapsular & capsular opacities and to get an idea of the glow we may expect at the time of surgery.

After drawing the diagrams the following grading was proposed.The nuclear density increases from anterior to posterior so most cataracts could be fitted into a dual grading with a lower grade anteriorly

and a higher grade posteriorly . This dual grading is unique to our work and helps in phacoemulsification technique intraoperatively .The surgeon uses greater power posteriorly while sculpting than anteriorly.

Proposed Grading of Cataract(Nuclear Sclerosis):

Nuclear Sclerosis 1+

Nuclear Sclerosis 1+/2+

Nuclear Sclerosis2+/3+

Nuclear Sclerosis3+/4+

Nuclear sclerosis4+

After drawing the diagram and grading cataract the best technique for phacoemulsification was chosen pre operatively.

The operating surgeons had following choices:

Grading of Nucleus	Technique of Phacoemulsification
NS1+	Chip and flip
NS1+/NS2+	Horizontal chop
NS2+/NS3+	Horizontal chop
NS3+/NS4+	Vertical chop
NS4+	Vertical chop

Surgical Technique.

0.8% tropicamide , 5% phenylephrine, 0.03%Flurbiprofen drops were given 4 times in one hour before surgery to dilate pupil and stabilize the blood aqueous barrier.

Phacoemulsificaton was performed as per the technique chosen pre-operatively (subjective to operating surgeon's comfort) on basis of nuclear grading diagram.

The mean operation time , ultrasound time and power ,volume of irrigation fluid were documented intra-operatively . The grading diagram of cataract was helpful in the choice of technique. The technique was useful in removing the nucleus and in power modulation intra-operatively. No serious intra-operative complication was found.

The visual acuity and slit lamp examination were done at 1 day, 3 day, i week, 1 month ,6 months and 1 year after operation. Corneal endothelial cell was measured at 1 month post operatively.

Best corrected visual acuity was 6/6 to 6/9 at one week postoperatively. The ultrasound time , ultrasound power , volume of irrigating fluid required and corneal endothelial loss were within permissible standards.

Post Operative care & Follow up.

Post Operatively topical steroids, antibiotics, non steroidal anti-inflammatory drugs and lubricating eye drops were prescribed for 6 weeks. Follow up reviews were done at 1day,3 day, 1 week, 1 month, 1 year after operation. The visual acuity, corneal clarity, pupil size and reaction were observed. Corneal endothelial cell was measured at one month post operatively.

Table I : Background Demographics

Parameters	Cataract group
n	50
Gender (M/F)	23/27
Age (a){mean)	63.56years(50yrs-75yrs)
Nuclear sclerosis 1+/2+	5(10%)
Nuclear sclerosis 2+/3+	21(42%)
Nuclear sclerosis 3+/4+	19(38%)
Nuclear sclerosis 4+	5(10%)

Table II: Operation parameters

Parameters	Cataract Group
Operation time (minutes)	20.5 +/- 5.4
Ultrasound Time(seconds)	16.4 +/-5.2
Ultrasound power (%)	15.4 +/- 4.5
Volume of irrigation fluid (ml)	150 +/-20.5

Figure I : Nuclear Sclerosis 1+/2+

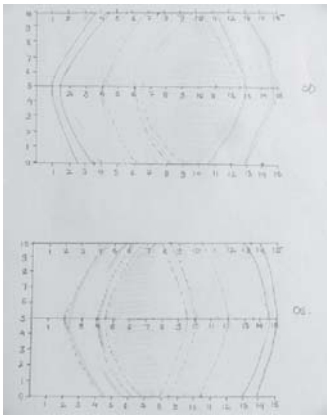


Figure II: Nuclear sclerosis2+/3+

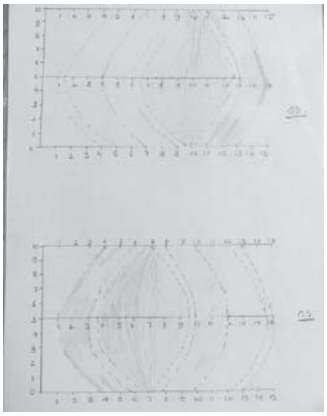


Figure III: Nuclear Sclerosis 3+/4+

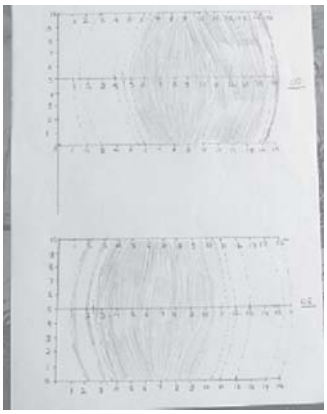
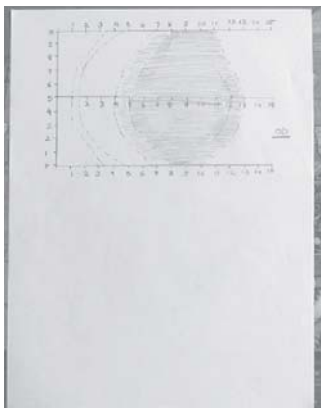


Figure IV : Nuclear Sclerosis 4+



OBSERVATIONS/RESULTS

The self made diagram was made for all cases pre-operatively (Figures I to IV) .There were no intra-operative or post-operative complication.

The inflammation was minimal post-operatively and responded promptly to tropical steroids. Visual rehablitation was rapid in most eyes.

Table I shows the background demographics. Table II shows the operation parameters.The operation parameters were within permissible standards.

DISCUSSION

A self made diagram of nuclear grading is essential for pre-operative technique planning and power modulation at time of surgery. Several methods have been used to grade and classify cataract.

The phacoemulsification was successful in all patients with great visual acuity Post-operatively.

The method is simple, cost effective for grading of cataract and is useful for beginner phacoemulsification surgeons also.

The LOCS III and OCCCGS are useful systems of cataract grading.[1,2]The LOCS is based on photographs which may not be readily available and the cataracts may not all correspond to the photographs as every eye is unique.

Sharma et al have reported a simple accurate method of cataract classification.[3]

Our method compliments the other methods of cataract grading and is not an attempt to disqualify

other methods of grading.

CONCLUSION

Our self made diagram made the surgeon focussed completely on nuclear grading and type of cataract and choice of surgical technique preoperatively. It was clinically found to be very useful.

It is simple and has economic and practical value especially in primary care hospitals where slit lamp photo graphs mey noi be available.It is also useful for the beginner phaco surgeon to plan his surgery and technique to have great post operative rests.

It represents a new paradigm in Cataract grading and classification.

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ORIGINAL ARTICLE

Premenstrual Dysphoric Disorder In Adolescent Girls In Western India

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KEY WORDS : premenstrual dysphoric disorder, comorbid depression, adolescent girls

ABSTRACT

Premenstrual dysphoric disorder is characterized by a variety of somatic, emotional and behavioral symptoms that manifest during the final week of the menstrual cycle before the onset of menses, start to improve within a few days after the onset of menses and are minimal or absent during the second half of follicular phase. **Aims:** To study the prevalence, severity and symptom profile of premenstrual dysphoric disorder in adolescent girls and to assess comorbid depression among them. Materials and methods: The sample comprised of 221 girls of standard 8th to 12th from 5 schools of urban Ahmedabad. The study was conducted in 2013 using the specifically designed premenstrual assessment form based on DSM 4. Comorbid depression was assessed using Hamilton Depression Rating Scale. **Results:** Prevalence of Premenstrual dysphoric disorder was found to be 12.22% with all of them showing work impairment during the affected period. 18.52% of those having premenstrual dysphoric disorder had comorbid depression. **Conclusion:** The prevalence of undiagnosed premenstrual dysphoric disorder is quite high even among adolescent girls and is likely to add to their teenage turmoil. Early diagnosis, reassurance and management of symptoms will go a long way towards smoother passage of adolescence into stable adult identity formation.

INTRODUCTION

Menstruation has, since time immemorial, been surrounded by myths and various social customs.

In a country like India, often it is taken as a stigma to discuss the issues related to menstrual cycle. Let alone the social stigma, even medical science has not given premenstrual dysphoric disorder the importance it deserved. But if a large chunk of the female population is suffering from premenstrual dysphoric disorder, it is high time to study and manage it.

The conceptualization of premenstrual dysphoric disorder was not clear due to lack of concrete research. It was known by a number of names like premenstrual syndrome or late luteal phase dysphoric disorder or premenstrual tension. Questions were raised in the scientific research community as to whether the existence of premenstrual dysphoric disorder was real[1]. This added to the confusion of the adolescent female mind that was already trying to cope up with the simultaneous myriad biological, psychological, social and spiritual changes it was going through. There was no established and validated diagnosis that could be given to the premenstrual suffering which was very real to them.

Until DSM 4, premenstrual dysphoric disorder though not discarded, its symptoms were given in the appendix B as "Criterion set and axes provided for further study"[2]. It is a matter of happy coincidence that we utilized those research criteria for our study and later DSM 5 has given validity to premenstrual dysphoric disorder and included it as a valid diagnostic entity among mood disorders.

Irrespective of the age, PMS is a common problem faced by women. Although widely prevalent and having been studied well among young females and peri-menopausal females, it has not been studied well among adolescents. Especially in India there are no studies regarding the prevalence, severity of premenstrual dysphoric disorder and the symptom profile among adolescent girls. We have made an attempt to study the same in adolescent school going girls of urban Gujarat, western India.

(Background literature)

DSM has considered the existence of premenstrual mental and physical complaints all along its evolution. In DSM 3-R these symptoms comprised the 'late luteal phase dysphoric disorder' which had been included in the appendix A[3]. Later DSM 4 included it as 'premenstrual dysphoric disorder' in the appendix B as "Criterion set and axes provided for further study"[2]. It could be diagnosed on Axis 1 as Depressive Disorder Not Otherwise Specified but was not a separate diagnostic entity. Recently, DSM 5 recognized these symptoms to be a separate valid

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diagnostic entity among the mood disorders. Because of the adequate research, validation of the symptoms, severity and prevalence of premenstrual dysphoric disorder along with the functional impairment it caused, premenstrual dysphoric disorder has been put up among the list of psychiatric illnesses listed in DSM 5.

The symptoms start in the second half of the menstrual cycle, that is, during the luteal phase, reach a peak just before menstruation and decline post menses, that is, during the follicular phase. These symptoms should be present during atleast 5 cycles in the past year and should be severe enough to cause socio-occupational impairment. The symptoms of premenstrual dysphoric disorder could be conglomerated into three groups. They are abnormal mood (mood swings, irritability, anger, anxiety, weepiness, hypersensitivity or difficulty in concentration), abnormal behavior (marked changes in appetite like overeating or food cravings or decreased appetite; sleep disturbance as in hypersomnia or insomnia) and somatic complaints (weakness, lethargy, headache, body ache, leg cramps, breast tenderness, edema, sensation of bloating or weight gain).

There have been very minor changes between DSM 4 and DSM 5.The prominent psychological symptoms are marked affective lability (mood swings) and marked irritability and anger rather than depressed mood as mentioned in the previous criteria from DSM 4. Only the sequence of the criteria has been altered as per the severity and prevalence of the symptoms.

(Etiology)The etiology of the syndrome is controversial and has been extensively reviewed. It has been attributed to various factors like hormonal changes (altered luteinizing hormone pulse with an abnormally high estrogen to progesterone ratio, abnormalities in thyroid hormone, cortisol and prolactin), changes in neurotransmitters (prostaglandins, β-endorphins), alteration in diet (glucose and vitamins), drugs and lifestyle. Societal and personal attitude about menstruation and womanhood may be responsible. All these cause abnormality in hypothalamo-pituitary gonadal (HPG) axis that may result in mood disturbances.[4-8]

AIMS OF THE STUDY

- To study the prevalence of premenstrual dysphoric disorder in adolescent girls in urban Ahmedabad.
- To study the symptom profile of premenstrual dysphoric disorder in adolescent girls.
- To assess comorbid depression.

MATERIALS AND METHODS

The study was conducted in Ahmedabad city during January to March 2013. We approached 7 schools, met their principals and explained them the purpose of the study and gave them a brief introduction to premenstrual dysphoric disorder. Out of the 7 schools, 5 of them permitted us to conduct this study among the students of 8^{th} to 12^{th} standard. One of the schools refused due to inconvenience at their setup while the other one considered this subject to be too personal and embarrassing to discuss with the students. Adolescent girls ranging from 13 to 18 years of age were enrolled. Sample size obtained was 221.

The study was conducted school- wise in two sessions. During the first session the students were explained at length the symptoms of premenstrual dysphoric disorder and about the concept and purpose of the study. Also, maintaining the confidentiality of the details provided by the students was assured. The students were divided into batches of 35- 40. Following this introductory session, the students were handed over the proforma and were made to fill them along with an informed consent in batches of 5 and in presence of one of the team members so as to solve the queries, if arose, at any juncture.

The study was conducted with the help of a semi-structured proforma that included the socio-demographic data and specifically designed questionnaire for the diagnosis of premenstrual dysphoric disorder. The questionnaire comprised of 11 statements enquiring about the specific symptoms of PMDD based on DSM 4 criteria, where the subjects had to tick either yes or no. Comorbid depression was assessed using 21 item Hamilton Depression Rating Scale (HDRS) out of which the scores of 17 items are to be considered for rating. Out of these 9 items are scored on a scale of 0 to 2 and others on a scale of 0 to 4,making the possible score range 0 - 50. The cutoff score for depression on HDRS was 14.

Girls having medical illness or major psychiatric illness were excluded. Also those in whom menarche had not set in were obviously excluded.

RESULTS

The study included 221 school going adolescent girls. The age group included was 13 to 18 years with the mean age being 16 years. Out of them 84.62% were Hindus. All the subjects belonged to the urban society.

There was no significant difference in the cultural and socioeconomic background of the subjects.

The prevalence rate of premenstrual dysphoric disorder was found to be 12.22%, that is, 27 girls out of 221 suffered from premenstrual dysphoric disorder. All of these 27 girls who suffered from premenstrual dysphoric disorder showed work impairment during the affected period. The most prominent and prevalent symptom was found to be marked persistent irritability. It was present in 96.29% of the cases of premenstrual dysphoric disorder. The second most commonly found symptom was affective lability with frequent mood swings and feeling depressed. Though mood changes topped the list, a significant number of girls reported somatic complaints like lethargy, weakness, leg cramps, breast tenderness and headache as part of premenstrual dysphoric disorder. About 52% reported leg cramps, weakness and lethargy during the affected period while headache and breast tenderness was found to be present in about 30% of those having premenstrual dysphoric disorder. Sleep disturbance was found only in 1 female of the 27 and food craving was reported by about 43%.

Symptom profile of premenstrual dysphoric disorder

Symptoms	Prevalence Percentage
Persistent Irritability	96.3
Affective Lability	66.7
Weakness	51.9
Feeling Out Of Control	44.3
Headache	29.6
Anxiety	26

18.52%, that is, 5 out of 27 girls with premenstrual dysphoric disorder had comorbid depression with HDRS score ranging from 14 to 38 and mean HDRS score being 25.6.

DISCUSSION

According to DSM 4, about 80% of women report at least mild premenstrual symptoms, 20%–50% report moderate-to-severe premenstrual symptoms, and about 5% report severe symptoms for several days with impairment of functioning[3]. Epidemiological surveys too have confirmed these findings that as many as 75% of reproductive age women experience some symptoms attributed to the premenstrual phase of menstrual cycle. 25- 35% of the sufferers have mild to moderate difficulties while 5- 10% have grave discomfort due to premenstrual dysphoric disorder. [9, 10]

Frequency of premenstrual dysphoric disorder as per the results of this study was comparatively higher which does not confirm to the studies in the western world. Most of the previous studies have reported prevalence of premenstrual dysphoric disorder to be lower in contrast to the 12.22% reported in this study. Cohen et al. (2002) prospectively measured the prevalence of premenstrual symptoms in women aged 36–44 years and reported that 6.4% had premenstrual dysphoric disorder[11]. Rivera-Tovar & Frank (1990) reported 4.6% of 217 female university college students but did not assess other psychiatric disorders[12]. Steiner et al. (2011) reported a prevalence of premenstrual symptoms to be 8.3% among girls in the age group of 12- 18 years[13]. A study conducted in Pakistan among young college girls reported that 18.2% met the DSM-IV criteria for Premenstrual Dysphoric disorder[14]. Banerjee et al. (2000) followed the symptoms of 62 non-treatment-seeking women in India for two menstrual cycles and found 6.4% to meet the diagnosis of premenstrual dysphoric disorder[15].

The higher incidence of premenstrual dysphoric disorder in the India and Pakistan seem due to a low level of awareness and stigma related to menstruation which prevents women from reaching out to gain treatment benefits. Over the counter drugs and oral contraceptive pills reduce the severity and frequency of the symptoms of premenstrual dysphoric disorder. The disparity in the prevalence could also be a result of the disparity in the treatment seeking behavior of these women belonging to two different cultural and socioeconomic background.

A very recent study in the same part of the country by Brahmbhatt et al. (2013) revealed the prevalence of premenstrual symptoms among young girls and middle aged women to be 100% but the severity and number of symptoms varied. Young girls had a higher frequency of acne (54%), food cravings (38%) and pains, whereas mood swings were more common with middle aged women (48%).[16] Prevalence of mood swings though was comparable but the anxiety features were significantly higher (58%) as compared to the 26% in our study. Overall the frequency of somatic complaints was more than that of the abnormal mood and behavior in the study by Brahmbhatt et al. in contrast to our results which reported marked irritability as the most frequent symptom.

In the study from Pakistan the most frequently reported symptoms in premenstrual dysphoric disorder group were anger, anxiety, stress, depression, fatigue and general body discomfort, with anger, anxiety being the most frequent and body discomfort being the least frequent.[14]

The diagnosis of premenstrual dysphoric disorder requires the confirmation of impairment of social and/or work functioning that is due to premenstrual symptoms during the luteal phase. The severity of functional impairment reported by women with premenstrual dysphoric disorder is similar to the impairment reported in major depressive disorder and dysthymic disorder [17,18]. Bloch et al. (1997) identified anxiety, irritability and mood lability as the premenstrual symptoms most associated with functional impairment.[19] Women with premenstrual dysphoric disorder were more likely to endorse hours missed from work, impaired productivity, role limitations and lower functionality.[20] Borenstein et al. [21, 22] have published studies that report women with confirmed premenstrual dysphoric disorder have significantly lower quality of life, increased absenteeism from work, decreased work productivity, impaired relationships with others and increased visits to health providers, compared with control women. Small studies [23-25] of women with prospectively confirmed premenstrual dysphoric disorder as well as larger studies[26-27] of women diagnosed retrospectively of premenstrual dysphoric disorder have reported decreased interpersonal and work functioning and reduced quality of life in comparison with women without premenstrual dysphoric disorder. Women with moderate to premenstrual dysphoric disorder experience greater quality-of-life detriments and work productivity losses, and incur greater health care costs, than do women with no or only mild symptoms.[28]

Wittchen et al. have indicated a high comorbidity between premenstrual dysphoric disorder and other mood disorders (22.9%) in a community-based study[29]. Similar comorbidity rates were observed for PMS and major depression by Yonkers et al.[30]. In a U.S. population-based study, it was shown that women with menstrual problems were significantly more likely to report depression [31]. 18.52% of girls with premenstrual dysphoric disorder reported comorbid depression in our study. Though these findings are in urban adolescent girls, the prevalence is comparable to these community based studies among women of reproductive age group.

LIMITATIONS

The limitations of this study are that it does not include rural adolescent population and that comparison is not made with the middle aged or peri- menopausal women.

CONCLUSION

Premenstrual dysphoric disorder being included in DSM 5 will be substantially beneficial as it will encourage further research and clinical care to the female population having these cyclical disturbances. It has also validated this diagnosis and given credibility to the women having premenstrual complaints. No more can the existence of this group of symptoms be ignored or considered a myth. The affective and behavioral symptoms which were ridiculed in the past have been given clinical and diagnostic recognition. It is a real disorder and not merely a culture bound syndrome as it is prevalent among the reproductive female population, in all cultures in different parts of the world and in all age groups.

Premenstrual dysphoric disorder has been studied in adult population but not to a great extent among the adolescent girls. Onset of this disorder starts in the adolescence itself and remains throughout adulthood till menopause sets in. As a result it needs to be considered equally important to focus on the adolescents regarding their premenstrual distress. Providing them with adequate knowledge will help them step into adulthood with ease and without much distress.

The burden of PMDD results from the severity of symptoms, the chronic course of the disorder and the impairment in work and social functioning[32]. The discomfort and impairment caused can be markedly reduced with therapeutic interventions. With further research and increased awareness the treatment seeking behavior of these women can be raised, making their life smoother. They need not go through this cyclical physical and psychological distress. Their social functioning as well as work efficiency could be raised preventing the loss of working hours resulting from the distress. Gynecologists and psychiatrists, both can work together to reduce the morbidity related to premenstrual dysphoric disorder.

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INDIAN MEDICAL ASSOCIATION

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Dear Branch Secretary

I hope that this circular finds you in the best of health and spirit. In continuation of my circular **A-11/HFC/LM/2015-2016**, further tabulated information is given below for the revision of fees effective from **1/4/2015.** Herewith I am sending the copy of I.M.A. H/Q fee schedule regarding revised fees.

ORDINARY MEMBERSHIP FEES

CATEGORY	HFC	GMJ	GSB	ADM.FEE	TOTAL TO BE SENT TO GSB.IMA
Annual Single:	**391-00**	**25-00**	**10-00**	**20-00**	**446-00**
Annual Couple:	**586-00**	**38-00**	**20-00**	**30-00**	**674–00**

Local branch share to be collected extra as per individual branch decision/resolution Kindly note that fees at old
Rates will be accepted up to **30/03/2015.** only at State Office. Thereafter the new revised rates will be applicable.

LIFE MEMBERSHIP FEES

CATEGORY	TOTAL FEES	BR.SHAHRE	ADM.FEES INCLUDING GSB. IMA	TO BE SENT TO GSB. IMA
Single	**8045-00**	**750-00**	**{ 20-00 }**	**Rs. 7295-00**
Couple	**12000-00**	**1190-00**	**{ 30.00 }**	**Rs. 10810–00**

Kindly send fees of old annual member, which should reach this office before 30/4/2015. Membership Fees by a D.D. drawn in favour of G.S.B. I.M.A

I.M.A. COLLEGE OF GENERAL PRACTITIONERS

College of G.P Rs. 2000-00
Life Membership
Membership Fees along with Life Subscription of Family Medicine DD in favour of "IMA CGP HQ"
Payable at Chennai and send to us

Kindly send annual membership fees before **30/4/2015** so as to avoid deletion. The above increase of fee Rs. 50.00 in Life Member every year is computed as per the resolution passed in 41st State Council at Nadiad on 12/05/1989.

Yours Sincerely

(Dr. Jitendra N. Patel)
Hon. State Secretary

ORIGINAL ARTICLE

Comparative Study of Conservative Versus Operative Treatment of Lumbar Canal Stenosis

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KEY WORDS : Lumbar canal stenosis; Neurological claudication; Neurological involvement; Total laminectomy and decompression with medial facetectomy.

ABSTRACT

Introduction : Spinal stenosis is a narrowing of the spinal canal causing mechanical compression of spinal nerve roots resulting in radicular pain or atypical leg pain, neurogenic claudication or neurological deficit. Its management is always a dilemma between conservative and operative intervention. **Material and Method** : Study was carried out in Dhiraj General Hospital, Piparia, between 2009 to 2011 evaluating 76 patients on clinical, radiological and functional (JOA score) basis. **Observation :** Most of the patients belonged to 5th and 6th decade of life with female preponderance. Thus operative intervention has better outcome especially in severely affected patients. **Conclusion** : and summary Patients with walking distance <100 meters, standing time <10 minutes or lumbar canal anterioposterior diameter <7 mm required surgical intervention while those with walking distance >500 meters, standing time >30 minutes or can be treated conservatively. Neurological involvement at any stage warrants surgical intervention

INTRODUCTION

Backache has been the scourge of mankind ever since he assumed the erect posture. Degenerative disease of the spine is one of the commonest cause of low back pain in elderly. The life expectancy in India is 64.7 years (that of male of 63.2 years and female of 66.4 years). With increasing average life span amongst our population, this condition is becoming more prevalent in our population. It is more prevalent in females because of their longer life spans and higher prevalence of Osteoporosis and Osteomalacia.

Lumbar Canal Stenosis (LCS) is developmental or congenital narrowing of the spinal canal that produces compression of the neural elements before their exit from the neural foramen. The narrowing may be limited to a single motion segment or it may be more diffuse spanning two motion segments or more. The spinal canal demonstrates narrowing, attributed most frequently to acquired degenerative or arthritic changes such as hypertrophy of the articulations surrounding the canal, intervertebral disc herniation or bulges[1], hypertrophy of the ligamentum flavum, osteophytes formation and degenerative spondylolisthesis. The classic presentation of LCS is neurogenic claudication.[2]

Non-surgical treatment, such as physiotherapy, analgesic drugs and epidural steroids injection is effective in LCS with mild or occasionally moderate pain.[3] Failure of conservative treatment is an indicator to consider surgical intervention. Surgical treatment (laminectomy) is usually performed in patients with moderate-to-severe limitation and/or patients with progressive limitation of activities of daily living, and only after comparison between patients' complaints and clinical and radiological examinations.[4]

Need for the study: The treatment of LCS remains controversial as there are two very distinct schools of thoughts in treating LCS by operative and conservative. Hence our attempt in this study is to determine whether one method of treatment has distinct advantage over the other.

Aims and objectives:

To compare the end results obtained after treating patients of LCS by Conservative methods and Operative interventions.

To find out which treatment should be preferred in cases of LCS and find out the group of patients who benefited from either mode of treatment and also to observe recurrence of pain/symptoms with either treatment.

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MATERIAL AND METHOD

A study of 76 cases of LCS, which was carried out in the Department of Orthopaedics at Dhiraj General Hospital between 2009 to 2011 after consent.

- Case selection: Case selection was done on the basis of examination and findings.
- Inclusion criteria: Duration of symptoms >6 months

  Standing time <1 hour

  Walking distance <500 meters

  Positive symptoms of neurological claudication

  MRI evidence of significant canal stenosis
- Exclusion criteria: Duration of symptoms <6 months

  No neurological claudication

INVESTIGATIONS

Patients were thoroughly investigated for routine investigations, X-rays, Vitamin B12 assay and MRI

Scoring System : All patients undergoing operative or non operative intervention are evaluated as per the score of Japanese Orthopaedic Association (JOA) based on subjective symptoms, clinical signs, restriction in activities and urinary bladder function. In it minimum and maximum score are - 6 and 29 respectively. Higher score has better clinical condition.

Protocols: The patients having lumber canal diameter >11mm without neurological affection and with walking distance of >500 meters (having JOA score 15 or more) are subjected to conservative intervention while the others are operated.

OBSERVATION AND DISCUSSION

Out of the 76 patients, initially 58 patients were put on conservative protocol but 16 of them had to be operated later on due to either worsening of neurology. Hence total 34 patients were treated operatively.

Maximum number of patients were between 51-60 years (50%) in each group. Prevalence of this problem is higher in later part of middle age, as this group lives active life and degenerative changes of spine manifest.

In conservative group there were 36/42 (85.71%) female patients and in operative group there were 19/34 (55.88%) female patients. This may be attributed to involvement in household work in odd positions and poor ergonomics. Other factors attributing are obesity, lax of anterior abdominal muscles, lack of exercises and menopause.

35/42 (83.33%) patients in conservative group had mild back pain at time of presentation while 19/34 (55.89%) patients in operative group had severe back pain at time of presentation. None of the patients in operative group had mild back pain. Most of the presenting patients had radicular pain in both the groups. All patients in operative group had radicular pain while 7/58 (12.08%) patients in conservative group did not have radicular pain. 47/58 (81.04%) patients of conservative group were able to walk 100 meters or more. 16/34 (47.07%) patients of operative group had walking distance <100 meters which shows significant morbidity in this group. This suggests that patients with walking distance <100 meters required surgical intervention. 51/58 (87.92%) patients of conservative group were able to stand >10 minutes while in operative group 15/34 (44.12%) patients were unable to stand for >10 minutes.

42/76 (55.26%) patients in conservative group did not have any deficit at time of presentation. However 16 patients eventually had neurological worsening and hence underwent surgery. 9 of these 16 patients had deficit for within 6 months of conservative management.

3/34 (8.82%) patients in operative group had Vitamin B12 deficiency. Rest of the 31/34(91/17%) patients had normal Vitamin B12 level. Only 19/42(45.23%) patients in conservative group had B12 assay tested and just 1 of them was found to have deficiency.

All operative patients were subjected to MRI, however only 36/58(62.06%) conservatively treated patients got MRI done. Rest patients were not willing for MRI. 22/36(61.11) patients had >2 level involvement whereas in operative group 91.17% (31/34) had >2 level involvement.

Degenerative changes were seen at L4 and L5 level in all the patients however 25/76(32.89%) patients also had other segments involved.

A canal diameter of 11mm or less is pathognomic of LCS. In our study 67.6% (23/34) patients in operative group had canal diameter <7mm. While only 20.6% (12/58) patients in conservative group had canal diameter <7mm. This suggests that more the canal diameter constriction, more the chances that patient may require surgical intervention. It can be concluded that if canal diameter is <7 mm, surgical intervention would be required for decompression and relief from symptoms.

34/76(44.73%) Patients were treated with operative intervention, out of which Twelve patients had laminectomy with discectomy. Sixteen patients required medial facetectomy and ten patients with instability required posterior instrumentation and fixation with fusion. Under cutting of the facet was performed in all patients with lateral recess involvement. One patient in whom >3 level laminectomy and facetectomy was performed was also treated with Posterior pedicular screw fixation and fusion to avoid post operative instability. In our study majority of patients had no complication (80%). Minor dural tear were found in 6 patients. Only one of them required closure of tear with prolene 4.0. One patient had breakage of pedicle because of very thin circumference with maximum diameter of 5.2mm at L4 level. Screw level was changed to L5 level in that patient. Patient had no instability or deterioration in neurology post operatively.

Patients were followed for an average period of about 14 months post surgery. Majority of patients did not have any long term complications. Recurrence of symptoms was found in 5 out of 34 (14.7%) operative patients. 2 female patients had screw broken due to premature initiation of strenuous work. Fusion had failed in both these patients . .

There is no worsening in standing time and walking distance in operative group. Improvement is more marked in operative group as compared to conservative group.(Fig. I)

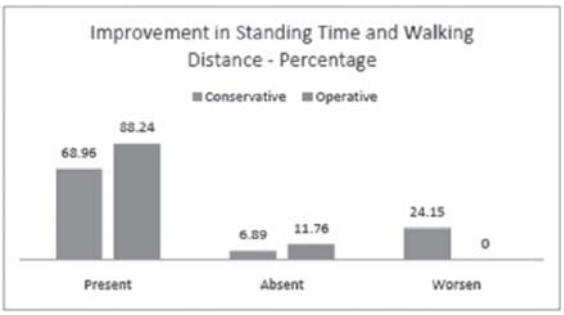

Fig. I - Improvement is more marked in operative group as compared to conservative group.

Only five patients in operative group have some persistence of pain. Four of them have mild to moderate variety of pain while the patient with broken pedicular screw has severe pain. In conservative group, twenty one patients have persistence of mild pain and six patients have moderately severe pain. None of the patients have persistence of severe pain(Fig. II).

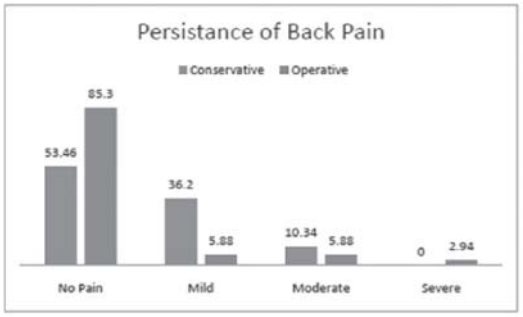

Fig. II - Persistance of Back Pain.

Only 4 patients in operative group have persistent radicular pain as compared to conservative group in which it is 20.

Pre treatment JOA score was found <10 in 33/34 (97%) patients in operative group. This suggests the more severity of clinical problems with which the patients presented. In conservative group the pre treatment score was found >10 in 35 patients and hence their severity of clinical problems were less as compared to operative group.(Table I)

44% patients in operative group have excellent results as compared to 26% patients in conservative group. Good improvement is found almost equal in both groups. 28% patients had poor outcome in conservative group as compared to 14% in operative group. (Table II)

In studies by Hall et al and Russin LA et al, after surgical treatment, good or excellent results and return to premorbid activity levels have been reported in 60 to 85% of cases[5]. The Maine Lumbar Spine Study prospectively compared surgical with medical treatment in 148 patients with lumbar stenosis and found at 1-year follow-up that 55% of the surgical group versus 28% of the medical group reported improvement in their symptoms[6]. In a more recent 4-year follow-up study in 119 of the same patients, 70% of the surgical group versus 52% of the medical group reported that their predominant symptom improved[7]. In addition, surgical treatment was associated with greater improvement in patient satisfaction (63%) than nonsurgical treatment (42%) at 4-year evaluation.

CONCLUSION AND SUMMARY

In our study of 76 cases of LCS, we treated 58 patients non-operatively and 34 (16+18) patients with surgical intervention. We concluded from our study that, LCS is seen most commonly in 5th to 6th decade of life with female preponderance. All the patients presented with back pain, radicular pain and/or neurological claudication Patients with walking

Table I - JOA Score:

	Conservative(58 patients)		Operative(34 patients	
JOA Score	Pre treatment	Post treatment	Pre operative	Post operative
-6 to 0	0	1	2	0
1 to 5	4	3	7	0
6 to 10	19	12	24	4
11 to 15	33	0	1	2
16 to 20	2	9	0	8
21 to 25	0	23	0	10
26 to 29	0	10	0	10

Table II - Percentage improvement in JOA score

Percentage Improvement		Conservative patients	Percentage (%)	Operative patients	Percentage (%)
>70	Excellent	15	25.88	15	44.13
45 – 70	Good	24	41.37	12	35.29
25 – 45	Fair	3	5.17	2	5.88
< 25	Poor	16	27.58	5	14.70
Total		58	100	34	100

distance <100 meters, standing time <10 minutes or lumbar canal anterioposterior diameter <7 mm required surgical intervention while those with walking distance >500 meters or standing time >30 minutes can be treated conservatively. Patients having neurological involvement should be subjected to operative intervention irrespective of presenting features and MRI findings.

The conservative protocol of management that is flexion/abdominal muscle strengthening with analgesics over a period of 3 months has shown good results if presenting JOA score was >15. However patients having JOA score <10 should be submitted surgery straight away. Decompression achieved with conventional laminectomy along with medial facetectomy gives complete relief from symptoms without causing instability and still remains treatment of choice. Patients having spondylolisthesis with instability of severe variety should be operated with decompression along with posterior instrumentation and fusion. 80% of patients in our series had successful posterolateral fusion. With proper patient selection both conservative and operative modality of treatment has comparable outcomes. However long term follow up of these patients is essential.

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ORIGINAL ARTICLE

Study of Effect of Neonatal Septicemia on Renal Function

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KEY WORDS : Septicemia, Neonate, ARF.

ABSTRACT

Introduction: Acute renal failure (ARF) is a common problem in the neonatal intensive care unit (NICU). In most cases, ARF is associated with other conditions such as sepsis, perinatal asphyxia and prematurity that could result in mortality and morbidity. **Aims & Objectives:** To study the occurrence of ARF complicating neonatal sepsis and effect of associated contributing factors. **Materials and methods:** Over a period of 1 year from January to December 2013, out of 449 studied cases with neonatal sepsis, ARF complicated 104 (23.2%) of neonates. All cases were assessed for gestational age, birth-weight, sex, Apgar score at birth, and other co-morbidities: nephrotoxic drugs, DIC, shock, maternal drug intake and mechanical ventilation. A full sepsis screen and evaluation of renal functions by estimating the urine output and BUN was carried out for all studied babies. Sepsis was diagnosed on the basis of either a positive sepsis screen (immature: total (I:T) neutrophil ratio > 0.2, μ -ESR > age in days + 2 mm or >15 mm, CRP> 0.6mg/dl, TLC<5000 cells/mm^3; 2 or more positive) or a positive blood culture in symptomatic neonates. ARF was defined as blood urea nitrogen (BUN) >45mg/dl on two separate occasions at least 24 hours apart. Oliguria was defined as urine output <1ml/Kg/hr. **Results:** Oliguric ARF was found in 13.5% of cases. The mortality rate was 51.9% (54 cases) in ARF compared to 26.3% (91 cases) in sepsis without ARF. A significantly higher number of babies with ARF weighed less than 2500 gm as compared to those without ARF.(87.5% Vs 65.2%, p<0.01). DIC and shock were significantly higher in ARF complicating neonatal sepsis (p<0.05,p<0.001). Perinatal asphyxia, mechanical ventilation and nephrotoxic drugs did not significantly increase the occurrence of ARF in septic neonates. Recovery from ARF occurred in 50 (48%) cases. **Conclusion:** ARF complicating neonatal sepsis occurred in 23.2% of our study cases. It was significantly increased in the lower birth-weight and gestational age neonates, DIC and shock.

INTRODUCTION

Sepsis remains a leading cause of morbidity and mortality among neonates in intensive care facilities[1]. Although the presence of multiple organ dysfunction and other co-morbidities certainly contributes to the high mortality[2]. Sepsis is characterized by a generalized inflammatory response and activation of the coagulation and fibrinolytic cascades, resulting in endothelial injury[3]. A broad array of humoral mediators are released in the systemic circulation, including cytokines, lipid mediators such as platelet activating factor and arachidonic acid metabolites, endothelin-1, and complement components. Systemic hypotension results in renal ischemia, and contributes significantly to the development of septic ARF. Intra-renal vasoconstriction, owing to an imbalance between vasodilatory and vasoconstrictory substances, results in a decline in renal blood flow (RBF) and abnormalities in intra-renal blood flow distribution[4]. ARF occurs in as many as 3.4% to 24% of neonates admitted to neonatal intensive care units (NICUs)[5,6,7].The cause of ARF in neonates is multifactorial, and usually there is one or more associated contributing factor[8]. .ARF independently increases morbidity and mortality[6]. ARF is characterized by decreased GFR and renal tubular function compared to normal values for post-conceptional age.

Acute Renal Failure (ARF) is a complex disorder with clinical manifestations ranging from mild dysfunction to complete anuric renal failure. ARF may be oliguric or non-oliguric, depending upon the severity of the reduction in GFR and the degree of tubular reabsorption. Most often, ARF is recognized because of oliguria, although non-oliguric neonatal ARF is being detected with increasing frequency. Normal urine output is found in approximately one-third of neonates with ARF, although low urine output may occur in the absence of ARF. So, if urine output alone

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is used to assess renal function, ARF often will be either overlooked or over-diagnosed. The mortality of oliguric neonatal renal failure may be as high as 60% in medical ARF and even higher in neonates with congenital heart disease, or with anomalies of the genitourinary system. In contrast, non-oliguric renal failure in neonates has an excellent prognosis[7].

The incidence of intrinsic oliguric ARF in newborn infants admitted to the NICU ranges between 1-6% in retrospective studies and 6-8% in prospective studies[6].

AIMS OF THE STUDY

In the following study, the aim was to evaluate the risk of occurrence of acute renal failure in cases of neonatal septicemia and to evaluate other contributing factors complicating ARF in these neonates.

MATERIALS AND METHODS

This prospective case- control study was carried out on the high risk neonates who were admitted to the neonatal intensive care unit at B.J. Medical College and Civil Hospital, a central tertiary level care hospital in Ahmedabad, Gujarat. All babies admitted to the NICU in the period from January 2013 to December 2013, who were suspected of having neonatal sepsis, whether early-onset (EOS) or late-onset (LOS) were assessed for the presence of acute renal failure. Babies who had neonatal sepsis and complicated by ARF (Group I) are compared to those controls with neonatal sepsis without acute renal failure (Group II). All cases were studied prospectively and selected on the basis of presence of indices of neonatal sepsis using the department guidelines of sepsis screen. All selected cases had a full clinical evaluation including assessment of gestational age, birth weight, sex, Apgar Score at birth, maternal medications as anti-hypertensives, ACE inhibitors e.g. captopril, age of onset of sepsis, and the use of nephrotoxic drugs. Assessment of gestational age was done using the Ballard scoring system for physical and neurological evaluation[11]. Birth weight was taken using an electronic scale measure for all studied cases on admission to the NICU. All sick and preterm babies (<37 weeks GA) are started on antibiotics, an aminoglycoside (amikacin) + β lactam(usually Ampicillin) from admission according to the guidelines of the department. Babies who received potentially nephrotoxic drugs such as indomethacin for patent ductus arteriosus (PDA) in preterm babies were also evaluated for renal functions.

Birth asphyxia was diagnosed if: Intrapartum fetal distress as assessed by the Apgar score <5 at 5 min of postnatal age, metabolic acidosis during 1st hour of age.

Venous samples were collected through a peripheral IV line and analyzed for a complete blood count (CBC), CRP, ESR and serum glucose; blood culture was collected from a separate peripheral IV site.

Urine quantification was done either by bag collection, or urethral catheterization in VLBW babies in which urine bag collection is difficult due to small amount of urine in these babies. Catheterization is used if an infant has failed to pass urine by 36-48 hours of age and is not hypovolemic.

The CBC samples were collected in EDTA and the differential count is done with Leishman stain to calculate the immature to total (I:T) ratio. Venous blood samples for CRP were analyzed using semi-quantitative reagent kit. It was considered significant if >0.6mg/dl. Venous blood samples for ESR estimation were collected on Na citrate and analyzed using the Westergren ESR pipette. For blood culture, 1-2ml of venous blood was withdrawn using a complete aseptic technique, into a blood culture bottle (10 ml) & was incubated at 37ºC for 7 days and were examined daily for growth. Any sign of growth was followed by subculture and identified by gram stain and biochemical reaction. BUN was done using Modified Urease method.

Sepsis was diagnosed on the basis of positive sepsis screen. A sepsis screen was considered positive if two or more of the following were present- immature: total (I:T) neutrophil ratio > 0.2, micro ESR > age in days + 2 mm or >15 mm, CRP> 0.6mg/dl, TLC<5000 cells/mm3; 2 or more positive or a positive blood culture.

If neonatal sepsis was suspected, collection of 24 hours urine was requested, and the amount of urine collected was recorded every eight hours, and adjusted to the daily fluid intake. BUN was collected 24 hours after the clinical diagnosis of sepsis and repeated 48 hours later or as needed.

ARF was diagnosed on the basis of blood urea nitrogen (BUN) >45mg/dl on two separate occasions at least 24 hours apart & Oliguria was diagnosed when urine output was <1ml/Kg/hr.

Babies were assured to be well hydrated and receiving adequate amount of fluids.

Exclusion criteria:

Babies with major congenital malformations or presence of urogenital malformation were excluded.

Ethical aspects:

A written consent was taken from the parents of babies included in the study. The clinical condition of each

studied case was explained to the parent before the consent was signed as well as the procedures done for each individual case. The parents were informed that the management of their neonate is running according to the guidelines of management of such cases in the department. Babies of parents who refused to sign were excluded from the study.

RESULTS

Four hundred and forty nine babies with neonatal sepsis were included in the study, 104 cases with ARF (23.2%) in Group (I) and 345 cases without ARF acting as controls (76.8%) Group(II).

Table: I shows the clinical profile of both studied groups. The mean (SD) gestational age was 34.1 ± 4.4 in group (I) compared to 37.1 ± 3.7 in group (II). The mean birth weight was significantly lower in cases with ARF compared to cases of neonatal sepsis without ARF (2100 ± 470 vs 2550 ± 530 grams respectively).

The overall male to female ratio in the study group was 1.6:1 in group (I) compared to 1.38:1 in group (II).A significantly higher number of babies with ARF weighed less than 2500 gm as compared to those without ARF (87.5% Vs 65.2%, p<0.01).

Sepsis was confirmed by positive blood culture reports in 296 cases (65.9%), 183 cases being early onset (61.8%) and 113 cases being late onset (38.2%).

Acute Renal Failure was diagnosed in 23.2% (104 cases) of neonates with sepsis, 64 (61.5%) males and 40 (38.5%) females. Oliguric ARF was found in 13.5% (14 cases) in our study group. The mean duration of recovery from ARF was 5.5 days. Recovery from ARF occurred in 48.1% (n=50) of cases. The mortality rate was 51.9% (54 cases) in ARF compared to 26.4% (91 cases) in sepsis without ARF.

Fifty seven cases (54.8%) of ARF had EOS, and 45.2% of cases had LOS, compared to 39.1% & 60.9% of cases respectively in non-renal failure cases Table: II.

TABLE NO: I – Clinical profile of babies with Neonatal Septicemia

	Group I n = 104 (23.2%) (ARF Group)	Group II n = 345 (78.6%) (Non ARF Group)	P value
Gestational age (weeks) Mean SD	34.1 ± 4.4	37.1 ± 3.7	NS
Birth weight (grams)Mean SD	2100 ± 470	2550 ± 530	< 0.05
LBW (<2500 grams)n(%)	91 (87.5%)	225 (65.2%)	<0.01
Sex (male/female ratio)	1.6:1	1.38:1	NS

NS- Not Significant

TABLE NO.: II – Correlation of associated morbidities with ARF

	Group I n (%)	Group II n (%)	P value
EOS (<72 hrs)	57 (54.8%)	135 (39.1%)	NS
LOS (>72 hrs)	47 (45.2%)	210 (60.9%)	NS
Nephrotoxic drugs	50 (48.1%)	179 (51.9%)	NS
Perinatal asphyxia	34 (32.7%)	119 (34.5%)	NS
DIC	67 (64.4%)	101 (29.3%)	<0.05
Shock	75 (72.1%)	97 (28.1%)	<0.001
Mechanical ventilation	46 (44.2%)	109 (31.6%)	NS
Maternal drug intake	54 (51.9%)	125 (36.2%)	NS
Mortality	54 (51.9%)	91 (26.4%)	<0.001

NS: Not significant

Disseminated Intravascular Coagulation (DIC) occurred in a significantly higher frequency in cases with ARF (64.4% Vs 29.3%, p<0.05). Similarly, shock complicating sepsis – ARF was significantly higher than in non ARF sepsis cases (72.1% versus 28.1%, p<0.001). On the other hand, nephrotoxic drugs, as a compounding factor, had no statistically significant effect upon the occurrence of ARF among the two groups, and accounted for 48.1% in ARF group versus 51.9% in sepsis without ARF, while perinatal asphyxia was present in 32.7% & 34.5% of cases of sepsis with and without ARF respectively. More cases with ARF were mechanically ventilated (44.3% vs 31.6%) although the difference was not statistically significant among both groups. The maternal drug intake in the peri-partum period had no significant effect on the occurrence of ARF (51.9% Vs 36.2%). Most neonates had more than one predisposing factor. Among admitted neonates with ARF, mortality rate was significantly higher than among cases without ARF (51.9% & 26.3% respectively).

DISCUSSION

Acute renal failure (ARF) is a common complication of neonatal sepsis and carries an ominous prognosis. Prevalence of ARF with neonatal sepsis in our study accounted for 23.2% of studied cases. Although ARF in neonates has been reported to be predominantly oliguric, it was observed that ARF secondary to neonatal sepsis was predominantly non-oliguric. Fortunately, the prognosis for non-oliguric ARF is excellent unless multiorgan failure results. In our study, ARF was predominantly non-oliguric, while oliguric ARF accounted for 13.5% of cases with neonatal sepsis. Predisposing factors such as perinatal asphyxia, DIC and shock compromises the renal blood flow and hence the reduction in glomerular filtration rate (GFR) with resulting oliguria. Anticipation of such conditions and appropriate corrective measures should be implemented to improve renal perfusion and GFR.

The prevalence of ARF in boys is more than girls (male to female ratio 1.6:1), which is in agreement with reports from other studies[7,11,12].

Mortality rate of 51.9% was found in ARF associated sepsis cases, which was significantly higher than in sepsis without ARF (26.4%). Recovery occurred in 48.1% of ARF cases and the recovery rate was higher in the more advanced gestational age groups.

The most common significant predisposing factors for ARF in our study were DIC and shock. Cases who suffered DIC and shock were associated with significantly increased mortality (p<0.05).

Perinatal asphyxia, mechanical ventilation, nephrotoxic medications, maternal medications did not alter the frequency of ARF in septic neonates.

Preterm neonates were more vulnerable to develop any or several of these clinical conditions.

Nephrotoxic drugs induced ARF, displayed by Aminoglycoside nephrotoxicity typically presents with non-oliguric ARF, with urinalysis showing minimal urinary abnormalities. The incidence of aminoglycoside antibiotic nephrotoxicity is related to the dose and duration of the antibiotic therapy as well as the level of renal function prior to the initiation of aminoglycoside therapy. The etiology is thought to be related to the lysosomal dysfunction of proximal tubules and is reversible once the aminoglycoside antibiotics have been discontinued. However, after discontinuation of aminoglycoside, the serum creatinine may continue to increase for several days due to ongoing tubular injury from continued high parenchymal levels of the aminoglycoside[10]. Mothers of infants with acute renal failure received more drugs during pregnancy and delivery (mainly anti-hypertensive and NSAIDs). NSAIDs interference with endogenous renal prostaglandin production will increase angiotensin II- dependent vasoconstriction, leading to reduced GFR and renal insufficiency. It is therefore important to monitor closely renal function in pre-term infants receiving indomethacin. ACE inhibitors taken by pregnant mothers cause profound hypotension, anuria, and may even precipitate ARF in neonates.

In some studies, the mortality rate in oliguric ARF due to acquired conditions such as asphyxia and sepsis was 60%[2,9] in our study the mortality was 51.9%.

In a study by Mathur and co-workers in India, 26% of septic neonates developed ARF[8]. Mortality of ARF among neonates with septicemia is high, 70.2% Vs 25% in neonatal septicemia without renal failure. Similarly, like other studies, mortality of ARF in septic neonates was significantly higher than non septic patients in our study. Agras et al.[12] found a 25% hospital mortality rate in neonates with ARF. Premature infants constituted 31 % of their cases, and many (47%) of their patients had non-oliguric renal failure. Mathur et al[8] prospectively studied mostly term neonates with sepsis and found a 26% incidence rate of ARF. The mortality rate was significantly higher in those with ARF than in those with no ARF (70.2% Vs 25%, p <0.001).

Delayed presentation and recognition of neonatal sepsis is associated with rapid development of multi-organ dysfunction and increased risk of mortality. The mortality

being several times higher in neonates with ARF demands a greater awareness of this entity.

The commonest significant predisposing factors for ARF in our patients with sepsis were shock and DIC. Perinatal asphyxia, mechanical ventilation and nephrotoxic drugs played important roles but did not significantly affect the occurrence of ARF. Acute renal failure occurred more frequently in low birth weight neonates with sepsis although the difference was not significant.

CONCLUSION

Acute renal failure complicating neonatal sepsis is predominantly non- oliguric. Early recognition of predisposing risk factors for ARF and rapid effective correction of contributing conditions such as improper oxygenation, adequate ventilation and cardiac output, blood pressure abnormalities, and early treatment of sepsis is needed for prevention and effective management of ARF. The early detection of oliguria and monitoring of renal functions are imperative to reduce mortality and morbidity in neonatal ARF.

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CASE REPORT

Anaesthetic management of a patient with myasthenia gravis for head and neck surgery

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KEY WORDS : Myasthenia gravis, non-muscle relaxant technique

ABSTRACT

We describe the anesthetic management of a 40 years old patient of myasthenia gravis grade I with carcinoma of buccal mucosa. He was scheduled for excision of lesion of buccal mucosa with hemimandibulectomy and neck dissection. Surgery is the mode of choice for the treatment of head and neck cancer. Malignant lesion of buccal mucosa with involvement of mandible is a challenging task for intubation for an anesthesiologist. Several general anesthetic techniques have been proposed. We used non muscle relaxant technique with Inj.Fentanyl, Inj.Thiopentone and Sevoflurane inhalation agent for intubation and surgery. The intubating condition was excellent and intra and post operative period were uneventful.

INTRODUCTION

Myasthenia gravis is a chronic autoimmune disease of neuromuscular (nm) junction which causes weakness and fatigability of skeletal muscles with improvement on rest with an estimated prevalence of 1 in 20000[1]. It is characterized by decrease in number of postsynaptic acetylcholine receptor at neuromuscular junction which is caused by destruction or inactivation by auto antibodies which decreases the capacity of neuromuscular endplate to transmit the nerve signal. Patient became symptomatic at 30% reduction in number of acetylcholine receptors[2].

Technique of anesthesia for surgery in a patient with myasthenia gravis could be either with or without muscle relaxants. In a patient with myasthenia gravis, response to muscle relaxant is unpredictable. Patient may be resistant to succinylcholine due to diminished number of available receptors but sensitive to nondepolarizing agents. Therefore muscle relaxant should be avoided and shorter acting drugs chosen and closely monitored[3].

For the treatment of carcinoma of buccal mucosa surgery is the mode of choice. In a case of radical excision of a buccal mucosa with excision of hemimandible and radical neck dissection, airway management in intra and post operative period is fundamental. This report will focus on the non muscle relaxant anesthetic technique for the same.

CASE REPORT

A 40 year old male patient weighing 65kg with history of smoking since 15 years and hypertension since 2 years presented with ulcer on buccal mucosa. He was a known case of myasthenia gravis since 6 months. He developed drooping of left upper eyelid followed by drooping of right upper eyelid, difficulty and fatigue on chewing food, talking slowly and tired at the end of the day which improved on rest. The myasthenia gravis diagnosis was confirmed by Inj.Endrophonium 10 mg i.v., which resulted in prompt improvement in ptosis and ocular paresis. Acetylcholine receptor antibody titer was normal (<0.25 nmol/l). Repetitive Nerve Stimulation (RNS) test (positive decrimental response at low rate stimulus) was positive.

He was diagnosed as myasthenia gravis grade I. Tab.Azathioprine 50 mg bd, Tab.Pyridostigmine 60 mg bd and Tab.Prednisolone 10 mg were started on alternate day. The myasthenic symptoms were controlled. He was on Tab.Losartan 25 mg bd for hypertension. The patient was scheduled for excision of buccal mucosa with hemimandible and radical neck dissection.

On examination patient has restricted mouth opening. Malampatti grade was II. Power of limb muscles was grade V. All routine laboratory investigations, ECG, echocardiography, x-ray chest, and thyroid function test (TFT) were normal.

On night before surgery 1 mg Tab.Lorazepam and on the day of surgery at 6 a.m. Tab.Diazepam 5 mg given orally with his all medication. We monitored ECG, blood pressure, SpO_2, $EtCO_2$, temperature and urine output. There was no need to monitor for PNS.

Patient was preoxygenated with 100% O_2 over 5 minutes. Anesthesia was induced with Inj.Glycopyrrolate 0.2 mg, Inj.Fentanyl 2 mcg/kg, Inj.Thiopentone 6 mg/kg i.v., 2% Sevoflurane inhalation was started simultaneously. Nasal intubation was done with cuffed portex no.7 endotracheal

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tube successfully without use of muscle relaxant. Nasogastric tube was inserted. There was no hemodynamic response to laryngoscopy. Intubation condition was excellent. Controlled ventilation was continued with 50% N_2O in O_2 with Sevoflurane and bolus of Inj.Propofol when required. Surgery was completed uneventfully. The patient was hemodynamically stable. Total blood loss was 250 ml. At the completion of surgery patient was switched off to manual assisted ventilation from controlled ventilation with 100% O_2. Spontaneous respiration was regular with adequate tidal volume. He was shifted to ICU with the endotracheal tube in-situ and kept intubated for next 24 hours to prevent blood aspiration and tongue fall with monitoring of SpO_2, respiration, ECG and blood pressure. Patient was extubated on the next day morning. He resumed his medication from next day of surgery and discharged after 15 days.

DISCUSSION

Neuromuscular weakness and easy fatigability are the characteristics of myasthenia gravis which results from autoimmune damage to the post synaptic nicotinic receptors. Myasthenia gravis may be associated with other autoimmune diseases such as hyperthyroidism, rheumatoid arthritis, systemic lupus erythematosus, pernicious anemia, thymus hyperplasia or thymoma[4].

We avoided muscle relaxants and used potent inhaled agents with intravenous agent Thiopentone and Propofol to acquire advantage of both and minimizing side effects like hypotension with combining the drug to facilitate tracheal intubation and provide relaxation for surgery. These patients are usually chronically hypovolemic and vasodilated; they are prone to developing exaggerated hypotension during induction of anesthesia[5]. Potent inhalation agents allow neuromuscular transmission to recover and are rapidly eliminated at the end of surgery due to their low blood solubility. Sevoflurane is more effective due to its lower incidence of excitatory airway reflexes during induction[6]. Kiran U. Chaudhary has used Sevoflurane (MAC 0.5 – 0.7) as the sole anesthetic agent for a transsternal thymectomy[7].

While using muscle relaxant to reverse residual neuromuscular blockade at the end of surgery is controversial. The presence of anticholinesterses and antimuscarinics will lead confusion to differentiate weakness due to inadequate neuromuscular transmission from cholinergic crisis [3]. Gag reflex is often absent and such patients are at risk for aspiration of oral secretions. The patient's ability to generate adequate ventilation and to clear bronchial secretions are of utmost concern in the recovery room[3]. It has been shown recently in normal patients that tests such as maintained response to tetanic stimulation of a peripheral nerve can return to normal, while the pharyngeal and neck muscles necessary to protect the airway can still be partially paralyzed (WFSA)[2]. The different response of peripheral versus bulbar muscles may be more evident in myasthenic patients and it is preferable to keep intubated especially when oral surgery has been done.

CONCLUSION

With careful perioperative management and use of non muscle relaxant technique for anaesthesia; excellent intubation, intraoperative and postoperative conditions can be provided. With this technique muscle relaxants can be avoided which avoids postoperative mechanical ventilation and can establish early recovery.

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CASE REPORT

Bicornuate Uterus-Surgeons Dillema During Tubectomy

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KEY WORDS : Bicornuate Uterus,Tubectomy

ABSTRACT
While doing tubectomy operation(abdominal/laparoscopic) if only one tube is found in patients with no past h/o surgery on FTor adnexa.possibility of bicornuate uterus should be kept in mind to avoid litigation /failure.

INTRODUCTION

Bicornuate uterus that has two horns & a heart shape. Bicornuate uterus at time of tubectomy operation may put surgeon in dilemma because of medicolegal reasons more so when done in postabortal/ postpartum period.Here two interesting cases are presented for specific problems encountered during TL operations.

CASE-1

Mrs.BG 28 yr old presented at FP OPD on 2/12/2002 with h/o 2 months amenorrhea.On clinical examination she had 8 wk.intrauterine pregnancy.She opted for elective MTP &Laparoscopic sterilization.Her OH-G3P2(1ST FTND live male 11yrs &2nd FTLSCS 6 yr.female child). Her routine investigations were normal. She was posted for suction evacuation & lap TL on 9/12/02.Suction evacuation with lap TL carried out under LA +Premedication.On laparoscopy –uterus was (?) unicornuate bulky with left adnexa seen .tubal ring applied on left tube.Right Follopian Tube(FT) could not be seen.There was no previous h/o of previous surgery on FT or adnexa.It was documented on records. Patient was discharged on next day with advise of HSG &Follow up.Patient did not turn up for follow up as per advise.She attended FP OPD on 25/7/2003 with h/o 2months &20 days amenorrhea.O/E –Her vital signs-normal. clinically she had 10 weeks IU pregnancy which was confirmed on USG.After routine investigations she was posted for suction evacuation & abdominal TL under anaesthesia.Right paramedian incision was given.on opening abdomen Right FT was seen which was ligated by modified pomeroy method.

On outlining the anatomy of uterus it was found to be bicornuate uterus with gravid right horn.Left horn was non gravid with tubal ring found in situ on tube.Piece of tube was sent for Histopathological examination that confirmed HP of FT.Postoperative period was uneventful.Patient was discharged after removal of stitches on 7th day.

CASE-2

Mrs RS 26 yr old para 3 all FTND(childrens aged 6,4yrs&2days). Last delivery at our institution, uneventful. She opted for postpartum tube ligation.Her routine investigations were normal.She was posted for PPTL on 5/8/2003.She was given premedication +LA. Conventional minilap incision was given. On Opening abdomen right FT was found tubectomy was carried out by modified pomeroys method.On manual palpation through incision left cornual structures were not felt. Anesthetists were called. Incision was extended,A small nodular mass felt in connexion with gravid uterus on left side. On outlining anatomy of uterus it was found to be non gravid horn of uterus with adnexa.Left FT was caught with babcock forceps,traced laterally&tubectomy carried out by modified pomeroys method.Abdomen closed in layers.Postoperative period was uneventful.Patient discharged on 7th day after stitch removal.

DISCUSSION

Partial lack of fusion of mullerin ducts produce single cervix with varying degrees of separation of two horns.Incidence of uterine anomaly is under reported as mullerian defects can permit absolutely normal obstetric outcome&so many remain undiagnosed.[1] Mean prevalence of uterine malformation in general population &in population of fertile women is 4.3%,in infertile patients 3.5% & in patients with recurrent pregnancy loss -13%. Septate uterus is commonest uterine anomaly with mean incidence of 35%,followed by bicornuate uterus 25%.[2]

Following observations were made in above cases-

1) Bicornuate uterus with gravid horn on one side hinders the visibility of non gravid horn &its adnexa.In 1st case left horn was gravid at time of laparoscopic sterilization&right horn was gravid at time of abdominal tubectomy.
2) Premedication +LA-which is the commonly used anaesthesia in camp set up limits exploration in such cases.

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3) Conventional minilap incision for postpartum case restricts the operative field & visibility of nongravid uterus.&its adnexa.

4) Usually in bicornuate uterus obstetric outcome is uneventful,go unnoticed,can only be diagnosed by combination of careful bimannual palpation, HSG, ultrasound, laparoscopy, hysteroscopy & MRI.

CONCLUSION

While doing tubectomy operation (abdominal / laparoscopic) if only one tube is found in patients with no past h/o surgery on FTor adnexa.possibility of bicornuate uterus should be kept in mind.It is better to explore her under anaesthesia if facility are available.If anaesthetist not available like PHC,camp set up,same should be clearly documented on case papers/records.She should undergo abdominal tubectomy under anesthesia to avoid litigation /failure.

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CASE REPORT

Adenomyosis in Mayer-Rokitansky-Kuster-Hauser syndrome

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KEY WORDS : Mayer-Rokitansky-Kuster-Hauser syndrome, Mullerian anomalies, Adenomyosis

INTRODUCTION

Congenital absence of uterus and vagina, Mayer-Rokitansaky-Kustner-Hauser (MRKH) syndrome, is a rare developmental failure of in part or whole of the Mullerian duct.[2] The prevalence has been reported as 1 in 4000-5000 female births.[1,6] Mullerian agenesis causes approximately 15% of primary amenorrhea. Patients with MRKH syndrome have a 46, XX karyotype and normal secondary sexual characteristics.[2,6] The external genitalia appear normal, but only a shallow vaginal pouch is present. Ovarian function is normal.[2,6]

Kuster recognized urologic associations, such as renal ectopy or agenesis, along with skeletal abnormalities.[2] Other rare associations are cardiac anamolies and anorectal malformations.[2]

The adenomyosis in a patient with the MRKH syndrome is very rare.[3,5] Several theories have attempted to explain the puzzling and controversial pathogenesis of endometriosis. Sampson's implantation theory is the most commonly accepted. Early endometriotic lesions have been found in the Douglas cavity, where retrograde menstruation was confirmed in 90% of women. These findings support Sampson's theory. In contrast, endometriosis occurs in some patients who have no functional endometrium, such as those with the Rokitansky-Kuster-Hauser syndrome, a clinical condition that supports Iwanoff and Mayer's coelomic metaplasia theory.[5] Here we are reporting 3 cases having adenomyosis of uterine horn in Mayer-Rokitansky-Kuster-Hauser syndrome.

CASE 1

A 46 years old woman presented to the outpatient department with severe cyclical pain in lower abdomen for 10 years. She had primary amenorrhoea. Her physical examination showed female body contour and well developed secondary sex characters. Her height was 155 cm and weignt 58 kg. On abdominal examination, she had 2 masses in lower abdomen arising from pelvis. Mass on left side arising from pelvis and occupying left iliac fossa was 8×7 cm in size, not freely mobile and tender. Another mass arising from pelvis occupying right iliac fossa and hypogastrium was 10×9 cm in size, not freely mobile and tender. Her external genitalia were normal. Speculum examination revealed 5 cm deep blind vaginal pouch due to coital function. On bimanual examination, a firm nodule (3×2 cm) was felt in place of uterus and both abdominally palpable masses were felt. Neither of these masses could be separated from the central nodule. Rectal examination confirmed the findings of bimanual examination. Her transabdominal and transvaginal ultrasound (fig:1) showed 2 hypoechoic masses with cystic area of different size inside, arising from pelvis occupying both iliac fossa and part of hypogastrium. Mass in left iliac fossa was 8×7×7 cm in size and right iliac fossa was 10×9×8.5 cm in size. Right sided mass was in continuity with central nodule (3×2 cm). Ovaries could not be seen. With a provisional diagnosis of MRKH syndrome associated with pelvic masses probably adenomyosis of both uterine horns, she was taken for

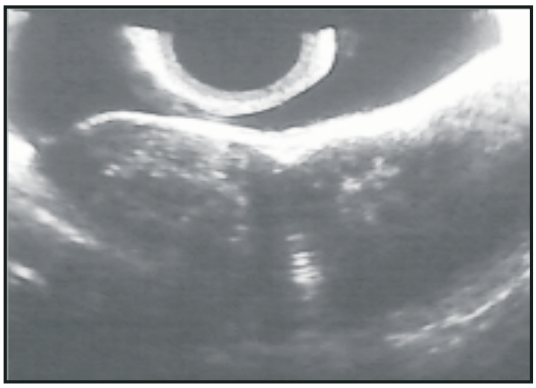

Fig. 1 : Trasvaginal ultrasound shows adenomyotic changes in both uterine horns(case 1)

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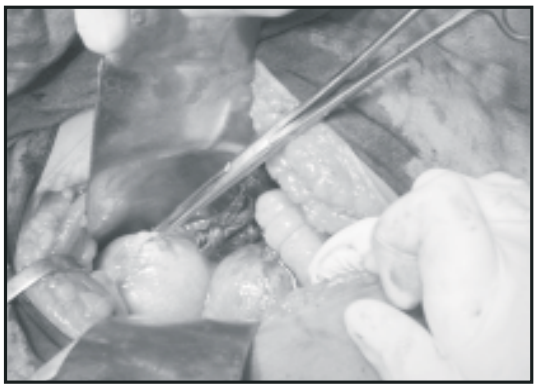

Fig. 2 : Large adenomyomas of both uterine horns (case 1)

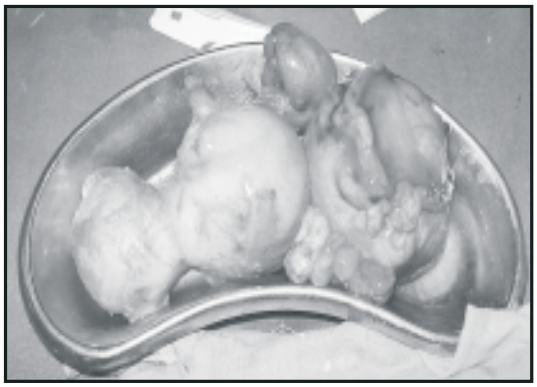

Fig. 3 : Specimen of both adenomyotic uterine horns (case1)

laparotomy. On opening abdomen through Pfannenstiel incision, 2 enlarged uterine horns- left side 8×7×7 cm and right side 10×9×8.5 cm in size were seen(fig 2,3). Both sided tubes and ovaries were adherent to posterior aspect of uterine horns, were separated and removed along with adenomyotic uterine horns. Lower part of right horn was connected with central nodule. Nodule was adherent to bladder anteriorly and rectum posteriorly, separated and removed with right horn. The woman fared well postoperatively and discharged after 7 days. Histology reveled adenomyotic changes in myometrium of both horns without evidence of lumen.

CASE 2

A mentally retarded 25 years old woman presented to the outpatient department with severe cyclical pain in lower abdomen for 8 years. She had primary amenorrhoea.

Physical examination showed female body contour and well developed secondary sex characters. Her abdomen was soft, non-tender, external genitalia were normal. She had absent vagina. On rectal examination, cervix & uterus were not felt in center. Her transabdominal ultrasound

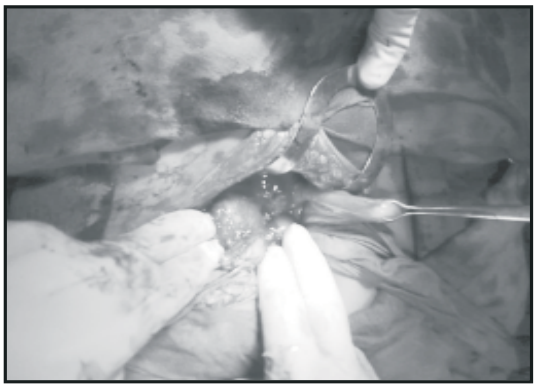

Fig. 4 : Adenomyotic left uterine horn and right small rudimentary horn in case 2

showed hypoechoic mass 6×5×4 cm inside in left iliac fossa. On opening abdomen , left side 6×5×4 cm enlarged uterine horn, posteriorly adherent to sigmoid colon and anteromedially adherent to urinary bladder with normal tube and ovary was seen(fig:4). There was central band and on right side small rudimentary horn with normal tube and ovary was seen. After opening visceral peritoneum in front of central band and left horn, urinary bladder was separated from medial aspect of left horn. Posterior aspect and base of horn separated from sigmoid colon and removed. The woman fared well postoperatively and discharged after 7 days. Histology of left horn reveled adenomyotic changes in myometrium with no evidence of lumen .

CASE 3

A 16 years old girl presented to the outpatient department with severe cyclical pain in lower abdomen for 2 years. She had primary amenorrhoea. Physical examination showed female body contour and well developed secondary sex characters. Her abdomen was soft, non-tender, external genitalia were normal. She had absent vagina. On rectal examination, cervix & uterus were not felt in center. Her transabdominal ultrasound showed hypoechoic mass 5.5×4.5×4 cm in left iliac fossa. Uterus was not seen in center. Laparoscopic visualization of the pelvis revealed bilateral normal fallopian tubes and ovaries and rudimentary uterine horns were seen on the apex of each tube. The horn on the right was small, while that on the left measured 5 cm in diameter. Using a bipolar forceps, the left round ligament was grasped and coagulated, then cut with a scissors forceps. The proximal fallopian tube was grasped, elevated, and coagulated and cut. The uteroovarian ligament was similarly coagulated and cut. The tumor was carefully removed at the anterior fibrous band of the midline. As the tumor was firmly

adherent to sigmoid colon posteriorly , mini-Pfannenstiel incision was made to remove the tumor. The girl fared well postoperatively and discharged after 3 days. Histology reveled adenomyotic changes in myometrium .After 3 years neovagina was created by McIndoe method, 6 months before her mairrage.

DISCUSSION

According to the American Fertility Society (AFS) classification of the anomalies of mullerian ducts, MRKHS is the most common type I defect. Most of the abnormalities are associated with functioning ovaries and age appropriate external genitalia. Primary amenorrhoea is the commonest presentation in cases of absence of a functioning uterus.[1,6] In the event of a functional uterus or uterine horn, cyclic pain in abdomen adds to the amenorrhoea. Endometriosis externa (in cases of patent fallopian tubes) may be the sequelae of the obstructed menstrual outflow.[8]

Uterine adenomyosis is a benign entity characterized by the heterotopic growth of endometrial glands or stroma (or both) into the myometrium, as well as myometrial hypertrophy and hyperplasia. Most histologic criteria for diagnosing adenomyosis have been based on Cullen's proposal that adenomyomas arise through direct invasion of the uterine mucosa into the uterine musculature. Some pathologists define adenomyosis as glands and stroma invading the myometrium to the depth of at least one third of the thickness of the uterine wall. In contrast to the established criteria, we found endometrium-like tissues containing both surface epithelium and stroma in myometrium of our patient. The histogenesis of adenomyosis in these patients may be a mechanism other than direct invasion. The present cases suggests that adenomyotic lesions may develop in the myometrium of mullerian remnants, supporting the metaplasia theory in its histogenesis.[5] Adenomyosis in myometrium is responsible for cyclical pain inspite of noncanalized rudimentary horn. Histologic examination revealed the presence of endometrial glands and stroma in the myometrium.[5]

Parikh[4,6] in his review of MRKH syndrome states that fibroids and adenomyosis rarely develop in the rudimentary non-functioning uterus. It requires removal either by laparotomy or laparoscopy. Enatsu et al[5,6] reported the first case of adenomyosis in MRKH syndrome.

Excision of adenomyotic horns were performed in all three cases in view of non-functioning uterus with large adenomyomas for relief of pain. In all cases, left horn was firmly adherent with sigmoid colon, separated carefully. McIndoe vaginoplsty was performed 3 years later in case 3, six months before marriage.

Sur-gical correction many a times require the creation of a neovaginal canal by the performance of a neovaginoplasty which can be done by open surgical or laparoscopic as-sisted techniques.[7] The technology of in vitro fertilization and embryo transfer, allowing for collection of oocytes from the genetic mother, fertilization by the genetic fa-ther, and placement into a gestational carrier, enables a woman without a uterus to have her own genetic children.[2,8]

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CASE REPORT

Pregnancy with Dermoid Cyst

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KEY WORDS : Dermoid Cyst, Pregnancy

INTRODUCTION

The presence of a solitary, or occasionally multiple, hamartomatous tumor. The tumor is covered by a thick dermislike wall that contains multiple sebaceous glands and almost all skin adnexa. Hairs and large amounts of fatty masses cover poorly to fully differentiated structures derived from the ectoderm.

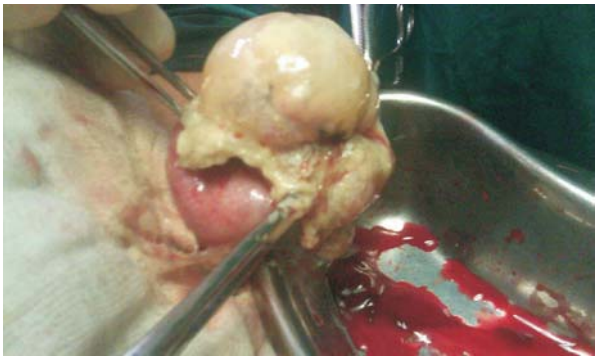
Depending on the location of the lesion, dermoid cysts may contain substances such as nails and dental, cartilagelike, and bonelike structures. If limited to the skin or subcutaneous tissue, dermoid cysts are thin-walled tumors that contain different amounts of fatty masses; occasionally, they contain horny masses and hairs.

CASE REPORT

Mrs. Shilpiben Vinodbhai Jain, Aged 25 years,residing at Satyamnagar, Amraivadi, Primipara patient, with Active Married Life of 8 months, presented with complaint of 9 months amenorrhea, with Last Menstrual Period on 30/11/2010, Expected Date of Delivery 06/09/2011. On General Examination, there was no pallor, jaundice. Pulse was 80/minute, BP was 120/80 mm of Hg, with Respiratory System & Cardiovascular systems normal. On Per Abdominal Examination, uterus 36 weeks, with vertex floating, with Fetal Heart Sound of 90/minute. On Per Vaginal Examination, cervix was 1 finger dilated, early effaced, vertex membrane absent,with meconium stained liquor with inadequate pelvis. Her Blood Group was B Positive, Hemoglobin was 9 gm%. She Delivered Female child with Birth Weight of 2.25 kilogram on 13/08/2011, at 10:57 am, by Cesarean Section. Laparotomy findings were, 8*6*2 cm left sided mixed components(solid & cystic) & 5*2*2 cm right sided ovarian cyst with mixed components(solid & cystic), clinically likely to be dermoid, specimen removed and sent for histopathological examination. Histopathological report suggests Mature Cystic Teratoma.

DISCUSSION

The occurrence of an adnexal mass during pregnancy is uncommon. The incidence of Dermoid with pregnancy is approximately 37 %.Most of them are benign and usually disappear by the 16th week of gestation. Their persistence represents a major concern related to the obstetrical management and possibility of malignancy. Diagnosis



would include pelvic examination in the first trimester, an initial ultrasound and a careful evaluation at the time of operative intervention. One should consider an ovarian mass in any woman who experiences abdominal pain. Torsion, rupture, infection and hemorrhage of ovarian tumor should be included in the differential diagnosis of any catastrophic abdominal obstetric event. Delaying surgery into the mid second trimester allows for a substantial reduction in the incidence of functional adnexal masses. Only 6% of adnexal masses excised during pregnancy to be malignant.[1,2,3] During pregnancy, the risk of torsion for an adnexal mass is reported to be approximately 3 to 15%.[4,5]

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CASE REPORT

The inferior vena cava injury after self-inflicting penetrating abdominal injury- survival of a rare case with threatened life.

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KEY WORDS : The inferior vena cava, penetrating injury, venorrhaphy, haemoperitoneum.

Abstract :

The inferior vena cava is the most commonly injured abdominal vessel and accounts for about 25% of abdominal vascular injuries. Despite improved preoperative care and operative techniques, the mortality rates for the inferior vena cava injuries are still high due to inadequate or delayed fluid resuscitation, difficulty of diagnosis and technical problems in repair. A case of the inferior vena cava injury encountered after penetrating abdominal injury with about 4 cm vertical tear of infrarenal vena cava, survived due to immediate transportation, appropriate and successful perioperative fluid and blood resuscitation, prompt surgical management with team approach and critical post-operative surgical management.

INTRODUCTION

The inferior vena cava is the most commonly injured abdominal vessel and accounts for about 25% of abdominal vascular injuries[1]. Despite improved preoperative care and operative techniques, the mortality rates for the inferior vena cava injuries are still high due to inadequate or delayed fluid resuscitation, difficulty of diagnosis and technical problems in repair.

CASE REPORT

A 35 years old male patient was brought with alleged history of self-inflicted penetrating abdominal injury with about 6 x 1.5 cm^2 sized wound in midline just 2 cm above umbilicus with protruding bowel and active bleeding from the wound. Patient was confused with sunken eyes and cold clammy extremities, rapid thready pulse, non-recordable blood pressure and respiratory rate > 25/min with marked pallor.

At casualty after rapid evaluation and immediate resuscitation patient was brought to operation theatre. On exploration there was gross haemoperitoneum with contamination of bowel contents. On draining haemoperitoneum there were multiple perforations within short segment of distal jejunum. There was expanding retroperitoneal heamatoma inferior to mesentery and single right transverse colon perforation. On exploration of retroperitoneal heamatoma, after partial control with packing with multiple pads, distal and proximal control was achieved on applying Sattinsky's vascular clamps. About 4 cm vertical tear over anterior wall of infra renal portion of the inferior vena cava up to just above confluence of common iliac veins were found. Primary repair of tear with poly proprelene no.4-0 done (venorrhaphy). Resection anastomosis of perforated segment of jejunum and primary closure of single perforation of transverse colon was done. Two abdominal drains were placed, one in right paracolic gutter the other in pelvis fromseparate right lumber wound. Patient was in hypovolaemic shock throughout surgery and received 6 packed cell volumes, 4 units of plasma and 4 platelet concentrate with inotropic support.

Post-operatively the patient developed both lower limb oedema and subcutaneous wound infection. He was given low molecular weight heparin for 07 postoperative days with oral anticoagulant tablet warfarin 10 mg once a day started on 5th postoperative day and elastocrepe application of both whole lower limbs and injectable broad spectrum triple antibiotic regime for 7 days.Patient was discharged on 20th post-operative day with normal biochemical parameters and advises to wear abdominal binder and oral tablet warfarin 10 mg daily for about 3 months. Patient was followed up twice in 15 days after discharge and thereafter once a month for 6 months, Patient developed incisional hernia but otherwise is well after 2 years of injury to IVC.

DISCUSSION

In penetrating abdominal trauma the major sites of hemorrhage are mesentery and vasculature. The incidence of injuries to major abdominal vessels in a patient sustaining penetrating abdominal trauma is 10% [1]. The majority of injuries to the inferior vena cava are due to penetrating trauma; only 10% of these injuries will be caused by blunt trauma [2] and are associated with other

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abdominal injuries. In about 18% of patients with penetrating abdominal injuries with the inferior vena cava injuries, there is an associated aortic injury.

Clinically the patient will present with either free intra peritoneal hemorrhage or a contained retro peritoneal heamatoma. Any heamatoma in Zone 1 of reteroperitoneum (Midline inframesocolic area which includes infrarenal abdominal aorta and the inferior vena cava) should be explored. If Inframesocolic heamatoma appears to be more extensive on the right side of abdomen than left and if there is active haemorrhage coming through base of mesentery of ascending colon or hepatic flexure of colon, injury to the inferior vena cava below the liver should be suspected[3].

Many injuries to the inferior vena cava, especially those involving the infrarenal inferior vena cava, present with stable heamatoma. As a rule, all heamatomas due to penetrating trauma should be explored; an exception to this approach is stable retro hepatic hematomas[3]. Obtain exposure by incising the posterior peritoneum in the midline after evisceration of the small bowel and cephalic retraction of the transverse mesocolon or divide the white line of Toldt adjacent to the cecum and extend cephalad through the hepatic flexure, then rotate the right colon and small bowel medially (the Cattel-Braasch maneuver)[4].In most patients the inferior vena cava can be repaired by lateral venorrhaphy with 3–0 or 4–0 vascular suture material. Most posterior caval wounds can be exposed and repaired by rotating the inferior vena cava. In some patients with anterior and posterior caval injuries, the posterior wound can be exposed and repaired from within the vein by extending the anterior wound.

About half the patients with the inferior vena cava injuries die before reaching medical care, and among those who arrive at the hospital with signs of life the mortality ranges between 20% and 57%[3]. In a study of 136 cases with the inferior vena cava injuries, Kuene and associatesreported an overall mortality of 52% [3]. A review of the experience at UCLA/Harbor General Hospital Medical Center over a ten year period (1966 to 1976) discloses thirty-four patients with major injuries to the inferior vena cava, with an overall mortality of 53%[5]. In patients reaching the operating room alive, the mortality was 35%[3]. The mortality is significantly higher in suprarenal injuries.

CONCLUSION

Penetrating injury of the inferior vena cava remains a challenging problem. The key to effective management includes early diagnosis, resuscitation and prompt surgical intervention. Associated solid or hollow visceral injuries negatively affect survival. In case of hemodynamic instability, sometimes, a technically simpler solution is more beneficial than a complex, time consuming reconstruction.

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CASE REPORT

Disseminated Histoplasmosis Masquerading as Chronic Itp.

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KEY WORDS : Disseminated Histoplasmosis, Masquerading, Chronic Itp.

ABSTRACT

ACUTE DISSEMINATED HISTOPLASMOSIS is a systemic granulomatous disease caused by fungus HISTOPLASMA CAPSULATUM. This disease is mainly found in immunocompromised individuals specially HIV reactive, patients on anticancer drugs, transplant patients and is uncommon in immunocompetent individuals. After initial exposure to the fungus, the infection is self-limited and restricted to the lungs in 99% of healthy individuals. The remaining 1%, however, progress to either disseminated or chronic disease involving the lungs, liver, spleen, lymph nodes, bone marrow or rarely, the skin and mucous membranes. DISSEMINATED HISTOPLASMOSIS is frequently reported in patients with HIV/AIDS but it is rare in immunocompetent hosts. Here we are presenting a case of DISSEMINATED HISTOPLASMOSIS in an immunocompetent patient.

CASE REPORT

A 26 years old housewife Muslim patient from Jodhpur (Rajasthan) who presented in March 2012 with persistent postpartum thrombocytopenia. She was diagnosed as Chronic Idiopathic Thrombocytopenic Purpura (ITP) in January 2012 and treated with steroids for two months without any significant improvement. As previous Bone Marrow biopsy slides were not available and patient was not willing for repeat biopsy, we continued the same treatment and asked to follow up after 1 month. She returned in May 2012 with worsening platelet count. Repeat Bone Marrow examination was carried out which showed bone marrow flooded with HISTOPLASMA CAPSULATUM (Fig.4). We prescribed Amphotericin-B which she started at her local place because of family reason. However on 8th day of starting Amphotericin, she developed fever with chills, ascites, pleural effusion and hence the treating physician stopped Amphotericin-B and put on Itraconazole, which she continued for 3 months and stopped as advised by the treating physician. (June-August, 2012). During this time her platelet count recovered and became near normal. But in October 2012 she again developed thrombocytopenia, low fever, weakness and lesions over skin and oral cavity.

The patient came back to us in November 2012. There was no history suggestive of any systemic involvement. On examination: positive findings were pallor, skin lesions and hepato-splenomegaly (Liver 3 fingers and Spleen 4 fingers enlarged). Mucocutaneous lesions over face, oral cavity, uvula, palate, conjunctiva (FIG. 1,2,3).

FIG.1 : Skin lesion before starting therapy

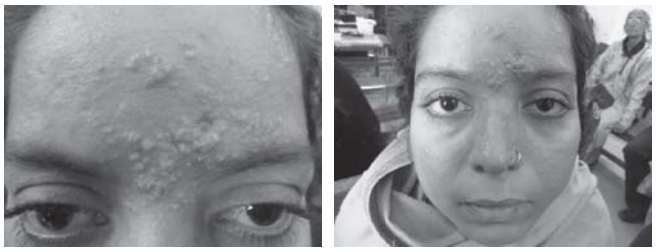


FIG.2: Conjunctival nodules before therapy

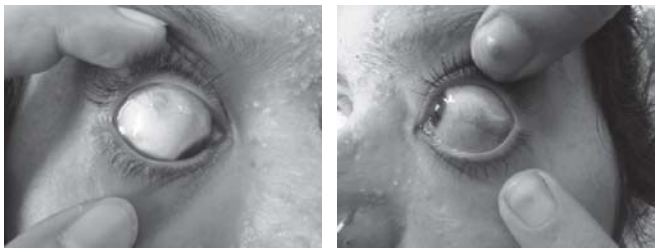
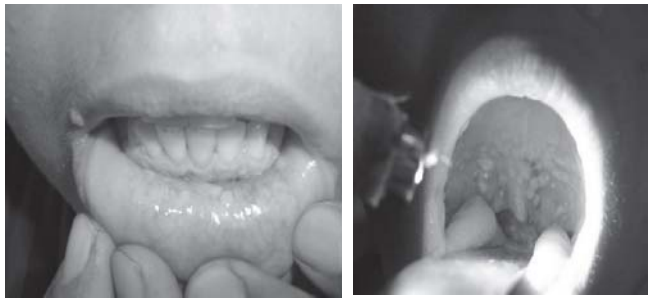


FIG.3 : Oral lesions before thearapy.



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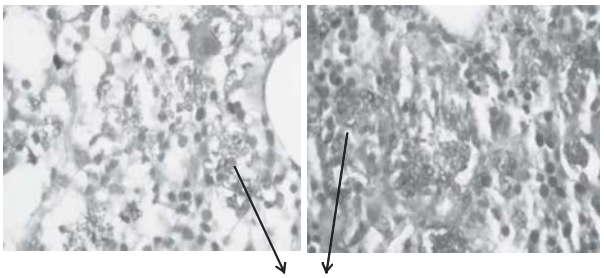
INVESTIGATIONS	RESULTS
LFT/RFT	Normal
S. PROTEINS	Normal
Hb.	7.2 gm%
WBC	5400/cmm.
Platelet count	30,000/cmm.
HIV serology	NEG.
HBV, HCV serology	NEG.
ANA-IF	NEG.
ABSOLUTE CD4 COUNT	589 cells/cmm.(410-1590)
CD4/CD8 RATIO	2.01(0.60-2.80)
IgG(serum)	9.63G/L(7-16)
IgM(serum)	<<0.40G/L(0.40-2.30)
IgA(serum)	1.96G/L(0.70-4)
ESR	38
CHEST XRAY/ECG	NAD/NORMAL
USG ABDOMEN	Hepatosplenomegaly

In Nov 2012 we did a Skin biopsy, which showed HISTOPLASMA CAPSULATUM on PAS and H&E Stain (FIG. 5). She was diagnosed to have DISSEMINATED HISTOPLASMOSIS with involvement of skin, mucous membrane, bone marrow and possibly liver and spleen. This time she agreed to take treatment under our observation and we put her on Intravenous Amphotericin-B in dose of 1mg/kg/day and other supportive treatment. After completion of 6 weeks of amphotericin B therapy, she was put on oral Itraconazole 200mg three times a day for 3 days then 200mg twice a day which we planned for life long. Follow up after 2 months in May 2013, the patient was asymptomatic, hepato-splenomegaly completely regressed, mucocutaneous lesions decreased drastically, Platelet count became 1,60,000/cmm with Hb. 9.2 gm%.

TIMELINE

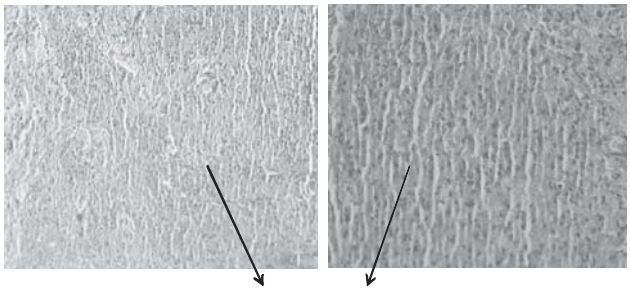
MONTH	PLATELET COUNT(/cmm)
SEPT.2012	1,67,000
OCT.2012	20,000
NOV.2012	25,000
DEC.2012	30,000
JAN.2013	21,000
FEB.2013	28,000
MARCH 2013	1,38,000
APRIL 2013	1,26,000
MAY 2013	1,60,000

FIG.4 BONE MARROW BIOPSY-H&E AND PAS STAIN



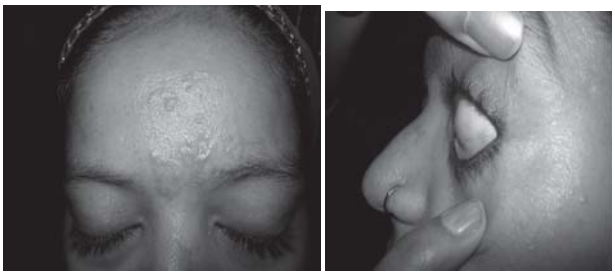
Large number of histiocytic cells showing yeast form of fungi with hemophagocytosis S/O HISTOPLASMA CAPSULATUM.

FIG.5 SKIN BIOPSY-H&E AND PAS STAIN



Superficial and deep dermis revealed diffuse infiltration by foamy histiocytes with plenty of fungal spores having clear halo. Few yeast forms are also present S/O HISTOPLASMA CAPSULATUM

FIG.6 : Skin and conjuctival lesions after therapy



DISCUSSION

Progressive disseminated histoplasmosis is rare in adult hosts who are immunocompetent. Population studies have demonstrated that greater than 80% of young adults from endemic areas (Ohio Valley, Mississippi Valley) have been previously infected with H.capsulatum with clinical manifestations in less than 5% of the population. Most infections are sporadic, although large outbreaks of histoplasmosis may occur. In the United States, histoplasmosis has been diagnosed in 2-5% of the HIV-positive population. In India Disseminated Histoplasmosis has been documented in some areas of West Bengal and has NEVER BEEN DOCUMENTED IN WESTERN PART OF INDIA.

TYPES OF HISTOPLASMOSIS- The disease can Clinically present as:-

1) ASYMPTOMATIC INFECTION
2) PROGRESSIVE PULMONARY-ACUTE OR CHRONIC.

   Differential Diagnosis--Aspergillosis, Blastomycosis, Tuberculosis, Chlamydial inf., Legionellosis, Carcinoid, Small Cell Lung Ca., Lymphoma, Sarcoidosis.
3) GRANULOMATOUS OR FIBROSING MEDIASTINITIS
4) OCULAR HISTOPLASMOSIS SYNDROME
5) DISSEMINATED HISTOPLASMOSIS

Differential Diagnosis of Skin lesions- Molluscum Contagiosum, Cryptococcosis, Histoid Leprosy.

PROGRESSIVE DISSEMINATED HISTOPLASMOSIS occurs in 1 case per 2000 cases in adults who are immunocompetent. Progressive disseminated histoplasmosis occurs in 4-27% of infected children, older individuals, persons who are immunosuppressed. In the subacute form, death occurs within 2-24 months in untreated cases. The acute form, if untreated, results in death within weeks.

UNSOLVED QUESTIONS…!!

1. Why Disseminated Histoplasmosis occurs in an Immunocompetent individual when it is known to affect Immunodeficient individuals only?
2. Whether we will be seeing an outbreak in Immunocompetent individuals in future?---which can give rise to a hidden NEW PHENOMENON!!

CONCLUSIONS

In a given appropriate clinical context, Disseminated Histoplasmosis (DH) should be considered in both immunocompromised and immunocompetent patients, regardless of pulmonary symptoms. DH should always be considered in evaluation of thrombocytopenia and Bone Marrow examination should always be done in proper and experienced hands with required staining so that it cannot be mistaken as ITP.

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CASE REPORT

Bladder Endometrioma following Caesarean Section

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KEY WORDS : bladder endometriosis,caesarean section

ABSTRACT

We report a case of bladder endometriosis after previous two caesarean sections done 10 years back. History of severe pain during micturition, cyclical hematuria, severe dysmenorrhea pointed towards bladder endometriosis. Total abdominal hysterectomy along with wide excision of bladder endometrioma was done.

INTRODUCTION

Endometriosis means presence of endometrium outside the uterus. Pelvic surgeries such as caesarean section, tubal ligation, hysterotomy, laprotomy for ectopic pregnancy and hysterectomy lead to implantation of endometrium in skin, subcutaneous tissue, sheath, rectus muscles, vesicovaginal septum and in uterine scar[6,7]. Involvement of decidua in uterine scar grows as bladder endometriosis. This supports the migratory or metastaic theory of implantation of endometriosis.[10]

6-10% of women suffer from endometriosis[1]. Most commonly it affects organs such as the ovaries, uterine ligaments, fallopian tubes, rectum and the cervico-vaginal region. Involvement of the urinary tract, is seen in just about 1% cases. Bladder is involved in 84% cases.[2]

Judd[5] described the first case of endometriosis affecting the bladder in 1921. Endometriosis on cystoscopy was first described by Muller[8] in 1927, who found an angiomatous bladder lesion confirmed as endometriosis by histologic study. However, it was Ottaw who made the first preoperative endoscopic diagnosis in 1929. Bladder endometriosis[4] includes Spontaneous, occurring in the course of diffuse pelvic disease and Single or isolated vesical, occurring by iatrogenic seeding after gynecological surgery, particularly after cesarean section. The condition basically manifests as an acute urethral syndrome with frequency, tenesmus, burning sensation, pain during micturition, dysuria, and suprapubic discomfort and pain. USG findings include localised bladder wall thickening[9]. Cystoscopic findings include a solid mass with a hyperhemic appearance, showing slightly raised, bluish, or violet bullae or cysts on the surface, surrounded by a congestive and edematous halo. When the lesions are small, more than one cystoscopy may sometimes be needed at different phases of the cycle[3]. Because the urinary symptoms may be similar to those of repeated cystitis, interstitial cystitis, in situ carcinoma, or tuberculosis, these processes should be included in the differential diagnosis. Youssef syndrome might also mimic bladder endometriosis Varying with menstruation[7] transurethral resection-endometrioma biopsy to confirm the diagnosis and hormone blockade with LH–RH analogues is the initial treatment most commonly used in recent years, despite an estimated recurrence of 25–35%. Invasion of bladder serosa on associated laproscopy necessitates wide excision of endometrioma. Surgical sterilization, bilateral oophorectomy and hysterectomy, is the definitive treatment being indicated when preservation of fertility is not desired and in elderly patients.

With growing incidence of caesarean section bladder endometriosis has emerged as a important differential diagnosis of painful bladder syndrome.

CASE REPORT

A 45 year old female presented with complaints of dysmenorrhea, chronic bladder pain which increased during menstruation, retention of urine and occasional hematuria during menstruation. She presented on 9th day of menses and her menstrual history was associated with regular painful periods. Two caesarean sections were done 16 years and 14 years back at some private hospital operative details of which were not available. Laproscopic Tubal ligation was performed 10 years back. Right salpingoophorectomy was done 9 years back for Ectopic pregnancy following tubal ligation. 1 unit whole blood was transfused during laprotomy for ectopic pregnancy. On

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examination per abdomen findings were normal. Per speculum examination showed chronic cervicitis. Per vaginum examination revealed cervical motion tenderness, normal size uterus, anterverted, mobile, fornices non tender, no mass palpable.

Transvaginal ultrasonography showed 18*14 mm hypoechoic area seen in posterior wall of bladder suggestive of polyp. MRI findings were: Irregularly marginated predominantly hypointernse intraluminal lesion along postero-superior wall of urinary bladder with a few small cystic areas within suggest possibility of polypoidal growth or bladder endometrioma. A well defined hyperintense lobulated lesion in left ovary may suggest possibility of small ovarian endometrioma.

Laprotomy was planned. Intraoperative, left tube and ovary were normal. Right tube and ovary were absent with appendix adherent to the right cornu. 1*1 cm mass involving posterior surface of bladder near the dome of bladder invading the scar of previous caesarean section was found (Figure I). POD was free of adhesions. No other adhesions, endometrioma were found. On opening the bladder angiomatous mass beneath bladder mucosa seen (Figure II). Ureteric openings were identified and endometrioma excised. Hysterectomy done and bladder wall sutured in two layers .

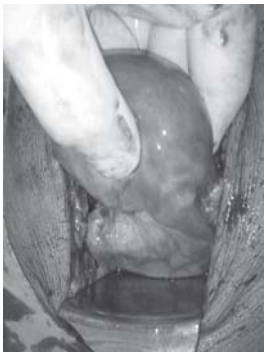

Figure I: 1*1 cm endometrioma invading bladder wall

Figure II : Endometrioma beneath bladder mucosa

Histopathology findings suggestive of bladder endometriosis were presence of endometrial glands and stroma amidst smooth muscle beneath bladder transitional epithelium (Figure III and figure IV).

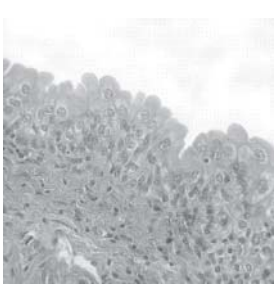

Figure III: Transitional epithelium of bladde

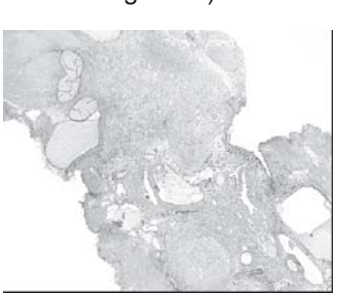

Figure IV. bladder endometriosis between smooth muscle cells

Catheter was kept for 21 days. On removing catheter post void residual urine was 10cc. Frequency of micturition was normal. Patient discharged on 21st day. 6 weeks follow up showed no abdominal pain and relief of bladder symptoms. One year follow up showed patient is better having no bladder symptoms or pain in abdomen.

DISCUSSION

There has been an increase in incidence of endometriosis following a gynaecologic surgeries like Cesarean section, laprotomy, dilation and curettage. Therefore, endometriosis should always be considered in the patients with history of previous gynaecologic surgery referred for frequency, urgency and pain with no documented infection[11]. Methods of prevention of endometriosis following surgery include prevention of deciduas in uterine scar, lavage of abdomen, discard mop used for handling placenta. Prognosis of bladder endometriosis is good. Medical management has been found to be very successful[11]. However involvement of bladder serosa has increased the morbidity of iatrogenic endometriosis.

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CASE REPORT

A Rare Case of Pediatric Neglected Elbow Dislocation Treated with Speed Procedure

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KEY WORDS : Pediatric Neglected, Elbow Dislocation treated, Speed procdure

ABSTRACT

Old unreduced elbow dislocation is defined as dislocation which left unreduced for more than 3 week. Old unreduced dislocations of the elbow are not uncommon in developing countries.

The treatment options include open reduction, excision arthroplasty, interposition or replacement arthroplasty, and arthrodesis. **Our preferred method has been open reduction through a posterior approach by "Speed Procedure".**

INTRODUCTION

Old unreduced elbow dislocation is defined as dislocation which left unreduced for more than 3 weeks [7] An acute posterior dislocation of the elbow in a child is generally easy to treat. However, reduction is difficult mostly because of soft-tissue contractures in old unreduced or neglected elbow dislocation. In addition, scar tissue and new-bone formation can then prevent closed reduction. Depending on circumstances the surgeon has a variety of operative procedures from which to choose, but none is entirely satisfactory. These options include open reduction, excision arthroplasty, interposition or replacement arthroplasty, and arthrodesis[2,7].

According to some authors, benefit of open reduction is limited to dislocations of less than 3 months while according to some authors [3,5] open reduction gives good results in dislocations of even 2 years duration. **Our preferred method has been open reduction through a posterior approach by "Speed Procedure"[9].**

CASE HISTORY

A twelve year old female presented to us with stiff elbow, six months after history of trauma. Patient was initially treated outside by local bonesetter, who splinted the elbow in full extension. Radiographs of patient showed posterior elbow dislocation without any fracture (fi g.1).

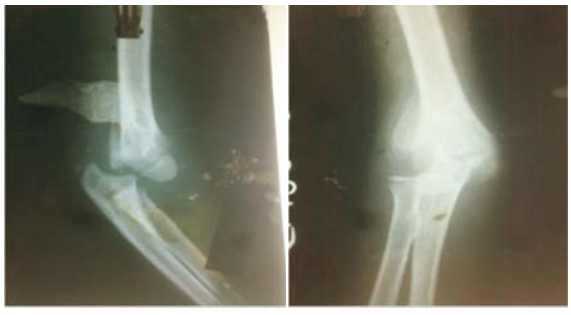

Fig.1. Posterior elbow dislocation without any fracture

On **Physical examination**, three point bony relationship between olecranon tip and medial and lateral epicondyles was disrupted. The distal articular surface of humerus could be palpated anteriorly at elbow and the olecranon tip was prominent posteriorly with tenting of the triceps tendon. There was no distal neurological deficit. Elbow joint was tender and fixed in 20 degree flexion. Patient did not have history of any major illness.

Treatment: Patient was treated with open reduction by speeds procedure7 Speed V-Y muscleplasty was done and fi brous tissue was removed. Concentric joint reduction was achieved and fixed with kirschner wire in 90 degree elbow flexion (fig.2).

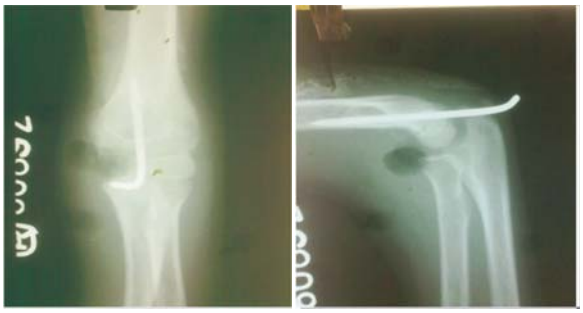

Fig.2 Post-operative Radiograph showing "Concentric joint reduction" was achieved and fixed with K- wire in 90 degree elbow flexion.

Wound was stitched and splintage was given. Wire was removed after ten days and active movement was initiated and, when not in physiotherapy, the arm was supported with sling. Patient was followed-up for 10

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months and evaluated with Mayo Elbow Performance Index. At the end of follow up result was excellent.

DISCUSSION

Posterior dislocation of the elbow brings the olecranon behind the humeral condyles. If the dislocation is not reduced the capsule, ligaments, and muscles shorten and the elbow usually becomes stiff in a few degrees of flexion [1,2,3,4,7]

Currently, most authors have agreed that by three to four weeks after dislocation the soft-tissue contractures and localized osteoporosis make closed reduction hazardous, in that the manipulation may fracture the bone or damage the articular surfaces [3,4]. With an older dislocation, open reduction with release of soft tissues and lengthening of the triceps will avoid further injury to bone and cartilage. Most authors have used the V-Y technique described by Speed to lengthen the triceps muscle [2,5,9]. We now prefer the posterior incision because it allows better exposure and permits the surgeon to perform adjunctive procedures (transplantation of the ulnar nerve, fixation with pins, or arthroplasty) if necessary.

Billett advocated the routine use of Kirschner-wire fixation and a plaster cast, whereas most authors have used only a cast [1]. We used pins in our patients, and had no complications and was immobilized by a plaster cast postoperatively.

Injury to the nerves has been reported both before and after operation [2,6,7,8]. The nerve is very vulnerable to traction injury when the epicondyle is avulsed. Some authors have advocated routine anterior transposition of the ulnar nerve, but this procedure is not without hazards, Myositis ossificans is a common complication of the injury, as has been well documented [2,7,8].

Child in our series had a good result; that is, the arc of motion of the elbow was improved fourfold in the most useful segment of the range of flexion extension. These results compare well with those of other authors [2,3,8,10]. However, the results cannot be regarded as permanent because the carrying angle may change or the length of the limb may be altered with continued growth in the younger children, and in all of the patients degenerative arthritis will most likely develop.

Several authors have noted less satisfactory results after open reduction[11,12,13] of dislocations that were older than two or three months than with more recent dislocations, and Wadsworth[14] stated that old dislocations should not be treated at all. Others have thought that open reduction is always worth trying, at least in children, and we agree with that assessment.

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CASE REPORT

Estimation of height of the person by using arm span and hand length measurements

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KEY WORDS : Arm-span, Estimation, Hand length, Hei ght

ABSTRACT

Estimation of stature of the person is of prime importance especially where the dead body is mutilated/ lower limbs are absent, in cases of mass disasters or where in person with amputed lower limbs etc., where only part(s) of body is/are available. Several studies have reported the effectiveness of using various body parameters in predicting body height. Arm span, hand length, foot length, head circumference etc. have been proved to be useful to correctly estimate the height of a person. In this study, the correlation between the arm-span and hand length with the standing height of both males and females was found to be an accurate predictor of the height and regression formulae were derived for calculating the height of male or female with the arm-span and hand length.

INTRODUCTION

Physical a nthropology is a science that deals with the study of humans in their biological, evolutionary and demographic dimensions [1]. Identification is a person is of paramount importance and primary element in all medico- legal cases. Many characteristics such as age, sex and stature are the most primary characteristics for the identification of an individual [2].

However, in cases where the cadaver is highly mutilated/with absent lower limbs, in cases of mass disasters or where the lower limbs are amputed etc., anthropometry becomes an important aid for identification of such cadavers.

Estimation of height is an important and primary factor to establish the identity of a person. Several studies have reported the effectiveness of using var ious body parameters in predicting

body height [3, 4, 5,]. However the association of arm span and height was fo und to vary from race to race [6, 7]. Even though many previous studies of this kind have been carried out, very limited data is available on Gujarati subjects. Ossification of hand bones occurs earlier than the long bones and therefore, height could be more accurately predicted from hand measurement as compared to long bones even during adolescence age [8].

The aim of this study was to find the correlation between the arm-span and hand length with the standing height of both males and females and to derive regression equations for estimation of the height of male or female in Gujarati population.

MATERIAL AND METHODS

For present study, total 150 (72 males and 78 females) healthy subjects; students of a Medical College in Ahmedabad were selected. Their age ranged between 18 to 20 years. Prior to taking measurement of student, permission from Dean/Superintendent and Head of respective department was taken. The standing height, arm span and hand length were measured for all subjects.

Height was measured with the subject standing on their heels together and back as straight as possible so that heels, buttocks, shoulders and the head touched the wall. The arms we re by thesides of trunk with the palms facing the thighs. Students were asked to take a deep breath and hold it, a measuring steel scale was placed against the head and wall to determine maximum height on the wall, and this was marked. The students were t hen told to breathe out and to step away from the wall. The stature was then measured from the floor to the mark on the wall with flexible steel tape which represents the stature in centimeters to the nearest 0.1 centimeters.

Arm span was measured with a flexible steel tape from the tip of the middle finger of one hand to the tip of the middle finger of the other hand with the individual standing with their back to the wall with both arms abducted to 90°, the elbows and wrists extended and the palms facing directly forward. Readings were taken to the nearest 0.1 cm.

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Hand length was measured as a direct distance from the level of tip of the most distal point on the styloid process of the radius to the tip of the middle finger by using the spreading caliper. The hand length was taken by asking the subject to place the hand on a table with the fingers together and thumb abducted. S tature of the subjects was measured in standing erect anatomical position with standing height measuring instrument. The measurements were recorded in centimeters to the nearest 0.1 cm.

A measurement was taken twice in each subject. When the two measurements for each parameter fell within 0.4 cm, their average was taken as the best estimate for the true value. When the two initial measures did not satisfy the 0.4 cm criterion, two additional determinations were made and the mean of the closest records was used as the best estimate.

OBSERVATIONS

A total of 150 subjects were studied in this study out of which 72 were males and 78 females. Regression equations using both hand lengths and arm span were formulated in order to estimate the height of a person (Table 1).

Table 1. Correlation coefficients and regression equations for estimation of height from arm span and hand length.

Subjects	Side	Correlation Coefficient (r)	Regres s ion Equation	P Value
Male	Right hand	0.803	HT = 54.313 + (0 .605) AS + (0 .731) HL	<0.001
	Left hand	0.802	HT = 54.399 + (0 .606) AS + (0 .741) HL	<0.001
Female	Right hand	0.868	HT = 40.528 + (0 .737) AS + (0 .056) HL	<0.001
	Left hand	0.869	HT = 40.553 + (0 .739) AS + (0 .037) HL	<0.001

HT- Height, AS- Arm span, HL- Hand length

By using these regression equations, height of the individual subject was calculated by using the arm-span and the hand-length measurements. This calculated height was then compared with the actual height of the individual and the standard deviation was found (Table 2 and 3).

Table 2. Comparison of measured height with estimated height from arm span and hand length in males.

Variable	Estimated Stature (cm)		Meas ured height (cm)	
	Range (cm)	Mean ± SD (cm)	Range (cm)	Mean ± SD (cm)
Arm s pan and Right hand	166.28-191.51	175.95 ± 4.751	158.80 - 191.0	175.95 ± 5.917
Arm s pan and Left hand	166.28-191.54	175.94 ± 4.750		

Table 3. Comparison of measured height with estimated height from arm span and hand length in females.

Variable	Estimated Stature (cm)		Meas ured height (cm)	
	Range (cm)	Mean ± SD (cm)	Range (cm)	Mean ± SD (cm)
Arm s pan and Right hand	147.11 - 176.50	161.12 ± 4.879	144.20 – 174.50	161.11 ± 5.620
Arm s pan and Left hand	147.12-176.51	161.11 ± 4.880		

DISCUSSION

Estimation of height using various physical measurements has been attempted previously by many authors. Mitchell used arm length to estimate the height [8], while Chumlea estimated stature from knee height [9]. Steele and C henier in a study on black and white women in the agegroup 35–89 reported correlations of arm span and height of 0.852 and 0.903 for black and white women, respectively [10]. All the previous studies use any one physical parameter to determine the height. However, here, we have used two physical parameters to estimate the height of person using both the upper limbs.

In our study, correlation coefficient between height and arm span and right hand length is 0.803 whereas same using left hand is 0.802 in males. Correlation coefficient between height and arm span and right hand length is 0.868 whereas same using left hand is 0.869 in females. The correlation values both in males and females are highly significant. In the present study, the equations derived from arms span and right hand length for male and female subjects are 54.313 + (0.605) Arm span + (0.731) Hand length and 40.528 + (0.737) Arm span + (0.056) Hand length, respectively. The equations derived from arm span and left hand length for male and female subjects are 54.399 + (0.606) Arm span + (0.741) Hand length and 40.553 + (0.739) Arm span + (0.037) Hand length respectively. The derived equations were tested and the difference between measured and estimated height was found to be non-significant.

CONCLUSION

We conclude that both arm-span and hand length can be used in estimation of the height of both males and females. The regression equations so derived can be used in cadavers or an amputee with fairly accurate results. This can be helpful in medico- legal cases as well as in study of anthropology.

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CASE REPORT

Unusual presentation of an uncommon condition

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KEY WORDS : Hypoclacemia, Psoriasis, Idiopathic hypopaarathyroidism

ABSTRACT

A middle aged gentleman presented with a flare of psoriasis with severe hypocalcemia and resultant encephalopathy. He was found to have hypoparathyroidism. Correction of calcium levels led to improvement in encephalopathy and psoriasis. Raised serum creatinine phosphokinase (CPK) levels also normalised with calcium correction. The case is chosen because of its rarity. formulae were derived for calculating the height of male or female with the arm-span and hand length.

INTRODUCTION

Hypoparathyroidism may occur as a component of a congenital syndrome e.g. DiGeorge syndrome. When acquired it is commonly iatrogenic following neck surgery or irradiation. Less common causes include autoimmune polyglandular syndrome type-1 when it co-exists with adrenal and thyroid involvement , hypomagnesaemia-related suppression of parathyroid function and infiltrative conditions like malignancy, sarcoidosis, hemochromatosis and Wilson's disease. In a significant proportion of patients it is considered to be idiopathic.

Clinical presentation is typically with symptoms of hypocalcaemia including neurologic and less commonly cardiac manifestations .Biochemical diagnosis is based on a combination of hypocalcaemia and hyperphosphataemia with low or inappropriately normal PTH.

CASE

A 50 year old gentleman of South Asian origin presented with a 4-week history of worsening of psoriatic skin lesions, generalised weakness, loss of appetite, and 4 kg weight loss. His family had noticed that over the past 10 days, his behaviour had altered with irrelevant talking and periods of confusion. He was short of breath and had difficulty speaking and swallowing solid foods. Past history was unremarkable other than long-standing psoriasis for which he was being treated with alternative medicine. There was no significant family history.

At the time of presentation his weight was 95 kg, BMI 37.1, pulse 88/minute, BP 130/86mmHg, respiratory rate 20/minute and he was afebrile. He was irritable, confused and found it difficult to hold a conversation. There were no localising neurological signs. Cardio-respiratory and abdominal examination was normal. He had extensive psoriasis covering 90% body surface area (Fig 1). There were no signs of infection. Total blood count, liver function and renal function test were normal.Serum calcium was 2.6mg/dl(8.4-10.2mg/dl),phosphorus 8.1mg/dl(2.5-4.5mg/dl),magnesium 1.6mg/dl(1.6-2.3mg/dl), 25(OH) vitamin D3 12.80ng/ml (30-100ng/ml) and parathyroid hormone (PTH) level 36.80pg/ml (15.0-68.3pg/ml). Total creatinine phosphokinase (CK) was high at 2664.80U/L(55-170U/L)with no history of prolonged immobilization or muscle trauma. Electrocardiogram showed prolonged QTc interval consistent with severe hypocalcaemia. MRI brain showed basal ganglia calcification(Fig. 3)

A diagnosis of idiopathic hypoparathyroidism was made on the basis of severe hypocalcaemia, hyperphosphatemia, normomagnesaemia and inappropriately normal PTH level. This was further supported by basal ganglion calcification on MRI. Hypocalcaemia related to vitamin D deficiency or due to severe psoriasis were other possibilities but were excluded by normal PTH and high phosphorus levels. Ellsworth-Howard test could not be performed due to logistic reasons, although pseudohypopara-thyroidism was deemed highly unlikely.

In view of severe symptomatic hypocalcaemia, he was started on intravenous calcium gluconate infusion along with oral calcitriol(2ug/day)and calcium carbonate(2 gm/day). Within 24 hours, calcium level rose by 1mg/dl and his mentation, dysarthria and slowness of speech improved.

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Over the next 3-4 days with further rise in serum calcium level most symptoms improved, QTc interval normalised and intravenous calcium infusion was weaned off. A week later as calcium and phosphorous levels normalised, he was discharged on calcitriol (2.0 ug/day) and oral calcium carbonate (2.5 gm/day).Changes in serum calcium and phosphorus are shown in fig.4. During the following 2 weeks there was a dramatic regression of the extensive psoriatic lesions with clearing of erythema , induration and scaling.(fig.1,2).At one month following

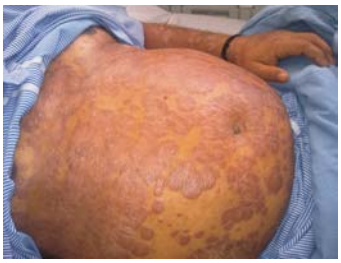

Fig. 1 : Psoraitic lesions on admission

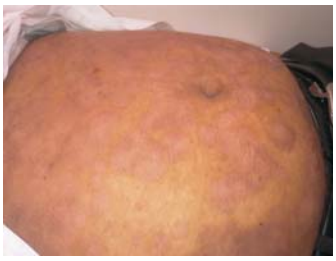

Fig. 2 : Healed lesions on discharge.

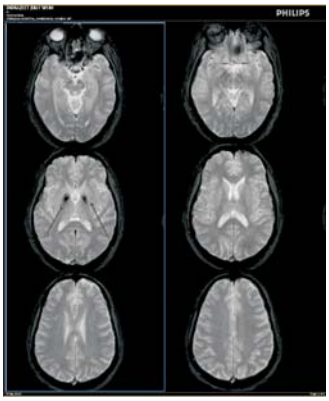

Fig. 3 : MRI (Brain) showing physiological symmetrical calcification in bilateral globus pallidus

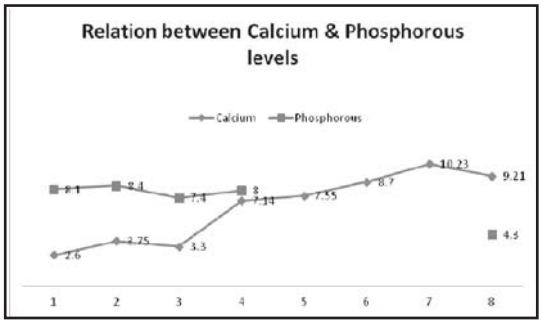

Fig.4 : Chart showing relationship between S.Calcium & Phosphorous

discharge, psoriasis had regressed completely and calcium and phosphorus level were normal. Till the last follow up which was one year after the diagnosis, his psoriasis is still under control and calcium levels are well maintained with calcitriol (0.25 ug/dl) and oral calcium carbonate.(1 gm/day)

DISCUSSION

Our patient had prominent central neurologic symptoms in the form of marked confusion, irrelevant talking and slowness of thought process. Hypocalemia was detected in our patient as a part of work up to rule out metabolic encepahalopathy. These symptoms have been reported to be uncommon for hypocalcemia ; in a review from Mayo Clinic they were seen in 9 of the 38 patients(1) while in a more recent series from India, only 10-15 % of patients of hypocalcemia presented with central neurological symptoms(2).Cognitive dysfunction has been reported in 4-8% of patients while incidence of extrapyramidal features like chorea, athetosis, dystonia and oculogyric crisis is 4-12%(3,4,5). Cerebellar dysfunction is less common.

Biochemical diagnosis of hypoparathyroidism is based on a combination of hypocalcaemia and hyperphosphataemia with low or inappropriately normal PTH. It is likely that in our patient the presence of measurable PTH was linked to the persistence of partial secretion of PTH which was sufficient to maintain reasonable level of serum calcium until the onset of severe psoriasis and/or vitamin D deficiency which precipitated severe symptomatic hypocalcaemia.

Although our patient had several of the classical clinical and biochemical features of hypoparathyroidism, his initial presentation was unusual. He had severe exacerbation of long-standing psoriasis with widespread skin involvement.. Symptoms of hypocalcaemia followed the onset of dermatological manifestations and led to the diagnosis of hypoparathyroidism. Improvement in calcium levels not only led to regression of the classical symptoms of hypocalcaemia but also to rapid clearing of psoriasis. Although association of hypoparathyroidism and worsening of psoriasis has been previously reported (3,4,5)unlike most of the other reported cases our patient was diagnosed to have hypoparathyroidism only at the time of presentation with severe psoriasis.

Explanation proposed for the association of hypoparathyroidism and exacerbation of psoriasis is based on the observation that in human keratinocytes cell to cell contact is reduced when the concentration of extracellular calcium is altered(6,7).This impact of

changes in calcium on cellular adhesion is brought on by a reduction in expression of E-cadherin in keratinocytes (6,7). Dysfunction of these adhesion molecules is likely to lead to epidermal abrasion and squamous epithelium thereby resulting in exacerbation of psoriasis. This process has also been implicated in other dermatological conditions like Pemphigus, and Darier disease(7). Another possible explanation could be the adverse impact of altered vitamin D and calcium level on cell differentiation, proliferation and immunity and our patient had abnormalities of both these parameters. So with improvement in these levels, psoriasis also improved. Also psoriasis may increase with stress and so one independent explanation is that it improved as the stess got better.

At the time of presentation the patient was noted to have significantly raised level of serum total creatinine phosphokinase without any other clinical or biochemical features of muscle damage. This biochemical abnormality was normalised on correction of hypocalcaemia. Although its exact mechanism is not known, rise in creatinine phosphokinase is a recognised manifestation of hypoparathyroidism (8) and this should be considered in patients with unexplained high total creatinine phosphokinase levels.

In summary, this case highlights the relation between hypoparathyroidism and exacerbation of psoriasis. As seen in our patient, normalisation of serum calcium improved psoriasis as well as clinical features of hypocalcemia. Also in all cases of unexplained high CPK levels and in patients presenting with altered sensorium we should rule out hypocalcemia.

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CASE REPORT

A Rare Challenging Diagnosis "Takayasu's Arteritis"

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KEY WORDS : Hypoclacemia, Psoriasis, Idiopathic hypopaarathyroidism

ABSTRACT

Takayasu's arteritis primarily affects young women. The current case report focuses on an Indian rural middle-aged woman who complained of weakness, malaise, palpitations, fatigue and recurrent episodes of breathlessness. Discrepancy in peripheral pulsations in both upper limbs and the left brachial artery BP (blood pressure) measurement not being possible, gave a hint towards the diagnosis and further investigations were carried out. Thus Takayasu's arteritis is not limited to women of Japanese origin but is present worldwide and especially in India. Early diagnosis and treatment is warranted. Outcome appears to be favorable when the disease is quiescent.

INTRODUCTION

Takayasu's arteritis (also known as "aortic arch syndrome", "nonspecific aortoarteritis" and the "pulseless disease") is a form of large vessel granulomatous vasculitis with massive intimal fibrosis and vascular narrowing affecting often young or middle-aged women of Asian descent[1]. It mainly affects the aorta (the main blood vessel leaving the heart) and its branches. This eventually results in end organ/tissue ischemia and leads to different clinical manifestations of the disease[1,2]. The disease occurs more commonly in young females than males with peak incidence between 15 and 20 years of age[3]. It is one of the most common vasculitic disorder in India[4] and the third most common vasculitis after Henoch-Schonlein purpura and Kawasaki disease in the paediatric age group worldwide[5-7].

CASE REPORT

A 28 year old rural, Indian, female presented with complaints of malaise, low grade fever, weakness since 15 days with breathlessness since 10 days which was initially on exertion, but later occurring even at rest. Patient also complained of recurrent episodes of palpitation and chest discomfort since 10 days with worsening of symptoms. Patient has a past history of pulmonary tuberculosis before 5 years for which she took AKT for 8 months.

On examination, temperature was normal, pulse-100/min, regular in right radial artery. Peripheral pulsations were absent in left radial, left brachial artery in the upper limbs, dorsalis pedis pulsations were absent in both lower limbs and the left anterior tibial , posterior tibial, popliteal pulsations were weak as compared to the right side, rest all pulsations were normal. BP-106/76 mm Hg right brachial artery in supine position with normal volume, force, tension and condition of the arterial wall, and was not measurable in the left brachial artery. While the calf BP in right limb was 14mmHg more than the left limb. The respiratory rate was 28/min. Respiratory system examination was normal except for bilateral basal fine crepitation on auscultation while CVS auscultation revealed loud P2. A bruit was present in auscultation of the abdominal aorta. Fundus examination was normal.

Laboratory results were as follows: Hemoglobin (Hb) 9.6g/dl, Erythrocyte sedimentation rate (ESR) 119mm/h, Serum chemistry and urine analysis were normal. Antinuclear antibodies (ANA), Antineutrophilic cytoplasmic antibodies (c-ANCA), Perinuclear (p-ANCA) were negative. Chest X-ray showed a cavity in right upper zone with hilar fibrosis and prominent pulmonary conus. Sputum examination for acid fast bacilli and pulmonary function tests were normal. 'P pulmonale' was present in the Electrocardiography (ECG). Echocardiography (ECHO) was suggestive of MVP with PAH. Angiograhy and aortography (Image 1,3) revealed 4 cm. occlusion in Lt. subclavian artery and segmental narrowing of arteries in the left lower limb mainly anterior tibial, posterior tibial and popliteal with decreased flow across them. There was no evidence of arteriosclerosis or fibromuscular dysplasia. Digital subtraction renal angiography (Image 2) showed occlusion of left renal artery.

At the time of presentation his weight was 95 kg, BMI 37.1, pulse 88/minute, BP 130/86mmHg, respiratory rate 20/minute and he was afebrile. He was irritable, confused and found it difficult to hold a conversation. There were no

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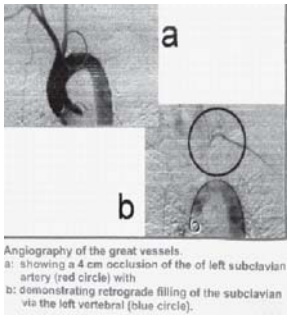

Fig.1: Aortography s/o Subclavion occlusion

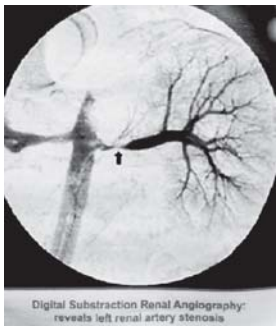

Fig.2 : Aortography s/o left renal occlusion

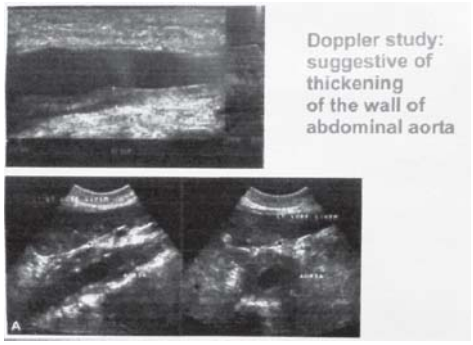

Fig.3 : Doppler study of Abdominal wall aorta

Initially a trial with methyl prednisolone was given with significant improvement. Within 3 months of therapy (with dose being tapered gradually) the symptoms decreased and the left radial pulse was again detectable, albeit weakly. Her blood pressure on the left arm was 90/50□mmHg. ESR decreased to 20□mm/h. Patient showed remarkable improvement with this extended therapy.

DISCUSSION

Thus with the clinical manifestations and their radiological co-relation a diagnosis of Takayasu arteritis can safely be established in the above case. The first case of Takayasu's arteritis was described in 1908 by a Japanese ophthalmologist, Mikito Takayasu at the annual meeting of the Japan Ophthalmology Society.[6,7] Takayasu described a peculiar "wreathlike" appearance of the blood vessels in the back of the eye (retina). The Worldwide incidence of Takayasu arteritis is estimated at 2.6 cases per million per year. Although the disease has a worldwide distribution, it is observed more frequently in Asian countries such as Japan, Korea, China, India. The erythrocyte sedimentation rate (ESR) probably remains the most reliable marker of disease activity, but even this test is not helpful in a

sizeable number of patients who have active arterial inflammation but normal ESRs[10]. The Ishikawa criteria (1986)[8] have been useful in defining Takayasu arteritis. The above case satisfies the two major criterias with age less than 40 years at the onset of symptoms or diagnosis and involving lesions in left and right subclavian artery as determined by aortography. The minor criterias consist of annuloaortic ectasia or aortic regurgutation as shown by angiography or ECHO and pulmonary artery, left mid common carotid, distal brachiocephalic trunk, descending aorta or abdominal aorta lesions. However this criterion was more useful in diagnosing the disease in Japenese polpulation. The American College of Rheumatology has given their criteria[9] in 1990 for diagnosing the disease (3/6 are necessary): age 40 or <40years at disease onset, claudication of extremities, decreased pulsation of 1 or both brachial arteries, difference of 10 mmHg in systolic BP between both arms, bruit over 1 or both subclavian or abdominal aorta and angiographic criteria must show narrowing or occlusion of the entire aorta, its primary branches or large arteries in the proximal upper or lower extremities, these changes are not due to arteriosclerosis, fibromuscular dysplasia or similar causes and the changes are focul or segmental. The ACR criteria gives a greater flexibility to account for the variability in actual clinical practice.

CONCLUSION

Takayasu's arteritis is a rare systemic vasculopathy that can progress to vital organ ischemia. The aim of treatment must be the control of disease activity and the preservation of vascular competence, with minimal long term side effects. Patients with disease that carries a good prognosis should not be put at risk by treatment that is more harmful than the disease itself. Current evidence favours the use of steroids and immunosuppressive drugs. As the treatment for Takayasu's arteritis may be associated with substantial side-effects, more accurate means of gauging disease activity are required.

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CASE REPORT

Bilateral Uterine Artery Embolization in a case of Acquired AV Malformation due to repeated D&C in a patient of Gestational Trophoblastic Tumour treated with Chemotherapy.

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KEY WORDS : Bilateral uterine artery embolization, Acquired AV malformation of uterus Repeated D & C and GTT

Abstract : Uterine AV malformation can be congenital or acquired. Gestational trophoblastic disease, iatrogenic trauma like repeated D&C are some of the causes of acquired AV malformation. They can cause considerable morbidity with significant blood loss. Uterine artery embolization is an effective and safer alternative to surgery in their treatment. Here we present a case of middle aged female with acquired uterine AV malformations due to repeated D&C and GTT treated with chemotherapy, effectively treated by bilateral uterine artery embolization. This is unusual and rarely reported in literature.

CASE REPORT

A 42 years old female was referred to Cardiac OPD from a gynaecologist with the diagnosis of Uterine AV malformation, with complaints of profuse vaginal bleeding in the form of daily heavy soaking of sanitary pads and restriction of social life. She had easy fatigability and palpitation on exertion.

She had been in the follow-up of two gynaecologists; one of them advised hysterectomy in view of intractable per-vaginal blood loss, morbidity and requirement of repeated transfusions, a total of six units in last six months. But she wished to avoid surgery and preserve her uterine function.

In the past, she had Gestational trophoblastic disease in her 3rd pregnancy, which was terminated and she was treated with methotrexate. She underwent D&C examination for six times to assess histological regression. She was declared cured after having normal beta hCG levels and normal histological findings. However now she started intractable per-vaginal bleeding for last 3 months.

On examination, she looked pale. Her haemogram revealed anaemia of micro-cytic hypo-chromic type with Haemoglobin of 8 gm/dl. Other laboratory investigations were normal.

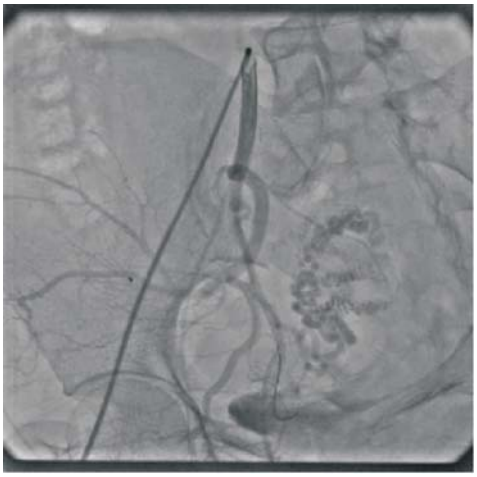
USG and colour Doppler examination revealed large foci of uterine AV malformations in both the lateral walls of uterus with feeding vessels from both the uterine arteries.

A diagnosis of acquired uterine AV malformation associated with gestational trophoblastic disease was made. As the patient was not willing for hysterectomy, an option of uterine artery embolization was given.

Patient and her husband were counselled regarding the procedure, possible complication and risk of loss of menstrual and reproductive functions. The written consent was taken. Before the procedure, patient was transfused with two units of packed red blood cells to raise haemoglobin level to 10 gm/dl.

Procedure – The procedure was done under conscious sedation and local anaesthesia through retrograde right femoral artery approach. Angiogram through bilateral internal iliac (fig. I, III) artery revealed multiple foci of 4F

Figure I- Right internal iliac artery, uterine artery with feeder supplying right sided AV malformation in uterus.



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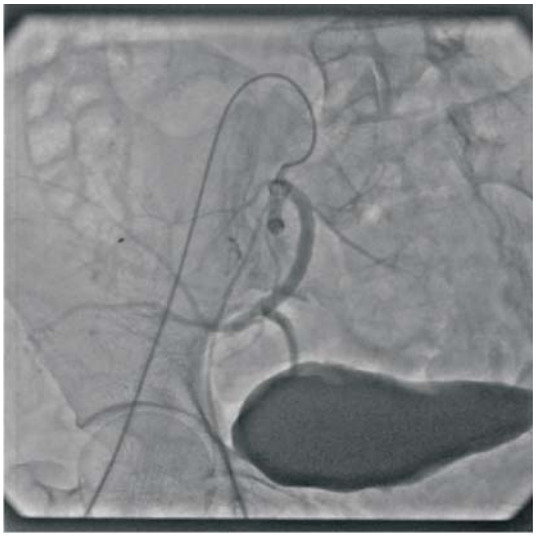
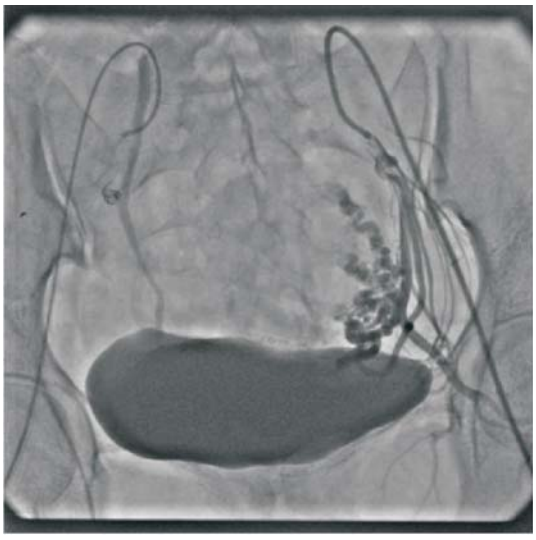
uterine AV malformations with feeders from bilateral uterine arteries. 4F JL guiding catheter was tracked to right internal iliac artery & right uterine artery with the support of stabiliser plus PTCA wire. Cook coil of size 38-8-8 was put distally in the large feeder from right uterine artery. Left uterine artery was hooked from retrograde left femoral artery approach and large feeder from it supplying the other AV malformation was embolized with 38-8-8 coil.

Figure II- Post coil embolization on right side- No filling of AV malformation.



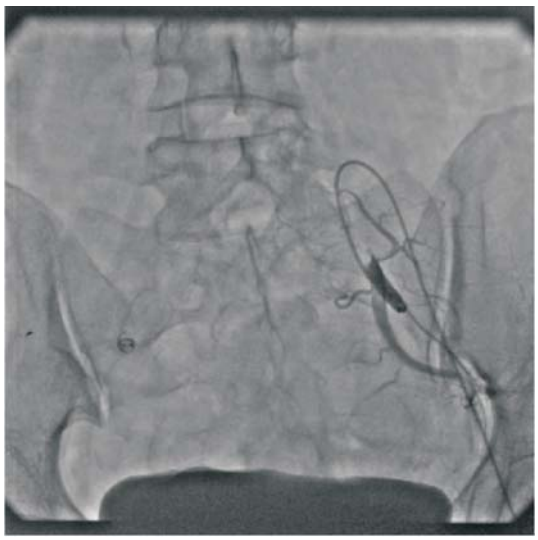
Post-procedure check angiogram (Fig. II, IV) revealed no filling of AV malformation on both the sides with considerable reduction in size of AVM. Patient maintained stable hemodynamic throughout the procedure and was kept in observation unit for next 24 hours. Patient had mild back pain post procedure which was effectively controlled by low dose opiate analgesics.

Figure III- Left internal iliac artery, uterine artery with feeder supplying left sided AV malformation in uterus.



Patient reported complete stopping of per-vaginal bleeding in the next 24 hours. She was discharged with stable vitals, no bleeding and Hb of 10 gm%. On follow up after 3 months patient was asymptomatic, with no menorrhagia and haemoglobin of 11.5 gm%.

Figure IV- Post coil embolization on left side- No filling of AV malformation.



DISCUSSION

Gestational trophoblastic disease is a rare complication of pregnancy that is classified into complete and partial hydatidiform moles[1]. They have prevalence of 1–2 per 1,000 pregnancies in developed countries[1]. Evacuation of the products of conception following a molar pregnancy is curative in most patients. However, approximately[2] 15% of complete moles and 5% of partial moles undergo malignant transformation in choriocarcinoma or other invasive tumours. These are collectively known as gestational trophoblastic tumours (GTT), and more than 90% of patients are cured with chemotherapy[2].

GTTs are highly vascular and associated with the formation of uterine vascular malformations. These vascular malformations persist in 10%–15% of patients, even after complete resolution of the tumour following chemotherapy[3]. 1%–2% of these malformations cause vaginal or intra-peritoneal haemorrhage, which can be life threatening[3]. Hysterectomy and uterine artery ligation have been the treatments of choice. However, uterine artery embolization is an effective[4] alternative strategy. Since the majority of such vascular malformations are supplied predominantly by the uterine arteries, embolization has been used as the first line of treatment for these patients[5].

Vascular malformations of the uterus can be congenital or acquired. Acquired AVMs are usually traumatic resulting from repeated D & C, therapeutic abortion or following uterine surgery or direct trauma. Less commonly,

maternal diethylstilbestrol exposure, endometrial or cervical cancer have been implicated as cause. However, the most common cause is gestational trophoblastic tumours.

The main side effect of embolization was pain, which was readily controlled with opiate and non-steroidal analgesia. This is similar to other reported series of uterine artery embolization for disease processes unrelated to gestational trophoblastic tumours[6]. Some patients might experience buttock and lower-limb claudication, which tend to resolve spontaneously and is likely to be a result of multiple embolizations in the pelvic vessels. Neurologic deficits affecting the lower limb have previously been reported and seem to be more commonly associated with the use of liquid embolization materials [7, 8]. Other serious complications, such as perineal skin sloughing, utero-vaginal and recto-vesico-vaginal fistulae, and bladder necrosis, have also been reported in series where the internal iliac arteries have been embolized with cryanoacylate[7-9].

Embolization of the uterine arteries has not been associated with uterine infarction because of the presence of a rich collateral vascular network within the pelvis [10]. This is emphasized by series in which patients managed to conceive following embolization.[11, 12.]

The patient in this case had history of gestational trophoblastic disease and iatrogenic trauma in the form of repeated D&C for 6 times. Uterine artery embolization as a treatment has been used mostly[3-5] in Fibroid uterus with varying success. Its use in the treatment of acquired uterine AV malformation, specifically in the clinical setting of GTT and repeated D & C has been very infrequent in developing countries and only a few cases have been reported in literature. Bilateral Uterine artery embolization in a case of acquired AV malformation of uterus due to repeated D&C in a case of gestational trophoblastic tumour treated with chemotherapy is rarely reported in literature makes this case unique.

The success rate of the treatment varies from one series to other, from 50% to 99%, which was nearly complete in our patient. Its benefits are freedom from scar, lesser pain and shorter hospital stay.

CONCLUSION

Selective uterine artery embolization is a safe and effective treatment for haemorrhage from uterine vascular malformations after chemotherapy in patients with gestational trophoblastic tumours. Hysterectomy can be avoided with preserved fertility, which is extremely important for these patients. If properly performed, it is a good alternative to surgery with nearly complete resolution of symptoms in patients not willing for surgery or unfit for the same.

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