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Sir, Brian May, Scientific Advisor to the British Government, in a broad-ranging article in the "New Scientist" in 1995 pointed out that the essential requirements for a successful university is a group of enthusiastic, inquiring postgraduate students, thereby emphasizing Sir Peter Medew's advice that young doctors should be enthusiastic, curious and disbelieving about everything he or she sees or hears.

Such a group or approach is noticeable by its rarity in Pakistan. The reasons are clear, the implications for medicine in Pakistan are profound and the cure is not in our star but in over-selves as Polonius pointed out to Laertes.

There is a considerable body of professional opinion in Pakistan, as in many developing countries, that believes that curative medicine teaching to undergraduates is essential for dealing with the disease load of the country and that postgraduate study must find its way by individual effort, apprenticeship, diligent rote learning and if possible, overseas experience and diplomas in a developed country. The implications of this approach are profound and the results inevitable. All that is accomplished is the creation of an intellectual underclass, out of step with medical training and professional requirements in the rest of the world. For instance, it is of little use diagnosing a sore throat and treating it with antibiotics if it recurs next week and it has a treatable background predisposing factors without even considering antibiotic resistance in the community - all of which are demanded of the W.H.O. definition of a five star doctor. Equally, by limiting knowledge of expensive equipment or treatment because of cost constraints, how are we going to train future doctors to make choices about whether special tomography or subtraction MRI should be chosen with limited resources? Clearly Pakistani doctors should be better trained than doctors in the USA or Western Europe as they will have to make more precise choices, both professionally and individually. Nevertheless, doctors with considerable overseas experience do stand out but the reason is totally different to what they think. Many feel that exposure to high technology, professional discipline and an advanced social system makes them better doctors. These facets help but many such doctors are still doing what was done 20 years ago in the UK or the USA and have been stuck in a time warp ever since and bypassed by the demands of modern medicine.

The essential feature to be learned from the developed world is how to think and we ignore this at our peril. Moreover, although the only Pakistani Nobel Prize winner in Physics pointed out that he had to go to the United States to learn how to think, this can be accomplished locally without having to go overseas, but it requires a revision of how undergraduate and particularly postgraduate education is approached.

The essential feature is to acquire a lifelong habit of learning how to think. A university teaches you how to think whereas a technical college informs you. The difference is that between a technically informed mechanic and a university educated mechanical engineer, who can do everything a mechanic can as well as many other functions that the mechanic cannot carry out, because he has not learnt how to think. This analogy in an increasingly technical subject like medicine is very appropriate and requires changes in the students, teachers and examinations.

The educational systems in many countries stress learning by rote and the acquisition of "facts". When such students reach university, they simply continue the same process and because the teaching and examination system reward the process, attain certificates without ever being exposed to a true professional university education. I could weep when I go to the College library and see rows and rows of bright young minds being pounded into submission by rote learning of outdated and dubious facts from text. "New World New Mind" by Robert Ornstein and Paul Erlich should be a required reading for all professional teachers. What is the difference between a true university medical graduate and a technically informed doctor? The latter is unable to cope with the rapid expansion in knowledge and scope of medicine and can only answer 2_ of the following 5 questions every doctor should ask himself about every patient seen: -

1. What is wrong with this patient?
2. What is the best overall treatment for the condition?
3. Why should I treat this patient differently? This requires far broader knowledge than can be accomplished.
4. What are the effects of the chosen treatment in the future, for both the patient and his or her environment?
5. How do you explain the pathology and treatment in term of molecular medicine? This ensures that the correct way of thinking is engendered?

This approach is as demanding, if not more so, of teachers as of the students. The maintenance of a rigid medical hierarchy along the old teutonic lines does not adapt well to modern medicine. The advantages of the present system should be retained but the rest will have to be discarded if medicine is to progress in Pakistan, as it should. The teachers should be aware of the hierarchy of knowledge for adequate academic debate and this should be encouraged at a far broader level than simple diagnosis and treatment. Basic science and its advances need to be incorporated in clinical medicine as mentioned before. Teaching methods need to be upgraded and I am pleased to see that the College of Physicians & Surgeons Pakistan has insisted upon this.

The examinations however need to be re-evaluated and again set at an appropriate level for the modern practice of medicine, rather than simply diagnosis and treatment. The Royal Colleges considered this process a few years ago and pointed out that if the pass rate was less than 30%, incorrect students were being examined, the students were being inadequately taught or were being examined incorrectly. Appropriate changes were made and perhaps it is time for the same exercise to be carried out in Pakistan.

This whole process will undoubtedly meet with much resistance, but is clearly the only way to a better professional future for postgraduates in Pakistan. I have not touched on continuing medical education, certification, medico-legal matters or public education, all of which require input from the postgraduate medical body in this country in order to avoid the problems now present in other countries around the world.

PETER BAILLIE

ABDOMINAL TUBERCULOSIS PRESENTATION AND EARLY DIAGNOSIS

HAKIM ALI ABRO, RUKHSANA, JAMAL ARA, SHABEER HUSSAIN

ABSTRACT:

A study of 50 cases of abdominal tuberculosis was conducted over a period of six months in the Medical Department of JPMC to see the various symptoms, signs, presentations and the usefulness of various investigations in the diagnosis of the disease. Diagnosis of abdominal tuberculosis was made on histopathology in 11(22%), typical abdominal symptoms and signs and the presence of extra abdominal symptoms and signs of tuberculosis in 20(40%), identification of AFB in 8(16%), serology 8(16%), PCR in 1(2%) and ultrasound in 1(2%). Loss of appetite, weakness, weight loss, fever, diarrhoea and night sweats were the common symptoms. Abdominal tuberculosis is difficult to diagnose, specially in the early stages of the disease, but a combination of symptoms, signs and investigations can give reasonably good yield. And ELISA and PCR are very useful in doubtful cases.

KEY WORDS: Abdomen tuberculosis, presentation, serology, diagnosis

INTRODUCTION

Tuberculosis is an important communicable disease world wide. An estimated 10 million people are infected with tuberculosis and 3 million die of it annually¹. Its incidence has fallen in developed countries but it remains a common disease and principal cause of death in developing countries². Incidence of tuberculosis is again on the rise in Western countries due to the influx of immigrants from third world countries^{2,3} increased number of aging population⁴ and AIDS.

The disease tends to affect middle aged population. Abdominal tuberculosis presents with many non-specific symptoms, like abdominal pain, diarrhoea, constipation, weight loss, anorexia, abdominal distension and intestinal obstruction. However, other clinical entities may present with similar symptoms. As there are no simple investigations specific for abdominal tuberculosis, it is difficult to diagnose the disease. Culture and staining for acid fast bacilli are not very helpful due to a large number of false negative results. Moreover, tissue for histopathological examination is also difficult to get in abdominal tuberculosis without surgical intervention.

This study was carried out to see various symptoms and signs of presentation and validity of different investigations specially serology, which has never been reported in local literature.

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PATIENTS AND METHOD

Fifty patients admitted in the Medical Wards, (including Chest Medicine) of Jinnah Postgraduate Medical Centre, Karachi from January to December 1997 were included in the study. There were 28 females and 22 males. The commonly affected group was in the third decade of life which is in conformity with that reported in the literature^{3,5}. All the patients in this study were from low socio-economic class, which has also been confirmed by other studies. Patients with weight loss, fever, abdominal pain, night sweats, doughy feel of abdomen, diarrhoea, constipation, abdominal mass, and abdominal distension were included in the study. Patients were subjected to the following investigation: Blood CP, ESR, X-Ray Chest, Tuberculin test, Sputum for AFB, (suspected cases), Ascitic fluid D/R, AFB smear and C/S, Liver function test, Ultrasound abdomen, And a G. A. T. B (Gellification test), And a ELISA (Serology to detect antibodies of IgA, IgG, IgM against Mycobacterium Tuberculosis), Lymph node biopsy (if enlarged), Stool for AFB smear, Peritoneal biopsy, PCR and pleural fluid D/R.

The diagnosis was established on the basis of at least one of the following standard criteria⁴:

- Isolation of M. Tuberculosis on smear or culture examination.
- Caseating granuloma on histo-pathology.
- Suggested abdominal symptoms with proven associated extraabdominal tuberculosis.
- Identification of Mycobacterium tuberculosis DNA with the help of PCR⁶.

- Positive serology in clinically suspected abdominal tuberculosis^{3,6}.
- Suggested ultrasound finding with an appropriate clinical situation⁷.
- Response to trial of antituberculous therapy in the absence of above criteria.

RESULTS AND DISCUSSION

The incidence of Associated abdominal tuberculosis, as reported in literature varies from 15 to 77%^{2,11}. In our study it was (62%). Age ranged from 13 to 55 years (Fig. 1) with peak incidence in the third decade. Loss of appetite, generalized weakness and loss of weight were the most common symptoms in our study (Table II). Loss of appetite and generalized weakness was present in all the patients while weight loss was present in 48 (96%) cases. These results are slightly higher than those reported in literature^{2,11,12}, probably due to late presentation in our case.

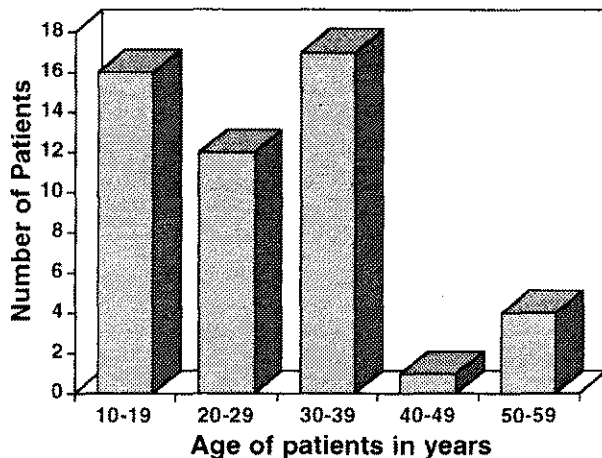


Figure 1 Age incidence (study of 50 cases)

In our study, abdominal pain was complained by 48 (96%) patients. The pain was diffuse in 95 (72.9%), localized in the epigastric region in 8 (16.6%) and in the right iliac fossa in 5 (10.6%) cases. Many workers have reported similar results^{2,17}. It was present in 45 (90%) patients. Night sweats were complained by 27 (54%) patients, which is similar to others workers findings^{5,17,19}. Diarrhoea in our study was reported by 33 (66%) patients, which is slightly higher than reported in the literature. Constipation was present in 16 (32%) cases, which is in the same range as reported by others in the literature^{3,6}. Nausea and vomiting were present in the 7 (14%) patients which is similar to that reported in different studies⁶.

Abdominal distension is an important symptom as well as sign of abdominal tuberculosis and is due to either ascites or dilated loops of intestine. In our study, abdominal distension was present in 32 (64%) cases, while that reported in literature is 27 to 37%. The reason for higher inci-

dence in our study could be that other studies are mostly conducted in surgical wards where ascites is not as common as in medical departments. Ascites was present in 28 (56%) cases. Ascites fluid was exudate in 27 (98.4%) and transudate in 1 (3.12%), which is similar to other studies. Isolation of AFB on smear is a rare finding; it was present in 2 (7.14%) cases. Doughy abdomen is an important sign of abdominal tuberculosis, it was present in 22 (44%) cases of our study. The incidence is higher than reported in literature¹⁶.

In our study, abdominal mass was palpable in 5 (10%) cases. Anaemia was a common feature of abdominal tuberculosis; it was present in all the 50 (100%) cases. This incidence is higher than that reported in literature which is between 48-68%^{3,6,16}. Higher incidence of anaemia in our study could be due to late presentation and the level of malnutrition in our country.

Lymphadenopathy was present in 13 (20%) cases, out of which 11 (84.6%) were cervical and 2 (15.4%) had enlarged axillary lymphnodes; biopsy showed tuberculosis in all the 13 cases. Aziz et al reported lymphadenopathy in 10.6% of cases, which is lower than in our study⁹. Lymphadenopathy indicates disseminated nature of the disease in this group of people.

In our study X-ray chest was abnormal in 19 (38%) cases, who had pulmonary tuberculosis, while others reported

TABLE II CLINICAL FEATURES

Clinical feature	No.	%
Loss of appetite	50	100
Generalized weakness	50	100
Abdominal pain	48	96
Loss of weight	48	96
Fever	45	90
Diarrhoea	33	66
Night sweat	27	54
Constipation	16	32
Vomiting	7	14
Bloody stools	4	8
Cough	13	26
Dyspnea	7	14
Amenorrhoea	25 (28 cases)	89
Abdominal distension	32	64
Ascites	28	56
Doughy abdomen	24	48
Hepatomegaly	22	44
Splenomegaly	8	16
Lymphadenopathy	13	26
Edema	22	44
Mass	5	10
Anaemia	50	100
Abnormal chest X-rays	19	38
Tuberculin test	30	60
ESR (Mean 77.56/1st hour)	45	90
Sputum AFB smear	12 (19 cases)	63

abnormal Chest X-ray in the range of 37 to 63%. Sputum for AFB smear was done in all case with pulmonary disease and was positive in 12 (63.15%). Chen reports 20% AFB positive in smear, which is lower than in our study. This higher incidence could be due to high incidence of open tuberculosis in our country.

Erythrocyte sedimentation rate was raised in 45 (90%) cases. A mean of 77.56 mm in the 1st hour was found; it ranged from 10 to 140. In review of 21 cases by Rosengart, a mean of 72 mm in the first hour was found⁹. Manohar reported a mean of 75 mm in the first hour in 58 patients¹⁶. These values are similar to our study. Tuberculin test was positive in 30 (60%) of cases in our study. Others have reported positive tuberculin test in 55 to 100% of cases.

Serological study (Anda ELISA) was included in this study for the first time in Pakistan. It is based on the principle that it detects antibodies IgM, IgA and IgG class against A-60 cytoplasmic antigen of *Mycobacteria tuberculosis* by method of enzyme linked immunosorbant assay (ELISA). Serological studies were done in 47 (94%) cases, it was positive in 34 (72.3%). Gupta reports 91.6% sensitivity of this test in his study²⁵. Bhargava reports 81% sensitivity of ELISA and specificity of 88%²². A positive ELISA with suggestive clinical features, strongly support the diagnosis of Abdominal Tuberculosis.

Ultrasound abdomen is an important investigation in diagnosis and prognosis of abdominal tuberculosis. In our study Ultrasound was done in all 50 (100%) patients. It showed enlarged para aortic lymphnodes in 34 (68%) cases (Table III). Other studies also supported our findings^{10,27}.

Stool for acid fast bacilli smear was done in 20 (40%) patients, who had diarrhoea; it turned to be positive in 6 (30%) cases. Hibbs in his study reported 18% positively of acid fast bacilli in stool. AFB may be positive in open pulmonary tuberculosis, with abdominal symptoms, but in our study sputum AFB was negative in all the cases of diarrhoea. So yield of stool AFB is better in our study than that reported in literature. Polymerase chain reaction (PCR) is the method by which *Mycobacterium tuberculosis* DNA is identified. PCR was done on ascitic fluid in 2

cases (4%) and was positive in 1 (50%) case. Gan, reports 75% positivity of PCR⁸.

Peritoneal biopsy was done with Abraham's pleural biopsy needle in 12 (24%) patients which showed tuberculosis in 9 (75%) cases. Iftikhar reports yield of peritoneal biopsy as 64% which is slightly lower than in our study²⁸.

CONCLUSION

Incidence of various clinical features of abdominal tuberculosis in our study is similar to that reported in literature. Combination of abdominal symptoms like recurrent abdominal pain, loss of weight and appetite, diarrhoea, constipation, distension or mass, of abdomen, doughy abdomen with associated extra abdominal tuberculosis, especially pulmonary, with positive family history strongly suggest diagnosis of abdominal tuberculosis. In addition to the above clinical features, positive tuberculin test, raised ESR, presence of enlarged para-aortic lymphnodes and septate ascites (exudative) on ultrasound and positive ELISA support diagnosis. Moreover, peritoneal biopsy is a good additional test to get tissue for histopathological diagnosis. One can start treatment of patients on these grounds and prevent delay in diagnosis. Costly tests like PCR and surgical procedures are of great help in doubtful cases for getting tissue for histopathology.

REFERENCES

1. Bankier, Abdul Aziz et al, Abdominal Tuberculosis Un usual finding on CT: Clin-Radio. 1995; 20:223-28.
2. Hossain J, Al-Aska Ak, Al-Mofleh-laprosopy in T.B. peritonitis J-R-Soc.Med, 1992 Feb; 89-91.
3. Marshall Tb-Tuberculosis of GIT and peritoneum Am-J. Gastro 1993 June; 989-99.
4. Goksy E, Perew S, Oral C, Duren M-Tuberculosis peritonitis-15 years experience in Turkish University Hospital. Dig. Surg. 1992 May-June, 9(3); 152-4.
5. Palmar-KR et al-Abdominal Tuberculosis in urban British-a common disease GUT; 1995 Dec; 1296-305.
6. Lingenfelter-T et al- Abdominal Tuberculosis still a potentially lethal disease, Am-J-Gastroen. 1993 May; 744-50.
7. Lupatkrn-H et al Tuberculosis abscess in patients with AIDS. Clin. Inf Disease. 1992 May; 1040-4.
8. Gan. H, et al. Value of PCR in diagnosis of intestinal tuberculosis and differentiating from Crohns, disease. Chin Med-J. Eng. 1995 March, 108 (3) 215-20.
9. Zou-YL. Serological analysis of pulmonary and extra pulmonary tuberculosis with ELISA for Anti-60. Clin. Inf. Dis-1994; 19: 1084-91.
10. Jain-R, et al. Diagnosis of Abdominal tuberculosis sonographic findings in pt. with early disease. Am-J. Roenter. 1995; 165: 139-195.
11. Lee et al-Sonographic findings of tuberculosis peritonitis of wet ascitic type clin-Radio.1993 Jan; 46 (4): 409-14.
12. Shukla-HS, Gupta-SC. Tuberculosis fistula in ano. Brit-J. Surg. 1988; 18:p-118.
13. Naseer Ahmed, Tariq. Abdominal Tuberculosis. Surgical audit of its presentation. Pak-J-Surg: 1993 Sep. 82-86.
14. Das-P Shukle. clinical diagnosis of Abdominal Tuberculosis.

TABLE III ULTRASONOGRAPHIC FINDINGS

Findings	No.	%
Enlarged para-aortic lymph	34	68
Hepatomegaly	24	48
Separate Ascities	21	42
Ascities	8	16
Plenomegaly	7	14
Thickened bowel	7	14
Mass	4	8
Adherent omentum	1	2

- Brit J. Surg. 1976; 63:P-941.
15. Hoon JR, Dockerty, Pernberton. Ileocaecal tuberculosis comparison with non-Specific regional enterocolitis. Surg. Gynae. Obs. 1950; 91: P407.
 16. Manohar-A, Sinjee-AE-Symptoms and investigative findings in 145 patients with Tuberculosis Peritonitis, diagnosed by peritoneoscopy over a five year period Gut 1990 OCT; 31(10): 1130-2.
 17. Sandikei-Mu et al. Presentation and role of peritoneoscopy in the diagnosis of Tuberculosis Peritonitis. J. Gastro-Hepatalo: 1992 May; 298-301.
 18. Rangabashyn-N: Abdominal Tuberculosis, Oxford Text Book of Surg., Vol. II. 1994.2424-92.
 19. Aziz-A et al Abdominal Tuberculosis is Saudi Arabia. A clinico-pathological study of 65 cases. Am. J-Gastro. 1993;88 (1):75-79.
 20. Gilinski-NH: Tuberculosis perforation of the bowel, S. African-Med-J. 1986 Jul; 44-6.
 21. Lope-CR, Jogler-GSM, Romero-FP. Laproscopic diagnosis of tuberculosis ascites Ednoscopy. 1982; 4: 178-9.
 22. Bhargave-DK et al. Peritoneal tuberculosis. Laproscopic patterns and its diagnostic accuracy. AmJ-Gastro. 1992; 87: 109-11..
 23. Rosengart-TK, coopa-6F-Abdominal mycobacterial infection in immuno-compromised patient. Am. J-Surg. 1990 Jan; 159 (1) : 125-31.
 24. Veeragandham-RS, lyna-FP, canty-TG, Colluns-DL. Abdominal tuberculosis in children. review of 26 cases. J-Pediat. Surg. 1996 Jan; 31(1): 170-5.
 25. Gupta-SK, et al. Duodenal tuberculosis. Clin-Radio. 1928;39 : 159-161.
 26. Mehraj-S et al, Abdominal Tuberculosis: comparison of Sonography and CT. Scan. J-Clin Ultrasound. 1995 Sept. 23 : 413-17.
 27. Akhan-O, et al-Ultrasound diagnosis of tuberculosis peritonitis, Brit. J-Radio, 1978; 75: 1018-19.
 28. Iftikhar-AS, Najeeb-H, Zaffar-H-Percutaneous needle biopsy in exudativeascites. JPMA 1996: 460-61.

LAPAROSCOPY IN ACUTE ABDOMEN

MOHAMMAD ASLAM BALOCH

ABSTRACT:

70 patients who presented with non-traumatic acute abdomen underwent Laparoscopy (24 male & 46 female) from May 1994 to Oct. 1997 at Civil Hospital Quetta. 42 patients were diagnosed as acute appendicitis, 13 had cholecystitis, 2 intestinal perforation, two peritoneal sepsis (one due to ruptured liver abscess another due to pelvic abscess). One had sub-acute intestinal obstruction due to post operative adhesions. 10 patients had gynaecological emergencies (3 ectopic pregnancies, 2 torsion of ovarian cysts, 4 salphingitis and one post operative D & E uterine perforation). Patients with acute appendicitis, cholecystitis, peritoneal sepsis and post-operative adhesions were treated laparoscopically, the remaining patients excepting cases of salphingitis had open laparotomy. On Histology, all except six specimens of appendix removed had acute inflammation. Mean hospital stay was significantly shorter in laparoscopically managed patients (24 hours) but patients who had laparotomy stayed longer (120 ± 24 hours). We had minor wound infections at port sites in laparoscopically treated patients, but no major wound infections, pyrexia or chest complications. There was no mortality.

KEY WORDS: Laparoscopy, Acute Abdomen, Diagnostic/Therapeutic.

INTRODUCTION

Laparoscopy is not a new tool in surgical practice but it has been there for almost a century. In 1901 Ott, a famous petrograd gynaecologist, introduced the idea of examining abdomen through a small incision. He introduced vaginal speculum and used headlight as a light source and called this procedure "ventroscopy". Jacobaeus from Stockholm for the first time used the term "Laparoscopy" in 1910 when he examined peritoneal, pleural and pericardial cavities². Bernard M. Bernheim from United States, under direction of Dr. Halsted from John Hopkins Hospital published his report of laparoscopy in 1911 in Annals of Surgery as the "first attempt at cystoscopy of peritoneal cavity"³.

First true lens system was developed by Kalk. He published 20 papers from 1929 to 1959 on development of lens system⁴. Still the development was in evolutionary stage until an English optics expert, Prof. John Hopkins, developed the fiberoptic lens system of telescopes, which would theoretically deliver the maximum total light that could be transmitted to the tip of endoscope⁵.

Diagnostic role of laparoscopy is very well established as it has been used for decades by general surgeons as well as by gynaecologists, but its therapeutic role in acute abdominal disorders has recently been made possible by modern video-endoscopic techniques⁶.

The ability to improve surgical decision-making in acute abdomen using selective laparoscopy is now established, when decision to operate is uncertain. Laparoscopy not only identifies those patients who do not require laparotomy, but also reveals those who need surgery which might otherwise have been delayed⁷. Furthermore, the high error rate in diagnosing acute appendicitis in young women provides overwhelming support to the current view that all women of child bearing age with suspected appendicitis, for differential diagnosis from pelvic inflammatory disease, ovarian cyst, salphingitis and ectopic pregnancy etc should undergo laparoscopy before appendectomy^{8,9}.

In our opinion laparoscopy, with modern fast developments in this field would be an important diagnostic as well as therapeutic tool in acute abdomen in the future. Acute abdomen continues to demand large proportion of surgeon's workload. Recent studies reveal that management errors can be avoided by selective use of diagnostic laparoscopy¹⁰ and should become a routine practice in cases with diagnostic difficulties. Continuing advances in laparoscopic surgical techniques allow many emergency surgical procedures, diagnostic as well as therapeutic, to be performed safely¹¹. Most common abdominal emergencies e.g. acute appendicitis, acute cholecystitis, perforated duodenal ulcers and gynaecological emergencies can be managed by laparoscopy. The results obtained testify that laparoscopy is an important diagnostic as well as therapeutic tool in acute abdomen¹².

.....
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In our series of 70 cases we have tried to confirm and

corelate laparoscopy findings with clinical findings and have compared our results with international studies.

PATIENTS AND METHOD

Blood CP and Urine DR was done of all the 70 patients included in this study with acute abdomen. In selective cases ultrasound of abdomen, serum amylase and plain X-rays of abdomen were done. Patients with uncertain diagnosis underwent laparoscopy.

We used open techniques of laparoscopy. Pneumoperitoneum achieved with intra abdominal pressure upto 10. Telescope attached with video-endoscope system was passed through infraumbilical port established for open laparoscopy, detailed assessment of intraperitoneal structures was carried out. Other port/ports established under vision as necessary depending on the pathology detected.

For patients with acute appendicitis 10mm trochar was passed in the R.I.F. and 5mm port established in the hypogastrium in the midline in between the pubic symphysis and the umbilicus. The hypogastric port was used for holding tip of the appendix and 10mm port in R.I.F. as operating channel/retrival of appendix.

For cholecystitis, classical four port technique was used. Proper display of structures in Callot's triangle along with back dissection at the infundibulum was done. In the first 72 hours of acute cholecystitis it was quite easy to dissect because of oedema, so cholecystectomy was easy. Cystic artery and duct were identified, and double clipped separately. Gallbladder retrieved through epigastric port, leaving no drains.

For peritoneal sepsis due to pelvic abscess and ruptured liver abscess, a 5mm trochar was passed through R.I.F. and Irrigation with normal saline was done. Adhenolysis is another safe and easy procedure for adhesion bands. Five mm trochar passed depending on the site of adhesion bands. With endocauty adhesion bands were broken and obstruction released. In the other cases it was safe and advisable to do laparotomy.

RESULTS AND DISCUSSION

Earlier results are encouraging with diagnostic accuracy of 91.36% (figure I & II) 42 appendicectomies were performed laparoscopically. Histology of six appendix showed no inflammation (14.3%). The figure is less than those appendicectomies done on clinical and laboratory diagnosis above, which is 20% approximately. In 14 patients appendicular stump ligated with chromic catgut extraperitoneally after bringing appendix out through R.I.F. port. After stump ligation and purse string suturing, caecum pushed back into the peritoneal cavity.

We had few minor complications (figure III) in laparoscop-

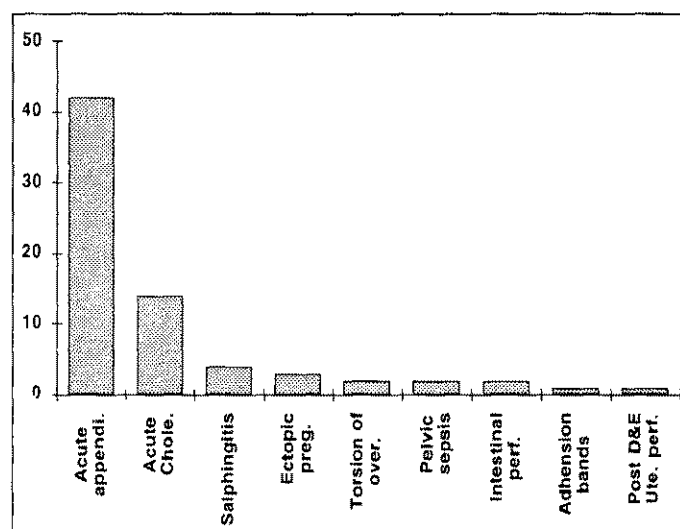


Figure 1 Pathology on laparoscopy.

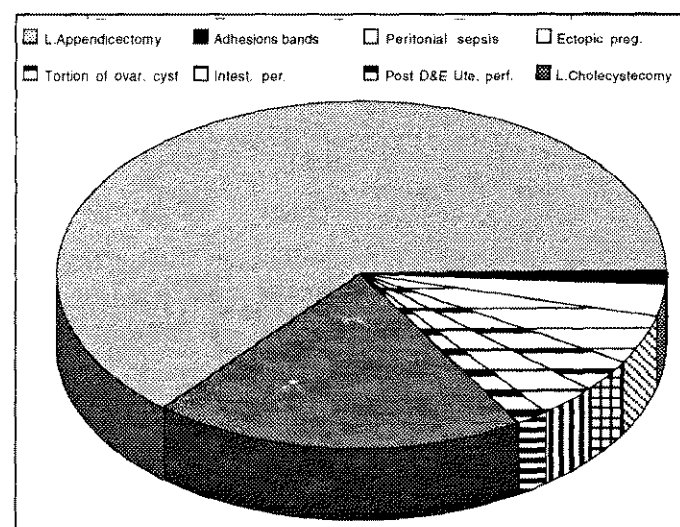


Figure 2 Laparoscopically managed.

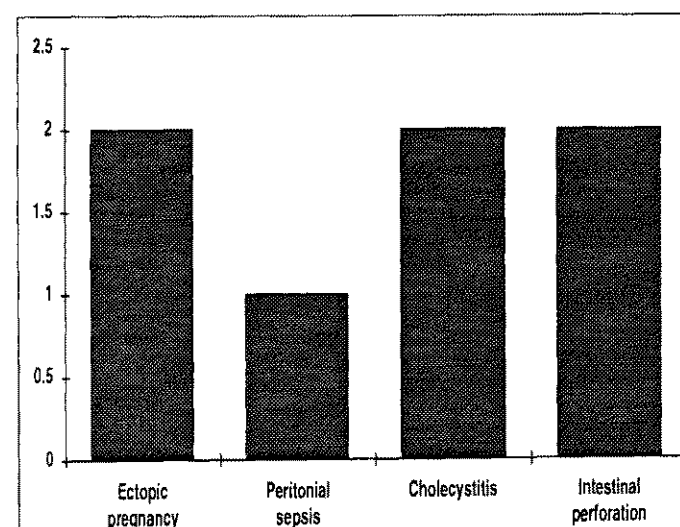


Figure 3 Post operative pyrexia and chest infections.

ically managed patients but in cases who had laparotomy wound infections, pyrexia and chest complications were seen. No mortality was seen in our series.

Laparoscopy in acute abdomen is an important tool for the surgeons in diagnosing as well as treating patients, which improves decision-making, preventing unnecessary laparotomies. It is extremely helpful in differential diagnosis of lower abdominal pain in women of child-bearing age.

Laparoscopy in selected cases of acute abdomen is an interesting therapeutic alternative and with time more emergency procedures would be done laparoscopically. It is safe with negligible morbidity and mortality.

REFERENCES

1. Wittman. Peritoneoscopy Budapest: Akademiai Kiado 1996.
2. Jacobaeus H.C. Über die Möglichkeit die Zystoskope die untersuchung soroser anzuwenden Munch Med. Wochenschr 1910; 57: 2090.
3. Bernheim BM. Organoscopy: Cystoscopy of abdominal cavity. Ann-Surg-1911; 53764.
4. Gunning-SW. The history of laparoscopy in Philips, SM, Keith- L. eds. Gynaecological Laparoscopy New York Stratts International 1974.
5. Hopkins H.H. Optical principles of endoscope in Berci. G, ed. Endoscopy New York appleton, 1976.
6. Eypasch-E; Menninigen-R; Paul-A; Triodl-H; Value of laparoscopy in diagnosis & therapy of acute abdomen. Zentralbl-Chir 1993; 118 (12) 726-32.
7. Pateson-Brown-S. Emergency Laparoscopic surgery B.J.S. 1993 Mar; 80(3) : 279-83.
8. Morfesis-FA; Ahmad-F. Use of Laparoscopy in the treatment of acute & Chronic right lower abdominal pain G.Ky-Med. Assoc. 1996. Jan; 94(1) : 16-21.
9. Eschenbach-DA; Wolner-Hanssen-P; Hawes-SE; Pavletic-A; Paavonen-J; Holmes-KK. Acute pelvic inflammatory disease : association of clinical laboratory findings with laparoscopic findings. Obstet-Gynaecol. 1997 Feb; 89(2) : 184-92.
10. Peterson-Brown-S. The acute abdomen role of laparoscopy Baillieres-clin-gastro-enterol. 1991 Sep 5 (3 pt 1) : 691-703.
11. Ravintharan-T. Emergency Laproscopic Procedures Ann-Acad-Med-Singapore 1996 Sep; 25(5) : 687-93.
12. Navarra-G; Occhionorelli-S; Sortini-A; Mascoli-F; Ascanalli-S; Pozza-E. Emergency Laparoscopic Surgery. G. Ghir; 1996-May; 17(5) : 285-8.

LIMB LEGTHENING BY EXTERNAL FIXATER AND DISTRACTOR - A LOCAL EXPERIENCE

A. Z. RAHMAN

ABSTRACT:

Limb lengthening of four patients is presented who had shortening of the lower limb due to poliomyelitis. Lengthening varied between 35 to 40 mm. Diaphyseal osteotomy of tibia was performed and gradual distraction by a simple, safe and cost effective external fixator with distractor, locally fabricated, was used.

KEY WORDS: Limb lengthening, External fixator-distractor

INTRODUCTION

Limb length discrepancy is a problem faced by patients and physicians alike. It will not be very incorrect to say that the very word 'orthopaedic' was coined for correction of structural deformities and functional impairment.

Various methods for limb lengthening have been attempted. To name a few: subperiosteal implantation of foreign material^{1,2,8,18}, periosteal stripping^{11,12}, repeated osteotomy¹⁶, drilling and curettage¹⁰, short wave diathermy application^{5,13}, arteriovenous fistula formation¹⁶, redistribution of the intraosseous circulation¹⁷, sympathectomy⁹. The results of all the methods used remain unpredictable.

PATIENTS AND METHOD

Limb lengthening of four patients was performed during 1994-95 at Liaquat National Hospital. All the patients were females, between the age of 16 to 20 years. All had post-polio deformities and shortening of lower limbs. Soft tissue procedures were performed for correction of deformities and finally assessed for lengthening procedure. The shortening was confirmed by using wooden blocks of sufficient height to level the pelvis in standing position.

The operation was performed under general anaesthesia. The device used was a modified form of Razian's fixator, locally fabricated with four Schanz screws (Fig. 1). The external fixator with distractor was applied on the leg with the help of two Schanz screws on either side about 5 cm to 10 cm from the proposed osteotomy site on tibia. Sites for Schanz screws were approached by a small stab wound on the skin and bone drilled with a 3.2 mm drill bit. After assembling the entire apparatus to the bone a diaphyseal osteotomy through a 2.5 to 5.0 mm incision was performed. Fibula was approached through a lateral inci-

sion and a segment of 5-10 mm was excised (Fig. 2). Wound closure was done with a dressing. All patients were given a single dose of antibiotic pre-operatively.

No post operative distraction was started for five days. One full turn buckle is roughly 2 mm; half turn was done daily in two sittings to achieve 1/2 mm lengthening each day.

Limb was examined for any pain, numbness or paraes-

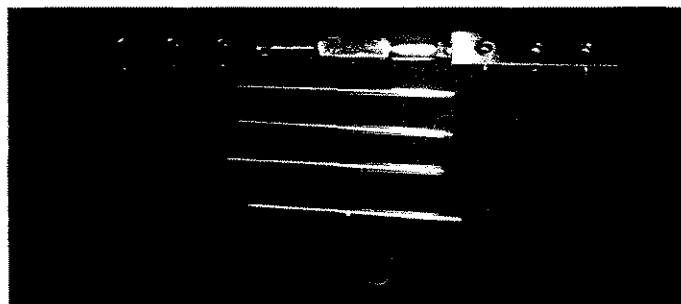


Figure 1

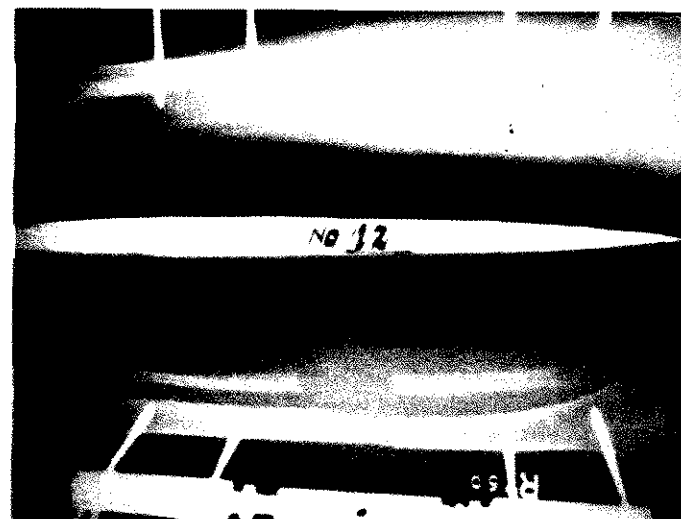


Figure 2

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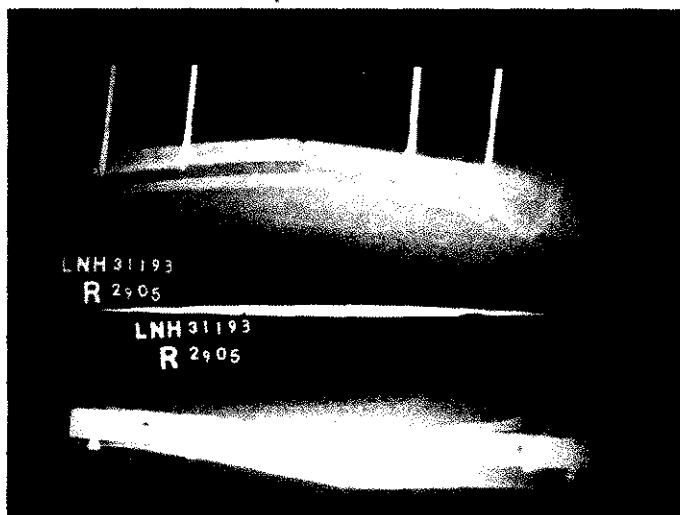


Figure 3

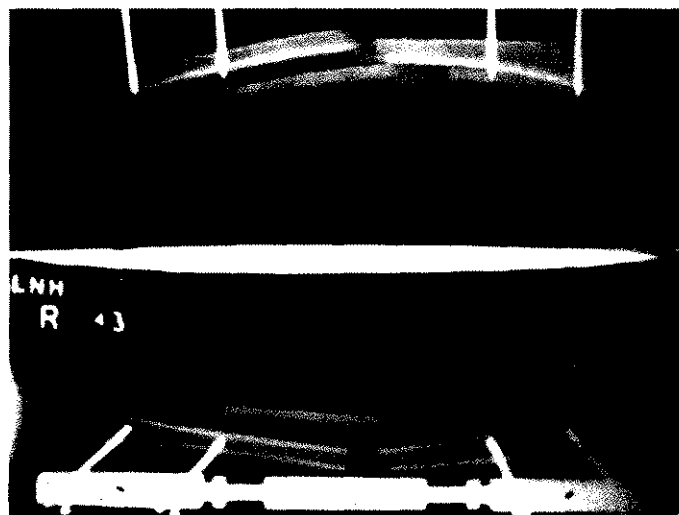


Figure 4



Figure 5

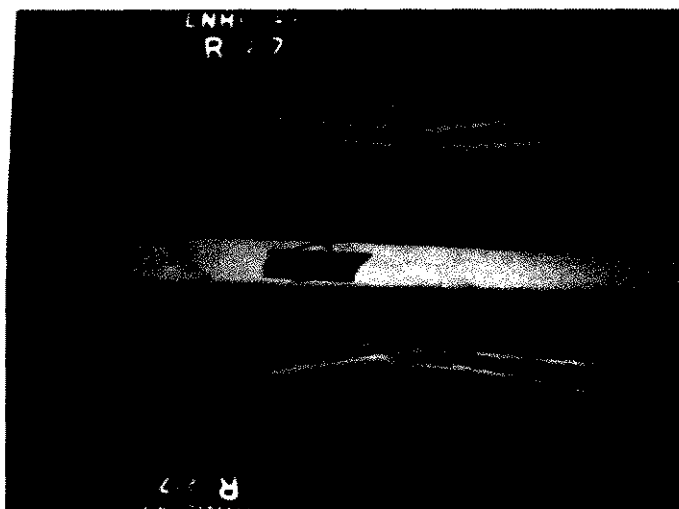


Figure 6

thesia during distraction. On complaint of pain, distraction was undone for a day. Radiographs were taken immediately after osteotomy, after 2 weeks (Fig. 3) and finally after achieving the desired length (Fig. 4). Patients were sent home to come back after 6 weeks and 8 weeks following surgery. After evaluating the amount of distraction callus Schanz screws were removed and walking long limb cast was applied to be retained for another 4 weeks (Fig. 5). Patients were evaluated 12 weeks after removal of the cast. All the patients complained of pain at the osteotomy site. Fresh casts was applied for another 4 weeks totalling cast for 16 weeks duration. Then they were allowed full weight bearing (Fig. 6).

RESULTS

Total distraction achieved was 35 mm in three cases and 40 mm in the fourth case. All had good callus at the end.

Complications encountered were immediate-superficial

pin tract infection which healed on removal of screws. One patient slipped on the floor after removal of the cast and fractured her tibia at the site of lengthening. She had an open reduction internal fixation and bone grafting. An additional 5 mm distraction was achieved during the process of internal fixation and bone grafting. This patient had a shortening of 50 mm because she had a genu valgum for which a supracondylar osteotomy and varus fixation with plate was done, prior to lengthening of tibia. A second lengthening was planned on femur but patient's relatives accepted the shortening and decided not to have any further procedure.

DISCUSSION

A review of literature reveals that the first account of osteotomy with elongation of bone of the lower extremity for an abnormally short limb was made by Codivilla of Bologna in 1905. In this case the procedure was secured by forced

lengthening under narcosis. The procedure was conducted over a telescoping rod and retention in a plaster cast with incorporation of steel bars. Lambret of Lillee, France referred to a similar distraction along with radiographs in 1916. Freiberg (1912) using Codivilla Ps method used aseptic traction rod through 05 calcis. Magnuson (1913) reported 14 cases of femur in poliomyelitis with this technique. Jones and Lovette (1929) lengthened femur with a Z-shaped osteotomy. Putti (1934), Abbott (1959), attempted gradual distraction through steinmann pin. Carrell (1929) Bosworth (1939) modified it further. Allan (1948) Bosworth, Carrell, Mitchell, Cobman, modified it further between 1950 to 1968 by supplementing with bone graft.

Wagner (1977) used Gradual distraction with a distraction rod with no bone graft. Wassertein (1988) fills the distraction gap with allograft Ilizarov¹⁰⁻¹² (1989) pioneered the work by doing subperiosteal corticotomy using circular fixator and cross K. wire which is an excellent technique. His work is being carried by Paley who has done extensive review. Ilizarov's external fixator exhibits more isotropic mechanical properties in bending and non linear axial stiffness than do unilateral and bilateral and external fixators. We in our institution have also adopted Ilizarov's techniques, after attending a course at Kurgan in 1995.

The usual complications during distraction osteogenesis are muscle contracture, joint subluxation, axial deviation, neurological injury, vascular injury, premature consolidation, delayed consolidation, non union, pin site infection and hardware failure.

Loss of length, late bowing and refracture are the complications.

While critically reviewing our own cases, it was found that our complications were delayed consolidation in one case, pin tract infection in all cases which healed on removal of pins and fixator and anterior bowing due to unilateral frame.

Followup of two years and the number of cases in one study are too small to be submitted to statistical analysis.

REFERENCES

- Abbott LC. The operative lengthening of the tibia and fibula. J.B. Jt. Surg. 9:128. 1927.
- Bohlman H.R. Experiments with Foreign materials in the region of epiphyseal cartilage plate growing bones to increase longitudinal growth. J.B. Jt. Surg. 11:365, 1929.
- Bosworth D.M. Skeletal distraction of Tibia Surg, gynocol, Obstet 66:912. 1938.
- Codivilla, A. On the means of lengthening in the lower limbs, the muscles and tissues which shortened through deformity. Am J Orthop Surg 2:353, 1905.
- Doyle J. Rs. Stimulation of bone growth by short wave diathermy J.B.Jt. Surg. 45A:15, 1963.
- Fleming, B. et al: A biomechanical analysis of Ilizarov's external fixator, Clin Orthop 241: 1989.
- Frederick J. Kumar Biomechanics of Ilizarov's external fixator. Clin Ortho. 280:11, 1992.
- Groves E. W.H: Stimulation of bone growth. Am J. Surg: 95:125, 19513.
- Harris R.I. et al. The effect of lumbar sympathectomy upon the growth of less paralysed by poliomyelitis J.B. Jt. Surg. 18 35, 1936.
- Ilizarov, G.A. The tension stress effect on the genesis and growth of tissues. The influence of stability of fixation and soft tissue effect preservation. Clin Orthop 238:249-281, 1989.
- Ilizarov, G.A. The tension stress effect on the genesis and growth of tissues. The influence of the rate and frequency of distraction. Clin Orthop 239:263-285, 1989.
- Ilizarov, G.A. Clinical application of the tension stress effect for limb lengthening. Clin Ortho 250:8-26, 1990.
- Jenkins et al: Stimulation on bone growth by periosteal stripping J.B. Jt. Surg. 57, 3:482, 1975.
- Khorry, S.C. et al: Stimulation on longitudinal growth of long bones by periosteal stripping J.B. Jt. Surg. 45, A-679, 1963.
- Malcolm, W. The lack of effect of micro waves diathermy on the rate of growth of bone of the growing Dog. J.B.Jt. Surg. 45, 773 1963.
- Paley, D. Current techniques of limb lengthening J. Paed Orthop, 8:73, 1988.
- Paterson, D: Leg lengthening procedures. A historical review Clin Orthop 250:279-33, 1990.
- Petty, W. et al: Arteriovenous fistula for treatment of discrepancy of limb length J.B.Jt. Surg. 56, A:581, 1974.
- Sola C.K. et al: Stimulation of the longitudinal growth of long bones by periosteal stripping. J.B.Jt. Surg. 45, A: 1679, 1963.
- Trueta Jz Stimulation of bone growth by redistribution of intraosseous circulation, J.B.Jt. Surg. 33, Bz 476, 1951.
- Tupman, G.S.: Treatment of inequality of lower limbs. The results of operations for stimulation of growth. J.B.Jt. Surg. 429 Bz 4E 399, 1960.
- Wagner H: Surgical lengthening for shortening of femur and tibia. Progress in orthopaedic surgery. Vol-I, P. 71. Springer Verlag 1977.

MESENTERIC AND OMENTAL CYSTS IN CHILDREN

UMAR FAROOQ AHMAD, MUHAMMAD SHARIF, MUHAMMAD AFZAL SHEIKH

ABSTRACT:

During seven years (1991-1997) 28 patients with mesenteric and omental cysts were operated in the Department on Paediatric Surgery, Nishtar Hospital, Multan. Majority (85%) were in first three years of life and 86% were male. Mass in abdomen (36%), intestinal obstruction (36%) and pain in abdomen (28%) were the presenting complaints. Fifty percent cysts were in terminal ileum, 14% in jejunal mesentery and 14% in omentum, of which 72% were lymphangiomatous and 28% enteric cysts. Partial resection and anastomosis of gut was performed in 82% of cysts.

KEY WORDS: Mesenteric and Omental Cysts, Children.

INTRODUCTION

Mesenteric Cysts are sequestration cysts of either lymphatic (chylous or serous), or Enterogenous. Mesothelial, infective and tumorous cysts are different entities. Mesenteric Cyst for the first time were described by an Anatomist, Beniveini in 1507. French Surgeon Tillaux, in 1880 performed the first successful operation. Colondy describes that such cysts cause confusion when encountered during operation due to rarity. They have variable clinical presentation and difficult to diagnose.

PATIENTS AND METHODS

TABLE I AGE DISTRIBUTION

Age	No.
Neonates	4
Up to 1 year	6
1-3 years	14
Over 3 years	4

TABLE II MODES OF PRESENTATION

Mode	No.
Mass abdomen	10
Small mass mesenteric cyst sign	5
Large mass without mesenteric cyst sign	5
Intestinal obstruction	10
Acute abdominal pain	8

TABLE III TYPES OF CYSTS

Types	No.
Duodenal cysts	2
Jeunal cysts	4
Ileal cysts	14
Rectal cysts	2
Omental cysts	4
Multiple cysts	2
Lymphangiomatous	
Serious	20
Chylous	--
Enteric cysts	8

DISCUSSION

Mesenteric Cysts are generally considered to be very rare abdominal masses^{4,13,19,20}. Only 820 cases of mesenteric cyst are reported till 1994. The incidence being 1 per 100,000 to 250,000 admissions¹².

Herba declares that it is the disease of one month to 14 years, 75% being younger than 5 years⁹. Majority (84%) of our cases are in first 03 years of life of which were infants. Egozi observed slight male dominance, 4:3⁶ while Powell's observations are just reverse¹⁴. Male female ratio in our case was 6:1.

There is no specific mode of presentation of Mesenteric Cysts. Thirty six percent of our patients presented with mass, 36% with intestinal obstructions and 28% with acute abdominal pain. We have observed that pain is like appendicitis but always high in the abdomen. Cases are reported with intermittent volvulus¹⁹, torsion⁸, intestinal obstruction due to external compression²¹, abdominal distention rupture with minor trauma and peritonitis^{11,20}, abdominal mass in 50% patients¹², Vague abdomen pain

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and nausea²¹, acute abdomen of silent abdominal mass⁹.

Preoperative diagnosis is uncommon. Clinical diagnosis purely lies on presence of "mesenteric cyst sign", if small mass is present. It was possible in 18% cases in our study. Ultrasound gave definite diagnosis of mesenteric cyst in only 7% patients. Ultrasound and CAT scans are most useful modalities to diagnose mesenteric cysts¹³, water and fat density and with shaking positional changes are diagnostic aids in both above methods⁷. Bliss recommended abdominal ultrasonography in all cases of acute appendicitis².

Mesenteric cysts are found in all those parts of intestine which have mesentery. Strangely, literature has little description about sites. We have seen that ileum being longest part of intestine harbors maximum incidence of mesenteric cysts. 50% our patients had ileal, 14% Jejunal mesenteric cysts and 7% Omental cysts. A large number of types of cysts are described in literature, but we have come across only Serous Lymphangiomatous (72%) and Enteric crilla (28%). Stoupis¹⁸ has detailed many other types of mesenteric and omental cysts like mesothelial, cystic spindle cell tumors and cystic teratoma. Jung¹¹ has described very uncommon type of Melanosis peritonei in mesenteric duplication cyst. Haemangiomas mesenteric cyst in infants and children is mentioned by Rathnaraj¹⁵. Multilocular mesenteric cysts are mainly lymphangiomatous¹³. Baird¹, a mesenteric cyst with milk of calcium. Egozi⁶ found haemorrhagic fluid in 42% mesenteric cysts.

Treatment offered depends upon site and size of cysts. Preferred treatment is Enucleation¹², which was possible in only 14% patients, partial resection of intestine and anastomosis was done in majority (86%). Laparoscopic Enucleation is mentioned by many surgeons²¹. Singh¹⁷ has described gastrojejunostomy a preferred treatment of mesenteric cysts in this area instead of duodenojejunal resection. Senocake¹⁶ performed enucleation in 55%, partial gut resection and anastomosis in 40% and subtotal gastrectomy in one case. Duca⁵ has innovated a personal technique of suturing bulging wall of mesenteric cysts in two patients.

Prognosis of our patients was excellent. Only one case developed biliary fistula formation, after resection of a duodenal duplication cyst. This patient responded to conservative management. Recurrence is mostly described in those cases in whom marsupialization is performed, Burry³, found a case of mesenteric cyst, incompletely excised, recurred after many years and transformed into a malignancy, adenocarcinoma.

REFERENCES

1. Bird-D; Radvany-MG; Shanley-DC et al. Mesenteric Cysts with milk of calcium. *Abdom-Imaging*. 1994; 19: 247-8.

2. Bliss-DP-Jr; Coffin-CM; Bower-RJ. Mesenteric Cysts in children. *Surgery*, 1994 May. 115(5). 571-7.
3. Bury-TF; Pricolo-VE. Malignant transformation of a benign Mesenteric Cysts. *Americ_J-Gastroentrol*. 1994, Nov. 89(11) : 2085-7.
4. Conlon-KC; Dougherty-EC; Klimstra-DS. Laparoscopic of a giant omental cyst. *Surg-Endosco* 1995; 9(10) : 1130-2.
5. Duca-S; Cazacu-M; Vlad-L et al. Non paracytic abdominal parasitic cysts. A multiple case report. *Acta-Chir-Belg*. Jan-Feb. 1993. 93(1); 18-24.
6. Egozi-EL; Ricketts-RR. Mesenteric and Omental Cysts in children. *Am-Surg*. Mar. 1997. 63(3); 287-90.
7. Fujita-N; Noda-Y; Kobakashi-G; et al. Chylous cyst of Mesenteric: US and CT diagnosis. *Abdom-Imaging*. 1995 May-June. 20(3) : 259-61.
8. Gourtsoyannia-NC; Bays-D; Malamas-M. Mesothelial cysts complicated by torsion. Preoperative imaging evaluation. *Hepatogastroenterology*. 1993 Oct. 40(5). 509-12.
9. Herba-A; Brown-MF; McGeehin-KM; et al. Mesenteric, Omental and retroperitoneal Cysts in children: *South-Medic-Jour*. Feb. 1993. 86(2). 173-6.
10. Jung-YC; Chen-CJ; Tzeng-CC. Melanosis Peritonei associated with duplication cysts. A case report. *Am-J-Surg-Pathol*. 1996, Feb.; 20(2); 181-6.
11. Klein-MD. Traumatic rupture of an unsuspected mesenteric cyst. An uncommon cause of acute surgical abdomen following a minor fall. *Paediatric-Emerg-Care*, 1996, Feb.; 12(1) : 40.
12. Lewine-D; Filly-RA. Using color doppler jet to differentiate a pelvic cyst from a bladder diverticulum. *J-Ultrasound-Med*. 1994 July. 575-7.
13. Orbitig FU; Vazquez L, De-Franceshini AB. et al. Mesenteric Cysts of lymphatic origin. radiological correlation and a case report.
14. Powell-RW. Stapled intestinal anastomosis in neonates and infants: Use of endoscopic intestinal stapler. *J-Paediatr-Surg*; 1995 Feb. 30(2). 196-7.
15. Rathnaraj-S; Aggarwal-S; Verghese-M. Giant Mesenteric Haemangioma. *Indian-J-Gastroenterol*. 1995 July; 14(3) : 113.
16. Senocak-Me; Gundogdo-H; Byukmapumukcu-N; et al. Mesenteric and enteral cysts in children. analysis of nineteen cases. *Turk-J-Pediatr*. 1994, Oct-Dec. 36(4). 295-302.
17. Singh-G; Lobo-Dn; Khanna-SK. End-to-end anastomosis at duodenojejunal flexure : is it safe. *Aust-N-Z-J-Surg*. 1995 Dec; 65(12). 884-6.
18. Stoupis-C; Ros-PR; Abbit-PL; et al. Bubbles in the belly, imaging of cystic mesenteric or omental masses. *Radiographics*. 1994 July. 14(4) : 729-37.
19. Takkal-M; Ionescu-G; Becker-JH et al. A Complication of Mesenteric Lymphangioma. Case report and brief review of literature. *Acta-Chir-Belg*. 1996, June; 96(3), 130-2.
20. Uiman-I; Herek-O; Ozok-G et al. Traumatic rupture of Mesenteric Cyst. A life threatening complication of a rare lesion. *Eur-J-Pediatr-Surg*. 1995 Aug.; 5(4) : 238-9.
21. Zmackenzie DC; Shapiro SJ; Gordon SJ et al. Laparoscopic Excision of Mesenteric Cyst. *J Laparoendosc Surg*. June 1993. 3(3); 195-9.

INTESTINAL INFESTATIONS: A CAUSE OF RETINAL VASCULITIS

OMAR HAYAT DURRANI

ABSTRACT:

A prospective study of 25 consecutive patients suffering from retinal vasculitis was carried out over a period of about two years at Lady Reading Hospital, Peshawar. All the patients were male with an average age of 28 years. Retinal activity occurred throughout the year, but 16 of the 25 patients presented in the summer months. With the laboratory facilities available to us all investigations showed total lack of serious systemic disorders. However stool tests were positive for giardia cysts in 5(20%) patients, roundworm infestation 1(4%) patients, hookworm infestation 2(8%) patients, T. Saginata infestation 1(4%) patients, H Nana infestation 1(4%) patient and multiple infestations occurred in 3(12%) patients.

KEY WORDS: *Empyema Thoracis, Children, Decortication*

INTRODUCTION

Ophthalmologists often come across retinal vasculitis, which accounts for much visual impairment and even blindness due to retinal ischaemia, neovascularization and haemorrhages into the retina and the vitreous leading to tractional retinal detachment. This condition is known since Van Tricht first described it in 1854. Eales (1852-1913) histologically proved a relationship between tuberculosis and Eales disease¹. Barraquer was the first to report iridocyclitis and choroiditis as a complication of intestinal giardiasis in 1938, followed by Knox in 1982, who reported retinal arteritis as a complication of it⁷.

MATERIAL AND METHOD

A prospective study of 25 consecutive patients presenting to the Department of Ophthalmology, Lady Reading Hospital, Peshawar with retinal vasculitis was conducted over a period of about two years. The patients were subjected to detailed history, systemic examination and complete ophthalmologic work-up, followed by a fundus photograph and fluorescein fundus angiography, when the ocular media permitted. Laboratory investigations to ascertain systemic associations of retinal vasculitis were ordered. Through an attempt was made to isolate a cause, it proved to be a difficult exercise. Routine urine examinations were conducted to assess renal function. Blood test included a routine blood count, haemoglobin percentage and ESR to assess the general health of the patient. Anti DNA antibody and VDEL tests were carried out. Radiological examination of the chest to exclude tuberculosis and sarcoidosis and to assess the patient for future treatment with

steroids was undertaken. A Mantoux test was also done. Stool was taken on three consecutive days for microscopic examination for the presence of any ova or cysts. Fluorescein fundus angiography (Fig. 1) was performed for those whose fundus detail was visible. Additionally fundus photographs (Fig. 2) were taken for record.

RESULTS

Of the 25 patients, all male, ages varying between 09-50 years, there were 15 (60%) patients in the 16-30 years age group. It is apparent that retinal vasculitis is a disease of the young. Of the above 25 patients 17 patients (34 eyes) had bilateral disease and 8 patients (8 eyes) had unilateral disease. 10 patients presented with a sudden onset of defective vision and 15 presented with a gradual deterioration of vision. Retinal vascular activity presented throughout the years, but 16(48%) patients

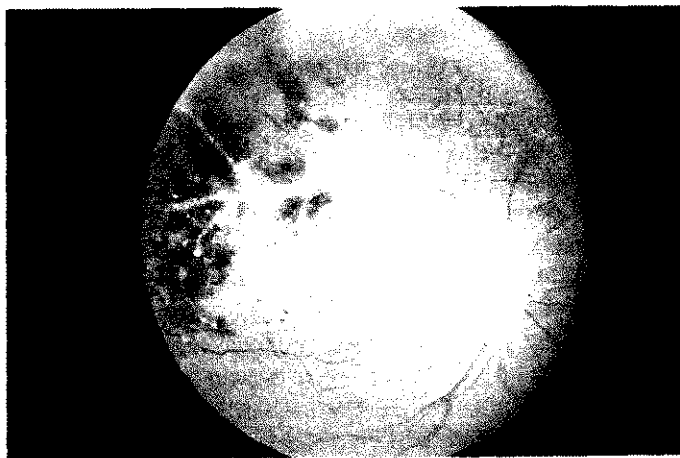


Figure 1 Arterial sheathing with extensive retinal haemorrhages and macular oedema

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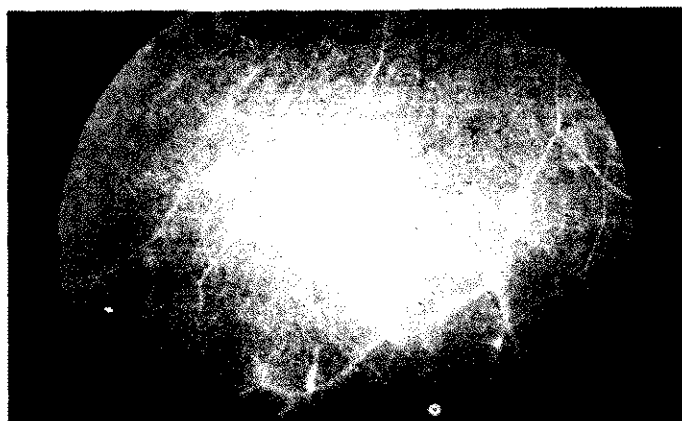


Figure 2 FFA showing vascular inflammation leading to leakage of fluorescein dye.

presented in the summer months of June, July and August. Only one eye had mild vitreous haemorrhage, 8 eyes with severe vitreous haemorrhage. 9 eyes presented with burnt out retinal vasculitis and one had tractional retinal detachment.

Investigations in 12(48%) patients proved unproductive. Of the 13 with some positive result, only one patient tested mildly positive for Mantoux test. 22 patients had an ESR value < 25mm. Stool test from among the 13 showed 5 patients testing positive for giardiasis, 2 for hookworm, 1 for roundworm, 1 for *T. Saginata*, and 3 for multiple worm infestations.

DISCUSSION

Retinal vasculitis (RV) is immune mediated and must be differentiated from other vaso-obliterative vasculopathies like diabetes and sickle cell haemoglobinopathy. Retinal vasculitis may be divided into following broad types:

- Idiopathic or primary RV (Eales' disease).
- RV associated with an ocular or a systemic disorder.

The pathological criteria for RV have been well established¹¹:

- Autoreactive antibodies or lymphocytes can be detected.
- The auto-immune reaction can be shown to damage target cells directly or by secondary immunological inflammatory reactions.
- Immune manipulation ameliorates the disease.
- Animal models have been established and the adoptive transfer of disease has been accompanied by the transmission of auto-antibodies.

Retinal-S antigen^{11,4}, anticardiolipin antibodies⁶ and antiendothelial antibodies have been studied but their exact role in the pathogenesis of retinal vasculitis remains to be resolved.

As far as the causative agent responsible for RV is concerned, a case for tuberculosis is often made but rarely proven. In a study conducted in Pakistan, it was concluded that the majority of the patients were young males living in rural areas, but from clinical and laboratory examination no sign of systemic tuberculosis was elicited⁹.

From this study one is inclined to believe that since there was no direct evidence of tuberculosis, the author has tried to prove the presence of tuberculosis empirically by giving steroids in combination with anti-tuberculous medication, which is quite questionable.

Intestinal infestation with toxoplasma¹³, toxocara¹², roundworm³, and the racoon ascarid baylisascaris procyonis⁵ have all been reported to cause retinal vasculitis. Inflammatory bowel disease like Crohn's disease¹⁰ and Whipple's disease⁸ may rarely be associated with retinal vasculitis.

Like other studies our study has confirmed that RV is a disease of the young, presenting frequently in the summer months. The commonest association of tuberculosis with RV has clearly been disproved. We have also concluded that diagnostic evaluation is generally not helpful. When a cause can be found, intestinal infection/infestation is the more likely cause.

REFERENCES

1. Duke Elder S. Dobree JH ed's. System of Ophthalmology Vol. 10: Diseases of the Retina. London: Henry Kimpton, 1967:218-222.
2. Edelsten C. D'Cruz D. Hughes GR. Graham EM. Anti-endothelial cell antibodies in retinal vasculitis *Curr Eye Res* 1992;11:203-8.
3. Gass JDM, Gilbert WR, Guerry RK et al. Diffuse unilateral subacute neuroretinitis. *Trans Am Acad Ophthalmol Otolaryngol* 1978;85:521.
4. Kasp E, Graham EM, Stanford MR, Sanders MD, Dumonde DC. A point prevalence study of 150 patients with idiopathic retinal vasculitis; 2. Clinical relevance of antiretinal autoimmunity and circulating immune complexes *By. J. Ophthalmol* 1989;73:722-30.
5. Kazacos KR, Raymond LA, Kazacos EA, Vestre WA, Lewis RH. The racoon ascarid; a probable cause of human ocular larva migrans *Ophthalmology* 1985;92:1735-1744.
6. Klok AM, Jeetren R. Rothova A. Baarsma GS, Kijlstra A. Anticardiolipin antibodies in uveitis *Curr Eye Res* 1992;11:209-13.
7. Knox DL, King J. Retinal arteritis, iridocyclitis and giardiasis *Ophthalmology* 1982;89:1303.
8. Playford RJ, Schuleburg E, Herrington CS, Hodgson HJ.

- Whipple's disease complicated by a retinal Jarishch-Herxheimer reaction: A case report Gut 1992;33:132-4.
9. Qazi ZA. The management of Eales' disease (dissertation). College of Physicians & Surgeons, 1992;101pp.
 10. Ruby AJ, Jampol LM. Crohn's disease and retinal vascular disease Am J Ophthalmol 1990;110:349-53.
 11. Sanders MD. Retinal arteritis, retinal vasculitis and autoimmune retinal vasculitis Eye 1987;1:441-465.
 12. Watzke RC, Oaks JA, Folk JC. Toxocara canis infection of the eye: Correlations with a primate model Arch Ophthalmol 1984;102:282.
 13. Willerson D, Aaberg TM, Reeser F et al. Unusual ocular presentation of acute toxoplasmosis Br. J. Ophthalmol 1977;61:693.

PHASE II STUDY OF CISPLATINUM, 5 FLUORO URACIL AND ALPHA INTERFERON FOR RECURRENT OR METASTATIC HEAD AND NECK CANCER

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ABSTRACT:

Early stage Squamous Cell Carcinoma of the head and neck is often cured by Radiotherapy or surgery but locally advanced disease usually recurs or metastasize after standard local therapy. Conventional chemotherapy has not shown promising results, hence development of newer agents and newer combination is essential to improve the results. Alpha interferon has shown, in-vitro, to potentiate the activity of cisplatin and 5FU^{1,2,3,4}. Based on this observation we designed a phase II trial of a combination of 5-FU, cisplatin and alpha-interferon in recurrent or metastatic head and neck cancer. 27 patients were enrolled in the study out of which 20 patients were evaluable for response. None of them showed complete response and partial response was seen in 7 (35%); 6 (30%) patients had stable disease and 7 (35%) had progressive disease. A good number of patients showed mild to moderate degree of haematological toxicity.

KEY WORDS: *Alpha interferon, Cisplatin, Head and Neck cancer*

INTRODUCTION

Squamous Cell Carcinoma of head and Neck is one of the most common malignancies seen in our population. Early stage disease is often cured by radiotherapy or surgery but locally advanced disease frequently recurs or metastasize following standard local therapy. Unfortunately poor survival rate (median 4-6 months) of patients with recurrent or metastatic disease is unchanged over the last several decades¹. Several randomized single agent chemotherapy trials have failed to show any significant improvement in the overall survival of the patients treated for recurrent or metastatic disease. Drugs like methotrexate, bleomycin, 5 fluorouracil and cisplatin have produced response rate ranging from 15 to 30 percent when used alone⁵. Combination chemotherapy has higher response rate than single agent but no impact on overall survival. Therefore the development of newer agents and newer combinations is essential to improve the management of head and neck cancer. Combination of cisplatin and 5FU is one of the most active regimens in the treatment of head and neck cancer, producing a response rate of 30 to 50 percent in patients with recurrent or metastatic disease^{6,7}. Recently alpha interferon has shown, in vitro, to potentiate the activ-

ity of several anticancer agents including cisplatin and 5FU^{1,4}. Based on this observation we designed this Phase II trial to study the addition of alpha interferon to cisplatin and 5FU in recurrent or metastatic carcinoma of head and neck⁸.

PATIENTS AND METHOD

Twenty seven patients with the disease, recurrent after Surgery/ Radiotherapy, were studied in the Department of Radiotherapy, Jinnah Postgraduate Medical Centre, Karachi from January to June 1996.

All patients with histologically proven recurrent or metastatic Sq. Cell Carcinoma of Head and Neck were included in this study. Patients must have had either metastases above the clavicle or recurrent or residual disease without metastases. Measurable disease was required. At least 4 weeks must have elapsed since prior radiotherapy, immunotherapy or corticosteroid therapy. (no concurrent corticosteroid were allowed). Patients had no prior chemotherapy or interferon therapy. An ECOG performance status of 0-2 and life expectancy greater than 3 months were required. Adequate organ functions were demonstrated as AGC greater than 1500 Platelets greater than 100,000 Creatinine no more than 1.5 mg/dl Bilirubin no more than 1.5 mg/dl and SGOT no more than 1.5 x normal.

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Exclusion criteria

History of ischemic or congestive heart disease. Active or prior second primary malignancy, other than basal cell carcinoma of the skin or carcinoma in situ of the cervix, pregnancy and lactation.

Dosage schedule

Injection 5FU 750mg/Sq.meter continuous infusion from day1 to day5 in 24 hours. Injection Interfaron A 3MU subcutaneous given with 5FU on day1 to day5. Injection Cisplatinum 75mg/Sq.meter intravenous infusion over 1 hour on day one.

The cycle was repeated every 28 days. Injection Dexamethasone 12mg and Injection Metoclopramide 60mg given intravenous before starting Chemotherapy. Hydration of patient was done with normal saline 1000 ml and Manitol 20% 500 ml. Treatment continued for a minimum of 12 weeks, toxicity permitting or until progression occur. For patients who progress weeks 1 to 6 but are stable during weeks 7 to 12, continue therapy in the absence of disease related complications or decrease performance status. Patients achieving CR continue therapy for two months.

RESULTS

Patient Characteristics

27 patients were enrolled in this study, out of which 20 patients completed the planned three cycles of chemotherapy. Three patients refused any further chemotherapy after the first cycle. One patient had two cycles. While one patient died after first cycle and one after second cycle of chemotherapy. The characteristic of those patients available for evaluation are shown in Table I.

TABLE I UCHARACTERISTICS OF PATIENTS AVAILABLE FOR EVALUATION

Number of patients enrolled	27
Number of patients evaluable for response & toxic effect	25

Age (yrs)		Sex		Previous treatment		
Mean	Range	Male	Female	RA	SR	SA
52	24 - 61	17	08	22	03	Nil

Disease sites: Buccal Mucosa=13; Tongue=5; Pyriform Sinus=4 and Larynx=3.

RA=Radiotherapy alone; SA=Surgery and radiotherapy, SA=Surgery alone

Toxicity

A total of 68 treatment cycles were available for evaluation regarding treatment related toxicities. The exact schedule of chemotherapy could not be followed due to delay in recovery of the patients from different toxicities. In few patients it ranged from one to two weeks. Haematological toxicities like neutropenia and thrombocytopenias noted in majority of the patients. It was mild to moderate in more than 50 % of the patients while in some it was of severe nature. In six patients platelet transfusion was required while in four patients growth factors were to rescue them. Nausea and vomiting was usually mild to moderate. Mucositis was seen in more than 70 % of the cases but it was of mild to moderate degree. Drug fever was also observed in more than 40 % of the patients. The details of toxicities observed are given in Table II.

Response

Patients were evaluated after 3 cycles of chemotherapy for overall response. Out of 20 evaluable patients none showed complete response (0%). Seven patients (35%) had partial response. Six (30%) had stable disease. Seven (35%) had progressive disease.

DISCUSSION

Addition of alpha interferone to cisplatinum and 5FU has not shown any significant improvements in the overall results. The response was not superior to that shown by other studies using cisplatinum through 5FU^{2,3} and it was associated with more toxicities. We therefore conclude that inclusion of interferon with cisplatinum and 5FU in the dose schedule does not improve the results and is more toxic. Perhaps further studies are required using different doses to establish the role of interferon in the advance and recurrent head and neck cancer.

REFERENCES

1. Walder S. Schwartz EL: Antineoplastic activity of the combination of interfero and cytotoxic agents against experimental and human malignancies: A review, Cancer Res 50:3473-3486, 1990.
2. Masayoshi N, Miyoshi T, Kanamori T, et al. Combined effects of 5-fluorouracil and interferon on proliferation of human neoplastic cells in culture Gann 73:819-824, 1982.
3. Elisa L, Crissman HA: interferon effects upon the adenocarcinoma 38 and HL-60 cell lines: Antiproliferative responses and synergistic interactions with halogenated pyrimidine ntimetabolites. Cancer Res 48:4868-4873, 1998.
4. Carmichael J, Fergusson RJ, Wolf CR, et al. Augmentation

TABLE II GRADED TOXICITY*

Neutropenia	Thrombocytopenia	Nausea vomiting	Mucositis	Drug fever
II /III /IV	II /III /IV	II /III /IV	II /III /IV	II /III /IV
31 /20 /2	27 /11 /4	36 /9 /3	28 /20 /2	12 /16 /2

*Total number of treatment cycles evaluated for toxic effects: 68

- of cytotoxicity of chemotherapy by human alpha-interferons in human non-small cell lung cancer xenografts. *Cancer Res* 46:4916-4920, 1986.
5. Wolf G, Lippman SM, Laramore G, Hong WK: Head and neck cancer. In *Cancer Medicine*, 3rd ed. Holland JF, Frei E, Bast RC Jr, Kufe DW, Morton DL, Weichselbaum R (eds). Philadelphia: Lea & Febiger, 1993, pp 1211-1275.
 6. Jacobs C, Lyman G, Velez-Garcia E, et al.: A Phase III randomized study comparing cisplatin and fluorouracil as single agents and in combination for advanced squamous cell carcinoma of the head and neck. *J Clin Oncol* 10:257-263, 1992.
 7. Al Saraf M: Chemotherapeutic Management of head and neck cancer metastatic. *Rev.* 1987;6:191
 8. Vlock D, Kalish L, Crouse C, et al.: Phase II trial of interferon alpha (IFN) and chemotherapy in locally recurrent or metastatic head and neck cancer. Preliminary results of ECOG trial EST 1390. *Proc Am Soc Clin Oncol* 1993; 12: 284.

EMPHYEMA THORACIS IN CHILDREN

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ABSTRACT:

Empyema thoracis is a common surgical complication of childhood pneumonia. The management of this condition is still not agreed upon. The purpose of present study is to define surgical management of Empyema Thoracis in Children.

The record of all patients who were managed at B unit of NICH with the diagnosis of empyema thoracis were reviewed to collect data especially with regard to referral pattern, previous treatment received, surgical procedure performed and its outcome. Eleven patients were managed in one year from January to December 1997. There were six male and five female patients. In six cases right side was involved and in five cases it was on left side. Two patients were less than one year of age, four were between one to three years. Youngest patient was 6 weeks old. Duration of illness was less than 7 days in four, between 1 to 4 weeks in four and more than one month in three. All empyemas were secondary to improperly treated pneumonia. Tube thoracostomy was successful in seven patients. Decortication was performed in three cases and in one patient pneumonectomy was done. Variety of organisms were grown on culture. Hospital stay was less than one month in six, between 1-2 months in three and more than two months in two. Minimum stay was two weeks. Variety of antibiotics were used in these cases and none received proper supportive treatment in early phase of disease. Almost all patients with empyema thoracis can be managed by antibiotic and tube drainage with supportive treatment. Decortication is needed only in few resistant cases. Proper treatment of pneumonia can prevent empyema with its associated morbidity and mortality.

KEY WORDS: *Empyema Thoracis, Children, Decortication*

INTRODUCTION

Empyema Thoracis is defined as collection of pus in pleural cavity¹. In the past it was associated with significant mortality that over a period of time has declined significantly in Western countries², but it is still a common surgical complication of pneumonia in paediatric age group. Management of patients with empyema thoracis has been controversial and as such ideal treatment has never been established. Recommendations are usually based on individual experiences. In this study we report our experience of this condition at National Institute of Child Health (NICH), Karachi.

MATERIAL AND METHOD

Records of eleven patients with empyema thoracis who were managed between January to December 1997 in B-Unit, of NICH were reviewed. All were secondary to pneumonia. Ten patients were referred from medical unit of our hospital and one came from another hospital for surgery. The data collected included age, sex, duration of disease, side involved, treatment given and response etc. Our protocol included diagnostic tap after X-ray chest followed by tube thoracostomy in the seventh intercostal space in mid-.....

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axillary line under local anaesthesia. The fluid collected was sent for biochemical and bacteriological examination. Antibiotics were continued and changed only according to sensitivity report. The stage of disease was also assessed according to the fluid drained into early exudative, fibrinopurulent and organizing stage. Thin fluid indicates early and thick pussy discharge with sediment and slough late stage. Supportive treatment included intensive chest physiotherapy and nutritional support. If improvement did not occur over a period of 2 weeks, decortication was performed. Ultrasound was done before surgery for documentation of multiloculation. Following operation intensive chest physiotherapy was instituted till lungs were fully inflated. Patients were followed up as outpatient after discharge.

RESULTS

In one year period from January to December 1997 eleven patients with empyema thoracis were managed in one of the two surgical units of NICH. All empyemas were secondary to improperly treated pneumonias. There were six male and five female patients. In six cases right side was involved and in five cases it was on left side. Two patients were less than one year of age, four were between one to three years. The youngest patient was 6 weeks old. Duration of illness was less than 7 days in four, between 1

2-4 weeks in four and more than one month in three. All patients presented with dyspnoea and fever of variable intensity. Localizing signs on physical examination were decreased expansion, dullness on percussion and absence of air entry on the affected side. In all patients tube thoracostomy was performed that resulted in expansion of lung in seven cases. In four cases fluid drained was of exudative type, in others it was thick, opaque and came out with difficulty indicating fibrinopurulent stage. Only three patients in this stage showed improvement but they required intubation for longer duration. Decortication was performed in three and pneumonectomy in one patient who did not show any change in general condition with deterioration. Variety of organisms were grown on culture (Table I). Hospital stay was less than one month in six, between 1-2 months in three and more than two months in two. Minimum stay was two weeks.

TABLE I ORGANISMS ISOLATED

	No.
Staphylococcus	2
Streptococcus	1
Proteus	1
Klebsiella	1
Pseudomonas	2
No growth	3

A variety of antibiotics were used in these cases (Table II). None of the patients had received proper supportive treatment in the early phase of the disease.

TABLE II NUMBER OF ANTIBIOTICS USED

Case	No.
CASE 01	4
CASE 02	5
CASE 03	4
CASE 04	3
CASE 05	3
CASE 06	5
CASE 07	1
CASE 08	1
CASE 09	2
CASE 10	4
CASE 11	3

Post surgical intervention stay in tube thoracostomy patients was less than 7 days in one, between 7 - 14 days in four, between 14 to 28 days in 2. Post decortication stay was less than 10 days in two and less than one month in one. Post pneumonectomy stay was 14 days.

DISCUSSION

Management of empyema thoracis is changing with advances in technology in the field of diagnosis and treatment. In the initial stages of disease purulent fluid is thin,

it later that becomes thick and with deposition of fibrin adhesions develop, resulting in thick organized pleural rind that prevents expansion of lung. This usually occurs over a span of 3-4 weeks following effusion. Treatment therefore is dependent upon the stage of the disease. In early effusion phase simple thoracentesis or tube thoracostomy may be curative. Use of appropriate antibiotics and supportive treatment including humidification, helps in expansion of lung. Remarkable improvement is seen in such cases, as seven of our patients (62%) improved with this treatment. As the disease progresses towards stage of organization, toxicity increases and general condition of the patient deteriorates. Treatment at this stage is difficult. C.T. scan gives accurate localization of pus collected. Ultrasound is also helpful in placement of chest tube at this stage. Urokinase and streptokinase, which are fibrinolytic agents, can help in breaking loculation thus helping in expansion of lung³⁻⁵.

With the advancement in technology, endoscopy is finding its place in treatment of many conditions including empyema thoracis. Video assisted thoracoscopic debridement is reported increasingly in literature with excellent results⁶. Early open surgical intervention is advised by some to reduce morbidity associated with prolonged chest intubation although there are many who believe in prolonged chest intubation; as long as the patient is showing signs of improvement^{7,8}. Failure of improvement in general condition, persistent fever, loculated effusion and isolation of anaerobic organisms on culture are taken by some as indication of early thoracotomy for debridement of pleural cavity⁹. Surgery at later stage, when fibrous adhesions form, is dangerous and results in damage to lung parenchyma with leaking of air that even if successful, leads to prolonged chest intubation and increases morbidity¹⁰.

In our study the empyemas were the result of improperly treated pneumonia. Even with intensive A.R.I. programme recommended by W.H.O., such cases still occur. Failure to recognize empyema at early stage, improper and inadequate use of a variety of antibiotics on an average, four per patient and non existent supportive treatment including chest physiotherapy and nutritional support, even at tertiary care hospital, through light on areas that needs attention. Although the number of patients treated is small, even then decortication was done in three and pneumonectomy in one which highlights the impact of this condition on already exhausted health facilities in our country.

In conclusion judicious use of antibiotics and supportive treatment is of prime importance while treating pneumonia. Clinical and radiological examination should be performed repeatedly for early diagnosis. Prompt surgical intervention of empyema can reduce morbidity as early

stages can be managed by simple tube thoracostomy. Open thoracotomy should not be delayed if limited procedure is not producing desirable results.

REFERENCES

1. Mandal AK, Thakepalli H. Treatment of spontaneous bacterial empyema thoracis, J. Thorac Cardiovasc Surg. 1987; 94: 414-418.
2. Stiles QR, Lindesmith GG, Tucker BL, et al. Pleural empyema in children. Ann Thorac Surg 1970, 10: 37-45.
3. Kornecki A, Sivan Y. Treatment of loculated pleural effusion with intrapleural urokinase in children. J. Pediatr Surg. 1997; 32. (10), 1473-75.
4. Rosen H, Nadkarni V, Theroux M. Intrapleural Streptokinase as adjunctive treatment for persistent empyema in pediatric patients. Chest. 1993; 103: 1190-1193.
5. Robinson LA, Moulton AL, Fleming WH, et al: Intrapleural fibrinolytic treatment of multiloculated thoracic empyemas. Ann Thorac Surg. 1994; 57: 802-814.
6. Kern JA, Rodgers BM. Thoracoscopy in the management of empyema in children J Pediatr Surg 1993; 28 (9): 1128-32.
7. Raffensperger JG, Luck SR, Shkolnik A, et al. Mini thoracotomy and chest tube insertion for children with empyema, J. Thorac Cardiovasc Surg 1982; 84: 497-504.
8. Mc Laughlin FJ, Goldmann DA, Rosenbaum DM et al, Empyema in children: clinical course and long term followup. Pediatrics 1984; 73: 587-593.
9. Foglia RP, Randolph J. Current indication for decortication in the treatment of empyema in children. J. Pediatr. Surg. 1987;22 (1), 29-33.
10. Chan W, Keyser Gauvin E, Davis GM, Nguyen Lt, Laberge JM. Empyema thoracis in children: A 26 years review of the Montreal children's hospital experience J. Pediatr Surg 1997; 32: 870-2.

NEONATAL JAUNDICE

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ABSTRACT:

One thousand babies with jaundice were examined and investigated for etiological factors. All the babies had first examination within first seventy two hours of birth. Out of 1000 babies, 810 were full term and 190 preterm infants. Causes of jaundice were physiological 78.7%, septic 9.6%, ABO incompatibility 5%, Rh incompatibility 2.7%, enclosed haemorrhage 1.9%, glucoic 6 phosphitis dehydrogenase (G-6-PD) deficiency 0.61%, neonatal hepatitis 0.5%, hypothyroidism 0.3%, biliary atresia 0.21%, while 0.7% remained undiagnosed.

KEY WORDS: Jaundice, Neonate, Rhesus incompatibility

INTRODUCTION

Neonatology in Pakistan is a developing branch of paediatrics. Jaundice is observed during the first week of life in approximately 60% of term and 80% of preterm infants. The unconjugated form is neurotoxic in neonates above certain concentration and under various circumstances¹. Jaundice is clinically visible in adults at a level of 2 mg/dl but in newborn, however it is discernable at a level of 6-8 mg/dl². This is due to high haemoglobin concentration present during this period of life. In all studies conducted in various parts of the country jaundice was the most significant problem encountered in neonatal period. This was found in 21.6% of total babies admitted in neonatal unit at Peshawar with 7.6% having kernicterus³. Arif in 1983 conducted the etiological analysis in 414 jaundiced babies and reported that out of 414, 108 had physiological jaundice while 306 had pathological. In Hyderabad only recently organized neonatal nurseries have been established in both, private and public sector hospitals. This study was done to determine the causes of neonatal jaundice in this part of the country.

PATIENTS AND METHOD

One thousand neonates were included in this study. The babies who had visible jaundice within first 28 days of life, irrespective of sex, race, weight and gestational age were included. These babies were examined in both private and public sector hospitals where author was called to attend them.

Thorough clinical examination including general condition, weight, maturity (assessed both from last menstrual period and Dubowitz scoring system⁴). Presence of bruises, hematomas, rashes and hepatosplenomegaly were noted.

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Laboratory workup included complete blood counts (including Hb, RBC count, T.L.C, D.L.C. platelets count and leucocyte count and peripheral smear examination), blood group of mother and baby, bilirubin level (total and direct) were done in all babies. Direct and indirect Coomb's test were done where needed. In selected babies, G-6-PD assay, blood culture, umbilical swab and culture, T.S.H. level, torch screening, ultrasound abdomen were carried out in selected cases.

RESULTS

On 1000 babies examined 190 (19%) were preterm and 810 (81%) term babies. The majority of the babies had physiological jaundice, both in term and preterm group i.e. 65% of the term group and 13.7% preterm group. Thus 80.24% of term infants and 72.5% of preterm babies had physiological jaundice. Jaundice due to sepsis was diagnosed where there were obvious clinical signs of infection such as pneumonia, skin lesions, umbilical sepsis with purulent discharge, meningitis etc. Out of 96 (9.6%) babies who had jaundice due to sepsis, 60 (6%) were term infants whereas 36 (3.6%) were preterm. Sepsis as a cause of jaundice was proven by laboratory work up in 86 (8.6%) of babies whereas in 10, it was presumed to be the cause of illness on clinical ground.

Blood group incompatibility was cause of jaundice in 77 (7.7%) of neonates with 50 (5%) having ABO and 27 (2.7%) Rh isoimmunization. Sixty (6%) jaundiced babies were term infants whereas 17 (1.7%) were preterm. Of 88 Rh -ve mother, 46 delivered Rh+ve babies, but only 27 had jaundice due to Rh-sensitization. All had exchange transfusion. Only 2 had neurological damage therefore, the overall incidence of Kernicterus was 0.2% in this series. Both of these babies were preterm as well. Five percent of babies had ABO incompatibility jaundice, 4% were term

babies 1% were preterm. The most common group, involved was O +ve mother with B +ve baby. Therefore out of 1000 jaundiced babies, exchange transfusion was done only in 30 (3%) cases. High level of bilirubin within first 24 hours without blood group mismatch raised suspicion of G6.P.D. deficiency. Only 6 (0.6%) had jaundice due to this deficiency. There were 10 (1%) babies where jaundice was prolonged well into 2nd and 3rd week of life. Five (0.5%) had neonatal hepatitis (with positive torch screening, all had positive cytomegaloviral antibodies), 3 (0.3%) had persistently elevated T.S.H levels indicating congenital hypothyroidism and 2 (0.2%) had ultrasonic evidence of, absence of extra hepatic biliary tree. Seven (0.7%) of cases remained undiagnosed (Table -I).

TABLE I ETIOLOGY OF JAUNDICE						
Causes	Term		Pre-term		Total	
	No.	%	No.	%	No.	%
Physiological	650	65.0	137	13.7	787	78.7
Sepsis	60	6.0	36	3.6	96	9.6
ABO Incompatibility	40	4.0	10	1	50	5.0
Rh- Incompatibility	20	2.0	7	0.7	27	2.7
Enclosed Haemorrhage	17	1.7	--	--	17	1.7
G6.P.D. deficiency	6	0.6	--	--	6	0.6
Neonatal Hepatitis	5	0.5	--	--	5	0.5
Hypothyroidism	3	0.3	--	--	3	0.3
Congenital biliary atresia	2	0.2	--	--	2	0.2
Undiagnosed	7	0.7	--	--	7	0.7
Total	810	81	190	19	1000	100.0

DISCUSSION

Among the causes of pathological jaundice, Rh-incompatibility accounted for 12.7%, ABO 15.7%, prematurity with or without infection 42.4%, sepsis in mature for 16.3%, enclosed haemorrhage for 4.9% and miscellaneous causes for 3.6% of babies. Overall jaundice was reason for admission in 25.5% of cases⁴. Again in 1985, he reported pathological jaundice in 3.73% of total live born babies⁵. Khan and Ahmed reported jaundice in 21% of babies. Among causes most common was Rh-incompatibility 36.5%, ABO incompatibility was seen in 9.6%. Sepsis was second most common cause of jaundice found in 25% of babies. Only 11.6% had physiological jaundice while in 17.3% of cases no cause was found⁶. Haneef and Tabbusum reported jaundice in 26% of babies admitted. Among the causes physiological was seen in 33% of the cases. Of pathological causes, Rh incompatibility was most common cause, 21.65%, fol-

lowed by ABO incompatibility 19%, sepsis in 5.5% and 14.5% remained undiagnosed⁷. Rehman et al reported a study of new born babies admitted over a period of four years. Jaundice being the most common cause of admission found in 30.10% of babies and 8.2% of these i.e. 2.4% of total, had jaundice due to erythrocyte glucose-6-phosphate-dehydrogenase deficiency.

Physiological jaundice is the most common cause of icterus in neonatal period. Sepsis and blood group incompatibility being the second and third most common causes. Exchange transfusion was needed only in babies with blood group incompatibility i.e. 30 (38.96%) of those with blood group incompatibility and 3% of total.

Being the most common problem, encountered by neonatologist, which is not only associated with morbidity and mortality but also with long term neurological sequelae with lot of suffering for the patient's family, its earliest detection and proper management can not be over emphasized.

REFERENCES

1. Kliegman R.M. "Jaundice and Hyper bilirubinemia in new born babies". In : Behrman R.E., Kliegman R.M, Arvin A.M. (Eds), Nelson Text book of Paediatrics, 15th edition, Philadelphia, W.B Saunders, 1996; 493.
2. Maqbool S, "Jaundice in the New born" Specialist 1992; VIII (2); 71-3.
3. Ahmed A. Akhter T, "Pattern of disease of new born admitted to special baby care unit Khyber Hospital Peshawar in the year 1977", P.P.J 1980 IV (1): 69-73.
4. Arif, M. A. "Jaundice in New born" P.P.J 1983 VII (1) 37-3.
5. Arif, M. A. Nizami S.Q. "A study of 10568 new born babies", P.P.J 1985 IX(1); 20-5.
6. Khan S.R Ahmed S "Study of Jaundiced new born in Nursery", P.P.J 1980 IV(2, 3): 116-20.
7. Haneef S.M Tabassum S "Pattern of neonatal disease" P.P.J 1985 IX (1) 42-8.
8. Rehman H, Khan M. A. Hameed A. Roghani M. T, Ahmad A "Erythrocyte glucose-6-phosphate dehydrogenase deficiency and neonatal jaundice" J.P.M.A : 1995 ;45(10).259-60.
9. Dubowitz L. Dubowitz V. "Clinical Assessment of gestational age in the new born infants" J. Paediatr 1970: 77:1-10.
10. Kliegman R. M. "Fetal and Neonatal Medicine" In: Behrman R.E, Kliegman R.M. (Eds) Nelson's Essentials of Paediatrics, first edition, Philadelphia, W.B. Saunders, 1990; 187.
11. Lubechenko L. O. Beverly K.L "Assessment of weight and gestational age" In: Avery G. B. (Ed.) Neonatology-Pathophysiology and management of New born 3rd Edition, Philadelphia, Lippincott, 1987, 236.

PREVALENCE OF FUNGUS IN DIFFERENT CULTURE SPECIMENS

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ABSTRACT:

Out of 250,000 fungal species, there are only 100 known primary pathogens of humans. Fungi are morphologically different from bacteria. Fungi imitate the whole gamut of bacterial pathology from acute pyogenic to chronic granulomatous infection and they may not reveal their presence until identified by Laboratory methods. Fungal infections are found in patients with weakened defences, like older and compromised patients. This audit basically shows the prevalence of different fungal species in different culture specimens. Our experience of high prevalence of *Candida* species and *Candida albicans* proves that *Candida* is among the most common and pathogenic species in Pakistan, may be due to tropical environment, prevalence of bacterial infection leading to debilitating diseases, wide use of broad spectrum antibiotics, corticosteroids and immunosuppressive drugs. The prevalence of fungal infections was studied at the Laboratory, Ward 7, Jinnah Postgraduate Medical Centre, Karachi during a two years period from January 96 to December 97.

KEY WORDS: Fungal Infections, *Candida* species and *Candida albicans*

INTRODUCTION

There are about 250,000 species of fungi, most of which are saprophytes that break down into vegetable and animal debris. Out of these, only 100 are known primary pathogens of humans. Morphologically, they range from unicellular yeasts to elongated chains of cells (hyphae). Many produce airborne spores which spread over a large area. The various common fungi are explained below.

Candida Spp

Grow well on Sabouraud's agar in 2-3 days as white, creamy moist or glabrous to membranous in texture. Several produce a capsule which may make the colony mucoid.

Aspergillus

***Aspergillus Fumigatus*:** White to green to gray green colonies. The colonies turn slate gray with age.

***Aspergillus Flavus*:** Yellow to yellowish green colonies. With age the colonies turn complete green.

***Aspergillus Niger*:** White colonies becoming black. Reverse side of the plate shows occasionally pale yellowish colour of the colonies.

***Nocardia*:** Grows well on Sabouraud's agar at room tem-

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perature or 37°C. It takes 3-5 days for visible growth to appear. The colony is not fluffy but it is chalky, leathery and wrinkled. White to orange in colour. The colony characteristically emits a musty "old library smell".

Fungi cause disease in humans via three main routes^{1,2}: production of toxins or mycotoxins, allergy and tissue invasion. Fungal infections involve invasion of tissue. They may be caused by organisms that attack without an underlying predisposition, but many of the common systemic mycoses affect patients with abnormalities in: structure (Ulcers, indwelling devices), immunity - particularly T lymphocyte (e.g. AIDS) or neutrophil defects (Leukaemia) and Metabolism (diabetes mellitus).

PURPOSE OF STUDY

To see the prevalence of fungus in different culture specimens during a two years period at the Microbiology, Laboratory of Medical Unit-III, Jinnah Postgraduate Medical Centre, Karachi.

MATERIAL AND METHOD

All the 1367 specimens for fungal culture received during a 2 year period from January 96 to December 97 were included in the study. Conventional methods were used to isolate and identify the fungi from different source of specimens. Sabouraud's medium was used for culture and two plates for each specimens, one at 25°C and other at 37°C, were used. Germ Tube test was performed for differentia-

tion of candida albicans and candida spp. The former is Germ Tube test (+ve).

Evaluation of Nocardia, Aspergillus and presence of other fungi was done by direct Gram staining of sputum and confirmed by isolation in culture. Germ positive branching filamentous organism, partially acid fast with 1% decolouriser is suspicious for Nocardia. Presence of hyphae, mycelium and spores can give the clue for infection. HVS specimens were collected in Stuart transport medium for processing.

OBSERVATIONS AND RESULTS

Out of 1367 specimens received for fungal culture (Table I), a total of 763 samples were of sputum. Out of these 72 were positive for fungus showing a percentage of 9.43%. Candida Spp. being the maximum in number (Fig. 1).

TABLE I DISTRIBUTION SPECIMENS	
Specimen	No.
Sputum	763
Urine	248
HVS	350
Nail scrapings and clippings	4
Ear pus	2

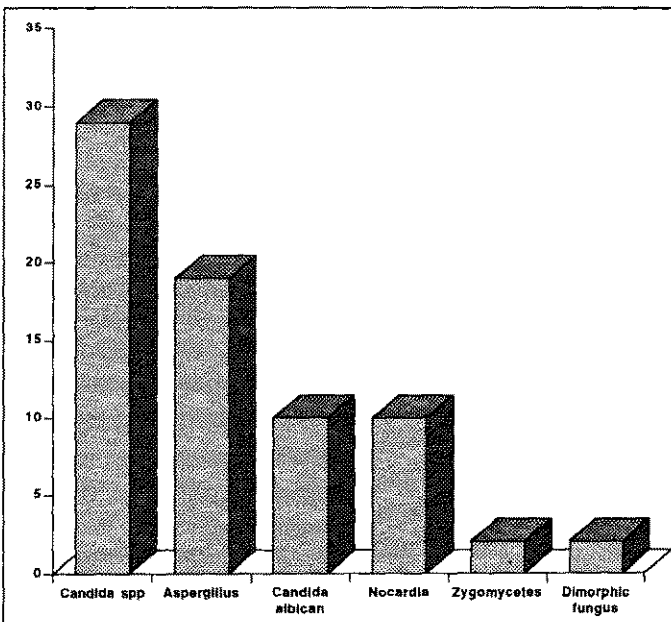


Figure 1 Frequency of different fungus in 763 sputum samples. Total number of positive samples = 72 (9.4%).

There were 248 urine samples received for fungal culture, among these 25 were positive for fungus with a percentage of 10.08%. Candida Spp. was again on the top list (Fig. 2).

There were 350 High Vaginal Swabs (HVS) among which 106 showed positivity for fungus giving a percentage of

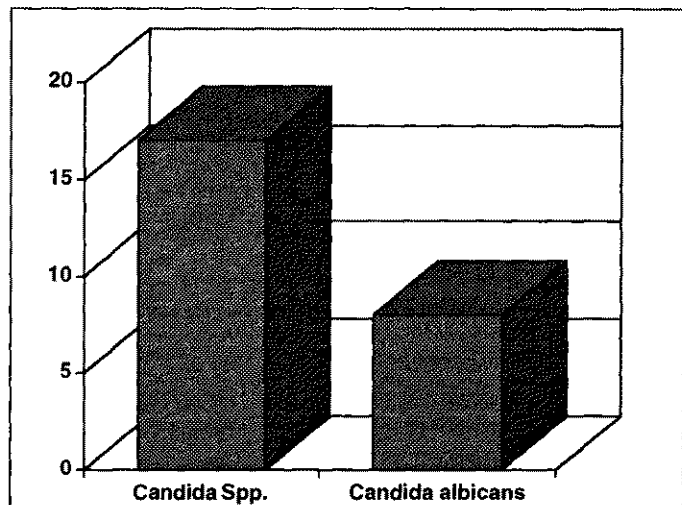


Figure 2 Frequency of different fungus in 248 urine samples. Total number of positive samples = 25 (10.08%).

30.28%. Again Candida Species were maximum in number. All groups of females were considered in this study of prevalence. There were 100 patients from prenatal group while some for routine checkup and some for vaginal complaints and cervicitis (Fig. 3). Four samples were of nail scrapings and clippings. All were positive for fungus (Fig. 4). There were two samples of ear pus, again both were positive for fungus (Fig. 5).

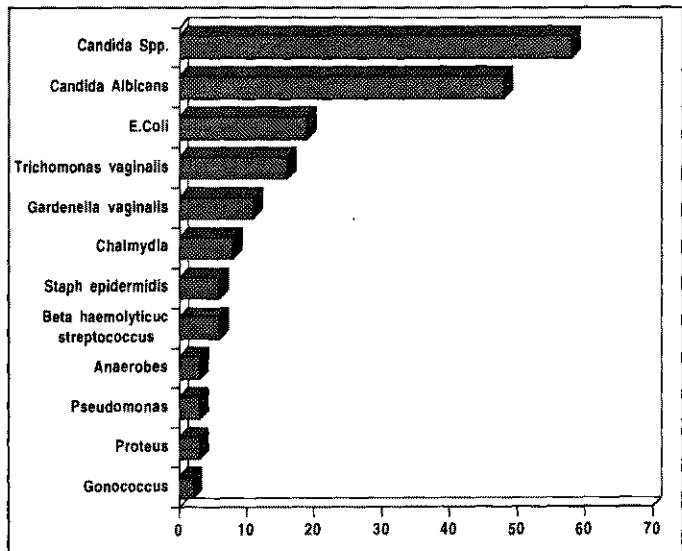


Figure 3 Frequency of fungus in 350 high vaginal swabs (HVS). Total number of positive fungal samples = 106 (30.28%).

DISCUSSION

Fungal disease are primarily infections or allergies. They may also be caused by eating foodstuff contaminated by fungal toxins (mycotoxins). The principal fungal infections affecting human beings can be distinguished by the site of body affected. Each type has a different pattern of disease characteristics. The widest range of fungal infections

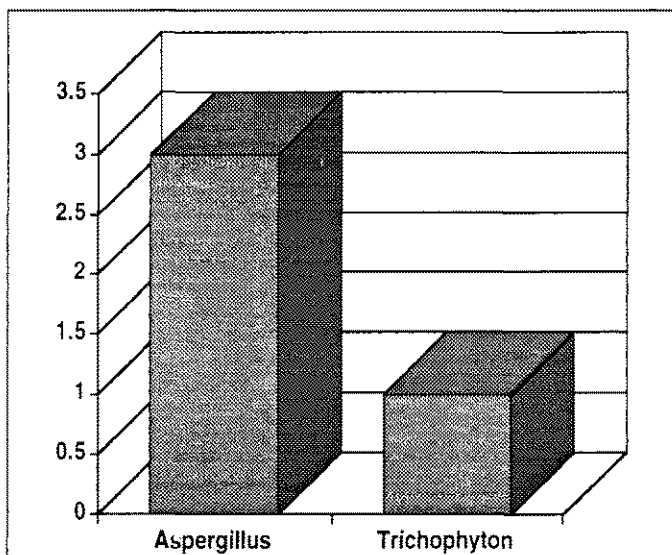


Figure 4 Frequency of fungus in in 4 nail scrapings and clippings Total number of positive samples = 4 (100%).

and the most serious are to be found in tropical and developing countries (Monica, 1992).

The idea behind this audit was basically to see the prevalence of fungi in different culture specimens irrelevant of the primary complaints. More than 75% of the specimens received showed fungal infection as super-added infection or vice versa, that is fungal infection with a coinciding bacterial infection.

An interesting finding in our observations was to have high frequency rate of Candida Species and Candida

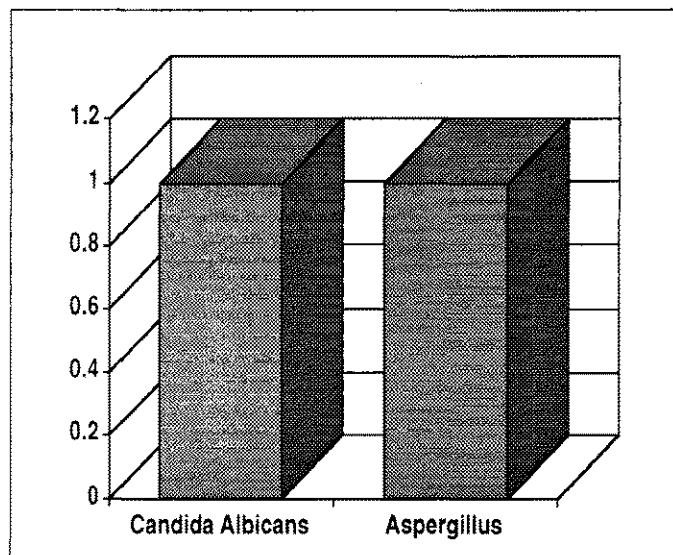


Figure 5 Frequency of fungus in two ear pus swabs. Total number of positive fungal samples = 2 (100%).

Albicans, irrespective of the type and site of the specimen. Our results were very much in concordance with other studies carried out in Pakistan showing high prevalence of Candida.

REFERENCES

1. Roderick, J., Hay. (1996). Medicine International, Number 35, Vol. 10.
2. Manual of Clinical Microbiology, (1991). 5th edition.
3. Glenn S. Bulmer, (1979). Introduction to Medical Mycology.
4. Monica Cheesbrough (1992). Medical Laboratory Manual for tropical countries, Vol. II, 1st edition.
5. Manual of Clinical Microbiology, (1991). 5th edition.

ACUTE APPENDICITIS IN CHILDREN

ABDUL SALAM ABBASI, YOUSUF SHAH

ABSTRACT:

Acute appendicitis is one of commonest surgical conditions in children. A prospective study was carried out to collect data of all children admitted with the provisional diagnosis of acute appendicitis at National Institute of Child Health Karachi, related to epidemiology and complications with early and late presentation. During the two years period (1996-97) a total of 322 children (7% of hospital admissions) were operated with the provisional diagnosis of acute appendicitis. Out of these 322 cases appendicular pathology was present in 296 (92%), while in 26 (8%) cases, appendix was found to be normal. In 6% other abdominal pathology was present. No pathology was found in 2% of cases. Out of 296 patients with appendicular pathology, 231 (78%) were of simple (inflamed without or with minimal pus) and 65 (22%) of advanced type (perforated gangrenous or with significant pus collection). Peak incidence was noted in the age group 9-10 year. It was rare under 5 year years of age. Only 6 cases (2%) were under 3 years, while out of these 6 cases, 4 (66%) were with advanced appendicitis. Though the diagnosis was clinical but classical triad was present in 77% of cases only. In about 60% of simple appendicitis TLC was raised (12000 - 15000)/cumm) with polymorphs 70-80%, while in 95% of advanced appendicitis, counts were on the high side (TLC= 15000-20000/cumm), polymorphd being 75-85%. In younger age group advanced appendicitis was common, history was longer and appendix was found obstructed. It was associated with high complication rate (post operative pyrexia 85%, wound infection 62% prolonged ileus 12%, pelvic abscess 10%) Hospital stay was also 3-4 times longer with advanced appendicitis than simple variety. Late presentation is one of the factors in the advanced disease, therefore awareness on the part of family physician and education of masses in general is needed. When diagnosis of acute appendicitis is established, there should be no delay in appendectomy.

KEY WORDS: Appendicitis, Children, Complications

INTRODUCTION

Appendicitis is one of the most common surgical emergencies¹. It is more common in male² and is rare under 5 years of age³. It is less common in third world countries and in the rural areas, where high fibre diet is consumed⁴. The diagnosis is mainly clinical so the chances of mis-diagnosis are always there⁵, but prolonged observation in these cases may complicate the simple problem. Surgery, therefore, in a child with suspected appendicitis has become the only acceptable form of treatment. Large number of children may have advanced appendicitis, as high 50%⁶, late presentation may be one of the factors. They have higher morbidity and longer hospital stay. The incidence of perforation is high in younger age group. This may be due to their inability to express the complaints properly so they are presented late to the surgeon. Pathology may progress rapidly due to non localization of inflammation. Diagnosis may be missed due to atypical presentation. In this study we present our experience of this condition at N.I.C.H, Karachi.

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PATIENTS AND METHOD

During the years 1996-97 a total of 322 (7% of hospital admission) children were operated with provisional diagnosis of acute appendicitis. Out of these 296 had appendicular pathology of which 231 (78%) had simple appendicitis (inflamed with or without minimal amount of pus) and 65% had advanced appendicitis (perforated, gangrenous or with significant amount of pus). They were subject for to further study. The pattern of disease related to age, sex duration of symptoms reliability of physical examination. TLC, DLC, post operative complications and hospital stay were compared in both simple and advanced type cases. Bacterial cultures were taken from peritoneal fluid, appendicular tissue and from muscle after closing peritoneum, to find out organisms involved. Triple antibiotics (ampicillin, gentacin and metronidazole) were used from the day of admission for 1-2 in patients with simple appendicitis. They were then discharged on oral penicillin. In cases of advanced appendicitis, I/V antibiotics continued upto the required period ranging from the 2.5 to 3.5 days. In few cases not responding this regimen, antibiotics were changed according to sensitivity reports.

TABLE I CLINICAL HISTORY IN RELATION TO TYPE OF APPENDICITIS

Type of Appendicitis	Pain in abdomen	Shifting Pain	Constant pain at RIF	Diffuse abdominal pain	Nausea vomiting	Anorexia	Fever	Diarrhoea	Classical triad
Simple appendicitis	100%	50%	20%	-	70%	50%	66%	6%	66%
Advanced appendicitis	100%	60%	30%	50%	90%	70%	98%	40%	95%

Lower transverse muscle splitting incision was used routinely. When needed, it was converted into muscle cutting incision. Usually drain was not used except in few cases where there was pus in free peritoneal cavity. Peritoneal lavage was not done, only suction and mopping was used. All wounds were closed primarily.

RESULTS

Acute appendicitis was found to be a common surgical emergency. Sex incidence revealed male predominance with male to female ratio of 1.7:1. Peak incidence was noted in the age group 9-10 years. Incidence was low (2%) under 5 years but the ratio of perforation was high (66%) in this group. Significant number of patients (40%) presented late, having history of more than 48 hours duration; half of these patients had advanced appendicitis. Classical triad was present in 77.8% of cases (Table I). An important diagnostic sign tenderness in right iliac region was present in 88.8% of cases. (Table-I). TLC (12000-15000, and polys 70-80%) in 70% of simple appendicitis; while in 95% of advanced appendicitis counts were raised and they were on higher side (TLC 15000-20000, polys 75-85%) (Table II). Out of 65 advanced appendicitis cases, 55 (85%) were obstructed variety, while in simple appendicitis, only 34 (15%) were obstructed. Results of bacterial cultures are shown in Table-III and IV. There was no difference in results where drainage tubes were used or not. There was also no difference in the results in the hands of junior and senior surgeons.

TABLE II TOTAL LEUCOCYTE COUNT (TLC)

TLC	Appendicitis	
	Simple	Advanced
< 10000	22.2	--
10000 - 12000	33.3	20
12000 - 15000	40.4	50
> 15000	4.1	30

TABLE III OVER ALL RESULTS OF BACTERIAL SWABS

Organisms	%
Aerobic	80.0
Anaerobic	16.0
No growth	4.0
Single organism	37.8
Two organisms	28.9
3 or more organisms	28.9
No growth	4.4

TABLE IV RESULTS OF BACTERIAL CULTURE FROM PERITONEUM, APPENDIX AND MUSCLE

Bacteria	Peritoneum	Appendix	Muscle
E.Coli	70%	92%	94%
Streptococcus	32%	28%	34%
Pseudomonas	24%	34%	26%
Enterococcus	14%	34%	26%
Staphylococcus	6%	12%	12%
Klebsiella	10%	10%	4%
Pneumococci	4%	4%	4%
Enterobacter	--	4%	4%
Clostridia	--	4%	--
Acremonium	--	4%	--
Anaerobic Bacteroids	--	4%	--

TABLE V POST OPERATIVE COMPLICATIONS

Complication	Simple app	Advanced app
Wound infection		
Mild	11.43%	85%
Moderate	7.4%	62%
Severe	2.3%	39%
Post operative pyrexia	25.7%	80%
Prolonged ileus	3.0%	12%
Pelvic abscess	2.2%	10%
Wound dehiscence	1.0%	4%
Adhesive obstruction	1.0%	3%
Incisional hernia	--	7%
Faecal fistula	--	7%

Patients with advanced appendicitis had high rate of complications (Table-V). Post operative pyrexia ileus and wound infection were common complications. The patients were more toxic and debilitated. The return of appetite and activity were also delayed. Some degree of weight loss was noted in these patients. They were kept on I/V antibiotics for longer period. (average: 7 days). Their hospital stay was longer 7.5+3.5 days with mean stay of 8 days. Thirteen patients were readmitted with wound infection and six with partial disruption of wound. Five developed intestinal obstruction. After controlling the infection wound were resutured. Laparotomy was required in 3 cases of post-operative adhesions while other cases responded to conservative treatment.

DISCUSSION

Appendicitis in this series represented 7% of hospital admissions. It is higher than 2.5% reported by Awan et al⁷ but it is in accordance to 9% reported by Storey and

TABLE VI PATHOLOGY OTHER THAN ACUTE APPENDICITIS

Pathology	No.
Primary peritonitis	06
Mesenteric adenitis	05
Meckel's Diverticulitis	05
Terminal ileitis	02
Torsion of ovarian cyst	02
Cholecystitis	01
Ruptured liver abscess	01
Perinephric abscess	01
No abdominal pathology found	03

Scobie⁸. Male to Female ratio was 1.7. This differs from equal sex incidence in children reported by Condore. Only 6 cases (2%) were under 3 years of age; this parallels to the low incidence (0.2-1%) reported by Box et al⁹.

In this study the overall incidence of advanced appendicitis was 22% but under 6 years of age it was 66%. A high incidence was also noted by others^{7,10}. This may be due to their ineffective communication and inability to contain the inflammation.

A significant number (76%) of advanced appendicitis presented after 48 hours of the onset of symptoms. This was due to late referral by the family physician in majority of cases.

The classical triad of symptoms described by McIlanaban¹¹ were present in 77.8%. It was noted mostly in older children. Shifting of pain from epigastric or umbilical region to right iliac fossa was noted in 66.6%. The very important diagnostic sign, the tenderness at right iliac fossa was observed in 88% of cases.

Appendix is a blind loop viscus, with a narrow lumen, having rich lymphoid tissue. Its blood vessels are running from the base towards the tip. When its drainage is impaired or lumen gets blocked⁸ by faecal concretions, worms, foreign bodies or by lymphoid hyperplasia due to inflammation, distal part of lumen becomes distended by continued mucous secretion, vessels in the wall get compressed or thrombosed. This leads to ischemia, necrosis

and sloughing of the wall. Therefore operation should not be delayed to avoid the complication of advanced disease. Waiting for unnecessary investigations is not justified. Appendicitis can be diagnosed clinically in 75 to 85% of cases and related investigations as ultrasonography and X-ray of abdomen and barium enema¹⁰ have diagnostic accuracy around 80-90%¹² just above the clinical diagnosis. Therefore they are not commonly advised except in some specific cases. Pathologies other than acute appendicitis were found in 26 cases (Table VI). Negative appendectomy rate was 3/322 cases. This again highlights the importance of clinical examination in relation to acute appendicitis especially in children.

REFERENCES

1. Lwis, FR, Halcorff WJ. James J and Dunphx EJ. Appendicitis critical view of diagnosis and treatment in 1000 cases. Arch. Surg 1975; 110: 677-84.
2. Codone RE. Appendicitis. In Sabistan DC Jr. David C(eds). Textbook of Surgery. 13th Ed. Philadelphia, WB Saunders company. 1986; pp. 967-82.
3. Bax NMA, Pears RG. Dommering and Noleneur JC. Perforation of appendix in the neonatal period J Pediatr Surg 1980 15 (2)200-202.
4. Burkit DP. Anetology of the appendicitis. Br J Surg 1971. 58:695-99.
5. Clifford PC, Chan M and Hewatt DJ. The acute abdomen management with microcomputer aid. Ann. R. Coll. Surg 1986; 68: 182-4.
6. Stone HH, Sander SL and Martin JB Jr. Perforated appendicitis in children. Surgery 1971, 69: 673-79
7. Mcl. anaban, S. Further reduction in the acute appendicitis in children. Ann. Surg 1950: 130: 853.
8. Jeffary RB, Laing FC and Lewis FFR. Acute appendicitis high resolution real time ultrasonography finding Radiol 1987; 163: 111-4.
9. Hatich, EJ, Haffis JD and Chandler, NW. Pitalls in the use of barium enema in early appendicitis in children. J. Pediatr. Surg. 1981; 16(3): 309-12.
10. Gilmore OJA, Browett JP and Griffin PH et al: Appendicitis and mimicking conditions. Lancet. 1975; II 421-4.
11. Festen M. Postoperative small bowel obstruction in infants and children. 1982: 580-3.
12. Campbell, JPM and Gunn AP. Plain abdominal radiography and acute absdominal pain. Br. J. Surg. 1988; 75: 554-6.

REFRACTIVE SURGICAL PROCEDURES

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Review Article

ABSTRACT:

Refractive surgical procedure or refractive corneal surgery means any operation performed on the cornea to change its refractive power. About 15 different techniques have been tried and practiced for this purpose. No technique has yet been widely accepted due to unpredictable results. Ophthalmic surgeons continue to develop newer techniques that will allow patients to discard the prosthetic devices of spectacles and contact lenses. Different methods of refractive surgical procedures are reviewed in this article.

KEY WORDS: *Refractive surgical procedures, keratomileusis, epikeratoplasty, Keratotomy, keratectomy*

REFRACTIVE SURGICAL PROCEDURES

Cornea is the most important refractive component in the eye which comprises about 49 D of convergent lens power. At the air-tear interface most of the refraction occurs as a result of difference of refractive indices. Therefore the shape of the corneal surface has a major effect on the refractive properties of the eye¹. Efforts have been made to since long get a permanent surgical treatment for refractive errors. About 15 different techniques have been tried and practised for this purpose². To date no refractive surgical procedure have gained wide-spread acceptance because of poor predictability and unstable corrective results. Various techniques have adverse effects on the quality of vision and lack of adjustment. Poor predictability is rather the largest unsolved problem with refractive corneal surgery³. Two major factors that contribute to poor predictability are suggested by Thompson⁴: the variations and inaccuracies inherent with manual surgical techniques and the variable influence of corneal wound healing in determining the refractive outcome.

An overview of refractive corneal surgery has well been documented by George. O. Waring III⁵. Ophthalmic surgeons continue to develop newer techniques that will allow patients to discard the prosthetic devices of spectacles and contact lenses.

Refractive corneal surgery involves numerous techniques. These may be classified as:

Techniques that effect the amount of corneal tissue are that:

- subtract tissue: by keratomileusis and wedge resection.

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- add tissue: by epikeratoplasty, intracorneal lenses or intrastromal corneal rings.
- incise tissue by radial keratotomy or transverse keratotomy.
- coagulate the tissue by thermokeratoplasty.
- replace the tissue by penetrating keratoplasty.

Techniques Based on surgical manipulations of cornea are:

- Lathing techniques: keratomileusis, keratophakia, epikeratophakia
- Incision techniques: radial keratotomy, corneal wedge resection, corneal relaxing incisions.
- Shrinkage techniques: cauterization of cornea (thermokeratoplasty).
- Reshaping anteriorly excimer laser keratectomy (PRK), excimer laser in situ keratomileusis (LASIK) and intrastromal corneal rings.

Non corneal refractive surgery: clear lens extraction, lens extraction with insertion of intraocular lens and intraocular lens implant in the presence of natural lens.

CLASSIFICATION SUGGESTED BY WARING III, G.O⁵

1. Refractive keratoplasty lamellar

- Keratomileusis for myopia, hyperopia and aphakia.
- Keratomileusis insitu (carving corneal bed) for myopia.
- Epikeratoplasty for aphakia, hyperopia, myopia.
- Intracorneal lens or ring (ICL, ICR) for aphakia, myopia.
- Lamellar keratotomy for hyperopia.
- Lamellar keratoplasty (central or crescentric) for irregular astigmatism (keratoconus) and marginal thinning for astigmatism e.g. Terrien's degeneration.

2. Keratotomy (refractive keratotomy)

- radial for myopia transverse and circumferential for astigmatism.

3. Keratectomy

Laser

- Photorefractive keratectomy (PRK) for myopia.
- Linear laser keratectomy (radial or transverse) for astigmatism and myopia.
- Intrastromal photodisruption with Nd:YAG laser for myopia.
- Laser adjustable synthetic epikeratoplasty.

Mechanical

Crescentic wedge for astigmatism crescentic lamellar corneal tuck or flap for Terrien's or marginal degenerations and Mechanical central refractive superficial keratectomy with rotating blades or fine water stream for astigmatism.

4. Thermokeratoplasty

Holmium-YAG Laser

- Peripheral, intrastromal, radial pattern for hyperopia.
- Arcuate in flat meridian for astigmatism

Thermokeratoplasty Deep stromal hot needle thermal coagulation:-

- Peripheral, intrastromal and radial patterns for hyperopia.
- Arcuate in flat meridian for astigmatism.

5. Penetrating keratoplasty for hyperopia, aphakia, myopia, keratoconus, astigmatism:-

- Donor-host size disparity.
- Suture adjustment during or after surgery.

6. Intraocular lens implants (IOL) Aphakic IOL

Lens optic, monofocal, multifocal, preserving accommodation.

Anterior chamber: Angle fixated and Iris fixated.

Posterior chamber: Capsule support, Capsular bag, Ciliary sulcus, No capsule support, Iris sutured and Transscleral sutured.

Phakic IOL for myopia: Anterior chamber, Angle fixated and Iris fixated posterior chamber silicon disc.

Posterior Scleral Support (x, y, I band shapes) for pathologic myopia with staphyloma.

Corneal surgical procedures

Keratomileusis:

It means carving the cornea and applies to all techniques of lamellar refractive keratoplasty⁶. In this technique, a lamella of the patient's anterior cornea is removed with

microtome, frozen and lathe-cut into a new flat or steep shape. Then it is sutured back into place. Anterior curvature of the cornea can also be changed by removing corneal stroma including laser ablation of anterior cornea, cryolathe or planar non-freeze carving of anterior corneal disc and excision of posterior stroma as in in-situ keratomileusis.

A laser can also be used to remove tissue from excised disc or lamellar bed. Keratomileusis for myopia involves excision of a lamellar disc of the patient's cornea with a microkeratome, carving of the disc on a cryolathe to form a concave lenticule and suturing the lenticule back onto the cornea⁶. This flattens the central corneal curvature and decreases the refractive power.

Excimer laser in-situ keratomileusis (lasik)

It involves the cutting of a disc or flap of superficial cornea with a automated microtome and using this lamellar disc or flap as a protective cornea for refractive surgery. This is a modification of keratomileusis. An anterior corneal disc as a hinge flap is made 7.5 to 8.00 mm and 130 - 150 microns thick. Then excimer laser refractive ablation is carried out within the bed of stroma. The flap is replaced without sutures which serves as a protective cornea.

Epikeratoplasty (Epikeratophakia)

In this procedure, a pre-carved donor lamellar corneal tissue which is re-hydrated at the time of surgery and is sewn onto the de-epithelialized recipient cornea with interrupted sutures. For myopia correction, a concave lenticule is formed⁶. This will flatten the central corneal curvature to decrease refractive power. Epikeratoplasty for aphakia involves a similar process using a convex donor lenticule that steepens corneal curvature, increasing refractive power.

Epikeratoplasty for keratoconus employs a donor lenticule without power to flatten the cornea and diminish myopia and irregular astigmatism.

Laser adjustable synthetic epikeratoplasty (LASE) involves the use of a synthetic epikeratoplastic lenticule, placed onto the surface of the Bowman's layer and into a peripheral circular keratotomy. The epithelium grows over the lenticule. Undesired curvature of lenticule can be recarved to a new shape. Advantages are repeated adjustability no wound as lenticule is acellular potential replacability.

Lenticules made up of type 1 or type IV collagen, collagen hydrogel polymers and coated hydrogels have been prepared⁶.

Keratophakia

This technique involves lathe cutting the corneal stroma from a donor eye into a small optical lens. Using the

microtome, an anterior lamella of cornea is removed from the host. The donor lenticule is then sandwiched in place between the host corneal stroma so that refraction of eye changes. The lenticule of a hydrogel material can also be used. If the donor's lenticule has a different index of refraction, thereby changing the refraction of cornea, it can be placed in a deep lamellar pocket.

Intrastromal Corneal Rings

This device is a 7mm PMMA ring that fits in the periphery of the cornea. A 2 mm. incision is made at 12 O'clock at an optical zone of 7-9 mm. A surgical device is used to make a peripheral channel that does not invade the centre of cornea and ring is inserted. Advantages of intracorneal ring are central cornea is not involved and easy procedure that provides immediate effects can be removed to restore preoperative state⁶.

Lamellar Keratoplasty

It can be done to reinforce and to flatten ectatic corneas as in advanced keratoconus and keratoglobus, thus decreasing inherent myopia with these disorders⁶. So it can also play a role in refractive surgical techniques.

Lamellar Keratotomy

It decreases hyperopia after lamellar keratoplasty by anterior bowing of the thin remaining stroma.

Radial Keratotomy

Radial keratotomy for myopia involves equally spaced radial incisions made deeply into the corneal stroma to flatten the central part of cornea and decrease its refractive power.

Circumferential Keratotomy (Hexagonal Keratotomy)

For the management of hyperopia is also being tried⁶.

Keratotomy for Astigmatism

By various types of incisions for astigmatism, the first suggested "T" tangential incisions made perpendicular to the steep meridian are most effective. [Lindstrom et al, cited by Waring⁶. Still further study is required.

Corneal Wedge Resection

In this procedure, a very deep crescentic piece of tissue with various central widths of upto 1.5mm is resected from the area of flat corneal meridian. The length of resection is approximately 70-90 um in arc length. The wedge resection can correct high degrees of astigmatism and can alter the corneal refractive power and the axial length.

Laser Photorefractive Keratectomy

This involves the re-shaping of anterior cornea for correc-

tion of refractive errors. Excimer laser was suggested by Trokel. et. al. in 1983³ to be used as a tool for corneal surgery. Excimer laser being a pulsed laser can shape corneal tissue to an exact depth with minimal disruption of adjacent tissue. One technique is anterior keratomileusis (large area ablation corneal etching or reprofiling) in which the central cornea is carved. It can treat myopia by increasing its minus power or can increase plus power to treat hyperopia. Another technique is excision of fine radial grooves (radial keratectomy) to correct astigmatism⁷.

Crescentic Lamellar Keratectomy

Removal of banana shaped crescent of peripheral cornea can help manage peripheral thinning disorders such as Terrien's marginal degenerations. Still this technique needs verification⁶.

Thermokeratoplasty

In this procedure, controlled application of heat into the stroma can shrink and scar stromal collagen. Central surface thermokeratoplasty involves the application of heat to the surface to shrink underlying collagen and reduce ectasia of the cornea in keratoconus. Radial intrastromal thermokeratoplasty shrinks the peripheral and paracentral stromal collagen, producing a central steepening of cornea to treat hyperopia. This procedure is also called as "corneal shrinkage technique"⁶.

Lens implant in phakic myopes

In this procedure, a negative power anterior or posterior chamber lens is implanted for correction of high myopia in phakic eye. This procedure keeps the accommodation working and fundus is not disturbed, which is critical for patients with high myopia. The risk of retinal detachment is low. Complications like endothelial decompensation and cataract formation can occur⁶.

REFERENCES

1. Abrams D. (edit) Myopia in Duke Elder's Practice of Refraction. Churchill Livingstone, London 1993; 53-64.
2. Waring III G.O. Development & evaluation of refractive surgical procedures. J. Refract. Surg. 1987; 3(4): 142-157.
3. Trokel S.L., Srinivasan R. and Braben B. Excimer laser surgery of the cornea. Am J Ophthalmology 1983; 96: 710-5.
4. Thompson K. P. Will the excimer laser resolve the unsolved problems with refractive surgery? J Refract Corneal Surg 1990; 6: 315-7.
5. Waring III GO. Making sense of keratospeak IV. Classification of refractive surgery. Arch Ophthalmol 1992; 110: 1385-91.
6. Steinert R F. (Discussion) Central photorefractive keratectomy for myopia by McDonald M B et al. Ophthalmol 1991; 98: 1337.

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ENTEROLITHIASIS OF SMALL INTESTINE

K. ALTAF TALPUR, A. SATTAR MEMIN, SHAHZAD LEGHARI

Case Reports

ABSTRACT:

Enterolithiasis is an uncommon clinical entity. Two cases of stones in distal ileum are reported. Pre operative diagnosis is very difficult. Some primary pathology like stricture or diverticulum usually exists which predisposes the formation of stones inside the gut.

KEY WORDS: Enterolithiasis, Ileum

INTRODUCTION

Enterolithiasis is not a common problem in surgical patients. The cases reported in literature are associated either with diverticula of small intestine especially in duodenum and jejunum or strictures due to Crohn's disease. But our cases of enteroliths involving distal ileum were due to post-operative and tuberculous strictures.

CASE REPORTS

Case # 1

A 60 year old women presented with history of intermittent pain around umbilicus and constipation for the last 3 years. Pain was gripping in nature and associated with fullness of abdomen. She underwent laparotomy about 25 years back for some acute abdominal problem. Abdominal examination revealed a scar of previous operation.

Baseline investigation eg: Blood CP, urine analysis, blood urea/sugar, X-ray chest and abdomen were carried out. X-ray abdomen revealed radio-opaque shadows in pelvis (Fig. 1) and provisional diagnosis of vesical calculi was made. Further investigations like X-ray I.V.U., ultrasound abdomen and pelvis excluded the possibility of urolithiasis (Vesical calculi).

Barium meal and Enema were normal and did not pick the diagnosis except giving the possibility of faecolith. Colonoscopy was normal. Cystoscopy and examination under general anaesthesia (EUA) was carried out. Urinary bladder was normal. EUA revealed palpable stones in pelvis.

Laparotomy was decided and on operation we found multiple stones in the distal ileum about 3 feet from the ileocaecal junction (Fig. 2). A stricture was also present just distal to the segment of ileum containing the calculi.

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Proximal ileum was hypertrophied and dilated for about 2 feet. Segmental resection of ileum, including the stricture was done and the specimen was sent for histopathology which revealed benign stricture.

Case # 2

A 22 years old women presented with a history of intermittent pain in the right iliac fossa for 5 years. Pain was

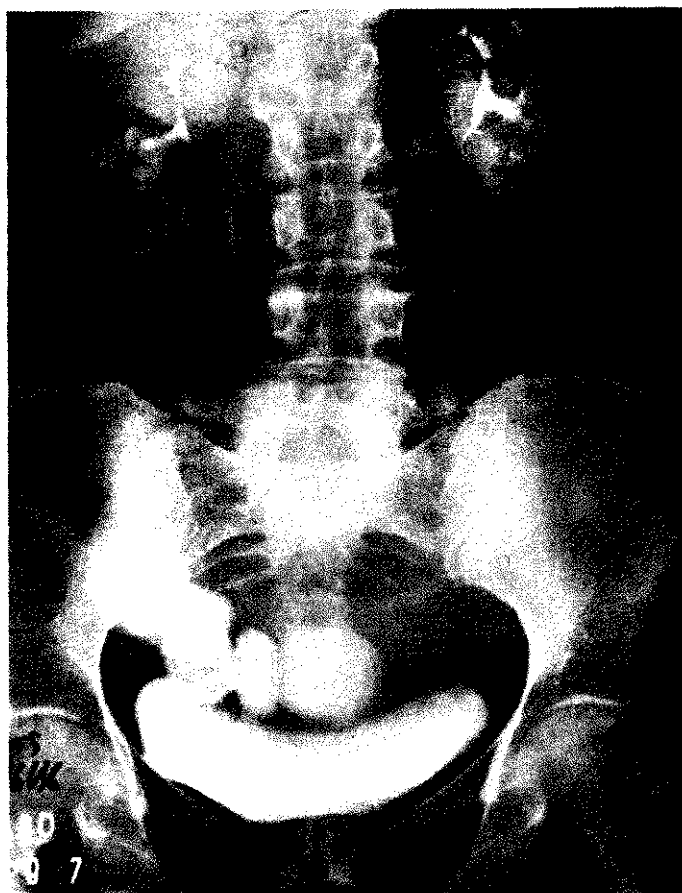


Figure 1 X-ray abdomen shows radio-opaque shadows in pelvis

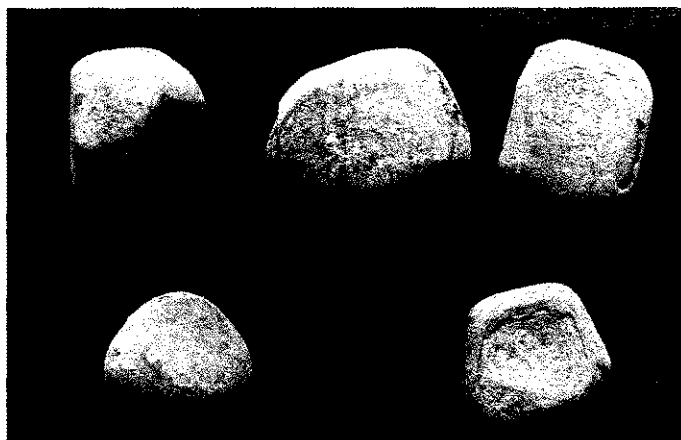


Figure 2 Multiple stones found in the distal ileum about 3 feet from the ileocaecal junction.



Figure 4 Multiple stones found in the distal ileum about 3 feet from the ileocaecal junction.

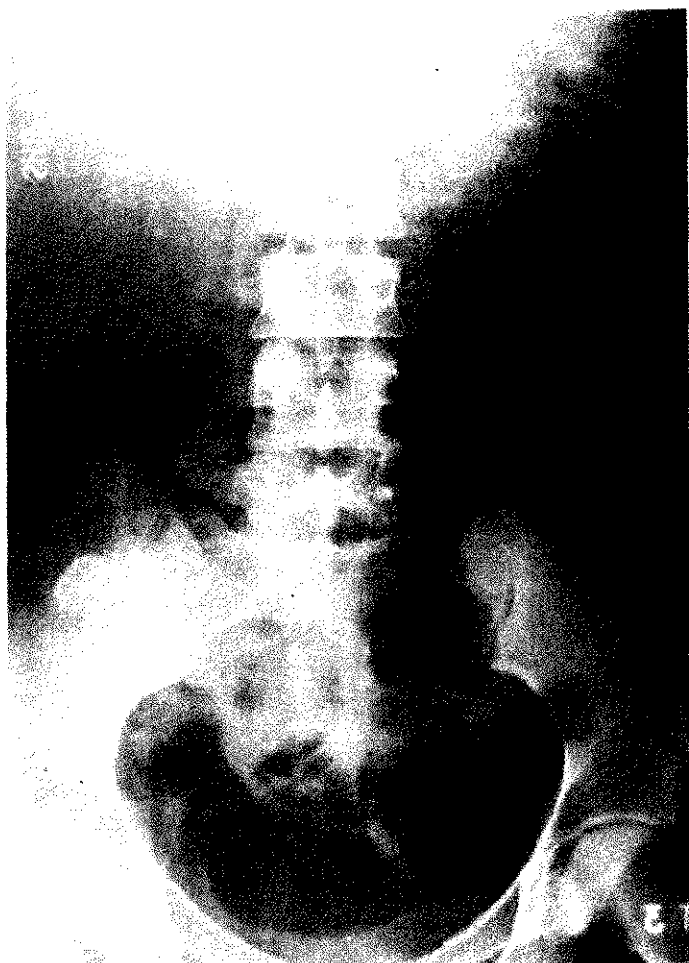


Figure 3 X-ray abdomen showed a radio-opaque shadow in the right iliac fossa.

associated with low grade fever and weight loss. There was also history of vomiting associated with pain on and off. Abdominal examination revealed tenderness in the right iliac fossa. Provisional diagnosis of recurrent appendicitis was made.

Blood CP showed low haemoglobin and raised ESR. Urine analysis, X-ray chest and ultrasound abdomen were normal. X-ray abdomen showed a radio-opaque shadow in the right iliac fossa (Fig. 3) which was away from the line of right ureter, giving possibility of faecolity in appendix or calcified lymph node.

On operation there was found an ileo-caecal mass, with miliary tubercles scattered all over the loops of small intestine and omentum with stricture in the distal ileum, about two feet from the ileocaecal junction (Fig. 4). This segment of ileum contained stones. Right hemicolectomy was carried out. Histopathology report confirmed tuberculosis of gut.

DISCUSSION

Formation of enteroliths within small bowel is a very rare occurrence. These usually originate in an intestinal diverticulum or in a segment of bowel loculated by stricture. Stasis promote their formation. Enteroliths are classified into true and false types. False stones are inspissated intestinal contents in the form of fecoliths whereas true stones are usually formed around a nidus of vegetable origin or bacterial clumps. These may be composed of choleic acid (Radiolucent) found in the proximal small bowel or calcium carbonate and calcium phosphate (Radio-opaque) found in the distal small bowel.

Diverticuli could be congenital or acquired where as stricture may be post-surgical, tuberculous or due to Crohn's disease. Diverticulosis of small bowel complicated by enterolithiasis is relatively more common than stricture of small intestine as found in review of literature. Enteroliths arising as a complication in duodenal diverticuli has been reported by Chuang JH et al (1993)¹ and Roshkow J et al (1988)², in jejunal diverticuli by Clarke PJ and Kettewell MG (1985)³ and Ennker J, Ziegler H⁴ and in Meckle's diverticulum by Pantongrabe, et al (1996)⁵. Enterolithiasis

has also been found in animals like grand zebra⁶. Enteroliths in Crohn's disease with multiple areas of small bowel stenosis is reported by Yaun JG et al (1994)⁷, with intestinal tuberculosis by Sheikh MY et al⁸ and with small bowel strictures by Jorens PG⁹ and Salim AS¹⁰. In these cases enterolithiasis was associated with stricture of distal ileum due to previous abdominal operation about 25 years back leading to symptoms of intermittent sub-acute intestinal obstruction and due to tuberculosis of gut. These patients are usually treated by laparotomy, followed by segmental resection of the affected part of gut. However review of literature showed 26 cases of enterolithiasis with duodenal diverticula, 20 cases with jejunal diverticuli, 8 cases with Meckles' diverticuli and 11 cases with Crohn's disease.

REFERENCES

1. Chuang JH, Chan HM, Huang YS, Hsieh JS and Huang TJ. Enterolith ileus as a complication of duodenal diverticulosis one case report and review of literature. KQO-Hsiung-I-Hsueh-KO-Hsueh-I-Hsueh-KO-Hsueh-tsa-Chit 1993 Aug; 9(8): 488-93.
2. Roshkow J, Farman J, Chen Ck. Duodenal diverticular enterolith. A rare cause of small bowel obstruction. J-Clin-Gastroenterol 1988 Feb; 10 (1) : 88-91.
3. Clarke PJ and Kettewell MG. Small bowel obstruction due to an enterolith originating in a jejunal diverticulum. Postgrad-Med-J. 1985 Nov; 61 (721): 1019-20.
4. Ennker J and Ziegler H Recurrent ileus in jejunal diverticulitis Chirur. 1985 Oct; 56 (10) : 651-4.
5. Pantongrue BL, Dart AJ, Levine MS, Buetow PC, Buck JL, Elsayed AM. Meckel's enterolith. Clinical, radiologic and pathologic findings. Am J Roentgenol 1996; 167: 1447-50.
6. Mc Duffee LA, Dart AJ, Schiffman P and Parrot JJ: Enterolithiasis in two Zebras. J Am Vet Med Assoc 1994; 204: 430-2.
7. Yuam JG, Sachar DB, Koganei K, Greenstein AJ. Enterolithiasis, refractory anemia, and strictures of crohn's disease. J-Clin-Gastroenterol. 1994 Mar; 18 (2) : 105-8.
8. Sheikh MY, Rizvi IH, Naeem SA and Ahmed I. Enterolithiasis secondary to intestinal tuberculosis. JPMA, 1991 Nov; 286-87.
9. Jorens PG, Hubens HK, Bultinck J, Gerard. YE and Haber I. Enterolithiasis: report of two cases. Acta-Clin-Belg. 1990;45 (4) : 260.
10. Salim AS. Small bowel obstruction with multiple perforations due to entrolith (bezoar) without gastro-intestinal pathology. Postgrad Med J 1990; 66: 872-3.

STRANGULATED INGUINAL HERNIA PRESENTING AS FAECAL FISTULA

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Case Report

ABSTRACT:

A three months old male baby presented with passage of faeces from scrotum for one week. On examination it was found to be a neglected case of strangulated inguinal Hernia that resulted in gangrene and fistula formation. The testis was also necrosed. Patient was operated and resection of the gangrenous part of ileum and end-to-end anastomosis was done. Orchidectomy was also performed. This case highlights the importance of early diagnosis and management of hernias in children so as to avoid such a dreadful complication.

KEY WORDS: Hernia, Inguinal, Strangulation, Fecal Fistula

INTRODUCTION

Inguinal hernia is one of the most common surgical conditions managed by paediatric surgeons. Although considered to be a simple problem, at times it may result in serious complications like strangulation of bowel, gangrene of testes and ovary¹. Early diagnosis and operation of this simple conditions can save the patient from these dreadful complications. In this report we are presenting a case of right inguinal hernia which was complicated by strangulation and faecal fistula with scrotum and gangrene of testis.

CASE REPORT

A three months old male infant resident of D.G. Khan district presented with faecal discharge from right hemiscrotum for one week. Patient was a known case of right inguinal hernia. This became irreducible 15 days prior to admission. Patient was treated by hakims and quacks until the child started passing stool from the scrotum. Parents then consulted a local doctor who referred the child to Nishter Hospital Multan. Clinical examination revealed a malnourished sick child with stool coming out of right scrotum (Fig. 1). Abdomen was soft non-tender and normal bowel sounds were audible. However he was not passing stool per rectum. After resuscitation, a formal laparotomy was performed. Resection of gangrenous portion of small bowel and end to end anastomosis was done. Testes was also gangrenous. Orchidectomy was done with closure of internal ring. Recovery was uneventful.



Figure 1 A malnourished sick child with stool coming out of right scrotum.

DISCUSSION

Incarceration most frequently occurs in infants under one year of age. The incidence of intestinal infarction in a hernia is quite low, ranging from 0-4.4%². The incidence of testicular infarction is high in neonatal period secondary to strangulated hernia³. Testicular infarction may not be associated with infarcted bowel. Onoura reported that half the children with infarcted testes had viable gut at operation⁴. In our patient not only gut and testes were infarcted but the scrotal skin was also necrosed leading to faecal fistula from the strangulated gut which is a very unusual presentation. At laparotomy closure of internal ring was performed from inside⁵. This complication is rarely reported in children. It also highlights the importance of early recognition and prompt management of hernias especially in children so as to reduce morbidity and mortality associated with this benign condition.

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REFERENCES

1. Aschcraft W, Holder M: Paediatric surgery 2nd Ed. 1993. W.B. Saunders company P562.
2. Rowe MI, Clotworthy HW; Incarcerated and strangulated hernia in children. Arch Surg 101: 136-139, 1970.
3. Stylianos S; Jacir NN; Harris BH. Incarceration of inguinal hernia in infants prior to elective repair J. Pediatr. Surg. 1993; 25 (4): 582-3.
4. Onoura Ve; Chiediozi Le. Testicular infarction complicating strangulated inguinal hernia in Nigerian children, Trop Geogr. Med. 1993; 45 (3): 129-30.
5. Misra-D; Hewitt G; Potts SR; et al. Transperitoneal closure of the internal inguinal ring in incarcerated infantile inguinal hernia. J. Pediatr. Surg. 1995; 30 (1): 95-6.

TRANSVERSE TESTICULAR ECTOPIA ASSOCIATED WITH PERSISTENT MULLERIAN DUCT SYNDROME

PARKASH MANDHAN, HASAN RAMZI, RUBAB NAQVI AND ABDUL AZIZ

Case Report

ABSTRACT:

Transverse testicular ectopia associated with persistent müllerian duct syndrome is a rare entity. Tenth case of transverse testicular ectopia with persistent müllerian duct syndrome is reported. Presentation, diagnosis and management of this case are discussed and the need for biopsy of gonadal tissues to recognize the type of gonad and persistent müllerian structures is highlighted.

KEY WORDS: *Transverse Testicular Ectopia, Persistent Müllerian Duct Syndrome*

INTRODUCTION

Transverse testicular ectopia (TTE) is a rare form of testicular ectopia and should be considered in any patient with an empty hemiscrotum with an additional mass in the contralateral hemiscrotum¹. In this condition one testis crosses the midline and both the testes are found on one inguinal side. The ectopic testis may lie at the internal ring, in the inguinal canal or scrotum. Lenhossek in 1886 first described this entity and since then about 100 cases of TTE have been reported in English literature²⁻⁴.

Persistent müllerian duct syndrome (PMDS) is an unusual form of male pseudohermaphroditism characterized by the presence of a uterus and fallopian tubes in an otherwise differentiated male with a 46XY karyotype⁵. Cases are usually discovered during surgery for inguinal hernia or cryptorchidism. Since the first report of the syndrome by Nilson in 1939, approximately 150 new cases of PMDS have been reported, most refer to isolated cases, while a few involve the siblings.⁶⁻¹⁰

Association of TTE and PMDS is recorded in adult literature^{11,12} but up to date only nine pediatric cases have been reported in English medical literature (Table 1)¹³⁻¹⁴. We are reporting 10th case which prompted us to do a comprehensive literature survey with evaluation of presentation, diagnosis, associated anomalies, management and future risks.

CASE REPORT

A 2-year-old boy was referred with left inguinal swelling noted by parents after birth. On physical examination, left-sided inguinal hernia was present with a palpable gonad of adequate size in the left hemiscrotum. Right half of scrotum was empty. His penis and scrotum were normal in appearance. He also had umbilical hernia. The parents were not related and there was no history of inguinal hernia or sexual ambiguity in siblings. Diagnosis of left-sided inguinal hernia, right undescended testis and umbilical hernia were made. During surgery for left inguinal hernia when traction was applied on the hernial sac, a gonad and a tubular structure were unexpectedly encountered other than left gonad in the scrotum. The ectopic gonad was also of adequate size. Biopsies from both the gonads were taken and left inguinal hernia was repaired after replacing the two gonads and tubular structure to their original position. The child was discharged from the hospital with a plan of further work up. Chromosome analysis of peripheral leukocyte showed a normal 46XY karyotype. Abdominal ultrasound revealed the presence of uterus like structure in the pelvis. Voiding Cystourethrography was normal. Histology of both the gonads showed them to be testes without evidence of ovarian tissue. Following this, laparotomy was performed by a transverse subumbilical incision. The tubular like structure, uterus was present in the midline, posterior to urinary bladder. Right testis was found on the left side in the pelvis with its separate blood supply and vas deferens and vasa deferentia were found in close relation to the fallopian tubes and uterus. The vas and vessels of the right testis were mobilized with careful dissection from the müllerian remnants and the testis was placed in

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TABLE I CLINICAL DATA OF THE CAES OF TTE ASSOCIATED WITH PMDS

Study	Year	Age	Side	Hernia	Mullerian structure
Pellegrini ⁴	1913	2 Yr.	Right	Present	Uterus and tubes
Stonham ⁵	1828	9 month	Left	Present	Uterus
Link ⁶	1930	1.5 Yr.	Right	Present	Uterus and tubes
Stauber ⁷	1965	10 month*	Right	Present	Uterus and tubes
Stauber ⁸	1965	3 month*	Left	Present	Uterus
Fourcroy ¹²	1982	4 Yr.	Right	Present	Müllerian duct
Mahfouz ¹³	1990	3 month	Right	Present	Uterus and tubes
Mahfouz ¹³	1990	27 days	Right	Present	Uterus and tubes
Karnak ¹⁴	1996	9 month	Right	Present	Uterus
Mandhan (present case)	1997	2 Yr.	Left	Present	Uterus and tubes

*Siblings

the right subdartos pouch through the same inguinal canal. Both fallopian tubes and uterus were excised after leaving intact a pedicle of myometrium. Umbilical hernia was also repaired. Postoperative course was uneventful. Histopathological examination confirmed the findings of infantile uterus (Fig. 1).

**Figure 1** Histopathology examination.

DISCUSSION

Müllerian structures are present in male fetuses until the eighth week of gestation. Müllerian duct regression in males is mediated by a glycoprotein produced by fetal sertoli's cells called müllerian inhibiting factor (MIF). Failure of synthesis or release of MIF, defect in end organs to respond to MIF or error in the timing of release of MIF causes persistence of müllerian duct structures in male fetuses⁵. Transverse testicular ectopia (TTE) is one of the rarest forms of testicular ectopia with uncertain embryological etiology. Aberrant gubernaculum, testicular adhesion, fusion and adhesion of developing wolffian ducts, defective internal ring, and traction on a testis by persistent müllerian structures are the suggested embryological explanation^{5,15}. It seems possible that the

mechanical effect of the persistent müllerian structures prevents the testicular descent and also drags both testicles towards the same inguinal side or hemiscrotum, thus producing TTE, as in our case.

Preoperative diagnosis of TTE is possible when the child presents with empty hemiscrotum with an additional mass on contralateral side of hemiscrotum. In the presence of TTE the possibility of PMDS should be suspected as it is the common cause of this abnormality. However diagnosis is often made incidentally during operation of inguinal hernia or during exploration for undescended testis. When the two gonads of approximate size and shape along with müllerian remnants are encountered during inguinal operation, further workup for associated malformations and sex determination should be considered before abdominal exploration. A complete radiological evaluation in TTE cases is necessary because a variety of associated genitourinary anomalies like hypospadias; ureteropelvic junction obstruction; seminal vesical cyst; penoscrotal transposition and common vas deferens are reported in literature^{16,19}. Even though we did not meet with any additional genitourinary malformation in our case, association of umbilical hernia was encountered, which is not recorded in literature previously.

Standard approach to patients with TTE with PMDS includes inguinal herniorrhaphy, gonadal biopsy, and removal of müllerian structures and fixation of both the testes in their respective hemiscrotum. Biopsy from each gonad is required to exclude the possibility of mix gonadal dysgenesis. Malignancy arising from the retained müllerian structures is not reported till today, even then removal of müllerian vestige is considered essential because of the fear that with sexual maturation, hypertrophy of uterus and accumulation of blood will give rise to abdominal discomfort and a mass of unknown origin. If there are no apparent fallopian tubes and uterus, the tissue present between the vasa deferentia should be sent for histopathology to identify the müllerian remnants as this

will aid in diagnosis and further management. The facility of fresh frozen sections helps to complete the operation in single stage, due to prompt biopsy results; otherwise staged procedure is preferred, as in our case. Initial operation includes gonadal biopsies, inguinal herniorrhaphy, replacement of gonad and müllerian structures within the pelvis. After confirmation of the diagnoses, definitive surgery is performed. Various procedures have been described for removal of müllerian remnants and bilateral orchidopexies for TTE. Previous surgical recommendations for persistent müllerian vestiges include complete removal of müllerian remnants, with obligatory vasectomy, because the vasa deferentia course parallel to and within the lateral uterine walls²⁰. However we did the proximal salpingectomies and hysterectomy by leaving intact a pedicle of myometrium, as described by Guerrier et al²¹. This effort facilitates the preservation of fertility and hormonal functions, especially when the child is young, as in our case. For TTE, transseptal fixation or modified Ombredanne technique, in which cords and vessels of both testicles pass through the same inguinal canal, is recommended, but this carries a risk of damage to both vas and vessels whenever there is trauma or infection¹⁴. Therefore we performed translocation of the ectopic testis through the same inguinal canal into the ipsilateral hemiscrotum, after careful separation of vas and vessels from müllerian remnants. Owing to the reported fact that non-descended testes have high incidence of malignant changes^{9,22,23}. Fixation of testis into the scrotum is essential as the development of malignancy in intrascrotal testis is easy to detect and manage.

In conclusion, TTE should be suspected pre-operatively in children who have unilateral inguinal hernia with additional palpable mass and associated non-palpable testis on the contralateral side. If both the gonads along with apparent müllerian remnants come into view during one inguinal exploration, complete evaluation and abdominal exploration is necessary. Biopsies of the gonads and the apparent tissue between cord structures is essential to exclude the possibility of gonadal dysgenesis and confirmation of müllerian duct structures. Removal of müllerian remnants without damage to vasa deferentia and fixation of ectopic testis into ipsilateral hemiscrotum should be the prime approach to preserve the fertility and also to avoid future risks.

REFERENCES

1. Dajani A M: Transverse ectopia of the testis. *Br. J Urol* 1969, 41:80-2.
2. Gauderer MWL, Grisoni ER, Stellato TA, et al: Transverse testicular ectopia. *J Pediatr Surg* 1982, 17: 43-47.
3. Hammoudi S: Transverse testicular ectopia. *J Pediatr Surg* 1989; 24: :223-4.
4. Golladay ES, Redman JF: Transverse testicular ectopia. *Urology* 1982 19:181-86.
5. Thompson ST, Grillis MA, Wolkoff LH, et al: Transverse testicular ectopia in a man with persistent müllerian duct syndrome. *Arch Pathol Lab Med.* 1994 118:752-755.
6. Nilson O: Hernia uteri inguinalis beim Manne. *Acta Chir Scand* 1939 83:231-32.
7. Young D: Hernia uteri inguinalis in the male. *J Obstet Gynaecol Br Commonw* 1951 58:830-31.
8. Bhatnagar KK: Uterus presenting in an inguinal hernia of a male subject. *Br Med Jr* 1962 32:1236-38.
9. Brook CGD, Wagner H, Zachmann M, et al: Familial occurrence of persistent müllerian duct structures in otherwise normal males. *Br Med J* 1973 1:771-773.
10. Sloan WR, Walsh CR: Familial Persistent Müllerian Duct Syndrome. *J Urol* 1976 115:459-461.
11. Mouli D, McCarthy P, Ray P, et al: Persistent müllerian duct syndrome in a man with transverse testicular ectopia. *J Urol* 1988 139:373-375.
12. Fourcroy JL, Belman AB: Transverse testicular ectopia with persistent müllerian duct. *Urology* 1982 19:536-538.
13. Mahfouz ESH, Issa MA, Farag TI, et al: Persistent müllerian duct syndrome: Report of two boys with associated crossed testicular ectopia. *J Pediatr Surg* 1990 25:692-693.
14. Karnak I, Tanyel FC, Akcoren Z, et al: Transverse Testicular Ectopia with Persistent Müllerian Duct Syndrome. *J Pediatr Surg* 1997 32:1362-64.
15. Raffier J: Congenital Anomalies of the testis. In Walsh PC, Gittes RF et al (eds.): *Campbell's Urology* 5th Ed. Philadelphia, PA, W B Saunders, 1986 pp. 1947-1968.
16. Bloom DA, Wan J, Key D: Disorders of the male external genitalia and inguinal canal. In Kelalis PP, King LR, Belman AB(eds.): *Clinical Pediatric Urology*, Chapter 22, Philadelphia, PA, W B Saunders, 1992 pp. 1015-1049.
17. Peterson NE: Association of transverse testicular ectopia and seminal vesical cyst. *J Urol* 1977 118:345-46.
18. Ozkardes H, Germiyanoglu C, Gurdal M, et al: Transverse testicular ectopia with penoscrotal transposition. *Pediatr Surg Int* 1994 9: 532-3.
19. Miura K, Takahashi G: Crossed ectopic testis with common vas deferens. *J Urol* 1985 134:1206-08.
20. Pappis C, Constantinides C, Chiotis D, et al: Persistent müllerian duct structures in cryptorchid male infants: Surgical dilemma. *J Pediatr Surg* 1979 14:128-131.
21. Loeff DS, Imbeaud S, Reyes HM, et al: Surgical and Genetic Aspects of Persistent Müllerian Duct Syndrome. *J Pediatr Surg* 1994 29:61-65.
22. Goel RG, Samuel KC: Bilateral seminoma in male pseudohermaphrodite. *J Urol* 1972 108:466-468.
23. Breckenridge RL, Nash E, Litz J: Gonadoblastoma in male pseudohermaphroditism. *Exp Med Surg* 1969 27:333-35.