

Guest Editor Stapled haemorrhoidectomy for internal haemorrhoids

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The varicosities of the veins of the anal canal are known as haemorrhoids. Within the normal anal canal there exist specialized, highly vascularised cushion forming discrete masses of thick sub-mucosa containing blood vessels, smooth muscles, elastic and connective tissue. They are located in the left lateral, right anterior and right posterior quadrants of the anal canal to aid in anal continence. The term haemarrhoids should be restricted to clinical situation in which these cushions are abnormal and when it slides downwards associated with gravity, straining and irregular bowel habits. On the basis of this "sliding down theory", newer concept of treatment for internal haemorrhoids such as Stapled haemorrhoidectomy has come into being.

The haemorrhoids is subdivided into two types i.e. i) External ii) Internal. External haemorrhoids are covered with anodern and are distal to dentate line. They may swell, causing discomfort and difficult hygiene but cause severe pain only if actually thrombosed, whereas the internal haemorrhoids are covered by mucus membrane and lie above dentate line. It causes painless, bright red bleeding or prolaspe associated with defaecation.

Internal haemorrhoids are graded into four. In the first degree there is only bleeding per rectum with no prolaspe. In the second degree there is bleeding per rectum with prolaspe which gets reduced spontaneously. In the third degree, in addition to bleeding, there will be prolaspe pile mass which require digital reduction whereas in the fourth degree there is complete prolaspe which cannot be reduced by the patient. The first and second degree haemarrhoids are best managed by dietary adjustment and other non-operative procedures such as banding, sclerotherapy, infrared coagulation etc. with good results. However, surgical procedure is required for the third and fourth degree haemorrhoids. Milligan-Morgan excision or Ferguson's closed technique are the commonly employed procedure so long and continuing till now in many centres with reasonable good result. However, these opened procedure have been associated with postoperative(PO) pain, exposed perianal wound for a longer period and prolonged hospital stay. In some patients we may encounter anal incontinence and stenosis. Further more patients have to maintain precise wound dressing to prevent infection from faecal contamination and delayed wound healing. Moreover morbidities such as bleeding and urinary retention are not uncommon following conventional haemorrhoidectomy.

The surgical treatment of haemorrhoids has significantly changed by introducing new technique in the recent past. Longo A¹ has introduced for the first time a procedure called stapled haemorrhoidectomy, also known as procedure for prolapsed haemorrhoids a technique developed in the early 1993, that reduces the prolaspe of haemorrhoidal tissue by excising a circumferential band of about 2cm in length of the prolapsed rectal canal mucosa membrane 5cm above dentate line with the use of circular stapling device. Mucosotomy is being performed by the stapler. On completion of the excision, the stapler line will be felt about 3cm from anal verge on digital rectal examination and the tissue that slides down has been pulled up. The stapled haemorrhoidectomy as described by him leads to less postoperative pain, a shorter PO stay, virtually no wound in the perianal area, a shorter recovery time in patients of third and fourth degree haemorrhoids compared with conventional haemorrhoidectomy. Thereafter many centres have started doing this procedure giving very good results comparing with conventional open technique.

Kiroch JJ et al² in a prospective comparative study of 300 patients reported that patients with a stapled haemorrhoidectomy required considerably less analgesic and shorter hospital stay. These group of patients return to works quicker. However, the cost of the procedure was considerably higher because of the disposable instrument. Lehur PA et al³ analysed the advantages of stapled approach of haemorrhoids in different areas of concern including PO pain reduction, hospital stay, wound care, type and rate of complications. The authors have reported that stapled anopexy is probably less painful than conventional haemorrhoidectomy. The patients with these procedures leave the hospital within one or two days and resume

their normal activities within a short time.

Having attended a workshop on stapled haemorrhoidectomy conducted by Professor Ho Ho(Singapore) in Kolkata in May 2001, I am also one of the few pioneer surgeons in the country to have started such procedure in the year 2001. Initially I had some problems of PO bleeding, mucosal prolaspe etc. in a few patients. However, after attending another workshop on stapled haemorrhoidectomy at Sir Ganga Ram Hospital, New Delhi conducted by Longo A, the first pioneer surgeon of this technique on 28 February 2006, I have improved on my technique and have performed 100 patients of 3rd and 4th degrees internal haemorrhoids till now. Though Longo A included all grades of haemorrhoids in his study, I have been doing these procedures only in 3rd and 4th degrees. The 4th degree with mucosal ulceration has been excluded in my series. In my first 100 patients, I have found that average operating time and hospital stay were 30min. and 2days respectively. Per-rectal packing of gauge piece is removed on 1st operative day. Oral semisolid diet is allowed next day of the operation. Excepting one dose of analgesic on the day of operation, none of the patient required further analgesic in the PO periods. I have been performing these procedure for the last 7 years or so, I have not come across any major complications such as recurrence, stricture etc. Though longer follow up is required, I find the procedure of stapled haemorrhoidectomy is an excellent operative technique for third and fourth degrees internal haemorrhoids. However, the cost of the equipment which is disposable comes on the way of popularising this operative technique in this part of the country.

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A comparative study between laparoscopic versus open appendicectomy

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Abstract

Objective: Laparoscopic appendicectomy though widely practiced has not gained universal approval. This study is aimed to compare operative time, postoperative(PO) complications, PO pain and length of hospital stay between laparoscopic appendicectomy (LA) and open appendicectomy (OA). Methods: The study was conducted in the department of G.I. & Minimal Access surgery, Regional Institute of Medical Sciences (RIMS) Hospital, Imphal, a tertiary care center over 18 months period and consisted of 50 patients suffering from acute appendicitis. The patients were randomized prospectively to either LA (25 patients) or OA (25 patients). Results: There was no conversion of laparoscopic to open procedure. Two patients underwent combined LA with laparoscopic cholecystectomy for associated gall stone disease. LA took significantly less operation time than open surgery (t=11.54; P<0.001). The median length of hospital stay was significantly shorter after LA (2.92 days after LA; 5.40 days after OA, P<0.001). Significant difference in time for oral intake of liquid / solid

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Prof. G.S. Moirangthem, Surgical Gastroenterology & Minimal Access Surgery Unit, RIMS, Imphal-795004. e-mail : <u>drmoirangthem@vahoo.co.in</u> food (t = 6.64, P = <0.001) and total number of PO analgesic received (t =8.53; P<0.001) was noted. However insignificant p-value (P>0.05) for PO wound infection was noted in this study. **Conclusion:** LA is equally safe and can provide less PO morbidity in experienced hands as OA. In addition to improved diagnostic accuracy, LA confers advantages in forms of fewer wound infection, less operative pain, faster recovery and earlier return to work.

Key words: Appendicitis, open appendicectomy, laparoscopic appendicectomy.

Introduction: Appendicectomy through Mc Burney's grid incision¹ remained the procedure of choice for nearly a century until 1983 when Semm K² offered an alternative, namely "LA", Since then LA as compared to OA has been a matter of great debate. The literatures provide contradictory results. It is also argued that advantages of LA are marginal compared to OA performed by an experienced surgeon through a short, cosmetically acceptable incision with minimal complications. Because of competition of LA and OA, OA has improved greatly. More and more questions are being raised as to the benefit of LA and metaanalysis have confirmed that LA is safe and results in a faster return to the normal activities with fewer wound complications at the expense of a longer operating time.³⁻⁶ Therefore this study is aimed to compare LA and OA and ascertain the therapeutic benefit, if any, in the overall management of acute appendicitis.

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Material and methods

This study was conducted in RIMS hospital, Imphal over eighteen months period (Nov 2005 to April 2007) and included patients with clinical diagnosis of acute appendicitis. Patients were of 14 to 58 years of age. Detailed history of menstrual cycle was taken to exclude PID in the females of child bearing age (14 to 44 years). Excluded from the study were patients with history of cirrhosis and coagulation disorders, generalized peritonitis, shock on admission, pregnancy, history of contraindication to laparoscopic surgery and general anaesthesia like severe cardiac or pulmonary diseases.

After a detailed and complete workup, patients were submitted for appendicectomy by video laparoscopy or by traditional open method with 25 patients in each group.

OA was performed through a Me Burney's muscle splitting incision, the mesoappendix and appendix base were ligated with absorbable suture and base of the appendix left uninvaginated. When unexpected diffuse acute peritonitis was present, abdominal cavity was washed with 0.9% saline solution and wound enlarged if necessary. A drainage tube was placed if there was necrotic tissue or doubt as to the abdominal cleanliness.

LA was performed using 3 ports with the laparoscope positioned at the umbilicus. Intraabdominal pressure was kept controlled automatically at 11-15 mm Hg. 2 ports, one 10mm port and other 5mm port were inserted on the left and right subcostal

region respectively in the midclavicular line. After complete diagnostic survey of intraabdominal cavity, appendicectomy began with coagulation and dissection of the

mesoappendix as near as possible to the appendix down to the base and appendix was ligated with 2-0 vicryl without invagination of the stump. After amputating the appendix, it is lifted with the grasper and removed through the 10 mm left sided cannula in the specimen bag.

PO intravenous fluid was continued till normal bowel function returned (Return of bowel

sounds and passage of flatus). 3rd generation cephalosporins were given postoperatively and metronidazole added in complicated cases. Analgesics in the form of Diclofenac sodium injection were given for 24 hrs. Further analgesics were given based on the patient's perception of pain. The PO wound infection, status of PO pain and length of hospital stay were recorded. Patients in both the study groups were discharged as soon as possible i.e. when fully mobilized without the need for assistance from attendants.

Results

To achieve the objectives of the present study, the following parameters have been compared between open and LA. They are hospital stay (in days), wound/port site infection, status of PO pain and operating time in minutes.

For analysis of the data, a well known statistical test i.e. independent t-test is advocated to test the difference of means, for each parameter of interest, between OA and LA. There was no conversion of laparoscopic to open procedure and two patients underwent both laparoscopic cholecystectomy and appendicectomy for associated gall stone disease. PO wound infection was noted in one patient in open group for which his PO hospital stay was prolonged.

50 patients were included in the study, 25 in the open and 25 in the laparoscopic group. Patients were on average 33.12 years with standard deviation(S.D.) of 12.40 years (Table 1). While the average age group of patients

Table 1. Compa	arison of mean ±	S.D. of age between C	A and LA.
Variable	Open (25)	Laparoscopic (25)	Total
	Mean ± S.D.	Mean ± S.D.	Mean ± S.D.
Age (in yrs.)	35.08± 12.68	31.10± 12.04	33.12± 12.40

S.D. Standard deviation

who underwent OA was 35.08 years with S.D of 12.68 years against 31.16 years with S.D of 12.04 for LA. Males were more in number than females in open group, while it was reverse in laparoscopic group (Table 2). Patients of both groups were of middle socioeconomic family, length of hospital stay ranged from 2 days to 9 days. The length of stay was significantly shorter after LA (3 days after LA, 5 days after OA, P<0.0001). On average a LA Table 2. Sex, religion & occupation wise comparison of cases between OA & LA

Va	riable	Open (25)	Laparoscopic (25)	Total
	Male	17(68.0)	6(24.0)	23(46.0)
Sex	Female	8(32.0)	19(76.0)	26(54.0)
Dellaten	Hindu	22(88.0)	23(92.0)	45(90)
Religion	Christian	2(8.0)	2(8.0)	4(8.0)
	Muslim	1(4.0)	-	1(2.0)
Occupation	Gvt. Servant	4(16.0)	5(20.0)	9(18.0)
	House Wife	6(24.0)	12(48.0)	18(36.0)
	Unemployed	4(16.0)	-	4(8.0)
	Student	7(28.0)	8(32.0)	15(30.0)
	Non-specified	4(16.0)	-	4(8.0)

Figures within parenthesis indicate percentage

operation lasts 28.08 minutes as against 43.04 minutes for OA operation. The difference in means i.e. 14.96 minute is found to be highly significant as evidence by t=11.54; P<0.001 (Table 3).

Table 3. Comparison of mean ± S.D. of variables between OA & LA.

·	Open	Laparoscopic				Ca
Variables	Mean ± SD	Mean ± SD	t-value	P-value	Remark	m
Operating time (min)	43.04 ± 5.94	28.08 ± 2.56	11.54	<0.001	VHS	тн Т
Hospital stay (day)	5.40 ± 1.11	2.92 ± 0.40	10.44	<0.001	VHS	W
Wound/Port site Infection	0.04 ± 0.20	0.00 ± 0.00	0.97	>0.05	IS	de le
NPO to gen. diet (day)	1.72 ± 0.45	1.04 ± 0.20	6.64	<0.001	VHS	ho
Parenteral analgesics	1.76 ± 0.43	1.00 ± 0.00	8.53	<0.001	VHS	ha

IS: Insignificant ; VHS: Very Highly Significant.

No PO wound infection was seen after LA. There were no reoperations in the immediate or late PO period. Wound infection was noted in one patient who underwent OA which resolved with intravenous fluid therapy and antibiotics. However the finding was insignificant (p<0.05). Significant difference in time for oral intake of liquid and solid food was noted in LA (t=6.64;P<0.01). Also the total number of PO parenteral doses of analgesic received was significantly reduced in the laparoscopic group (t=8.53; P<0.01).

Discussion

Many authors have contributed to the development of laparoscopy. The technique was initially used in gynecology diagnostic for purposes and later, after technical advances. for therapeutic purposes. Semm K², a gynecologist at university of Keil, first described LA in

1983. This method was not widely accepted for two reasons: first, because laparoscopy was almost exclusively reserved for gynecologists and second, because OA was quick and simple to

> perform and carried a low morbidity and mortality.

The question of whether LA decreases the length of hospitalization has been a matter of great debate over the past decade. The

literatures provide contradictory results. Although some recent retrospective cohort studies or chart reviews found LA associated with significantly shorter hospital stay,^{7.8} other retrospective investigations reported nonsignificant differences^{9,10}. The heterogenicity of published results regarding the length of hospital stay may be caused by a variety of factors, the difference may be affected by hospital or social habits, rather than reflecting differences resulting from operating techniques itself. Moreover, further care policies in different countries. For instance, although Hebebrand D et al¹¹ from Germany reported a length of hospital stay of 5.3 days for LA and 7.6 days for OA, Mutter D et al¹² found 5.3 days in LA versus 4.9 days for OA, Minnie L et al¹³ noted 1.1 days for LA and 1.2 days for OA and Klingler A et al¹⁶ recorded 3 days for LA and 1.5 days for OA, Pederson AG et al¹⁴ found that hospital stay was equally short (median time=2 days) in both OA and LA. The present study revealed a significant shorter hospital stay for patients undergoing LA.

discrepancies may arise from diverse health

Significant variation in operating time was noted in various control studies. Some studies noted a shorter operating time for patients undergoing OA while others revealed no difference. Hellberg A et al⁹ in their prospective randamised multicentre study of LA versus OA have found that the operating time was longer in the laparascopic group (60 vs 35min, p < 0.01). Another study by Pederson AG et al¹⁴ has revealed that the LA is time consuming and associated with increased hospital costs. Heikkinen TJ et al¹⁵ reported shorter median operating time in LA(31.5 vs 41 min). Klingler A et al¹⁶ have found that the median operating time was 35min in LA and 31min in OA. However in the present study significantly less operating time(28.08 ± 2.56 vs 43.04 ± 5.54 days) (P<0.001) was noted. Semm K² has stated that there is no real advantage in inverting the stump of the appendix and via the laparoscopic approach, it can be time consuming and difficult and himself has omitted this technique for years because it appears to be unnecessary. In our study we have not inverted the appendiceal stump which has helped us in reducing operation time. Initially the time taken for both the procedures was equal, however with time and expertise, the operating time taken in laparoscopic surgery was significantly less.

In accordance with other studies, the present investigation found a lower rate of PO infection in LA than in OA group. However, the

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difference did not reach a statistical significance probably because of insufficient sample size. Klingler A et al¹⁶ have found 5(6%) patients with superficial wound infection following LA and 6(7%) after OA (p=0.67). Pederson AG et al¹⁴ has further revealed that LA is associated with fewer wound infection (P<0.03). A reduction in wound infection can be achieved by extraction of the specimen in endobag through a port. There was no mortality and no conversion to OA encountered in the present study.

The present study showed a statistically significant difference in time for oral intake of liquid and solid food in the favour of laparoscopic group which is similar to the finding of Lin HF et al¹⁷. Pederson AG et al¹⁴ has also found that the median time to normal activity (7 vs 10 days) and work(10 vs 16 days) was significantly shorter in the laparoscopic group.

Pain assessment in this study was studied objectively by the tabulation of pain medication. In the present study there was significant difference in total number of parental doses of analgesic received between the two groups postoperatively, resulting in the significantly better level of physical activity and recovery in patients undergoing laparoscopic appendicectomy.^{4,18,19}

Conclusion

A comparative study of laparoscopic and open appendicectomy on a limited number of 25 patients each was carried out. The study has revealed that the laparoscopic appendicectomy is equally safe and can provide less operative morbidity in experienced hands as compared to open appendicectomy. In addition to improved diagnostic accuracy and its ability to exclude or confirm the associated intra-abdominal lesions, laparoscopic appendicectomy confers advantages in terms of cosmesis, wound infection, less PO pain, faster recovery and earlier return to work. It has also the added advantage of combining other procedures such as laparoscopic cholecystectomy etc. through the same ports whenever required.

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A study on the prevalence of Hepatitis A and E virus infection in acute hepatitis patients attending RIMS hospital

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Abstract

Objective: To find out the prevalence of Hepatitis A and E virus infection, its coinfection, and its relationship with age, sex, socioeconomic status and seasonal variation in acute hepatitis patients attending Regional Institute of Medical Sciences (RIMS) hospital. Methods: The present study was carried out in the Departments of Microbiology and Medicine, RIMS, Imphal, Manipur on 350 acute hepatitis patients. Blood collected from the subjects were tested for detection of anti-HAV IgM antibody and anti-HEV IgM antibody by Enzyme "Capture" Immunoassay and the results obtained were analyzed to find out its prevalence rate. Results: In this study, the overall prevalence rate of HAV and HEV was found to be 32.28% (113) and 35.71% (125) respectively, and their coinfection, 9.43% (33). There was no significant preponderance of sex, all age groups are equally susceptible, but infection was found to be more common in lower socioeconomic group. Enterically transmitted viral hepatitis was seen prevalent throughout the year in our study. Conclusion: Enterically transmitted viral Hepatitis A and E was found to be highly prevalent in our studies which were significantly dependent on socioeconomic status and standard of living

conditions. Though the disease is self-limiting, preventive measures should rely on health education, water supply and sanitation as well as vaccination against Hepatitis A vaccine in view of high prevalence rate.

Key words: Acute hepatitis, Hepatitis A virus, Hepatitis E virus, epidemics, prevalence.

Introduction

Viral hepatitis is a common problem worldwide, and its consequences produce substantial morbidity and mortality in both developed as well as in developing countries.¹ Entericaily transmitted Hepatitis A and E viruses are a major cause of epidemic and acute sporadic hepatitis in many areas of Asia, Africa and Mexico, where it is considered endemic,²

Hepatitis A is one of the most common causes of infectious jaundice in the world today. Recurrent epidemics are prominent features of the disease.³ The prevalence of antibodies to HAV in a community is an excellent reflection of current and past standards of hygiene and sanitation.⁴ As far as India is concerned, HAV infection continues to be a very frequent infection where Hepatitis A is hyperendemic.⁵

Hepatitis E infection is highly endemic in India.⁶ It has a propensity to induce a fulminating form of acute disease (mortality 0.5-4%), particularly in pregnant women, up to 20% of who may develop fulminating hepatitis, with a mortality that may reach about 80% of such cases.⁷

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Enterically transmitted hepatitis is a major health problem that is highly prevalent throughout the world especially in developing countries like India. Many outbreaks both sporadic and epidemics has been recorded in India but at the same time many episodes go unreported or undiagnosed because infection can pass sub-clinically, take an acute and self-limiting course. Therefore, the present study aims to provide a baseline data on the prevalence of enterically transmitted Hepatitis A and E infection and its coinfections in patients with acute hepatitis.

Material and methods

The present study was carried out in the Departments of Microbiology and Medicine, RIMS, Imphal, Manipur. A total of 350 patients in clinically diagnosed cases of acute hepatitis were included in this study.

Exclusion Criteria: Patients with the following conditions were excluded from the study group - alcoholic cirrhosis, chronic liver disease, hepatotoxic drugs, and autoimmune chronic hepatitis.

The age of the patients ranged from 3 to 70 years. The study was conducted at a stretch of 2 years (August 2005 to July 2007). According to location, 252 (72%) were from urban and 98 (28%) were from rural areas. Among 134 females, 18 (13.43%) of them were pregnant and they were in different weeks of gestation. The study subjects were stratified into one of the following status based on Modified Kuppuswamy Scale into; upper, upper middle, lower middle, upper lower, lower classes.

Table 1. The prevalence rate of HAV a	and	HEV
Infections.		

No. of	Anti-HAV	Anti-HEV	P-value
cases	IgM	IgM Positive	
	Positive	-	
350	113	125	
*PR (%)	32.28%	35.71%	>0.05

*PR (%) Prevalence rate percentage The results thus obtained (table 1) showed the overall prevalence rate of 32.28 % (113) HAV infection and 35.71% (125) HEV infection, and their co-infections was found to be 9.43% (33).

Liver function test was performed including routine examination of blood and prothrombin time. Ultrasonography (USG) was done as and when indicated. 5 ml of venous "blood was collected from all the patients. The serum

		Anti-HAV I	gM (n=350)	Anti-HEV I	gM (n=350)
Age	Total no. of	Positive	PR %	Positive	PR %
(years)	cases				
0-10	49	35	10	10	2.86
11-20	75	28	8	33	9.43
21-30	95	27	7.71	44	12.57
31-40	65	12	3.43	16	4.57
41-50	39	9	2.57	12	3.43
51-60	23	1	0.28	9	2.57
61-70	4	1	0.28	1	0.28
Total	350	113	32.28	125	35.71

Table 2. Showing the age wise prevalence of HAV and HEV infection

samples were separated out by centrifuge at 2000g for 5-10 minutes. Highly lipemic, icteric or haemolysed samples were not used to avoid false positive result.

The samples were tested for detection of anti-HAV IgM antibody and anti-HEV IgM antibody by Enzyme "Capture" Immunoassay (EQUIPAR srl, Saronno Italy) which has a sensitivity of 98% and specificity of 98%.

Results

Among the study population, there were 216 (61.71%) males and 134 (38.29%) females.

The results thus obtained (table 2) showed the highest prevalence rate of HAV infection that occurred in the age group of 0-10 years (10%), followed by 11-20 years (8%) and least in 51-60 and 61-70 years (0.28% each). Whereas, in case of HEV infection, the highest prevalence rate was found in 21-30 years (12.57%), followed by 11-20 years (9.43%) and least in 61-70 years (0.28%).

Regarding the sex distribution, the prevalence rate of HAV infection among males was found to be 33.3% (72/216), and females, 30.6% (41/134).

			HA	V						HEV		
Age	No. of	No. +ve	PR	No. of	No.	PR	No. of	No.	PR	No. of	No.	PR
(years)	males	Cases	(%)	females	+ve	(%)	males	+ve	(%)	females	+ve	(%)
					cases			cases			cases	
0-10	29	22	10.2	20	13	9.7	29	6	2.8	20	4	2.9
11-20	38	17	7.8	37	11	8.2	38	18	8.3	37	15	11.2
21-30	53	16	7.4	42	11	8.2	53	24	11.1	42	20	14.9
31-40	48	10	4.6	17	2	1.5	48	12	5.5	17	4	2.9
41-50	29	5	2.3	10	4	2.9	29	9	4.2	10	3	2.2
51-60	16	1	0.5	7	0	0	16	6	2.8	7	3	2.2
61-70	3	1	0.5	1	0	0	3	1	0.5	1	0	0
Total	216	72	33.3	134	41	30.6	216	76	35.2	134	49	36.6
P-value			P>0.	.05					Р	>0.05		

Table 3. Showing the sex wise prevalence of HAV and HEV infection

In HEV infection, the prevalence rate in males and females were found to be 35.2% (76/216) and 36.6% (49/134) respectively. Therefore, it was found that the prevalence rate between HAV and HEV were statistically insignificant (p>0.05) as shown in table 3. However, its coinfections occurred more in females than males, 10.45 % (14/134) and 8.79 % (19/216) respectively.

Of the studied subjects belonging to different socioeconomic groups, the highest prevalence of HAV infection was found among the upper lower class (11.14%), and lowest in upper class (2.28%), whereas in HEV, the highest prevalence was found in lower class (12%) and least among the upper class (3.43%). Interestingly, a significant higher prevalence rate of both HAV and HEV infections was seen among patients belonging to the lower socioeconomic group (p<0.01).

Regarding the seasonal variation, it was observed from our study that the maximum infection of HAV occurred in the summer months of June-July in both 2005-06 (30.95%) and 2006-07 (45.90%) and least during December-January in both the years (p<0.01), whereas in case of HEV, highest prevalence was seen during August- Sept. 2005-06 (40%) and June-July 2006-07 (52.46%) and least during December-January of both the years (p<0.01), The comparison of prevalence rates between HAV and HEV infection during summer and winter months were statistically highly significant (P<0.01) with higher prevalence rate during summer months associated with rainy seasons.

HAV infection was found to be more in rural

area as compared to the urban area with its prevalence rate of 33.7% (33/98) against 31.8% (80/252) (p<0.01). Poor personal hygiene and unhygienic sanitary condition most probably contribute to its high prevalence in this rural area. In case of HEV, the prevalence rate were found to be 37.6% (95/ 252) and 30.6% (30/98) in urban and rural areas respectively (p<0.01). Its high prevalence in urban area could be contributed by drinking contaminated water. Among the 18 pregnant women, the prevalence of anti-HAV IgM antibody was 3.7% (5/134), whereas that of anti-HEV IgM antibody was 7.5% (10/134), and 2.2% (3/134) were co-infected.

The clinical history gave the following subjective signs and symptoms; pyrexia (43.4%), nausea and vomiting (76.5%), anorexia (82.6%), malaise (78.8%), itching of the body (46.3%), pain abdomen (36.7%), yellow discolouration of eyeballs (88%), high colour urine (42.6%) and hepatomegaly (20.5%). The commonest clinical manifestation of Hepatitis A infection was yellow discoloration of eyeballs (76.1%) whereas that of Hepatitis E infection was anorexia (73.3%).

The laboratory findings as suggested by liver function test (LFT) showed high serum bilirubin level varies from 1.6 - 28 mg% (mean \pm SD, 8.51 ± 7.31)and $0.5 - 27.8 \text{ mg\%}(8.73 \pm 7.5)$ in Hepatitis A and E infection respectively. The estimation of ALT (SGPT) showed its level varies from 90-2760 units (816.94 ± 695.87) and 135 - 1872 units (702.65 ± 539.09), whereas that of AST (SGOT) varies from 102-1700units(664.11 ± 556.91)and 129 - 1671 units (655.47 ± 594.87) , and alkaline phosphatase level varies from 125 - 1665 units (551.67 \pm 398.58) and 185-1120 units (599.93 \pm 4222.78) in Hepatitis A and E infection respectively.

The haematological findings showed the following changes: haemoglobin level varies from 9.8-14.2 mg% (11.4 \pm 1.12)and 9.4-14.8 mg% (12.2 \pm 1.38), total leucocytes count of 4000-16000/cumm (8662 \pm 3169.57) and 4300-14200/cumm (8402 \pm 3104.69), platelets count of 1.6-3.2 lakhs/µI (2.72 \pm 0.71) and 1.2-2.6 lakhs/µI (2.55 \pm 0.88), prothrombin time (PT) varies from 8-39 seconds (19.6 \pm 9.05) and 10-44 seconds (26.4 \pm 3.64) and erythrocytes sedimentation rate (Westergren technique) varies from 10-85 mm/1st hour (39.8 \pm 27.92) and 12-65 mm/1st hour (28.5 \pm 21.53) in Hepatitis A and E infection respectively.

Those patients who had undergone Ultrasonography (USG) of whole abdomen showed hepatomegaly in 20.4% (36/176) and 35.8% (63/176) with partial/diffuse decreased echogenicity and thickening of the gallbladder wall in 13.6% (24/176) and 11.9% (21/176), and splenomegaly was seen in 5.1% (9/176) and 7.4% (13/176) in Hepatitis A and E infection respectively.

Discussion

Viral hepatitis is a growing global public health menace especially to developing countries like India. Since the earliest recorded human history, several scattered outbreaks of epidemic jaundice were recorded and still today such outbreaks continue to occur frequently. Retrospectively, many such outbreaks of epidemic jaundice were later attributed to either of Hepatitis A or E. Though the natural history and the pattern of epidemiology of enterically transmitted Hepatitis A or E have undergone rapid changes during the course of time, no doubt the epidemiological pattern continue to change irrespective of its endemicity and geographical location.

In the present study, there was a high prevalence rate of anti-HAV IgM as well as anti-HEV IgM in this study population which is similar to others studies.8 The HAV infection was found to be less prevalent with increase of age, whereas in HEV infection, the maximum prevalence was found in the middle age group of 21-30 years age.^{5,9} Both sexes are equally susceptible to enterically transmitted Hepatitis A and E infections which is similar to others studies.7 There was significantly high prevalence of Hepatitis A and E infections among low socioeconomic group and poor standard of living.^{10,11} During the two (2) consecutive years of our study, enterically transmitted HAV and HEV showed a distinctive seasonal peak during the summer months associated with periods of heavy rainfall which was found to be in contrast to some of the earlier Indian studies.12,13 Poor standard of hygiene and sanitation besides low socioeconomic conditions facilitates the spread of HAV and HEV infections as shown in our studies in this high endemic area of the country.

Regarding the laboratory investigations, marked rise of total serum bilirubin levels was noted in acute Hepatitis A and E infections, associated with marked rise of liver enzymes found to be similar to others studies.¹⁴ The haemoglobin levels, total leukocytes count (TLC) and platelets counts were within the normal limit, whereas erythrocyte sedimentation rate (ESR) was found to be markedly high and prothrombin time (PT) was lengthened, Hepatomegaly with thickening of the gallbladder wall and splenomegaly were some of the USG (TAS) finding in Acute Hepatitis caused by enterically transmitted HAV and HEV. There was no significant difference in liver function test and haematological findings between Hepatitis A and E infection.

Conclusion

The finding of this study has tremendous public health implications since the prevalence rate was found to be high in this area as compared to other parts of the country. Also this study indicates that a significant proportion of the population is at high risk of acquiring HAV and HEV infection. Though the prevalence rate was found to be higher during and after rainy reasons, the infection was no doubt seen occurring throughout the year. There is no report of earlier epidemic from this area. Outbreaks can occur anytime in an area where there is poor socioeconomic and standard of living. Therefore, proper surveillance and seroepidemiological study is essential to determine its impact and thereafter implementation of control measures/policy. Since enterically transmitted Hepatitis A and E infection are food-borne and water-borne, and no specific treatment is available though the disease is self-limiting, priority should be given to preventive measures so as to ensure its lowest exposure rate. Therefore, vaccination of high risks population against HAV would be a significant preventive measure besides improvement of water supply, sanitation, personal hygiene, socioeconomic and standard of living conditions.

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A study of Candida infection in relation with CD_4 count and antifungal susceptibility testing in HIV infected patients of Manipur

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Abstract

The study aims at finding the prevalence, antifungal susceptibility and co-relation of Candida infection with CD, count amongst the human immunodeficiency virus (HIV) positive patients suspected to be suffering from oropharyngeal candidiasis (OPC) of Manipur. Oropharyngeal swabs from 100 acquired immunodeficiency syndrome (AIDS) patients were processed by observing under direct 10% potassium hydroxide (KOH) mount for the presence of yeast cells, culture on 2% Sabouraund's dextrose agar (SDA) with chloramphenicol incubated at 37°C and 25°C for 2 weeks. Antifungal susceptibility testing was done by the disc diffusion method. Candida albicans, 40 (62.5%) was the commonest species. Fluconazole resistance was encountered in (36%) of the Candida isolates. OPC in HIV positive was seen maximum in patients having CD, count below 100 cells/ μ l.

Key words: Candida, fluconazole, CD₄, oropharyngeal candidiasis.

Introduction

Manipur is one of the high prevalent states of human immunodeficiency virus (HIV) infection in India. Oropharyngeal candidiasis (OPC) is

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one of the commonest and earliest opportunistic fungal infection in acquired immunodeficiency syndrome (AIDS) patients, Candida species can cause severe mucosal and invasive diseases of the oral cavity. Fluconazofe, a triazole derivative is the drug of choice for mucocutaneous candidiasis in AIDS patients.¹ But of late, Candida resistant to azoles are increasingly being isolated in HIV infected patients.² The antifungal susceptibility pattern of Candida isolated from OPC in HIV infected patients of Manipur has not been studied. Therefore, this study aims to determine the prevalence, susceptibility pattern, co-relation of Candida infection with CD₄ count of the different Candida species isolated from oral specimens of HIV infected patients.

Material and methods: One hundred AIDS patients with features of Oropharyngeal candidiasis attending the FACS Centre, department of Microbiology, Regional Institute of Medical Sciences (RIMS), Imphal for estimating CD₄ and CD₈ were enrolled for the study. The period of study was between June 2003 and June 2004. The oropharyngeal swabs were collected and processed by observing under direct 10% potassium hydroxide (KOH) mount for the presence of yeast cells and culturing with 2% Sabouraud's dextrose agar (SDA) with chloramphenicol (0.05 mg/ml) incubated at 37°C and 25°C for 2 weeks. Isolates of Candida were identified using standard mycological procedures.

Antifungal susceptibility testing was carried out by the discs diffusion method³ using

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fluconazole(10mcg/disc), nystain(100 units/ disc), amphotericin B (100units/disc), itraconazole (10units/disc) and clotrimazoie (10mcg/discs). The inoculum size of yeast was made by taking 5 colonies of \geq 1mm diameter from 24hrs old culture suspended in 5 ml of sterile 0.85% saline. The cell density was adjusted to 0.5 Mc Farland standard to yield a yeast stock suspension of 1x10⁶ to 5x10⁶ cells/ml. Control strains (Candida parapsilosis ATCC 22019) were also prepared with similar dilution. Culture of swabs soaked in this inoculum developed discrete colonies. Inoculation was done by swabbing one half of the Petri dish from edge to the center with test strain and the other with control strain. Antifungal discs were placed in the center of the control and test strain and plates incubated at 35°C for 48 hrs and readings were taken based on the zone diameter.4 Estimation of CD₄ and CD₈ count was done by the FACS count system (Becton Dickinson)5.

Preparation of Media: For susceptibility testing of azoles, the composition of the media that was used was yeast nitrogen base 6.7g, D-glucose 10g and L- asparagine 1.5g. For susceptibility testing of amphotericin B, the same constituents were used only omitting asparagine. The final medium was prepared by adding a mixture of 2g Difco agar dissolved in 100ml of distilled water, sterilized by filtering through membrane filter and adjusting pH to 7.2.

Results

Out of 100 patients, Candida was isolated from 64 patients. Most of the patients from whom Candida was isolated were found to be in the age group of 21-40 years n= 53 (82.81%) (Table 1). Out of 64 Candida species isolated, C. albicans was the commonest 40 (62.5%); the other isolates were Candida

Table 1. Age & Sex distributionin the study group.

Age group	Males	Females
0-20	3	1
21-40	39	14
41-60	5	2
Total	47	17

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tropicalis 10 (15.6%), Candida-stellatoidea 8 (12.5%), and *Candida glabrata* 6 (9.3%) as shown in table 2. Antifungal susceptibility pattern shown in table 4 showed an increased fluconazole resistance developed by all strains of Candida species, 23 (36%). This increased fluconazole resistance may be due to its widespread use as a prophylactic

Table 3. Co-relation between CD4 + lymphocytes and Candida isolates.

CD4/µ1	No. of persons	No. of Candidia
500 & above	6	3
< 500 -200	25	11
< 200 - 100	29	24
< 100 - 3	40	26
Total	100	64

Table 4. Antifungal susceptibility pattern.

121233		A	ntifungal ag	jents	
Candida spp.	Fluconazole R(%)	Nystatin R (%)	Amphotericin R(%)	B Clothmazola R (%)	Intraconazole R (%)
C albicans	15 (37.57%)	0	0	1 (2.5%)	1 (2.5%)
C.tropicalis	4 (40%)	0	1 (10%)	1 (10%)	1 (10%)
C.stellatoidea	3(37.5%)	0	0	0	0
C.glabrata	1(16.6%)	0	0	0	0
Total	23 (36 %)	0	1 (1.5%)	2 (3.1%)	2 (3.1%)

antifungal agent. Both itraconazole and clotrimazole resistance was seen in 2(3.1%). Amphotericin B resistance was seen in 1(1.5%). All the isolates were sensitive to nystatin. Most of the patients from whom Candida was isolated (26) possessed CD_4 count in the range<100 cells µI.

Discussion

Table 2. Prevalent candida species.

OPC is one of the earliest opportunistic infections in AIDS patients and C. *albicans* is the commonest isolate. Antifungal susceptibility testing is receiving increased attention with the advent of newer antifungal

drugs. In-vitro susceptibility testing provides a measure of the activities of two or more drugs and monitors the development of resistance. It also provides a means to correlate clinically the in-vitro activity with the outcome of therapy. Fluconazole is

	Candida spp No	o. of isolates (%)
emales	C.albicans	40(62.5%)
1	C.tropicalis	10(15.6%)
14	C. stellatoidea	8(12.5%)
2	C. glabrata	6(9.3%)
17	Total	64(64%)

widely used as a prophylactic drug because of its high oral bioavailability, minimal drug interaction and minimal adverse effects.6 Resistance to fluconazole varying from 12.2% to 20% has been reported by Indian workers.⁷ Susceptibility testing is important especially in directing therapy with the azoles, because these agents are effective against a variety of opportunistic fungi.8 Candida infections have become very common in recent years and resistance to antifungais has become a challenge for patient management. Moreover, resistance patterns may vary widely from country to country. Because of these variations and with increase in HIV positivity amongst the general population, surveillance for resistogram is needed to guide for appropriate selection. In our study, decreased susceptibility to fluconazole co-related very well with the clinical failure. Some of the factors which may be responsible for fluconazole resistance are

extensive previous fluconazole exposure, advanced HIV disease with CD_4 cell count <50 cells/MI, decreased mucosal and systemic immunity, recurrent candidiasis⁹, replacement by a more resistant strain of C *albicans* or more resistant species like *C. krusei,C. gtabrata,C.tropicalis* etc¹⁰.

Conclusion

Candida aibicans is still the commonest species infecting HIV positive patients suffering from oropharyngeal candidiasis in Manipur. Decreased immunity (expressed in terms of CD_4 lymphocyte count) increases the fungal growth in the oral cavity leading to frequent occurrence of candidiasis and was seen maximum in patients having CD_4 count in the range of < 100 cells/ μ l. Resistance to antifungal drugs among Candida isolates exists with fluconazole being the drug showing maximum resistance (36%).

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Treatment outcome of IV amphotericin-B versus IV fluconazole in AIDS patients with cryptococcal meningitis : a RIMS study

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Abstract

Objective : To study the treatment outcome of IV amphotericin-B vs. IV fluconazole in AIDS patients with cryptococcal meningitis. Methods : HIV infected patients admitted in Medicine ward, Regional Institute of Medical Sciences (RIMS) hospital, from July 2003 to June 2007 with features of meningitis were evaluated for cryptococcal meningitis by CSF India ink smear, culture and antigen test, CT scan and MRI of brain along with routine investigations. Confirmed cases were then divided into Group-I and Group-II receiving IV amphotericin-B and IV fluconazole for two weeks respectively. Weekly CSF examination and culture were done to study the treatment outcome. Both the groups were then given oral fluconazole 200 mg twice daily for 8 weeks followed by 200 mg once daily till CD, T cell count reach 200 cells/cu mm. Results: 240 HIV infected patients were admitted during the study period. 69 cases were diagnosed to have cryptococcal meningitis of whom 13 were females (mean age - 35.2 years). 16 cases were excluded from the study due to deranged LFT and KFT. The remaining 53 were divided into Group-I (27) and Group-II (26). 25 cases in Group-I responded symptomatically on day 3 and CSF culture

became sterile after 4 weeks (92.5%). In Group-II, clinical response was seen from day 5 and CSF culture became negative after 6 weeks in 20 cases (77%). **Conclusion** : IV amphotericin-B yields superior results when compared with IV fluconazole in AIDS patients with cryptococcal meningitis.

Key words: AIDS, CD₄ T cell count, cryptococcal meningitis, IV amphotericin- B, IV fluconazole.

Introduction

Cryptococcosis is a serious fungal disease in patients with AIDS or other defects in T-cell mediated host defences.1 Cryptococcus neoformans var neoformans is the variety causing infections in patients with AIDS. The organism is ubiquitous in distribution and grows well in soil especially when enriched with bird droppings. However, it is uncertain if there is a relationship between exposure to birds and clinical disease in patients with AIDS. The organism usually gains access to the host via the respiratory route and is generally controlled by an intact cell mediated immune system. In the presence of immunodeficiency, it disseminates widely especially to the central nervous system (CNS) causing meningitis as the commonest manifestation.^{2,3} Its incidence has increased in parallel with that of HIV infection.⁴ Kozel TR ⁵ has recorded a higher incidence of cryptcoccal meningitis (CM) in developing countries than in the developed countries. Approximately 10% of the AIDS patients developed CM as their first AIDS defining illness.⁶ It also presents as a subacute

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illness without overt meningeal disease or encephalopathy.⁷ Diagnosis of CNS cryptococcosis is established by antigen test for cryptococcosis and CSF analysis including demonstration of the fungus by India ink preparation and culture.^{8,9}

Cryptococcal meningitis in AIDS is not well studied in India and there are scant reports in Indian literature.^{10,11} Furthermore, lack of comparative study between IV amphotericin-B and IV fluconazole in the Indian context, coupled with increasing number of CM in AIDS patients prompted us to undertake this study.

Material and methods

HIV infected patients admitted in Medicine ward of the RIMS Hospital during the period from July 2003 to June 2007 with features suggestive of meningitis were evaluated. A detailed history was taken and neurological examination was done. Routine investigations, CD_4 T cell count, VDRL, Mantoux test, CSF analysis for protein, sugar, AFB, Gram stain, ADA, India ink preparation, fungal/bacterial culture and antigen test (CALA) test were done for all the patients. CT scan/MRI of brain were also done. Written consent was taken from all the patients and due permission was obtained from the ethical committee of the hospital.

Diagnosis of cryptococcal meningitis was based on positive india ink smear, antigen test and fungal culture. Patients with hepatic and/ or renal dysfunction and those receiving Highly active antiretroviral therapy (HAART) were excluded from the study. They were then divided into two groups:

Group I : Patients on intravenous amphotericin-B (0.7 mg/Kg body weight)

Group II: Patients on intravenous fluconazole (200 mg bd)

Treatment was continued for 2 weeks in both the groups, followed by oral fluconazole 200mg bd for 8 weeks. After this, fluconazole 200mg daily was continued till CD_4 cell count increased to 200 cells/cu mm.

Patients were followed up with weekly CSF analysis. Treatment was considered

successful when the patient had clinical improvement and two consecutive CSF cultures obtained at least one week apart remained sterile.

Results

A total of 240 patients were studied and 69 patients (28.7%) were diagnosed to have CM. There were 56 males and 13 females with mean age of 35.2 years (range 26-65 years). 14 males and 2 females who were receiving HAART had deranged LFTand KFT were excluded from the study. Out of the remaining 53 patients, 27 patients were in Group I and 26 patients in Group II. Clinical features at presentation are shown in table-1. Headache, fever and vomiting were among the commonest features and duration of symptoms before presentation ranged from 14-21 days. Signs of meningeal irritation were present in 50% cases; 8 patients (15%) presented with coma and they were aggressively managed with measures to lower the intracranial pressure.

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Symptoms	p.c./ No. of Cases
Headache	100% (53)
Nausea & vomiting	95% (50)
Fever	95% (50)
Irritability	90% (48)
Neck rigidity	50% (27)
Incoherent talk	47% (25)
Blurring of vision	45% (24)
Coma	16% (8)
Convulsion	3.7% (2)

Treatment Response

In Group I, 25 out of the 27 patients had clinical response on the 3rd day and CSF culture for fungal growth became negative after 4 weeks of treatment. Two patients expired during the course of treatment. No significant adverse reactions were noted.

In Group II, 20 out of 26 patients had clinical response on the 5th day of IV fluconazole and CSF became negative for fungal growth after 6 weeks. Six patients who did not respond clinically even at the end of 2nd week were put on IV amphotericin-B for 14 days and they showed good response. From the 15th day onwards all the patients except these 6 were put on oral fluconazole 200 mg bd x 8 weeks

followed by 200 mg od. Oral fiuconazole regime was instituted for those 6 patients after completion of IV amphotericin-B.

The CD_4 T cell count was less than 150 cells/ cu.mm in all the patients and more than 50% had CD_4 count below 50 cells/cu.mm (Table 2).

Table 2. CD₄ T cell count of patient

CD₄/cumm	No. of cases (53)
0-10	5
11-20	5
21-30	6
31-40	8
41-50	10
51-60	6
61-70	3
71-80	2
81-90	2
91-100	1
101-150	5

Discussion

Cryptococcus neoformans is the second most commonly isolated fungal pathogen in AIDS patients.⁶ It has a propensity to spread to the CNS, but skin, bone, lymph node, heart, lungs and other sites may also be infected. In the context of HIV infection, it is the most common life threatening mycotic infection,¹² Univariate analysis identified injection drug use, cigarette smoking, exposure to areas enriched with infected bird droppings and low CD, cell count as risk factors. It is uncommon in children with AIDS.1 It has 2:1 male to female ratio around the world and patients with CD, cell count < 100 cells/cu mm are at greatest risk of developing CM, regardless of the serotype which was in conformation with our study.13 The common presenting features in these CM cases were headache, fever, nausea and vomiting.

The high proportion of CM in our study was due to selection of only those cases with features suggestive of meningitis. Two (2) cases of CM had CNS toxoplasmosis as well. None of the patients had cranial nerve palsy or pyramidal tract lesion as noted by Karla SP et al¹⁴. One patient had disseminated CM with papilloedema and cryptococcal choroiditis. The diagnosis was made from clinical features, skin scrapping and FNAC from the cervical gland. This patient responded clinically to IV amphotericin-B on the 5th day of treatment. According to Fauci et al¹⁵, seizures were the third most common feature among CM patients at the time of presentation. In the present study, only two cases who also had toxoplasmosis presented with seizures. Four cases had TBM along with CM. One of these patients had features of obstructive hydrocephalus on CT scan brain. These cases were treated with amphotericin-B and antitubercular drugs and they responded.

In our study of 53 cases, 2 expired during treatment and 13 cases were lost during the follow up. 14 cases out of the remaining 38 had relapsed of which 5 cases were from Group I and 9 cases were from Group II, all of whom had discontinued oral fluconazole during the maintenance phase. Their CD, cell counts were below 100 cells/cu.mm. 50-60% of the patients of CM usually do relapse, which could be attributed to residual infection in extrameningeal sites, especially the prostrate.¹⁶ The remaining 24 cases were responding to the treatment satisfactorily till the end of our study. The two cases who died on the 2nd and 3rd day could be due to sudden cardiac arrest because of hypokalemia, K⁺ level <2 meq/L with characteristic ECG findings. All the patients had CD₄ cell count < 150 cells/cumm, hence primary prophylaxis for Pneumocystis carinii pneumonia and maintenance therapy for CM along with HAART were prescribed at the time of discharge as per NACO guidelines.¹⁷

Conclusion

IV amphotericin-B with or without flucystosine or IV fluconazole are the drugs of choice for cryptococcal infections.^{16,18} IV amphotericin-B yields better result than IV fluconazole even though therapy by oral fluconazole is a must in all the cases during the consolidation and maintenance phases. In our study, successful response to therapy was observed in 92.5% in the amphotericin-B group and in 77% in the fluconazole group. Therefore, IV amphotericin-B proved superior to IV fluconazole in the management of cryptococcal meningitis in AIDS patients.

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Induction of second trimester abortion by intraamniotic $PGF_{2\alpha}$ instillation with or without intracervical PGE_2 gel

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Abstract

Objective: To observe the effects of intracervical PGE, (dinoprostone) gel in second trimester abortion with intra-amniotic instillation of $PGF_{2\alpha}$ (Carboprost Tromethamine). Methods: Two hundred women with 16-20 weeks of gestation attending the Post-partum programme(P.P.P) Center, Regional Institute of Medical Sciences (RIMS) Hospital, Imphal between January 2002 to March 2004 were recruited for this prospective study. They were selected at random and divided into two groups consisting of 100 patients each. Group A consisted of patients with intraamniotic instillation of 2,5 mg of 15 methyl PGF_{2 α} (carboprost) and Group B with intra-amniotic instillation of the same dose of carboprost with intracervical application of PGE, (dinoprostone) gel. Exclusion criteria were low lying placenta, pervious history of uterine rupture, Caesarian Section, myomectomy, hysterectomy, hypertension, asthma and renal disease. Age, parity and gestational age were noted. General physical examination, systemic examination, abdominal and vaginal examination were carried out. Blood for Hb%, BT, CT, ABO grouping and Rh typing and urine examination were done. Results: Addition of intracervical dinoprostone gel application is advantageous. The induction abortion interval (IAI) were significantly shortened both in nulliparous and

parous women. IAI were 17.37 ± 5.01 hr Vs 20.97 ± 4.94 hr P< 0.01 in nullipara and 14.45 \pm 6.5hr Vs 17.763 ± 5.01 hr P<0.01 in parous women. Inra-operative complications were reduced (Cervical tear 4 Vs 2, uterine rupture 0 Vs 1). The degree of side effects like diarrhea, vomiting and fevers were the same (one each) in both the groups. **Conclusion** : The combination of intra-amniotic PGF_{2 α} (carboprost) and intracervical PGE₂ (dinoprostone) application has a positive effect.

Key words : Second trimester abortion, intra-amniotic $PGF_{2\alpha}$, PGE_{2} gel.

Introduction

Various methods for induction of second trimester abortion have been tried but none of these methods are 100% reliable, safe and cost effective. Intra-amniotic prostaglandin (IAP) instillation improves the success rate. PGE₂ gel softens the cervix by reducing the collagen content and increasing the water content of the cervix. This facilitates the procedure of MTP. This study was taken up to study the efficacy, safety and complications of the two procedures for induction of abortion in 16-20 weeks of pregnancy.

Material and methods

This study was carried out in the P.P.P. Centre of RIMS, Imphal. 200 patients with 16 to 20 weeks of pregnancy attending post-partum OPD for termination of pregnancy during January 2002 to March 2004 were recruited for this prospective study. Exclusions criteria were previous history of uterine rupture,

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Table 1. Distribution of age and parity of the patients (n=200)

Age in years	No.(%)	Parity	No.(%)
<20	41 (20.5%)	0	63(31.5%)
20-25	42 (21%)	1	24(12%)
26-30	49 (24.5%)	2	32(16%)
31-35	36 (18%)	3	27 (13.5%)
36 and above	32 (16%)	4	24 (12%)
		5&	30 (15%)
	_	above	· ·

Caesarian Section, myomectomy, hysterectomy bleeding per vagina, Patients were divided into two groups of nulliparous and parous women in different methods. consisting of 100 patients each-(Group A: intra-amniotic instillation of 2.5 mg carborprost - $(PGF_{2\alpha})$ and Group B : intra-amniotic instillation of 2.5mg carboprost PGE₂) with intracervical application of 0.5 mg PGE, gel). Age, parity and gestational age were noted. General and systemic examination, abdominal and vaginal examinations were carried out. Table 6. Commulative success rate and IAI in hours

Blood for ABO grouping and Rh typing, Hb%, among the study group. BT,CT and urine examination were carriedout. After instillation of the drugs the patients were admitted in the ward for observation.

Results

Table 1 shows the age and parity distribution... The youngest patient was 16 years old and the oidest one was 48 years. Majority of the patients were in the age group of 26 to 30 years. Regarding the parity, maximum numbers of patients were nullipara (31.5%). Para 5 and above made 15 % of the total. Among the study group 75 % were married, 25 % had illegitimate pregnancy (17% unmarried, 6% separated and 2% widows) (Table 2). Table 3 indicates the

economic

status and

habitat of the

patients.

62.5% were

in the low

income

37.5 % the

Table 2. Marital status among the study group (n=200)Marital statusNo.(%)Married150(75%)Unmarried34(17%)Separated12(6%)	
Marital status	No.(%)
Married	150(75%)
Unmarried	34(17%)
Separated	12(6%)
Widow	4(2%)

Table 3. Income and habitat of group and the patient (n=200)

the patie	nt (n=200)		0110 /0 110
			middle
Income	High Middle Low	(0%) 75 (37.5%) 125 (62.5%)	income group 75.5%
Habitat	Rural Urban	151 (75.5%) 49 (24.5%)	and 24.5% were from the rural and

Table 4. Distribution of cases according to indication among the study groups (n=200)

1. Limiting child birth/spacing	88 (44%)
2.Social ground	50 (25%)
3.Drug ingestion	24 (12%)
4. Medical ground	24 (12%)
5. Failed oral pills	6 (3%)
6.Failed copper T	4 (2%)
7.Failed tubal ligation	4(2%)

hypertension, asthma and renal disease. Table 5. Distribution of Mean± SD induction abortion interval (IAI)

•••••••••••••••••••••••••••••••••••••••							
	Method	No. of	Mean ±	P value			
		cases	SD in hrs				
Nullipara	IAP alone	25	20.97 ± 4.94				
	IAP with	38	17.37 ± 5.01	P<0.01			
	PGE ₂ gel						
Parous	IAP alone	75	17.763±5.01				
Women	IAP with	62	14.45± 6.03	P<0.01			
	PGE ₂ gel						

Methods	IA i	n hou	'S						
	10	15	20	25	30	35	40	45	>48 (Failure)
IAP (n-100)	1%	2%	54%	73%	80%	88%	88%	88%*	12%
IAP with cervical	8%	42%	63%	81%	87%	92%	93%	93%*	* 7%
PGE2 gel (n=100)									

* Out of 88% success rate 83% complete abortion and 5% incomplete abortion.

**Out of 93% success rate 89% complete abortion and 4% incomplete abortion.

urban areas respectively. The commonest indication for the MTP was for spacing and limitation of childbirth 44%, followed by social indications (Table 4). Addition of intracervical PGE, gel was advantageous.

The induction abortion interval (IAI) was significantly shortened both in nullipara and parous women (Table 5). The IAI were 17.37 ± 5.01 hr. Vs 20.97 ± 4.94 hrs. (P<0.01) in nullipara and 14.45 ± 6.03 hr Vs 17.763 ± 5.01 hr (P<0.01) in parous women. If the fetus was not expelled within 48 hr it was marked as failed induction. With the application of intracervical PGE, gel the cumulative success rate was 93% (complete abortion 89%, incomplete abortion 4%) and 7% failure. Without intracervical PGE, gel the cumulative success rate was 88% (83% complete abortion, 5% incomplete abortion) and with

Table 7. Complications and side effects among the study group.

Complications/side effects	IAP (15) (n=100)	IAP with PGE ₂ gel % (n=100)
Cervical tear	4(4%)	2(2%)
Bleeding PV>200ml	1(1%)	1(1%)
Uterine rupture	1(1%)	0(0%)
Diarrhoea	1(1%)	1(1%)
Vomiting	1(1%)	1(1%)
Fever	1(1%)	1(1%)
Total	9 (9%)	6(6%)

12% failure (Table 6). Over and above the shortening of IAI and increased success rate, the intra-operative complications like cervical tear was decreased (2 patient in **IAP** with PGE₂ gel Vs 4 patients in IAP alone). Other side effects like diarrhoea, vomiting were not increased (Table 7).

Discussion

Mortality and morbidity of second trimester abortion is 3 to 4 times greater than that of first trimester abortion¹, still 12 % of patients seek medical care late. Causes may be concealment of pregnancy, poverty, ignorance of family planning programme, lack of communication facility, lack of health care provision in the interior areas and due to failure to diagnose early, if conceived during factational amenorrhoea and perimenopausal age. Social stigma accounts for 25 % of the study group which closely corresponds to the report of W.H.O² (25.5%) and Alwani CM et al³ (28%). Sethi A and Jahawalla SF⁴ (21%) and in some others studies social ground was very common. 75% of the patients in the study group were married whereas only 59.5% of the cases were observed by Deshmuk MA et at⁵andAllahbadia GNetal⁶. In the study group 75.5% belonged to rural areas and 62.5% to low income group which were in accordance with the findings of Allahbadia GN et al⁸ and Yadav S et al 7. 75.5% of the patients were from rural areas and 62.5 % of low income group. Nullipara made 31.5% in the study which was comparable to the findings of Alwani CM et al³ 36%) but they were higher in other findings (Rajan R et al⁸ 49.2% and Wiqvist N⁹ (57.8%). In the present study the addition of intracervical PGE, gel, the IAI was significantly shortened and the success rate was also increased. Similar findings were observed in the study of Allen J et al¹⁰ (IAI 11.2 ±1.2 hrs with success rate 100% Vs IAI 19.1 ± 2.94 hrs with success rate 98%). Surgical evacuations could be done easily after administration of PGE, gel for second trimester termination of pregnancy.¹¹ By adding PGE, gel the cervical tear rate was reduced (2 % Vs 4%) which may be due to less cervical resistance for the expulsion of the product of conception. Our finding of 4% cervical tear with IAP was much higher that of Wiqvist N et al⁹ (1%). The present study confirms it that side effects like diarrhoea, vomiting and fever were not increased by adding intracervical PGE, gel.^{12,13}

Conclusion

Intracervical application of PGE_2 gel has a synergistic effect with intraamniotic 15 methyl $PGF_{2\alpha}$ in the induction of second trimester abortion. It reduces the induction abortion interval with increase success rate without increasing complications and side effects.

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Intraocular pressure changes following laryngeal mask airway insertion and endotracheal tube intubation : a comparative study

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Abstract

Objective: Intraocular pressure is expected to rise to a certain extent following laryngeal mask airway insertion and endotracheal tube intubation. The aim of the study was to compare the difference in the rise of intraocular pressure between the two groups and find out if the difference was significant. Methods: Hundred patients of either sex in the age group of 18 to 55 years of ASA physical status I & II, undergoing routine elective surgery under general anaesthesia were taken up for the study in the department of Anaesthesiology, Regional Institute of Medicai Sciences (RIMS), Imphal. They were randomly allocated to one of the two groups to have either endotracheal tube (Group A) or laryngea! mask airway (Group B), to secure their airway **Results:** Significant rise in intra-ocular pressure was observed immediately following intubation (0 min) in Group A as compared to Group B (21.8 ± 2.5mm Hg vs 17.8 ± 2.8mm Hg). This significant difference in the rise of intraocular pressure between the two groups is found to persist upto 3 minutes following intubation/ insertion. Conclusion: There is significant rise in intraocular pressure following endotracheal tube intubation as compared to laryngeal mask airway insertion upto 3 min, after which the difference is no more significant. It is, therefore,

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Dr. Olivia Fimialkim, Junior Consultant, SHUA Hospital and Research Centre, Langol, Manipur-795004. email : mampui05@rediffmail.com advisable to use laryngeal mask airway in conditions where rise in intraocular pressure in the first 3 minutes is notdesirable.

Key words: LMA, *endotracheal tube*, *intraocular pressure*.

Introduction

Management of airway is paramount to the practice of anaesthesia. It is the fundamental role of an anaesthesiologist to maintain a patent airway at all times. This is usually carried out by various airway placement devices. Placing of airway devices is, however, not risk free. In fact, the endotracheal tube (ETT), one of the oldest artificial airway placement devices, has been found to produce significant haemodynamic changes following its insertion along with incidences of difficult or failed laryngoscopyand intubation.

Various alternative airway placement devices have now been introduced in view of the "difficult airway" scenario. One of the most commonly used is the classic laryngea! mask airway (LMA). The LMA developed by Brain AlJ^{1,2} in 1981 and introduced for the first tirfiein' 1983, provides an efficient alternative and amazes by its easy handling and its concept: insertion of the mask directly onto the larynx without irritating it and sealing the pharynx at the same time thus allowing efficient ventilation. In 1991, Benumof JL³ reviewed the difficult airway algorithm and included the LMA in the "can't intubate, can't ventilate" scenario. Uses of the LMA expand rapidly at the moment

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and the fast trend in its spread might continue if this method is not discredited by violations of its contraindications: full stomach, extreme obesity and low compliance of the lungs. The aim of the study was to compare the difference in the rise of intraocular pressure between the LMA insertion (Group-A) and ETT intubation (Group-B) and find out if the difference was significant.

Material and methods

This randomized prospective study was carried out in 100 adult patients of ASA physical status I and II, scheduled for routine elective surgery under general anaesthesia in the department of Anaesthesiology, RIMS, Imphal.

A routine pre-anaesthetic check up was carried out a day before the date of operation and the following parameters were carefully recorded: (1) history, along with previous anaesthetic history and drug allergy, (2) general condition of the patient, (3) age, (4) body weight, (5) pulse rate, (6)blood pressure, (7) teeth and gum with reference to artificial denture and loose tooth, (8) a thorough systemic examination of the (i) cardiovascular system, (ii) respiratory system, (iii) central nervous system, (9) routine laboratory investigations and (10) organ function tests, etc.

Patients with history of cardiovascular, respiratory, hepatic, renal and neurological disorders along with raised intraocular tension were excluded from the study. Informed written consent was obtained prior to the study and the patients were randomly divided into two (2) groups of 50 cases each. To secure the airway, ET intubation was done in group A and insertion of LMA (classic) in group B.

On arrival in the operation theatre, all patients were monitored with heart rate, non-invasive blood pressure and pulse oximeter and ECG (Lead-II). Intraocular tension (measured by Schiotz tonometer) was also noted before induction of anaesthesia.

A suitable peripheral vein was cannulated for administration of anaesthetic agents and IV fluids. All patients were premedicated with giycopyrrolate $5(\mu g/kg body weight IM,$ ranitidine 1mg/kg body weight IV 45 min before induction of anaesthesia and ondansetron 0.08mg/kg IV just before induction of anaesthesia.

Anaesthesia was induced with 2.5% thiopentone sodium 5-6mg/kg IV followed by succinylcholine 2mg/kg body weight IV to facilitate intubation or insertion.

Group A patients had their airways secured with appropriate sized ETT under direct laryngoscopy.

Group B patients, in their turn, had their airways secured using appropriate sized LMA. The LMA was grasped by its tube, holding it like a pen as near as possible to the mask end. The tip of the LMA was placed against the inner surface of the patient's upper teeth with the patient's head extended and the neck flexed. The mask tip was then pressed upwards against hard palate to flatten it out. Using the index finger, pressure was exerted upwards as the mask was advanced into the pharynx to ensure the tip remained flattened and to avoid the tongue. Keeping the neck flexed and the head extended, the mask was pressed into the posterior pharyngea! wall using the index finger. The mask was guided downwards into position with continuous pressure exerted by the index finger. Grasping the tube firmly with the other hand, the index finger was withdrawn from the pharynx. The tube was pressed gently downwards with the other hand to ensure the mask was fully inserted and was inflated with the recommended volume of air. the hand released during inflation.

Correct placement of LMA/ETT was verified by confirming equal breath sounds over both lungs in all fields, and the absence of ventilatory sounds over the epigastrium, presence of a globular swelling in the cricoid thyroid region of the neck, no visible mask in the mouth and pop up of the tube during inflation.

Anaesthesia was maintained with N_2O , O_2 , atracurium 0.5mg/kg IV and traces of halothane and controlled ventilation using intermittent positive pressure Ventilation

(IPPV). Intraocular tensions were recorded every 1 min for 10 min after intubation/insertion and thereafter every 5 min for the next 35 minutes.

At the end of operation, residual muscle relaxant was reversed by neostigmine (0.08 mg/kg body weight) IV and glycopyrrolate (0.2mg/1 mg of neostigmine) IV and extubated/LMA removed after the return of protective airway reflexes.

The findings were tabulated and statistically analysed. The results obtained in the study are presented in tabulated manner. Statistical analysis was done by 'z' test.

Results

All the 100 patients completed the analysis. The mean intra-ocular pressure varied from 15.3 ± 2.7 mm Hg to 12.5 ± 3 mm Hg in Group A. In Group B it varied from 14.8 ± 2.6 mm Hg to 13.2 ± 2.8 mm Hg, Upon statistical comparison in the two groups of patients, significantly high difference of intraocular pressure was observed between Group A and Group B (z= 7.61; SE of difference = 0.53; Observed difference = 4.02; Highly significant) (table 1, fig 1).

Further, as shown in the figure, a statistically

significant difference of intra-ocular pressure was shown in both the groups during the different stages after intubation/insertion upto 3 minutes supported by the observed difference of greater than 3 times the SE of difference. An insignificant value of 'z' much less than 1.96 at 95% confidence limits, however, implied that further difference after 3 minutes of intubation was probably due to chance.

Discussion

100 adult patients were studied to assess and compare the intraocular pressure changes in patients following ETT intubation and LMA insertion.

Blanchard N et al⁴ compared the effects of the LMA and the ETT insertion on intra-ocular pressure in eighty patients scheduled for eye surgery under general anaesthesia. They observed that the heart rate, mean arterial pressure and intraocular pressure increased significantly at 20 seconds after intubation (compared to immediately after induction but not before induction) in the ETT group, for a short time, whereas, no significant changes occurred in the LMA group. It was concluded that LMA insertion did not elicit significant haemodynamic or IOP changes. Conversely,

Group	Preinduction		After intubation/insertion						
		0 min	1 min	2 min	3 min	4 min	5 min	6 min	
	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	
	±SD	±SD	±SD	±SD	±SD	±SD	±SD	±SD	
Α	15.3	21.8	20.4	18.9	17.5	16.3	15.4	14.9	
	2.7	2.5	2.6	2.8	2.8	3	3	3	
В	14.8	17.8	16.9	16.3	15.8	15.1	14.6	14.3	
	2.6	2.8	3.1	3.2	3.2	3.1	3	2.9	

Table 1. Intraocular pressure (IOP) changes in mmHg at pre-induction and after intubation in both the groups.

Group	After intubation/insertion									
	7 min	8 min	9 min	10 min	15 min	20 min	25 min	30 min	35 min	
	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	
	±SD	±SD	±SD	±SD	±SD	±SD	±SD	±SD	±SD	
A	14.5	14.2	13.9	13.7	13.5	13.2	13	12.8	12.5	
	3	2.9	2.9	2.9	3	3	3	3	3	
В	14.1	14	13.8	13.7	13.6	13.5	13.3	13.2	13.2	
	3	2.9	2.8	2.8	2.8	2.9	2.8	2.8	2.8	



Fig 1. Showing comparision of group wise intra-ocular pressure per minute with respect to stages.

the tracheal tube group showed increased heart rate, mean arterial pressure and IOP which could be deleterious in case of emergency surgery with perforating eye injuries.

Bukhari S A et al⁵, in a similar study, compared the pressor responses and intraocular pressure changes following ETT intubation and LMA insertion in two groups of 25 patients each undergoing non-ophthalmic surgical procedures. They observed rise in both the pressor response as well as IOP in both the groups with significantly higher rise in the ETT group compared to the LMA group. They concluded from their study that LMA could be useful in situations where minimal changes in haemodynamic and intraocular pressure were desirable like patients with coronary artery disease, glaucoma and possibly in patients with perforating eye injuries.

Similar findings were reported by Ghai B et al⁶ who also observed that the duration of statistically significant pressor response was also longer after tracheal intubation.

The mean intraocular pressure rise in present

study also showed a statistically and clinically significant difference between the groups, with the highest rise recorded in Group A. The highest rise was recorded just after intubation/ insertion in both groups which was comparable with Blanchard N et al⁴ and fell gradually in the subsequent time intervals and become insignificant after 3 minutes following intubation/insertion in both the groups.

Hence LMA insertion is found to be associated with lesser rise in intraocular pressure when compared to ETT intubation.

Conclusion

Management of airway remains central to the practice of anaesthesiology. Of the varied airway devices available, the ETT though most widely used has with its inherent effect, adverse physiological changes due to stimulation of the sympathetic system. It is, therefore, advisable to use LMA in conditions where rise in intraocular pressure is not desired or at least use methods to attenuate the rise in the first 3 minutes.

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An incidental case of spigelian hernia

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While dissecting the anterior abdominal wall of a male cadaver aged about 60 years in the department of Anatomy, Regional Institute of Medical Sciences(RIMS),Imphal, a peritoneum covered viscus was detected in between the left external oblique and internal oblique muscles (Fig 1). The protruding viscus was found to be sigmoid colon with its



Fig 1. Viscous detected between left external oblique and internal oblique muscles.

Fig 2. Hiatus of the hernia.

mesocolon. It measured 15x8 cm. It showed no signs of gangrene. The hernia was reduced and its hiatus was studied (Fig 2). Its hiatus was situated in the left Spigelian line, just below the arcuate line. It measured 4.5 x 2.5 cm. The deep inguinal ring was found inferolateral to the hiatus of the hernia. Deep inguinal ring was identified by tracing the spermatic cord entering it. Diagnosis of left Spigelian hernia was confirmed from the above findings.

On further dissection, we have found sutures and synthetic materials in and around the right

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Dr. N. Saratchandra Singh, Associate Professor, Department of Anatomy, RIMS, Imphal. E-mail : saratchandra_n @hotmail.com Spigelian line which may probably due to previous operation at that particular side.

Discussion

Spigelian or semilunar line is constituted by fusion of transversus abdominisaponeurosis with posterior layer of internal oblique aponeurosis. It extends from the ninth costal cartilage to the pubic tubercle, just lateral to the rectus abdominis muscle. The term "Spigelian line" was coined in honour of Andrian van der Spiegel who discovered it The hernia which occurs in the Spigelian line is known as Spigelian hernia. Skandalakis PN et al¹ mentioned that Josef Klinkosch in 1764 first defined the Spigelian hernia,

Spigelian hernia, a rare entity, accounts for 0.12 to 0.2% of all abdominal hernias.² Detection of spigelian hernis in a cadaver dissected in our department, has not been talked about until 2008, justifying its rarity.

The defect is in the aponeurosis of transversus abdominis muscle. It occurs mainly below the arcuate line.¹ It penetrates between the muscles of the abdominal wall, creating an indistinguishable swelling. Our findings abide by the dictum of a spigelian hernia. Inspection of the abdomen of our cadaver did not show any obvious lump. The herniated viscus was found to be entrapped between the left internal oblique muscles of the abdomen. The hernia was not gangreneous, probably because of its relativaly large hiatus. It is common in individuals over the age of 50 years and so

was the round about age of our cadaver. It has no side predilection. There is no sex predominance. In adults, Spigelian hernia is considered as acquired.

In English literature, only 24 cases of Spigelian hernia have been reported in infants, of which 12 have been found to be associated with cryptorchidism.³ In children, Spigelian hernia is rare. Congenital defect in the abdominal wall is regarded as the possible cause of Spigelian hernia in children.

Organs reported in the hernial sac of a Spigelian hernia include small and large intestines, stomach, ovary, gallbladder, Meckel's diverticulum and testis.⁴ Ourfindings did not exhibit any exception since the Spigelian hernia contained sigmoid colon with its mesocolon. There is only one report of primary peritoneal tumour in a Spigelian hernia.⁵

A rare case of Spigelian hernia detected in cadaver was reported in the department of Anatomy, RIMS for the first time in 2008 during routine dissection. In view of its location, this type of hernia was usually missed even in living and the lesion is one of the causes for vague lower abdominal pain. The clinician and anatomist should always keep in mind the existence of such herniation.

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Primary umbilical endometrioma - a case report

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A 28 years old, unmarried girl presented at Gynaecology OPD, department of Obstetric and Gynaecology, Regional Institute of Medical Sciences (RIMS), Imphal on 31/7/07 with the complaint of painful swelling at her umbilicus for the last one and half The pain increased during years. menstruation without any discharge. The swelling was brownish in colour and enlarged gradually attaining the present sizes of 2cm in diameter. It was fixed and firm. There was no other complaint associated with it and no history of previous abdominal or pelvic surgery. Fined Needle Aspiration Cytology (FNAC) of the mass gives the cytodiagnosis of umbilical endometriosis (Fig1).



Fig 1. Cytological picture of Fig 2. Photomycrograph umbilical endometrioma. showing endometrial glands.

Ultrasonography (USG) revealed normal uterus, tubes and ovaries without evidence of gross pathology. Routine haematological examination and blood chemistries were within normal limits. Excision of the mass was done

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preserving the umbilicus. The histopathological report of the excised tissue confirmed the diagnosis of umbilical endometrioma. There was no complaint after the operation (Fig 2).

Discussion

Endometriosis, presented as small growths which is not encapsulated with induration of surrounding tissue.¹ Most of these growths are located in the pelvis. Endometriosis externa may occur spontaneously at any site though it is rare. Most frequent form may develop on the abdominal wall after gynaecologic or obstetric operations, although it may appear spontaneously in the umbilical area.² So when a mass is developed at the umbilical area, the possibility of endometrioma must be kept in mind although it may be mistaken for suture granuloma, lipoma, abscess, cyst and hernia. The patient reported with an umbilical mass associated with cyclical pain during the menstruation, slowly and gradually growing in size and brownish in colour. This gives the picture of clinically characteristic form of cutaneous endometriosis. The cytodiagnosis of the aspirated fluid from the mass and histopathological examination of the excised tissue confirmed the clinical diagnosis.

Histology remains the cornerstone of diagnosis. Endometriosis is rarely fatal but continuously challenges the patients and clinicians in all specialities in presentation and diagnosis.⁵ In this case also, confirmation of diagnosis was done by histopathological examination of the excised tissue.

Spontaneous umbilical endometriosis is very rare with an estimated incidence of 0.5% to 1% of all patients with endometrial ectopia. So, abdominal localization of endometrial tissue has become a rare clinical problem in everyday practice and this explains the incomplete report in literature and difficulty of a standard treatment.² A high index of suspicion is required in making a diagnosis of endometriosis in remote extra pelvic sites especially with little or no characteristic pointers to the disease.^{2,6}

History of presenting symptom is on the average of 17.8 ± 39 months before presentation and the lesion size averages 2.3 ± 0.2 cm in diameter and brown in colour in 19.1%.³ In our case also, the patient presented after one and half years with size of 2cm and brown in colour. Cyclical pain was the most common presentation as reported in 76%, 88.2%, 41.2% in various studies.³⁻⁵

The same manifestation was also found in the present case. No history of any other endometriosis was seen in 73%.⁷ There was no endometriotic deposit elsewhere in the present case also.

Surgical excision is invariably the curative treatment of choice. This is the operative procedure executed by all surgeons. The same type of operation has been carried out for the present case. Cyclical pain and gradual increase in size with its brown colour may lend evidence to diagnosis of umbilical endometrioma. Histology and clinical findings are often equivocal.⁶ So, clinical symtomatology gives us awareness of the disease.

We are reporting the case as this is not only primary endometrioma of umbilicus but also, the only endometrioma externa without trauma and surgery recorded in the the department till date.

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A rare case of successful vaginal delivery of monoamniotic twins with umbilical cord entanglement

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Mrs. NB Devi a 25 years old belonging to low socio-economic status and coming from a rural area of Imphal district was admitted on 7th September 2007 in the department of Obstetrics and Gynecology, Regional Institute of Medical Sciences, Imphal, Manipur with term pregnancy and labour pain. Pain abdomen with backache was her chief complain. Her last menstrual period was on 15th December 2006 and her expected date of delivery was on 22nd September 2007. She was Para 1+0 with a previous normal vaginal delivery. She had no regular antenatal check-up during her pregnancy in the hospital.

On examination she was of average built, her pulse was 80 per minute, blood pressure was 110/70 mm Hg. Mild edema was present on her right leg. There were no pallor and no lymphadenopathy. Her cardiorespiratory status was normal. On per abdominal examination fundal height was of term size but there was undue enlargement of uterus and too many fetal parts with three poles were felt on palpation. There were mild to moderate contraction of the uterus. Two fetal heart sounds of different beats were located. The first fetus was vertex presentation. On per

1. Senior Resident; 3. Associate Professor; 4. Professor; 5. Professor & HOD, Obst. & Gynae Deptt., 2. Postgraduate student, Radiodiagnosis Deptt, Regional Institute of Medical Sciences(RIMS), Imphal.

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Dr. Chirom Pritam Kumar Singh, Senior Resident, Obstetrics and Gynecology Department, RIMS, Imphal. Pin - 795004. E-mail: <u>pritamchirom@yahoo.co.in</u> Phone: 2225254 (R), 9856229290 (M) vaginal examination cervix was 4cm dilated, 80% effacement and centrally directed. Fetal head was at zero station and pelvis was roomy.

All routine investigations were within normal limits. Her blood group was O positive. Her HIV testing done after counseling was nonreactive. She'd received two doses of tetanus toxoid.

She was provisionally diagnosed as a case of twin pregnancy in labour. First female baby was delivered by vertex with an apgar score of 9/10 and weighing 2.4 kg. After delivery of the first baby another fetus was felt with longitudinal lie and vertex presentation. There was no amniotic covering for the second twin. The second female twin was delivered ten minutes later by vertex with an apgar score of 7/10 weighing 2.3 kg. After the umbilical cord was clamped and cut an entangled mass of cords looking like a bag of worms came out of the introitus. The cords were entangled to each other 27 times(Fig 1). There was a single placenta with two cords. The maternal surface of the single placenta is shown in figure 2. Her postdelivery period was uneventful and was discharged the following



Fig 1. Photograph showing a single placenta with entanglement of the two umbilical cords.



Fig 2. Photograph showing maternal surface of the single placenta after disentanglement of the two.

Discussion

Monoamniotic twin pregnancy is a rare condition which occurs in one in 10,000 pregnancies.¹ it occurs as a result of splitting of the inner cell mass at 8 or more days after fertilization.² The associated complications include cord entanglement, congenital anomalies, twin-twin transfusion syndrome, intrauterine growth retardation, and preterm delivery etc. They are also associated with a very high perinatal mortality rate resulting from cord accidents which ranges between 28% to 47%.^{2,3} Perinatal loss rates of up to 50% -70% have been reported.¹

Early diagnosis, regular monitoring and timely intervention needs to be emphasized to avoid complications. In our case the patient had no regular antenatal check-up during her pregnancy for reasons best known to herself. The value of antenatal checkup is time tested and well known that it is needless to stress its importance but a casual antenatal visit or inadequate care is worst than no care at all.4 Luckily our patient reached term without major complications and her twin pregnancy was suspected from clinical examinations which were confirmed only at the time of delivery. Egan JFX and Borgida AE⁵ noted that before the availability of ultrasound upto 50% of twin pregnancies were first discovered at the time of delivery. Although ultrasonography is the best way to diagnose twins, our case did not have such investigation. The best timing for diagnosing such twins is at 9-12 weeks. Examination of the amniotic membranes and the number of yolk sacs are also important. Monoamniotic twin pregnancies should be suspected in the presence of a single

placental mass with same sex twins, normal amniotic fluid volume, absence of a visible dividing membrane on two ultrasonography examinations at least 12 hours apart and unrestricted fetal movement.¹ When cord entanglement is there it may show differing fetal heart rate patterns in the same direction on umbilical artery Doppler analysis of a common mass of cord vessels.6 The presence of a notch in the umbilical artery velocity waveform suggest changes in the fetal-placental circulation secondary to narrowing of the umbilical vessels involved, in cord entanglement.7 If cord entanglement is diagnosed early, most studies advocate delivery at 32 weeks to reduce the risk of intrauterine deaths. Caesarian section is the preferred mode of delivery.³ It is hard to explain how our case reach term without any untoward accident despite having cord entanglement and even more surprising is the successful vaginal deliveries of both the twins. The rarity of this condition is an obstacle to our proper understanding of this condition. Kantanka KS and Buchmann EJ⁸ also reported a case of monoamniotic twins with cord entanglement delivered vaginally but only one baby survived and the other was stillborn. Cases of successful vaginal delivery as ours are a rarity.

Whenever twin pregnancies are encountered, monoamniotic twin should be kept in mind which is not only rare but also frequently complicated by cord accidents and fetal death. With cord entanglement, caesarian section is the preferred mode of delivery but occasionally successful vaginal delivery also occurs.

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A rare combination of relapsing and cholestatic forms of acute Hepatitis A virus infection

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A 23 years old male patient was admitted in medicine ward Regional Institute of Medical Sciences (RIMS) Hospital, Imphal with complaints of generalized jaundice and fever off and on for 7 days prior to admission. This was associated with nausea, vomiting, anorexia, diarrhea, weakness and pain abdomen. He also complained of passing dark color urine and loose pale stool. On examination, generalized jaundice and tender hepatomegaly was present. Other systems were within normal limit.

Table 1. The liver function test results.

	Total Bilicubia (mg%)	Conjugated Bilirubin (mg%)	Unconjugated Bilirubin (mg%)	SGOT (AST) IU/I.	SGPT (ALT)IUA.	Serum Alkaline Phosphatase IU/L	Serum Total protei gm%	Serum Globulin gm%	Albumia Globulia Ratio	Serum Gamma GT IU/L
03.10.04	20.8	12.2	8.6	804	612	1018	6.8			•
12.10.04	37.2	23.0	14.2	964	410	1680				
20.11.04	23.4	14.0	9.4	302	248	1146				
16.12.04	20.5	-	-	88	156	583	7.1			
28.12.04	10.9	(*)	-	58	88	545	6.4			1.000
04.01.05	4.7			82	91	634	6.5			
10.02.05	3.4	2.0	1.4	96	104	260	7.1	3.0	1.30	94
03.03.05	1.8	0.8	1.0	46	52	682		3.0	-	-
25.03.05	8.5	6.1	2.4	948	485	1389	7.8			24
06.04.05	3.7		-	682	247	816	7.6			
19.05.05	1.8	-	-	159	261	250	7.7			-
05.09.05	2.4	0.8	1.6	33	68			2.5		
01.08.06	0.6			30	22	223	7.3	3.7		

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Investigation showed Hb. 11gm %, TLC 8900/ cumm, DLC P_{64} L_{32} M_1 B_3 . ESR 28mm/1st hour, and adequate plateiets. Table 1 and figure 1 show the Liver Function Test (LFT). USG (whole abdomen) showed hepatomegaly. Kidney Function Test (KFT) and ECG were normal. CXR showed no abnormality. Serum



Fig 1. The Serum level of total, conjugated and unconjugated billirubin.

for IgM antl-HAV (ELISA, EQUIPAR SRL, Italy) was positive, whereas serum IgM anti-HEV, HBsAg and HCVAb. were negative.

Conservative treatment was given along with UDCA (Ursodeoxychoiic acid) and a course of prednisolone on admission. The LFT parameters showed gradual improvement to attain almost normal level by 70th day (table 1), but serum IgM anti-HAV remained positive.

There was second episode of jaundice about 5 months after the first episode. On further investigation, there was persistence of serum anti-HAV IgM antibody with Liver Function Test (Table 1, Fig 1 & 2), Like the first episode, same line of management was given. With conservative treatment, the patient improved with a steady decline in the liver enzymes to normal levels completely by 22nd months. The serum IgM anti-HAV persisted for a total duration of 21 months with persistence of mild jaundice, generalized weakness, anorexia and diarrhea off and on. At 22nd month on further investigations, serum IgM anti-HEV, HBsAg, and HCV Ab. were still negative, and serum IqM anti-HAV was no longer detectable.

Discussion

Unusual clinical manifestations of faeco-orally transmitted Hepatitis A include cholestatic, relapsing and fulminant hepatitis.¹ Cholestasis will spontaneously resolve, although corticosteroids will hasten the resolution but may predispose the patient to develop a relapse of the hepatitis.²

In a few cases, prolonged cholestatic jaundice



Fig 2. The Serum levels of ALT, AST and Alkaline Phosphatase

has been mentioned, but recovery is the rule.³ In some individuals, HAV causes a biphasic illness with a second bout of jaundice and cholestasis 6 to 12 weeks after the primary infection.^{4,5}

Relapsing hepatitis occurs in 3 to 20% of the cases of acute Hepatitis A, and rarely takes the form of a poiyphasic disease (multiple relapses).⁶ A recrudescence of the disease, which may be more or less severe than the original episode, occurs 4 to 15 weeks after the initial symptoms have resolved. IgM anti-HAV either reappears or increases in titer and HAV has been detected in feces and serum. More than one relapse can occur, and enzyme elevations may persist for 5 to 12 months, although chronic sequelae are not observed.⁷

In this case, we used corticosteroids that help in the early resolution of the hepatitis but it probably predisposed to relapse. Any patient with either relapse or prolonged course of acute Hepatitis A infection is considered as highly infectious because it is associated with continuing viraemia and shedding of virus in feces. Relapse hepatitis is indicated by raised of liver transaminase activity. Therefore, acute Hepatitis A infection though undergoes relapse in a few cases may take the form of multiple relapses. Repeated serum IgM anti-HAV detection and estimation of serum transaminase levels will detect its reappearance (multiple relapses). This study finding suggests that IgM anti-HAV may persist for as long as 22 months. It is therefore necessary to know the unusual manifestation

of Hepatitis A infection and prolonged presence of IgM anti-HAV in this variants form. This will not only help in the management but also prevent further infection to others and avoid unnecessary invasive investigative procedures in any chronic jaundice.

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Bilateral choanal atresia: an experience with transnasal endoscopic approach

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A 15 days old female baby was referred from the Paediatric department, Regional Institute of Medical Sciences(RIMS), Imphal presenting with respiratory distress characterized by cyclical cyanotic attacks, which was relieved on crying and aggravated during feeding.

On examination, there were cyclical cyanotic attacks with respiratory rate of about 75/min during each attack. Nasal cavities were filled with thick mucoid discharge. Spatula test and Cotton Wool tests were negative and infant feeding tube no. 5 could not be passed through the nose beyond 3cm. There were no other congenital anomalies detected in the baby.

All routine investigations were within normal limits. But CT scan of Nose and PNS axial

view showed bilateral bony choanal atresia (Fig 1).

The baby underwent surgical treatment with transnasal endoscopic approach. A 0°, 4mm

Storz-Hopkins rigid Fig 1. CT-scan of Nose and nasal endoscope was PNS-axial view showing used for visualization. bilateral atresia (arrow).

Curved uterine dilator no. 2 was used for perforation of the atretic plate, dilated using dilator no. 5 and stented with Polyvinyl chloride

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infant feeding tube no. 5 for 4 weeks. The baby was kept in ICU for observation for 48 hrs. Post-operative antibiotic prophylaxis was given during the whole period of stenting.

Discussion

Choanal atresia is a rare congenital disease which occurs in about 1 in 8000 live births and affects the females more commonly than males in the ratio of 2:1.1 Choanal atresia may involve bone or membrane, obstructing one or both posterior nasal apertures.² Choanal atresia is of mixed type with bony and membranous components in 71% of cases while pure bony type is seen in 29% is of cases and pure membranous type is not reported.³ Classic theories of embryogenesis of choanal atresia include persistence of oropharyngeal membrane, failure of the physiologic oro-nasal membrane rupture, mesodermic tissue adherence and growth of palatal processes.⁴ Bileteral choanal atresia usually presents with respiratory distress which is aggravated by feeding and relieved by crying.¹ Our case also presented with episodes of respiratory distress with similar aggravating and relieving factors. Multi-system abnormalities are usually associated - the so called CHARGE (Colobomatous blindness, Heart disease, Atresia of the choanae, Retarded growth or development, genital hypoplasia in males, Ear deformities) association.¹ But, in the present case no other congenital abnormality was detected. CT scan is the current investigation of choice, while choanography had been the traditional method of investigation.⁵ In our case also, the CT scan of the nose and PNS in the axial view showed bony bilateral atresia. Surgery is the treatment of choice, however, prior to surgery the initial treatment consists of oral airway maintenance (oro-tracheal intubation).⁴ There are 4 approaches to the posterior part of nasal cavity i.e. transnasal, transpalatal, transantral and transseptal. Success rate with these techniques ranges from 55% to 85%.1 Recent discussions are being centered on approaches which yield best result and least morbidity.6 Currently, an endoscopic approach with a 2.5 or 4 mm telescope and powered instrumentation using attachable burrs and blades with continuous suction is preferred, especially for neonates.³ With transnasal endoscopic technique the success rate is up to 100%.² In the present case, transnasal endoscopic puncture and dilatation was adopted and we had good results with polyvinyl chloride infant feeding

tube stenting. In subsequent follow ups, the baby was doing fine.

Transnasal endoscopic technique provides excellent visualization, less morbidity, less complications (avoids hard palate and alveolar growth retardation), and is quick and safe.² Subsequent prevention of stenosis of choanae can be achieved by preventing excessive granulation tissue formation by aiming to reduce excessive damage, use of soft polyvinyi chloride tube as stent and use of broad spectrum antibiotics for whole period of stenting, and by stenting for at least 4 weeks.

Bilateral congenital choanal atresia, if not diagnosed and treated early at birth, may be fatal because of respiratory obstruction. Surgical removal of atretic plate, preferably by the transnasal endoscopic technique, is the definitive treatment with insertion of stent to maintain patency of the nose.

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Subacute sclerosing panencephalitis that showed watershed infarction like image on MRI : a case report.

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A sixteen years old Christian boy, who was the second of four siblings, born out of consanguinous parentage, product of full term normal delivery, normal mile stones presented with complaints of slowly progressive cognitive decline of one year's duration in the form of impaired concentration, mood swings, scholastic decline and memory loss. After two months of onset of these symptoms he developed progressive instability in gait simulating drunken walk and become bed ridden since last one month. His mental status deteriorated slowly so much so that he became incommunicable and mute since last two months. At the same time parents also noticed infrequent blinking episodes lasting approximately one second, associated with a brief head jerk. These gradually became frequent and started to involve other part of the body and since last one month his whole body jerked with flexion and slowly relaxed in two to three seconds. The patient's history was not suggestive of measles infection during early childhood. The immunization history of the patient was unknown. General physical examination revealed generalized cachecxia with normal pulse and blood pressure. Neurological evaluation revealed that the patient was drowsy, in decorticated posturing,

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Suraj Singh Th, MD, DM, Assistant Professor of Neurology, Department of Medicine, RIMS, Imphal-795001. Manipur, India. E-mail:<u>drsurabi@.yahoo.com</u> Telphone: 09856137202. responding with incomprehensible sound only Pupils were of normal size and direct and consensual light reflexes were normal, Dolls's eyes movement was normal but there was no blink response. Examination of his optic disks revealed no abnormality. Other cranial nerves were normal. Motor examinations showed generalized hypertonia, all deep tendon reflexes were exaggerated, and both plantar were extensor. There was frequent generalized myoclonus with flexion of all joints with slow relaxation lasting two to three seconds. This myoclonus was also sound and tactile sensitive. There was no sign of meningial irritation.

Laboratory workup did not reveal any abnormality in blood and urine. EEG revealed repetitive complexes occurring every four to



Fig 1. Electroencephalogram (EEG) showing repetitive complexes every 4-6 seconds.



Fig 2. MRI Brain showing generalised cortical atrophy, focal lesion, hypointense in $T_1 \&$ hyperintense in T_2 in right fronto-temporal area.

associated with a myoclonic jerk and consistent with subacute sclerosing panencephalitis (SSPE) (Fig 1). Cerebrospinal fluid examination showed protein $0.55 \, \mathrm{g/l}$, glucose 3.4 mmol/l. and 3-4 cells, all mononuclear. Both serum and cerebrospinal fluid were strongly positive for antimeaseles laG antibodies. An assay of antimeaseles IgM antibody assay by ELISA was also positive.

On MR imaging, generalized cortical atrophy more in the anterior part with relative sparing of the occipital lobe was found. In addition, focal lesion, hypointense in T1 and hyperintense in T2 in right frototemporal area hardly distinguisible from watershed infraction was noted (Fig 2).

Discussion

Subacute sclerosing panencephalitis(SSPE) is a fatal encephalitis of children and adolescents, associated with an episode of measles several years before the onset of encephalitis.¹ Clinically, the classical disease takes 1 to 3 years to progress from stage I (mental and behavioral abnormalities) to stage IV (mutism, occasional myoclonus and loss of cortical function).^{1,2,3} The diagnosis is based upon typical cerebrospinal fluid changes and a characteristic EEG pattern. The diagnosis of SSPE can be reliably established if patient fulfils three of the five criteria given by Dyken PR.¹ In this case, the patient's mental status deteriorated slowly so much so that he became incommunicable and mute. Our patient had no definite past history of measles, progressed to stage IV in one year.

Though changes seen on CT and MRI are non-specific, MRI can be used to assess the extent of brain involvement in early stages of encephalitis as it is more sensitive. SSPE may present slight changes in the subcortical and periventricular white matter, as well as basal ganglia. Progressive disorder makes widespread T_1 -low, T_2 -high intensity area and atrophy.⁴ Depending on white matter changes and atrophy, Brismar J et al³ classified radiological changes into 6 stages. Neuropathological findings suggest that the disease initially affects the occipital cortex and then progresses to involve the frontal cortex and finally the subcortical white matter, brain stem, and spinal cord. In the most advanced stage, when the patient was in a neurovegetative state, an almost total loss of white matter had usually taken place,⁴ Our case showed only mild cortical atrophy in the anterior part with relative sparing of the occipital lobe in spite of being in clinical stage IV. This poor correlation between radiological changes and clinical findings have been described earlier also with normal MRI in bedridden patients or improvement despite clinical progression.⁴ Murata R et al⁵ had reported serial MRI in a case that showed radiological improvement parallel to partial clinical improvement. In addition we also found T2 hyperintense lesion in right frototemporal watershed area hardly distinguisable from watershed infraction. Takahashi M et al⁶ have found similar watershed lesion though it was in the parietooccipital lobe in their case. They found blood flow decreased in the vertebral artery system with SPECT and Doppler flowmetry suggesting vascular pathogenesis of SSPE. In their case they followed this initial watershed lesion with serial CT and MRI imaging when the patient progressed from stage I to stage IV. They showed the imaging processes of SSPE progression from formation of initial lesion to demyelination and gliosis of total brain.

Though we could not investigate with SPECT and Doppler, this case again emphasizes the vascular pathogenesis SSPE and variable imaging finding, not correlating with the clinical staging.

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Psammomatoid juvenile ossifying fibroma of maxilla : report of a recurrent case

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An 18 years old male reported to the Department of Oral Medicine and Radiology. Meenakshi Ammal Dental College and Hospital, Chennai with the chief complaint of a swelling in the right side of the face, present for the past 4 years, gradually increasing in size (Fig 1). On clinical examination, extraorally there was a massive and diffuse swelling in the right side of the face extending superiorly from the infra-orbital margin to about 1cm above the angle of the mouth inferiorly. anteriorly from the right ala of the nose to the right zygomatic arch posteriorly. The skin over the swelling was normal. Nasal discharge was seen from the right nostril. On palpation, the swelling was non-tender, bony hard in consistency and measured roughly 6cm x 4cm. Intra-oral examination revealed bicortical expansion, with the swelling extending from 11 region upto the tuberosity region buccally obliterating the buccal vestibule. Palatally the swelling extended from 13 region upto the tuberosity region. The mucosa overlying the swelling was normal, without any ulcerations or discharge. The orthopantomograph revealed an expansile radioluscent -radiopague lesion involving the right maxilla, zygoma and extending onto the nasal cavity. The lesion was seen to cause displacement of 18 and displacement of the roots of 15 and 16. Histopathological examination of the

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incisional biopsy specimen revealed irregular trabeculae of bone with lamellations in a background of fibrous connective tissue stroma. Based on this, an initial diagnosis of "fibrous dysplasia" was given. The lesion was surgically removed and histopathological examination revealed numerous spherules of cementum-like material in a fibrous connective tissue stroma, containing stellate, and spindle shaped cells. Based on the histopathological findings, the lesion was diagnosed as a case of "ossifying fibroma of maxilla".



of the right side of the face (initial lesion).

Fig 1. Extra-oral swelling Fig 2. Photograph showing postoperative recurrence of the lesion.

The same patient, at the age of 21 years, 3 years after the initial lesion, reported again with a swelling in the right upper jaw region which was present for the past 6 months, seen especially while smiling. Extra-oral examination showed a swelling involving the right zygoma, infraorbital margin, and right maxilla, producing facial asymmetry (Fig 2). On palpation, the swelling was non-tender, bony hard in consistency. The skin over the swelling was normal. Patient complained of tingling sensation over the right lateral area of the nose. Intra-oral examination revealed

bicortical expansion, which was more prominent on the buccal aspect, obliterating the buccal vestibule.

The CT scans showed an expansile lesion with calcification, invading and eroding the surrounding bone, indicating the highly aggressive behaviour of the tumour (Fig 3). The incisional biopsy revealed abundant spherules of intensely basophilic calcification/ ossicles in a background of fibrous connective tissue, based on which a diagnosis of juvenile ossifying fibroma was given. The lesion was surgically excised by performing a total maxillectomy of right maxilla. The lesional tissue was yellowish white and gritty in consistency in some areas. Histopathoiogical examination of the specimen revealed numerous spherules of uniform ossicles or calcification (psammoma bodies) in a background of relatively cellular stroma composed of uniform stellate and spindle shaped cells (Fig 4). This characteristic histopathoiogical finding was suggestive of "Psammomatoid juvenile ossifying fibroma". Based on the histopathological finding, and after correlating with the clinical and radiological features, a final diagnosis of "Psammomatoid juvenile ossifying fibroma" was given.





Fig 3. CT scan of the skull showing the lesion involving the right maxilla and maxillary sinuses.

Fig 4. HPE showing presence of psammomatoid bodies.

Discussion

Juvenile ossifying fibroma is a fibro-osseous neoplasm that arises within the craniofacial bones. It is a well-defined clinical and histological entity that has recently been separated from the larger group of ossifying fibromas on the basis of the age of the patients, most common sites of involvement, and clinical behaviour. Slootweg PJ and Coworkers¹, in an analysis of 33 cases of juvenile ossifying fibroma, were able to separate the lesions into two distinct groups that they designated as juvenile ossifying fibroma -WHO type (trabecular variant) and juvenile ossifying fibroma with psammoma -like ossicles (psammomatoid variant).

Psammomatoid juvenile ossifying fibroma was first reported by the Benjamins in 1938, under the apellation of osteoid fibroma with atypical ossification of the frontal sinus². Gogl in 1949 reported the lesion under the term of psammomatoid juvenile ossifying fibroma of the nose and paranasal sinuses². In 1952, Johnson LC et al³ reported the same lesion as juvenile active ossifying fibroma. In a review of 86 cases, Makek M⁴ considered the lesion to be a variant of osteoblastoma and named it psammous desmo-osteoblastoma.

Psammomatoid juvenile ossifying fibroma is osteogenic in origin. They occur over a wide age range, from less than 6 months to over 70 years of age. About 80% are seen in 5-15 years of age. Only 20% are seen above 15 years of age. The mean age of occurrence of psammomatoid juvenile ossifying fibroma varies in different studies from 17.8 - 22.6 years of age with a slight male predilection. Majority of the lesions involve the maxilla, paranasal sinuses, and orbital and frontoethmoid bones, but mandibular lesions do occur^{2,5,6}. Johnson LC³ believes that the majority of these tumors arise in the paranasal sinuses and with persistent growth, they involve the orbital, nasal and cranial cavities, and the maxilla. About 70% of psammomatoid juvenile ossifying fibroma occurs outside of the jaws with about 7% occurring in the mandible. The lesion may range in size from 2-8cm in diameter.

Clinically psammomatoid juvenile ossifying fibromas manifest as bone expansion sometimes behaving in an aggressive fashion, reaching massive proportion with extensive cortical expansion.^{2-7,9,10} When the orbital bones and paranasal sinuses are involved, the patients may develop proptosis, exopthalmos, bulbar displacement, headache and disturbances in ocular mobility. In the maxilla, obstruction of the nasal passages and epistaxis may be present. Rarely, temporary or permanent blindness occurs. In lesions arising adjacent to the cribriform plates, intracranial extension has resulted in meningitis, with one report of a maxillary tumor leading to convulsions and death from pneumococcal meningitis. The case reported here involved the right maxilla causing nasal obstruction, also involving the right zygoma and infraorbital margin including the orbital floor.

Radiographically^{2,5-8}, the features are variable, and depending on the tumour's location and the amount of calcified tissue produced by the tumour, the lesion will show varying degrees radiolucency and radioopacity. of Occasionally, a well defined, sometimes corticated osteolytic lesion with a cystic appearance may be seen. Sclerotic changes may be evident in the lesion and a plain skull film may show a ground-glass appearance. In computed tomographic scans set on bone window, the lesions appear less dense than normal bone. The lesion may appear multiloculated on CT scans. The lesions may also be fairly well demarcated or show invasion and erosion of the surrounding bone. It is stated that in the facial skeleton a wellcircumscribed expansile mass with a thick wall of bone density on CT scan and enhancement of this area on post contrast MR image is strongly suggestive of psammomatoid juvenile ossifying fibroma.

Microscopically^{1-4,5-9}, psammomatoid juvenile ossifying fibroma is characterised by the presence of multiple round uniform small ossicles (psammoma bodies) embedded in a relatively cellular stroma composed of uniform, stellate, and spindle shaped cells. Calcification of these spherical ossicles proceeds in a concentric fashion, imparting a psammoma body- like appearance to the spherical masses. The psammomatoid bodies are basophilic and bear superficial resemblance to dental cementum, but may have an osteoid rim. Myxoid changes and microscopic spaces may be seen in the stroma. Mitotic activity is extremely rare in the stromal cells. At the periphery of the lesion, the ossicles may coalesce and form irregular thin bony trabeculae that may become thicker, with numerous reversal lines resembling Paget's bone.

Development of aneurysmal bone cyst in psammomatoid juvenile ossifying fibroma is commonly reported. They develop initially as focal myxoid change in the stroma with hemorrhage and osteoclastic giant cells, with gradual expansion and formation of cysts with thin fibrous walls. Cystic changes were seen in 53% of the cases reviewed by Johnson LC et al³. The cyst tended to occur more commonly in the younger patients in the first and second decades of life. Large aggressive maxillary lesions were commonly associated with aneurysmal bone cyst formation.

The treatment of choice for psammomatoid juvenile ossifying fibroma is surgical curettage but larger lesions may require local resection or enbloc resection and bone grafting.² Our case showed aggressive behaviour clinically as well as radiologically as a result of which a total maxillectomy was done. Recurrence after surgical management is common and is reported to range from 30% - 56%.^{3,5,7} Of 112 cases reviewed by Johnson LC et al³, 30% recurred one or more times. Recurrence may be attributed to difficulty in proper resection caused by the location of the lesion and the infiltrative nature of the tumor borders.

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Co-infection of Hepatitis A, Hepatitis E and Typhoid : a case report

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A 28 years old female was admitted to female medicine ward of Regional Institute of Medical Sciences (RIMS) Hospital, Imphai with complains of fever and jaundice for 5 days prior to admission. This was associated with nausea, vomiting, anorexia, weakness and pain abdomen with headache, generalised itching of the body, pale and loose stool. On examination, there was rise of temperature and generalised jaundice. On per abdomen examination, there was tender hepatomegaly. No abnormality was detected in other systems like CNS, CVS and respiratory system.

On investigations, haemoglobin level was 11.4gm%, TLC 5600/cumm, DLC - P 29%, L 61%, M 8%, B 2%, The erythrocyte sedimentation rate (ESR) was 40 mm/1st hour (Westergrens), Platelets count was 2.2lakhs/cumm. No malarial parasite was detected. The liver function test showed serum bilirubin of 11.4 mg/dl, AST 55 IU/I, ALT 94 IU/I, serum alkaline phosphatase 418 IU/dl, total serum protein 7.8, serum albumin 3,8, and serum globulin 4.

Blood sample was tested for typhoid by Typhidot test (Dot EIA method) and the serum IgM for typhoid was found to be positive. It was confirmed by isolation of Salmonella typhi

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Dr. K. Pewezo Khalo, Microbiology Department, RIMS, Imphal-795004. e-mail: <u>pewezokhalo@yahoo.co.in</u> from the blood culture. The antibiotic sensitivity test was performed by Kirby- Bauer disk diffusion method using Mueller Hinton agar (MHA) and was found to be ciprofloxacin, cefixime, cotrimoxazole, amoxyciav, chloramphenicol but resistant to ceftriaxone and cefuroxime. Blood was tested positive for both anti-HAV IgM and anti-HEV IgM by ELISA (EQUIPAR srl, Italy). Further, blood was tested negative for serum HBsAg (Virucheck) and anti-HCV antibody (Virucheck). Blood tested for malarial parasite was negative. USG-TAS showed mild hepatomegaly. The patient was treated with oral cifixine 200mg twice daily for 7days and supportive conservative measures. The patient responded well without any complication.

Discussion

Enterically transmitted hepatitis infection and typhoid fever are endemic infectious diseases in many parts of the world. They share a common, simple mode of transmission - the fecal-oral route associated with poor hygiene. Effective established vaccines are available against Hepatitis A and typhoid infections, and recently new formulations combining both vaccines in one injection have been licensed.1 Jaundice is a rare clinical presentation in typhoid fever, therefore enterically transmitted hepatitis infection should be considered in typhoid fever with jaundice because these enterically transmitted diseases may simultaneously occur.² In this patient fever with jaundice and hepatomegaly were the clinical presentation that suggest us to investigate for

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viral hepatitis infection besides typhoid fever. Liver is commonly involved in patients with typhoid fever. However, severe hepatic derangement simulating acute viral hepatitis is rare. The clinical picture of Salmonelia hepatitis is frequently indistinguishable from viral hepatitis. ALT/LDH ratio is the best discriminator between both entities. Other clues that raise the possibility of Salmonella hepatitis include high fever, relative bradycardia, and left shift of WBCs. Despite long hospitalization, Salmonella hepatitis responds to proper antibiotic therapy and has an excellent prognosis.³

In viral hepatitis, fever is usually present in the prodromal phase but subsides before appearance of the icteric phase. In endemic areas, if fever is present in the icteric phase of hepatitis, typhoid also should be considered in the differential diagnosis of fever, even in the absence of positive cultures for Salmonella typhi. The Widal test may be helpful in reaching a diagnosis.⁴ Typhoid fever is often associated with abnormal liver biochemical tests, but severe hepatic involvement with a clinical feature of acute hepatitis is a rave complication. A positive culture for salmonella from blood or stool is essential to differentiate salmonella hepatitis from other causes of acute hepatitis. The prognosis is usually good as salmonella hepatitis responds well to a specific antibiotic therapy and jaundice resolves with clinical improvement. However, clinical course can be severe with a mortality rate as high as 20%, particularly with delayed treatment or in patients with other complications of salmonella infection.⁵ In this patient, blood sample was collected before

administration of antibiotics for blood culture

and typhidot test. Salmonella typhi was isolated from the blood culture which is the confirmatory method for diagnosis of Salmonella infection. Also blood sample was further tested for Typhidot test and serum IgM to Salmonella typhi was detected.

In our patient besides its clinical presentation and laboratory findings for typhoid, fever with generalised jaundice and tender hepatomegaly with high levels of liver function test suggest its co-infection with hepatitis. Hence, the blood was further tested for viral hepatitis and was found to be positive for both anti-HAV IgM and anti-HEV IgM, beside isolation of Salmanella typhi by blood culture and detection of serum IgM to Salmonella typhi by Typhidot. This patient responded well to oral Cefixime without any complication. Regarding management of Hepatitis A and Hepatitis E infection, olny conservative treatment along with bed rest and good diet was given since both are self-limiting infection. Since, enterically transmitted Hepatitis A, Hepatitis E co-infection with typhoid fever is prevalent in this part of the country, prophylactic vaccination against Hepatitis A and typhoid should be given to vulnerable individuals especially travelers that will be cost effective. Also, susceptible individuals should be given health awareness regarding the food hygiene and drinking safe water especially during the journey. This case study suggests that co-infection of typhoid with enterically transmitted Hepatitis A and E is possible due to sharing of the same route of transmission. Co-infection of Hepatitis A and Hepatitis E with typhoid is a rare combination, hence this case is being reported.

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Anaesthetic deaths: a medicolegal point of view

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Introduction

On the 16th October 1846, William Thomas Green Morton demonstrated that a chemical compound called diethyl ether can produce insensibility to pain in a predictable and controlled manner at the Massachusetts General Hospital. With the passage of time, various newer developments have come up in the specialty of anaesthesiology in the management of pain. Thus, anaesthesia, the panacea for pain has improved the quality of all surgical procedures, since management of pain had been the prime concern in such procedures. However, it is also true that the agents which relieve pain are themselves often the source of morbidity and mortality, for any intervention (surgical or anaesthetic), does carry with it an element of risk to the life of the patient.1

Anaesthetic deaths are very rare and only one in 10,000 persons die totally resulting as a result of anaesthesia,² In a study at the United Kingdom, anaesthesia was considered partly or totally causative of mortality in one to two cases per 10,000, and to be totally causative in nearly 1 per 10,000. In another enquiry into perioperative deaths by Confidential Enquiry

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into Perioperative Deaths (CEPOD), arranged by both the Association of Anaesthetists and the Association of Surgeons of Great Britain and Ireland which examined perioperative deaths occurring during a twelve month period, it was observed that death attributable to anesthesia alone was only 0.05 per 10,000 anaesthetics.³ Similarly, the overall death rate in which factors under the control of the anaesthetist caused or contributed to the fatal outcome was thought to be about two per 10,000 operations in 1960, one per 10,000 in 1970, and 0.5 per 10,000 in 1990 in New South Wales, Australia.⁴

Interestingly, the deaths occurring during minor elective surgical or diagnostic procedure is more perplex in contrast to deaths occurring during complex surgical procedures namely an open heart surgery, where the extent of natural disease obfuscates the contribution that surgery or anaesthesia make to the death.⁵ In an extremely sick patient, certain procedures may have to be taken to save his life, and if such intervention leads to death, the disease from which he was suffering is cited as the cause of the death, and the intervening procedure is not taken into account. But in instances where the patient was apparently fine and had been walking into the operation theatre and is subsequently brought out dead, the suspicion may be roused, and such deaths might lead to an investigation.

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The American Society of Anaesthesiologists (ASA) has classified deaths during operative procedures as follows^{1,5}:

ASA Risk I: Normal healthy patient

ASA Risk II: Mild systemic disease

ASA Risk III: Severe systemic disease limiting activity but not incapacitating

ASA Risk IV: Incapacitating systemic disease that is a constant threat to life

ASA Risk V: Moribund patient not expected to survive 24 hours without an operation

E: Emergency operation

Besides, the mortality rates after anaesthesia and surgery for each ASA physical status emergency and elective cases are as follows⁶:

ASA Rating	Mortality Rate (%)
Ι	0.1
Π	0.2
III	1.8
IV	7.8
V	94

Category I, II and III require full medicolegal investigation, as the death is unexpected in these cases.

Causative factors in anaesthetic deaths

It is a known fact that deaths occurring during the administration of anaesthesia may not be due to the anaesthetic viz, surgical shock, surgical misadventure, heart disease precipitating the death, etc. However, death may also occur solely because of mishap or complication of anaesthetic administration and any of the following factors may be responsible for such deaths⁶:

- 1. Vagal stimulation while intubating an endotracheal tube
- 2. Faulty use of relaxants and hypotensive drugs
- 3. Accidents, which may cause obstruction of airway or spasm resulting in asphyxia
- 4. Amount and type of drug used for anaesthesia and duration of anaesthesia
- 5. Hypotension in spinal anaesthesia

- 6. Anaphylactic reactions to drugs used in local or spinal anaesthesia
- 7. Inadvertent administration of a hypoxic mixture of gases (Oxygen content less than the required amount) during anaesthesia.

On the other hand, anaesthetic deaths may also be discussed under the following headings:

1. Deaths due to anaesthetic misadventures: *Human error* or *Equipment error*

2. Deaths due to administration of overdose of anaesthetic agent, (extremely rare and if at all it occurs, it is due to ill-advised polypharmacy⁷).

Human error

It can be categorized into technical, judgmental, monitoring and vigilance failure.⁶

1. Technical: Arising out of the deficiencies of technical skill or from poor design of the equipment or apparatus.

2. Judgmental: Arising from lapses in training or poorly developed decision making skills.

3. Monitoring and vigilance failure: A failure to recognize or act upon a visible data requiring a response.

In a study carried out in the United Kingdom to assess anaesthetic deaths, it was observed that large numbers of patients were not seen preoperatively by an anaesthetist, did not have blood pressure recorded intraoperatively, did not have the machine checked by the anaesthetist before beginning anaesthesia, and did not have intraoperative monitoring with electrocardiogram (EKG).³

Equipment failure

Equipment failure is a comparatively minor cause of anaesthetic mishap. Equipment failure accounted for 4% of the incidence in a study by Craig J and Wilson ME.⁹

Medicolegal aspects

The aftermath of a patient's death in a surgical procedure performed under anaesthesia is that, the anaesthetist is often unfairly accused of causing death. However, this is to be noted that deaths occurring during operative procedures under anaesthesia are often not due to the administration of anaesthesia.⁶ Negligence suits may arise in such deaths and this usually results from failure of empathy and communication towards the patient and his relatives.¹

Suggested precautions

An anaesthetist must ensure the following guidelines to avoid any such unwanted outcomes:

1. Establishment of proper physician - patient relationship

2. Establishment of identity viz. type of surgery, side for surgery, self identification (patient must feel the presence of the doctor during surgery) and re-identification (the patient sees the familiar face of the doctor on awakening).

3. Informed consent: Legally, separate consent for anaesthesia should be taken.

4. Documentation: Preanaesthetic evaluation and assessment of patient.

5. Maintenance of records.

In addition to this, if death occurs during an operative procedure, the surgeon or the anaesthetist should immediately inform the matter to the police for holding an inquest.⁶

Other precautions¹

- 1. Training and supervision: Proper training and supervision on the device used, and procedures adopted.
- 2. Specific protocol development:
- a. Development and maintenance of standard check list concerning the

patient's condition and the available equipments should be used in the procedure.

- Additional monitoring instrumentation and equipment, and human factor improvement :
- a. Use of standard monitoring devices recommended by ASA (Arterial blood pressure recorder, electrocardiogram (EKG), oxygen analyzer, ventilator disconnection alarm, etc).
- b. Use of pulse oximetry, capnography, spirometry, etc.
- 4. Organizational improvement:
- a. Deployment of trained personnel.
- b. Regulation of working hours of staff to avoid fatigue and lack of sleep.

Conclusion

It has to be realised that the death rate related primarily or solely to anaesthesia has decreased markedly during the past four decades.¹⁰ Nevertheless, patient safety is an ongoing necessity and it must be constantly sustained by research, training, and daily application in the workplace.³ It is worth mentioning here that there are limitations of an autopsy examination in anaesthetic deaths. In most cases, there is no technical defect and the cause of death remains obscure even after autopsy. Most of the deaths are of physiological nature and opinion is based mostly on the exclusion and reasoning for functional lapses.² However, every doctor should take all the possible precautions and should always be aware of the problem areas while administering anaesthesia to avoid any untoward outcome.

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