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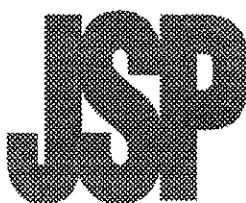
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Editorial:

Increasing Incidence of Tubercular Lesions in Surgical Practice

The third world countries which are facing the problem of poverty, malnutrition, environmental pollution and unhygienic conditions in thickly inhabited areas, are also having the increasing incidence of tuberculosis.

The drug resistance or non availability of the medication or irregular use of the drugs are the main factors, that the treatable tubercular lesion have become untreatable and have started to produce the complications where the surgery is needed.

The disease pattern, which was present in fifties and sixties on higher side did reduce to some extent in seventies and eighties, had started increasing, again in 21st century.

This blessing of the new century is getting more commoner in third world but also seen in developed countries to some extent. If the poverty is problem related to third world, the immoral values and prevalence of the AIDS are a factors in the developed countries.

World Health Organization, the Government functionaries and the NGOs are trying to eradicate the menace, but the fact of the day is that, the different types of complications in all the systems of the body have started worrying the surgeons as to how to come over, control and reduce this menace of the society.

PROF. ABDUL AZIZ

INTESTINAL OBSTRUCTION IN INFANTS AND OLDER CHILDREN

IJAZ HUSSAIN, JAMSHED AKHTAR, SOOFIA AHMED, ABDUL AZIZ

ABSTRACT:

The pattern of intestinal obstruction in 89 children, from different congenital and acquired causes, was reviewed prospectively. All patients presenting with symptoms and signs indicative of bowel obstruction, were assessed for fluid and electrolyte management. Surgical intervention was carried out, where indicated, otherwise patients managed conservatively. In order to analyze the data, patients were divided into two groups: Infants were enlisted in group A, while toddlers and older children were put together in group B. There were 31 patients in group A. Of this 18(58%) cases were of intussusception, which was the leading cause of bowel obstruction in this age group while rest of the conditions, namely incarcerated inguinal hernia, inflammatory/congenital bands, Hirschsprung's disease, malrotation, post operative adhesions and mesenteric cyst constituted collectively 42% of bowel obstruction. In group B intestinal obstruction due to ascariasis occurred in 17(29.31%), post operative adhesions in 11(18.95%), Hirschsprung's disease in 7(12.06%), intussusception in 4(6.89%), mesenteric cyst in 4(6.89%) patients. Tuberculosis was found in 3(5.17%) cases whereas 4(6.88%) cases of inflammatory bands and malrotation were encountered. Five (22.7%) patients in group A and 2(3.44%) in group B died. Thus, it appears that the pattern of intestinal obstruction varies at different age groups in terms of etiology as well as in relative incidence. The outcome depends upon the underlying condition, associated morbidity and age of the patient.

KEY WORDS: Intestinal obstruction, Child, outcome.

INTRODUCTION

Intestinal obstruction is a common emergency in paediatric surgical practice. Because of its serious nature, it compels prompt diagnosis and early relief. The pattern of bowel obstruction differs at various age groups. It also shows changes from country to country and within a same locale as the aetiology varies among the different social groups. Seasonal variations have also been noted with great impact on causes of obstruction.^{1,2,3}

The morbidity and mortality has decreased in recent years, which was quite high in early decades of last century for gastrointestinal obstruction. The better understanding of pathophysiology of disease, improvement in pre-operative management, rationale use

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of antibiotics, safe anaesthesia and refined surgical techniques have all contributed to this remarkable achievement. The advent of ventilatory support and the concept of total parenteral nutrition(TPN) have profoundly decreased the postoperative morbidity and mortality.

The purposes of this study were to find out various causes of intestinal obstruction in children beyond neonatal period, to find out age and sex distribution in relation to various causes of intestinal obstruction and to highlight various factors associated with morbidity and mortality.

PATIENTS AND METHODS

A prospective cross-sectional observational study was planned and conducted over a period of one year, from January 1999 to December 1999, in one of the two units of National Institute of Child Health, Karachi. All patients who were diagnosed as cases of intestinal obstruction

based on history, clinical examination, strengthened by biochemical and radiological investigations, managed during above-mentioned period were included in this study. For the purpose of collecting information, a proforma was designed containing the relevant details including epidemiological and clinical data.

All patients were managed according to the protocol mentioned for intestinal obstruction in standard textbooks of paediatric surgery. Surgical procedure was tailored according to the disease and condition of the patients assessed at operation by the treating surgeon. Patients were managed post-operatively in Intensive Care Unit and daily progress was recorded. Following discharge, patients were given appointment for visit in out door clinic and health status during this period was noted.

For purpose of analysis of results patients were divided into two groups according to age, Group A - Infants and Group B- older children. In each group the causes were divided into congenital and acquired variety.

RESULTS

During the period from 1st January to 31st December 1999, 89 patients, above the age of one month, with diagnosis of intestinal obstruction were admitted to B-Unit of National Institute of Child Health, Karachi. This included 31 infants and 58 toddler and older children. Male predominated in this study (n=59).

Group-A

In this group the commonest cause of intestinal obstruction was intussusception (n=18). Other causes are given in Table-I. Male sex predominated in all. Seventeen (94.4%) cases of intussusception were of idiopathic variety and ileocolic type predominated. Secondary intussusception due to ileal duplication occurred in one case. In three female patients with intussusception, malrotation was also present. One patient presented after 14 days of acute onset of symptoms with prolapse of intussusceptum through the anus. Two patients presented with peritonitis secondary to perforation. Intussusception was reduced manually in 10 patients while resection and primary anastomosis was done in 5 patients and stoma after resection of non viable gut was made (ileostomy) in 3, as there was gross contamination of peritoneal cavity.

TABLE-I CAUSES OF INTESTINAL OBSTRUCTION IN INFANTS

Diseases	No. of Patients (%)	Male	Female
Intussusception	18 (58.00)	11	07
Inguinal hernia	03 (9.67)	02	01
Hirschsprung's disease	02 (6.45)	01	01
Malrotation	02 (6.45)	02	-
Postoperative adhesions	02 (6.45)	02	-
Mesenteric cyst	01 (3.22)	01	-
Inflammatory bands	03 (9.67)	03	-

The second common cause of intestinal obstruction in this particular age group was incarcerated inguinal hernia. There were 3 patients in this category out of whom, 2 were males. One patient presented after 5 days of incarceration with full blown peritonitis. Peroperatively gut was found gangrenous and therefore resection and anastomosis was done. In rest of the two patients, gut was healthy but congested. There were two cases of Hirschsprung's disease, one from either sex. Pelvic colostomy was done in these patients. Post operative adhesion was the cause of bowel obstruction in 2 cases. One of these patients had been operated two months earlier for multiple jejunal atresia, while the other patient was a case of penile agenesis and colostomy was performed elsewhere. In these patients conservative management did not work and therefore subjected to laparotomy and adhesiolysis.

Malrotation presented with intestinal obstruction in 2 patients who had history of recurrent episodes of bilious vomiting. Ladd's procedure was done in these patients. Mesenteric cyst, predisposed to bowel obstruction in a two months old male child. Patient was chronically ill and wasted. The cyst was located in mesentery of ileum. Resection and anastomosis was done. Anastomotic leakage later on compelled to ileostomy.

Inflammatory and anomalous congenital bands caused intestinal obstruction in 3 cases. Both male patients had inflammatory bands while in female it seemed to be congenital in origin where the bands were located between ascending colon and terminal ileum with entrapment of an intestinal loop between the band and mesentery. Adhesiolysis was sufficient in two while resection anastomosis was required in one.

Group-B

There were 58 patients in this group. Male sex predominated (n=37) in all cases except in tuberculosis patients, where female were exclusively involved. In this group the commonest cause of intestinal obstruction was worm infestation (n=17), followed by postoperative adhesions (n=11). Other causes are given in Table-II.

TABLE-II CAUSES OF INTESTINAL OBSTRUCTION IN CHILDREN (> 1 YEAR)

Diseases	No. of Patients (%)	Male	Female
Worms infestations (ascariasis)	17 (29.31%)	09	08
Postoperative adhesions	11 (18.96%)	06	03
Hirschsprung's disease	07 (12.06%)	05	02
Meckel's diverticulum	05 (8.62%)	03	02
Intussusception	04 (6.89%)	04	-
Mesenteric & omental cyst	04 (6.89%)	02	02
Tuberculosis	03 (5.17%)	-	03
Malrotation	02 (3.44%)	02	-
Inflammatory bands	02 (3.44%)	01	01
Inguinal hernia	01 (1.72%)	01	-
Lymphoma	01 (1.72%)	01	-
Appendicitis	01 (1.72%)	01	-

The mean age of presentation of patients with ascariasis was 6.1 years and the youngest patient was 1 1/2 year old. About 40% had history of intake of wormicidal drugs prior to presentation. Initial management was conservative, which was fruitful in 94% cases while operative intervention was required in only one patient where progress of disease compelled to surgical exploration. About 250 worms were evacuated through enterotomy. The second common cause of bowel obstruction in this series was post operative adhesion. Table-III shows causes for which surgery was performed previously. The mean age was 4.5 years. The conservative management was successful in 7 cases. Surgical exploration was needed in 4(36.36%) cases and adhesiolysis was done in 3 patients while in one patient, resection and anastomosis of small gut was also needed besides enterolysis.

TABLE-III CONDITIONS FOR WHICH PATIENTS WERE OPERATED PREVIOUSLY

Disease Condition	No of Patients	Percentage
Acute appendicitis	03	27.27
ERPT for Hirschsprung's disease	02	18.18
Midgut volvulus	01	9.09
Malrotation	01	9.09
Intussusception	01	9.09
Enteric perforation	01	9.09
Colonic perforation	01	9.09
Laparotomy for R. T. A	01	9.09

Meckel's diverticulum with band was present in 5 patients (mean age was 7.6 years). Entrapment of bowel loop was found in 3 cases. Volvulus of midgut was seen in another patient. Diverticulitis leading to peritonitis owing to perforation caused interloop adhesions in one patient. Intussusception was cause of bowel obstruction in 4 cases. Meckel's diverticulum was lead point in 3 cases and all were of ileoleal type. Resection and ileoileal anastomosis was done in former three cases with Meckel's diverticulum, while in one case of chronic intussusception manual reduction was successfully performed.

Three cases of abdominal tuberculosis were seen in the current series. One patient was taking drugs for pulmonary tuberculosis. Multiple perforations at terminal ileum and ileocaecal junction with interloop adhesions were found in one case. Repair of perforation with proximal ileostomy was done in this patient. In another patient, resection and anastomosis was possible whereas in the last patient, mesenteric lymph nodes were primarily involved and biopsy was taken. Malrotation was present in 2 cases. Inflammatory bands were encountered in two patients. Adhesiolysis was the procedure done. Mesenteric (n-1), omental cyst (n-1) and pseudomesenteric cyst (n-2) associated with hydrocephalus and ventriculoperitoneal shunt were the causes in 4 patients. Adhesiolysis was done in both

patients with pseudomesenteric cysts. In a patient with omental cyst a loop of bowel was entrapped around the cyst while mesenteric cyst of ileum was cause of mid gut volvulus in another patient. Both of these patient required primary resection and ileoileal anastomosis.

Right sided incarcerated inguinal hernia was cause of bowel obstruction in a male child who needed surgical intervention. Small gut was entrapped in hernial sac and was viable. Burkitt's lymphoma caused bowel obstruction in a 9 years old male child. Resection and primary anastomosis with postoperative chemotherapy was given to this patient. In an 8 years old boy, perforated appendix caused entrapment of an ileal loop in the pelvis that was found gangrenous at exploration. Resection of ileal loop with primary ileoileal anastomosis and appendectomy were done.

DISCUSSION

The pattern of intestinal obstruction has been extensively addressed in adult population that has revealed differences among the various geographical and ethnic groups. Even within a same locale, differences have been observed among different societies. For example obstructed inguinal hernia was the leading cause of bowel obstruction in a study conducted in JPMC,⁴ where majority of patients belonged to lower socioeconomic class while in a contemporary study from AKU Hospital⁵ the majority of patients of bowel obstruction were those of post operative adhesions. In the view of above observation, this must be reflected in the children as well. Local studies on this interesting topic are lacking. Intestinal obstruction, with its formidable complication, remains a major problem for surgeons. When the bowel is completely obstructed, the progress of disease is inevitable towards a fatal end unless the obstruction is relieved.⁶

Intussusception is a common paediatric surgical problem which usually presents with abdominal pain, bleeding per anum and mass in the abdomen.⁷ The condition occurs worldwide but recorded geographical frequencies are strikingly variable.⁸ We had 22(24.73%) patients. The male to female ratio was 2.1:1 which is comparable to most series reported. The male preponderance was not observed in the classical age group (4-9 months) where this ratio was almost equal. Intussusception beyond infancy is rare where it usually occurs secondary to some pathological lesion acting as leading point,⁹ as also observed in our study. Chronic intussusception is a well known entity and the patient presents with recurrent pain in abdomen and malabsorption.⁹ We had a child with chronic intussusception where none of the classical symptoms was present. A recurrence rate of 8-12 % has been reported,¹⁰ but we did not encounter any such case. Postoperative intussusception is another well known condition but we did not find any patient with this category as well.¹¹ One patient died in immediate postoperative

period due to septicemia, while the other patient in whom ileostomy had been made, died owing to severe stomal fluid loss.¹²

Intestinal obstruction due to worm infestation was the leading cause of bowel obstruction in children in our study. It primarily affects the children specially those who live under low socioeconomic condition and those with malnutrition and immune deficiency. The condition is highly prevalent in tropical and sub-tropical region.¹³ This study included 17(19.10%) patients who were admitted with the diagnosis of intestinal obstruction due to worms. Strikingly female preponderance was noted (53%). Enrique Villamizer et al also noted this female predominance.¹⁴ The mean age was 6.1years ranging from as early as 1 1/2 to 12 years. Majority, 16(94%), responded to medical management which included rehydration, placement of nasogastric tube and spasmolytic agent. Administration of oral gastrograffin for a wash out effect has been recommended.¹⁵ The morbidity is directly related to the worm burden in these patients, an excess of 60 worms may cause obstruction and it is about ten folds higher in fatal cases.¹⁶

Post operative adhesion formation within body cavity after surgery is a major clinical problem.¹⁷ This condition probably occurs more frequently in infants and children than in adults.¹⁸ Thirteen patients were admitted with a diagnosis of intestinal obstruction secondary to postoperative adhesions for various reasons, acute appendicitis being the commonest cause. Majority of patients with this lesion were from group B. The management of postoperative adhesions is controversial. Recommendations in the literature range from early and mandatory operation to prolong gastrointestinal decompression, intravenous fluids and electrolyte maintenance.¹⁹ Majority (53.84%), of the patients responded to conservative management while 6(46.16%) patients needed surgical intervention.

Bands and adhesions result in gut obstruction. The congenital bands, without known anatomic or embryologic origin, the cause of which is still obscure, may be one of the causes. It is postulated that remnants of the ventral mesentery of the small bowel may be a reason behind this.²⁰ Abdominal sepsis of any kind such as local or general peritonitis, gastroenteritis may lead to formation of inflammatory bands. We found congenital bands causing intestinal obstruction in 5 patients.

Meckel's diverticulum is the most common congenital anomaly of the gastrointestinal tract.²⁰ There were 5 patients (5.61%) with this condition who presented with various modes of bowel obstruction. None of the patients in group A had Meckel's diverticulum as a cause of obstruction. The ratio of Meckel's diverticulum between male and female is reported to be nearly equal in asymptomatic patients. Among symptomatic patients, the condition occurs more frequently in males. This ratio was 3:1 and is comparable to other studies.²²

There were 4(4.49%) patients with obstructed inguinal hernia. In our study the incidence of incarceration was more during first year of life (75%).^{23,24} Males were affected 3 times more than females, while it has been quoted to be ranging from 3:1 to 10 in favor of males.²⁵ The predominance of right side was well established. The early recognition of incarceration and prompt relief avoids complications. Incarceration may be tolerated in adults but in children unless treated, it rapidly progresses to strangulation with associated morbidity and mortality, which was 25%¹ with strangulated inguinal hernia. The actual incidence of intestinal resection necessitated by infarction in a hernia has been reported to be very low, ranging from 0 to 1.4%.²⁶

Tuberculosis is an important communicable disease worldwide.²⁷ It's incidence has fallen in developed countries but it remains a major health hazard in developing countries.²⁸ Three (3.37%) patients were admitted with this condition. All of them were female with mean age of seven years. The ileocaecal region and ascending colon were the predominant sites of involvement in 2(66.66%) cases.²⁹ Primary diagnosis of tuberculosis was made only in one (33.34%) who was a known case of pulmonary tuberculosis and was taking anti tuberculosis therapy. Unlike pulmonary tuberculosis, where precise diagnosis and effective treatment is possible without resorting to invasive means, abdominal tuberculosis does not lead to diagnosis and treatment as easily. Most of the currently practice, clinical, biochemical and microbial tests lack sensitivity and specificity to form firm basis of a reliable diagnosis. Female predominance had also been noted in other studies.³⁰

It is not unusual for a case of acute appendicitis to present with full blown intestinal obstruction. There are various reasons for this kind of bowel obstruction; paralytic ileus owing to generalized peritonitis, fibrinous adhesions and internal herniation, all are possible explanations.³¹

The overall mortality in this series was 7.86% (n -7) out of this 5(71.42%) were in the group A. In post operative adhesions, mortality was associated with the underlying condition. In a patient who had been operated for multiple jejunal atresia, suffered from severe short gut syndrome and intestinal obstruction added to his misery. Another patient where pelvic colostomy had been created for penile agenesis somewhere else further deteriorated and succumbed to septicemia. Long standing strangulated bowel obstruction carries often fatal outcome. Mortality in strangulated inguinal hernia was noted in an infant presented after 5 days of incarceration. Although resection of gangrenous bowel had been done, the patient died of septicemia. Enterocolitis of Hirschsprung's disease remains the major cause of significant morbidity and mortality. One patient of this condition died. Pseudomesenteric cyst, although a new entity has been noted after placement an indwelling ventriculoperitoneal catheter carries remarkable fatality. The comorbid

condition with gastrointestinal obstruction in a child whose immunity has already been exhausted, carries high mortality. One death took place with this condition.

The mortality with intussusception in the last century has decreased steadily, however deaths continue to be reported.¹² The interval between onset of symptoms and institution of treatment is of paramount importance. Late presentation with full blown septicemia was caused of death in one patient while in another patient where ileostomy had been made, mortality could be attributed to high output fistula. Patient expired after 2 month of initial surgery.

CONCLUSION

In conclusion, the cause and effect of bowel obstruction varies at different age. Intussusception was the leading cause of bowel obstruction in infancy (58%). In children older than 1 year, the predominant cause of bowel obstruction is worm infestation (29.31%) in this part of world. Intestinal obstruction secondary to postoperative adhesion is third to worm infestation in order of frequency. Adhesion formation after surgery is inevitable. The incidence of this type of obstruction is expected to rise as surgery becomes more common. In developed countries this is the commonest cause of bowel obstruction in children and adults. The mortality in children depends upon co-morbid condition. Prognosis often is based on age of the patient. Bowel strangulation is less tolerated in small children.

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SPECTRUM OF MECHANICAL INTESTINAL OBSTRUCTION

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MOHAMMAD AZAM MENGAL, SHEHZADA AMEER A. BABAR

ABSTRACT:

A prospective study of 116 cases of mechanical bowel obstruction was carried out in the Department of Surgery, Sandemen Provincial Teaching Hospital Quetta over a period of two years (May 99-Apr 01). The objectives of study were to find out causes of mechanical intestinal obstruction in this locality and to evaluate the morbidity, mortality and outcome of these patients and compare the results with other studies conducted within the country and abroad. The diagnosis was established on the basis of history, clinical findings, radiological examination and by exploration of abdomen and histopathological examination in selected cases. Abdominal tuberculosis was found to be the commonest cause in 29.3% of patients, followed by obstructed/strangulated external hernias in 27.5% of patients. Among the other causes bands and adhesions were found in 17.2% and volvulus of colon in 13.7%. Out of these 56% were having simple intestinal obstruction. 26 patients developed complications, mainly chest and wound problems. The mortality rate was 3.4%. Seventy five patients (64.6%) visited O.P.D. for follow up.

KEY WORDS: *Intestinal obstruction, Aetiology, Abdominal tuberculosis*

INTRODUCTION

Intestinal obstruction is a common surgical emergency. An estimated 20% of hospital general surgical emergency admissions are for the management of intestinal obstruction.¹ Changing pattern of the disease, from time to time, needs periodic studies to evaluate the aetiological factors and behaviour of the disease.^{2,3} Global as well as regional variation in the pattern of intestinal obstruction and changes in the disease pattern over the years are well documented in literature.^{3,4} Intestinal obstruction is a common surgical emergency that carries a favourable prognosis, if recognized and treated promptly by surgical intervention.⁵ The purpose of this study is to evaluate various causes and management of patient with intestinal obstruction.

PATIENTS AND METHODS

One hundred and sixteen patients of mechanical bowel obstruction were managed surgically in two years from

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May 1999 to April 2001 in the Department of Surgery, Sandemen Provincial Teaching Hospital, Quetta. Out of 116 patients, 90 were admitted through Accident and Emergency Department and 26 patients through Surgical O.P.D. All these patients were analysed prospectively. Diagnosis was based on history, clinical examination, supported by ultrasonography and radiological studies i.e. plain x-rays and contrast studies in selected cases and confirmed by exploratory laparotomy. Surgery was defined as urgent in cases where operation was performed within 36 hours of admission and semi-urgent in cases who, underwent surgical exploration after 36 hours. After complete initial assessment, investigations and resuscitation, all these patients underwent surgical exploration. Operative details and postoperative complications were recorded. All patients were followed for a minimum of six months. Postoperative mortality was defined as death within 30 days of admission and morbidity in terms of duration of hospital stay.

RESULTS

The age range of patients in this study was between 13

and 80 years; with a mean age of 46.5 years. Children below 12 years of age were excluded, because of separate paediatric surgical setup. Majority of patients were male, and the male to female ratio was 3:1. Table I shows the age and sex distribution.

Age	Male	Female	Total
13-20	04	02	06 (5.1%)
21-30	22	06	28(24.1%)
31-40	32	08	40(34.4%)
41-50	12	05	17(14.6%)
51-60	06	03	09(7.7%)
71-80	12	04	16(13.7%)

Table II shows the symptoms and signs at the time of presentation.

Symptoms / Signs	No.
Abdominal Pain	116 (100.0%)
Vomiting	96 (82.70%)
Absolute Constipation	80 (68.90%)
Relative Constipation	20 (17.20%)
Abdominal Distension	88 (75.80%)
Abdominal Tenderness	60 (51.70%)
Rebound Tenderness	30 (25.80%)
Shock	58 (50.00%)
Fever	30 (25.80%)
Weight Loss.	35 (30.10%)
Bleeding per rectum	08 (6.80%)
Irreducible and tender swelling in the inguinal, femoral and umbilical region	32 (27.50%)

The different causes of mechanical intestinal obstruction are given in Table III.

The most common cause of obstruction in the present study was abdominal tuberculosis, while external obstructed/strangulated hernias and bands/adhesions ranked second and third.

Table IV shows complications in urgent group. In semi-urgent group atelectasis occurred in 2 and wound sepsis in one.

DISCUSSION

The pattern of mechanical intestinal obstruction varies from country to country and even within different areas of the same country, because of development and health care facilities available in the area^{6,7}. The pattern of mechanical intestinal obstruction in this region, as documented from the present study, is slightly different from the studies conducted in various cities of Pakistan,^{8,9} but quite different from the studies conducted in western world.¹⁰ Intestinal tuberculosis was the commonest cause

TABLE-III AETIOLOGY OF MECHANICAL INTESTINAL OBSTRUCTION (N=116)

Aetiology	No.
A. Hernias	32 (27.5%)
- External	30
- Internal	02
B. Abdominal Tuberculosis	34 (29.3%)
- Stricture	24
- Mass	10
C. Bands and Adhesions	20 (17.2%)
- Post operative	17
- Inflammatory/Congenital	03
D. Malignancy	10 (8.6%)
- Small bowel	02
- Large bowel	08
E. Volvulus	16 (13.7%)
- Sigmoid	13
- Caecum	02
- Ileocaecal	01
F. Intussusception	02
G. Meckel's diverticulum	01
H. Mesenteric Infarction	01

TABLE-IV POST OPERATIVE COMPLICATIONS IN URGENT GROUP (N = 90)

Complications	No.
A. Pulmonary	08 (8.8%)
- Atelectasis	05 (5.5%)
- Pneumonia	02 (2.2%)
- Pulmonary Embolism	01 (1.1%)
B. Wound problems	10(11.10%)
- Wound sepsis	07 (7.70%)
- Wound dehiscence	02 (2.20%)
- Residual abscess	01 (1.10%)
C. Renal failure	01 (1.10%)
D. Ischaemic Heart Disease	01 (1.10%)

of mechanical intestinal obstruction in the present study, while strangulated/obstructed hernias were the second most common cause. This is slightly different from the studies conducted in Pakistan but a study conducted in the same department in 1996, showed the intestinal tuberculosis as the second common cause of obstruction.¹¹ From the data it is evident that the spectrum of bowel obstruction varies from time to time in the smaller geographical areas of the country. The higher incidence of intestinal tuberculosis in this area is most probably due to lack of health facilities especially diagnostic facilities in far flung areas of Baluchistan. The obstructed/strangulated external hernia is the second common cause in the present study, while it was the first common cause in the previous study also support the view of lacking health facilities. Adhesions and bands were found to be the third common cause of mechanical bowel obstruction in the present study, consistent with the studies conducted in

the country.^{12,13} In western and developed countries the commonest cause of intestinal obstruction are adhesions.¹⁴

CONCLUSION

The variation in the disease pattern from time to time are well documented and cause of bowel obstruction differ from country to country and in different parts of the same country. It is opined that periodic studies should be conducted to evaluate the changing pattern of mechanical intestinal obstruction and feed back the health authorities to focus attention regarding provision of health care in the far flung areas of the country with the objective to plan for more effective management and reduction in morbidity and mortality due to bowel obstruction.

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MANAGEMENT OF ECLAMPSIA BY DIAZEPAM INFUSION AND ORAL NIFEDIPINE

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ABSTRACT:

To assess the response of oral nifedipine and diazepam infusion in the management of eclampsia, a prospective study extending over a period of three years was carried out at Abbasi Shaheed Hospital, Karachi. One hundred and twenty one patients suffering from eclampsia during a three years period from January 1998 to December 2000 were included in this study. They were managed by diazepam infusion and oral nifedipine for the control of convulsion and blood pressure. A response of these two agents on convulsion, blood pressure, maternal and foetal outcome is analyzed.

During the three years period there were 121 eclamptics whereas there were 4,936 deliveries giving an incidence of 1:40.79 or 24.51 per 1000 deliveries. The fits were controlled with diazepam infusion in 117 patients (96.7%) while blood pressure was controlled with oral nifedipine in all the patients. There was a neonatal mortality of 7.3 per 1000 and maternal mortality of 1.4 per 1000. None of these were related to the treatment.

KEY WORDS: Eclampsia, diazepam infusion, oral nifedipine

INTRODUCTION

The incidence of eclampsia has decreased over the past two decades in the developed countries and hence reduced maternal and perinatal mortality.¹ The reduction in the incidence of eclampsia is only through antenatal care. However, eclampsia remains one of the important causes of maternal and perinatal mortality in our country where majority of gravid women seek advice from the traditional birth attendants (dais). A prospective observational study was conducted at Abbasi Shaheed Hospital, Karachi and response to diazepam infusion for the treatment of convulsions and oral nifedipine as a hypotensive agent is analyzed.

PATIENTS AND METHODS

One hundred and twenty one patients suffering from eclampsia during a three years period from January 1998 to December 2000 have been reviewed. These patients were managed by diazepam infusion as an

anticonvulsant and oral nifedipine for the control of blood pressure. A response to these two agents and maternal and foetal outcome are analyzed.

RESULTS

During the three years period from January 1998 to December 2000, there were 4,936 deliveries and one hundred and twenty one eclamptics, giving an incidence of eclamptics: deliveries: 1 : 40.79 or 24.51 per 1000 deliveries (Table-I). Although the incidence appears higher but it is because most complicated cases such as eclampsia are referred to tertiary care hospitals and not dealt anywhere else.

Year	Total deliveries	Total eclamptics	Eclamptics: deliveries	Per 1,000 deliveries
1998	1,315	35	1 : 37.57	26.61
1999	1,691	44	1 : 38.43	26.02
2000	1,930	42	1 : 45.95	21.76
Total	4,936	121	1 : 40.79	24.51

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Majority of the patients, 93 out of total 121 eclamptics (76.8%) developed convulsions in the antepartum period (Table-II).

TABLE-II TIME OF ONSET OF ECLAMPSIA (N=121)

Time of onset	Number of patients
Antepartum eclampsia	93(76.85%)
Intrapartum eclampsia	9(7.43%)
Postpartum eclampsia	19(15.70%)

The incidence of eclampsia was higher between ages of 21 to 31 years. Only 20 patients (16.52%) were booked cases of private hospitals and none was booked in our hospital. Even at those hospitals their visits were infrequent after 34 weeks gestation. Most of the patients developing eclampsia were primipara and the next highest incidence was found in grand multipara (Table-III).

TABLE-III PARITY OF THE PATIENTS (N=121)

Parity	Number of patients
Primipara	59(48.76%)
Second gravida	13(10.74%)
Third gravida	11(9.09%)
Fourth gravida	10(8.26%)
Fifth gravida	7(5.78%)
Sixth onwards	21(17.35%)

The period of gestation varied; six patients (4.96 %) had fits before twenty-eight week of gestation. They had no risk factor such as diabetes mellitus, essential hypertension, chronic renal diseases etc and 25 patients (20.67%) had post partum eclampsia. Maximum cases were between 37 to 40 weeks gestation and constitute 66 patients (54.54%).

Ninety one patients (75.24%) had less than six fits prior to admission and thirty patients (24.8%) had more than six fits. The blood pressure of the patients at the time of admission is shown in Table IV.

TABLE-IV BLOOD PRESSURE AT THE TIME OF ADMISSION (N=121)

Blood pressure	Number of patients
Systolic	
More than 200 mm Hg	60(49.6%)
Between 160-200 mm Hg	40(33.1%)
Between 140-160 mm Hg	21(17.3%)
Diastolic	
More than 180 mm Hg	40(33.1%)
Between 120-179 mm Hg	42(34.6%)
Between 100-119 mm Hg	39(32.23%)

Proteinuria was present in all except four patients (3.3 %) and oedema was present in all. Serum uric acid was raised in 106 patients (88.0 %). Liver function tests were altered in 10 (8.26%) eclamptics. Total platelet count was decreased in two patients (1.65 percent).

Once the patients were received, they were given injection diazepam intravenously in a stat dose to control the fits. Sixty patients (49.6%) required a stat dose of 20 mg and twelve (9.92%) required of 30 mg. In forty-nine patients (40.5%) seizures were aborted by 10 mg intravenous stat injection of diazepam. The diazepam infusion was then started (40mg in 500ml normal saline) and titrated against the convulsions. The fits were controlled in 117 patients (96.7%). Four patients, in whom, fits could not be controlled had twenty to twenty-five convulsions before being admitted to the hospital and had already sustained neurological damage as was evidenced by localizing neurological signs. They were kept on ventilator but all died.

The antihypertensive treatment was provided by oral nifedipine and the drops were introduced in the oral cavity by pricking the capsule via a syringe. One hundred and fifteen patients (95.04%) required 10 mg stat followed by the same dose whenever the diastolic blood pressure rose above 100 mmHg. Six patients (4.95%) required 20 mg as a stat dose. The aim was to maintain the diastolic blood pressure between 95 to 100 mm Hg. The blood pressure was controlled in all cases.

Sixty-six patients (62.81%) delivered spontaneously whereas thirty patients (24.8%) were induced by either prostin E2 vaginal pessaries or syntocinon infusion (according to the modified Bishop's Score) and delivered within 12 hours. Caesarean section was performed on fifteen patients (12.40%) including those of before 34 weeks of gestation (53.7%) and had poor Bishop's score. Eighty-five foetuses were born alive. There were twenty-seven (22.31%) intrauterine death and nine (7.44%) neonatal death.

Complications developed in twelve patients. Three patients developed acute renal failure. Out of these only one patient required haemodialysis, the rest improved with conservative treatment. One (0.83%) developed disseminated intravascular coagulation and died. Two had abruptio placentae. Four sustained cerebrovascular accident and all died. Two developed aspiration pneumonia.

There are seven maternal deaths. Two (1.66%) died soon after arrival. Four died (3.32%) due to intracerebral haemorrhage within twelve hours of hospitalization and one (0.82%) died due to disseminated intravascular

one(0.82%) died due to disseminated intravascular coagulation. The perinatal mortality in our study was 7.3 per 1,000 and maternal mortality was 1.4 per 1,000.

DISCUSSION

Occurrence of eclampsia associated with signs of pre-eclampsia (hypertension and proteinuria) varies widely from 1 in 100 to 1 in 2000 pregnancies. Although uncommon in developed world, it is still a major cause of maternal mortality and morbidity in developing world¹ as well as of perinatal mortality and morbidity. The incidence in our study is 24.51 eclamptics/1000 deliveries. This higher incidence is due to the fact the normal uncomplicated deliveries are conducted by dais/traditional birth attendants or carried out in peripheral government and private hospitals and only complicated cases are brought/referred to tertiary care hospitals.

The principles of management of eclampsia include that following the arrival of eclamptic patient and having taken care of her airway and breathing, it is prudent to abort seizures by intravenous stat injection and continue the same in the infusion form, treat hypertension by a rapidly acting drug, expedite the delivery after the patient is stable and prevent complications.

In our study, we have used diazepam as an anticonvulsant both in bolus and as an intravenous infusion and have succeeded in controlling fits in 96.7% cases. We have used it as it is safe and effective,² readily available, cheap and easy to administer. Nursing staff is aware of its use and side effects. It has a remarkable margin of safety³ and over dosage rarely cause severe respiratory tract or central nervous system depression. In addition to its anticonvulsant property in large doses it causes 15-20% reduction in blood pressure and vascular resistance.³ These effects are secondary to a reduction in left ventricular work and cardiac output.⁴ It also increases coronary blood flow.⁵ However, heavy and prolonged sedation of the patient increases the risk of aspiration pneumonia and other respiratory problems which may contribute to maternal mortality and morbidity.^{6,7}

To control the blood pressure in eclampsia we have used nifedipine and succeeded in controlling the blood pressure in 100% cases. It is cheap, easily available, easy to administer and effective agent.^{8,9} It is a potent hypotensive agent^{10,11} and has a fast and long standing action.¹² It selectively dilates arterial resistance.^{13,14,15} It dilates uterine vessels and hence improves uteroplacental blood flow and thus ensuring foetal well being.^{16,17} As it dilates cerebral blood vessels^{18,19} it relieves cerebral vasospasm which is responsible for eclampsia. It relieves renal vascular spasm and thus increases renal blood flow²⁰ and therefore reduces the incidence of acute renal failure. It has few maternal side effects and no

change in foetal heart rate is seen.²¹ Nifedipine is associated with fewer episodes of hypotension and causes less tachycardia as compared to dihydralazine.^{12,14,15} The only drawback of nifedipine is inhibition of uterine contractions but as most of the patients are already in labour or show good response to induction by local prostaglandin or oxytocin infusion, this is of little significance. Only 12.4% of our patients required Caesarean section and these were those who would have ended in LSCS even if not eclamptics.

The perinatal mortality in our study is 7.29/1000 deliveries and this included 27 intrauterine deaths and 9 neonatal deaths. All neonatal deaths were due to preterm deliveries. Eighty-five foetuses were born alive and did not show any signs of valium toxicity and did not require resuscitation other than usual. The maternal mortality in our study is 1.4 per 1,000 deliveries. Two patients died soon after arrival and four died within twelve hours of hospitalization. They were the patients who had more than twenty fits prior to admission and had localizing neurological signs. Thus most of the deaths are attributed to intracranial haemorrhage.²² One died due to disseminated intravascular coagulation. All these deaths were inevitable and none of them was treatment related.

The inference which could be drawn is that diazepam infusion and oral nifedipine are safe drugs as anticonvulsant and antihypertensive respectively. Most of the deaths due to eclampsia would have been prevented if the patients had sought antenatal care and pre-eclampsia would have been diagnosed in time. The perinatal mortality is also depressing as many of these foetus would have been saved if the patient had been brought to our hospital in time.

One of the causes of maternal and perinatal deaths is the failure of many eclamptics to be admitted in any nearby hospital. As each convulsion increases the insult to the brain, the long distance which a patient travels during this condition is very significant. Such patients should be admitted in any nearby hospital and should be transferred to the referred hospitals after their condition is stable. So the identified risk factors for maternal morbidity and mortality are late referral to a tertiary hospital, delay in hospitalization, lack of transport, unbooked status of the patient, high parity, a state of unconsciousness and multiple seizures prior to admission²³ and all were present in our study.

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ROLE OF SURGEON IN CHILDREN WITH TUBERCULOSIS

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ABSTRACT:

Tuberculosis is quite common in developing countries because of poverty and malnutrition. Extensive work has been done on pulmonary tuberculosis (PT) but local literature about extra pulmonary tuberculosis (EPTB) specially in children, is still lacking. This study was carried out to analyze the surgical cases of tuberculosis, specially in reference to system involvement and the results of treatment in children.

During one year period 48 children were managed. Most were above 2 years with male predominance. Lymphnodes were involved in 18 (35.5%), bones in 17 (35.4%), joints in 08 (16.66%), skin in 05 (10.41%), empyema thoracis in 03 (6.25%) lung abscess in 02 (4.16%), abdominal tuberculosis in 04 (2.08%), multiple abscess one (2.08%) and thyroid in one (2.08%) case.

Eighteen (37.5%) patients received three antituberculous drugs, 30 (62.5%) received four drugs. Three (6.25%) patients did not respond to conventional antituberculous drugs, so they were given second line antituberculous drug. Surgical procedures performed include thoracotomy in 04, costotransversectomy in 03, laparotomy in 03, pneumonectomy in 01, incision and drainage of abscess in 02 cases and thyroid lobectomy in one patient. Two patients died, one with empyema thoracis and lung abscess, died per operatively while the other with tuberculous abdomen died preoperatively.

KEY WORDS: Tuberculosis, child,

INTRODUCTION

Tuberculosis is common in developing countries because of poverty and malnutrition.¹ Any organ system of body can be affected and is difficult to diagnose.² Clinical features in extra pulmonary tuberculosis are variable depending upon organ involved e.g. abdominal tuberculosis may present with features of intestinal obstruction, peritonitis,³ bone and joint tuberculosis may present with pain, swelling and sinus formation.⁴

Extensive work has been done on pulmonary tuberculosis but literature on extra pulmonary tuberculosis in children is still lacking.⁵ On investigation, low hemoglobin, high ESR, positive MT and primary lesion in lung (on chest x-ray) are common findings. New diagnostic modalities like

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Bactec TB system, DNA probe and polymerase chain reaction may help in rapid identification of specific mycobacteria with high sensitivity and specificity.⁶

For most of the cases the treatment is medical but in certain complicated cases surgery is needed to prevent deformity or to save life. The purpose of this study is to analyze presentation, system involvement and the results of treatment of pulmonary and extra pulmonary tuberculosis in children, with special reference to role of surgery in diagnosing and reducing the morbidity and mortality.

PATIENTS AND METHODS

This is a prospective study carried out from January 1999 to December 1999 on 48 patients. The patients included were suspected cases of extra pulmonary tuberculosis, who did not give response to conventional antibiotics and biopsy proven cases of extra pulmonary tuberculosis.

Complete history was taken, which included age, sex, symptoms with duration, contact and vaccination. Complete examination performed and patients investigated specially for Hb%, ESR, diagnostic BCG chest x-ray, bone x-ray and biopsy. Culture for mycobacterium tuberculosis, CT scan and bone scintigraphy were done in selected cases.

RESULTS

Most of the children were above 2 years with male to female ratio 1.7:1. Bones were involved in 17 (35.4%) cases among which vertebrae were commonly involved. Other bones included long bones, sternum and phalanges. Lymph nodes were involved in 18 (35.5%) cases, among them cervical lymph nodes were the most common site. Joints were involved in 8 cases (16.66%) among them interphalangeal, ankle, hip, shoulder and elbow were nearly equally involved. Skin was involved in 5 cases (10.41%), sites were the hand, forearm foot and neck. Empyema thoracis seen in 03 (6.25%), lung abscess in 2 (4.16%) abdominal tuberculosis in 4 (8.33%). Two cases of abdominal tuberculosis presented with intestinal perforation while two other cases with intestinal obstruction. Thyroid gland found to be involved in 1 case (2.08%); this was an incidental finding on biopsy. In miscellaneous group para-vertebral abscess seen in 04 (8.33%), glueal abscess in one (2.08%). In 11 patients more than one site was involved. Laboratory investigation showed haemoglobin <10g% in 14 (29.16%), ESR >15 in 16 (33.33%), positive diagnostic BCG in 21 (43.75%). Biopsy done in 13 (27.08) case only and was suggestive of tuberculosis in all. Culture done in 4 cases, and none was positive. X-ray chest showed pneumonic changes in 05, milliary TB in 02, empyema in 03, pneumothorax in 02. Bone x-ray showed punched out appearance in 08, bony ankylosis in two, collapse of vertebral disc in 05, curvature changes in 02, para-vertebral haziness in 04, gibbous formation 05. C T scan done in 05 cases which confirmed and elaborated previous finding.

Antituberculous drugs (three) given to 18 (37.5%) four to 30 (62.5%) patients, second line antituberculous drugs given to 03 (6.25%) cases, who did not give response to conventional antituberculous drugs. For tuberculous lymphadenitis antituberculous drugs were given for 09 months, for bones and other soft tissue tuberculous drugs were given for 12 months and for complicated bony tuberculosis drugs were given for 18 months.

Two patients died one with empyema thoracis and lung abscess during surgery, while the other with abdominal tuberculosis, without any surgical intervention.

DISCUSSION

Tuberculosis is still a challenging problem for third world countries where there is poverty and malnutrition.⁷ It was thought that though pulmonary tuberculosis is common, and extra pulmonary tuberculosis is rare, but with this

prospective study it is clear that extra pulmonary tuberculosis is also common. History and clinical examination greatly helps in diagnosis. ESR, diagnostic BCG or MT are nonspecific and give little support in making diagnosis.⁸ X-ray chest some-times helps when primary lung lesion is present. Radiological test for local bony lesion also helps. Biopsy of affected tissues is another important investigation to reach the diagnosis.

Any organ of the body can be affected. Lymph nodes were the commonest site,⁹ among them cervical lymph nodes were more common. Second commonest site is bones, among them vertebral lesions were more common.⁵ A significant number of patients were also those in whom joints were involved. There were some cases with skin tuberculosis, empyema and TB abscess in soft tissues. TB intestine though relatively less common is a life threatening condition when present with perforation.⁹ Tuberculosis is sometimes an incidental finding in certain organs as tuberculosis of the thyroid gland in this study.

Duration of antituberculous regime when only lymph nodes were involved is relatively less as compared to TB of bone or viscera. Decision regarding surgical intervention depends upon the presentation of patient. In certain situations like intestinal perforation, empyema, large tuberculous abscess, surgery is the only solution and greatly helps in reducing morbidity and mortality. Tuberculosis of bones and joints is a crippling disease and early diagnosis and proper treatment is needed to prevent morbidity.¹⁰

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INTRA-ABDOMINAL TUBERCULOSIS

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ABSTRACT:

A retrospective, observational study was carried out at Surgical Unit-III, Bahawal Victoria Hospital, Bahawalpur, from February 2000 to July 2001, to find out the various modes of presentations of abdominal tuberculosis. A total of 72 patients of all ages and sex, fulfilling the inclusion criteria, were included in this study. These patients were divided into two groups: surgical group and conservative group. In operative cases, histopathological examination was also undertaken. Complications were also noted. Patients in both the groups were given standard anti-tuberculous regimen for 9 - months.

Out of these 72 patients, 19 were managed conservatively while surgery was undertaken in 53 cases. Most were females (male to female ratio, 1:1.7). Mean age of patients was 32.7 years. The patients who had pulmonary as well as abdominal tuberculosis were 39%. Most patients presented with abdominal pain (85%) and abdominal distension (82%).

The commonest operative finding was ileocaecal mass (32%), followed by the intestinal perforation (25%). The most common operative procedure undertaken was stoma formation (ileostomy/colostomy). The overall mortality was 9.7%.

KEY WORDS: *Intra-abdominal TB, Perforation, Ileocaecal mass.*

INTRODUCTION

Tuberculosis (TB) is an infectious disease that has plagued mankind since Neolithic times (8000 BC).¹ It was recognised as a contagious disease by the time of Hippocrates (400 BC), when it was termed as 'Phthisis' (Greek 'Phthinein', meaning to waste away).² During the 17th and 18th centuries, TB caused upto 25% of all deaths in Europe. In 1982, Robert Koch isolated the tubercle bacillus and established TB as an infectious disease.³ No effective treatment of TB was available during first half of 20th century. Streptomycin, the first antibiotic to fight TB, was introduced in 1946 and isoniazid became available in 1952.⁴ TB remains one of the top three infectious disease killers; every minute of every day, 15 people in the world develop and 6 people die from TB. This translates into 8 million cases each year, of which 2-2.5 million will die.⁵

Upto 8 million new cases of TB develop each year and annual mortality worldwide is estimated at 3 million, accounting for 7% of total worldwide mortality. More than 90% of these cases occur in developing nations that have poor resources.⁶ A 1998 international survey revealed that approximately one in 10 new cases of TB is a resistant strain, and one in 100 is MDR (Multiple Drug Resistance).^{7,8} Active TB is fatal for upto 50% of untreated patients. The incidence of this disease is on the rise, even across Europe and the USA. This increased incidence can partly be explained by coinfection with HIV, which increases the risk of developing TB 30-fold, as well as the emergence of multi drug resistant strains.⁹ Abdominal TB is common in Pakistan and other tropical countries and poses a significant health hazards.¹⁰ This study was undertaken to find out the various modes of presentations of abdominal tuberculosis

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PATIENTS AND METHODS

A total of 72 patients were included in this study which was carried out in Surgical Unit-III, Bahawal Victoria Hospital,

Bahawalpur during February 2000 to July 2001. The patients included were those with, constitutional symptoms like fever, malaise, weight loss, anorexia with evidence of pulmonary/lymphoid TB, those with vague abdominal symptoms like pain, distension, mass, vomiting etc. and histopathological proof of abdominal TB after exploration.

These 72 patients were divided into two groups: surgical group and conservative groups. Surgical group included all patients who presented with signs and symptoms of intestinal obstruction, peritonitis or mass. Histopathological confirmation was the mainstay in diagnosing TB.

Conservative group included all those who presented with vague abdominal and constitutional symptoms and required no definite surgical intervention. The diagnosis was supported by laboratory tests (like raised ESR, positive Mantoux test, positive polymerase chain reaction assay, histopathological evidence of extra-abdominal TB, any evidence of pulmonary TB, etc. Patients in both the groups were given a standard 9 months regimen of anti-tuberculous drugs. The patients, especially treated conservatively, were followed-up for change in clinical parameters.

RESULTS

Out of 72 patients included in this study, 19 were managed conservatively, while surgery was undertaken in 53 patients. Majority of patients were female (63%) with male to female ratio of 1:1.7. Mean age of the patients was 32.7 years (range 8 – 72 years). Clinical presentation is shown in Table-I.

Presenting feature	No. of patients	%
Abdominal pain	61	85
Abdominal distension	59	82
Fever	49	68
Vomiting	39	54
Abdominal mass	27	38
Peritonitis	21	29
Weight loss	21	29
Subacute intestinal obstruction	09	13

Signs of intestinal obstruction, i.e., abdominal distension, vomiting, absent or exaggerated bowel sounds were present in 19 cases (26.4%) and raised ESR was found in 63 (88%). Chest radiographs were carried out in all cases and 28 (39%) had evidence of pulmonary TB. Multiple air fluid levels were present in 27 (38%) patients. PCR (polymerase chain reaction) assay was done in only 3 (4%) cases of suspected abdominal TB, 2 of them were treated conservatively. PCR assay was positive in all three cases.

Nineteen patients (26%) were managed conservatively with standard 9 months regimen of ATT (Anti-tuberculous therapy). Surgical intervention was performed in 53 (74%) patients followed by ATT. The most common operative finding was ileocaecal mass (32%) whereas perforation was the second most common finding (Table-II).

Operative findings	No. of patients	%
Ileocaecal mass	17	32
Ileal perforation	13	25
Adhesions/bands	9	17
Pelvic peritonitis	6	11
Stricture	4	08
Tubercles on viscera	24	45
Weight loss	21	29
Subacute intestinal obstruction	09	13

Lymphadenitis and tubercles on viscera like intestine, mesentery, peritoneum were present along with other findings. Various surgical procedures undertaken in these 53 patients are shown in Table III.

Procedure Performed	No. of patients	%
Ileostomy/Colostomy	11	21
Adhesiolysis	9	17
Right hemicolectomy	8	15
Primary closure of perforation	7	13
Resection & anastomosis	6	15
Strictureplasty	4	08
Biopsy of tubercles	24	45

Histopathological evidence of TB was positive in 29 (55%) cases. The overall mortality was 9.7% (n-7, five patients presented with perforation of bowel and 2 had intestinal obstruction).

DISCUSSION

Tuberculosis is an ancient infectious disease responsible for significant morbidity and mortality worldwide^{12,13} and is most common in Central and South America, the South Pacific and Western Europe. Overall incidence rates are twice as high for men as for women in the USA and most TB cases are found in the 25-44 years age group.^{12,14} In 1993, WHO declared TB to be a global emergency, the first and only disease to be recognized as such.⁹

Roughly 80% of TB cases involve pulmonary system though TB can involve any organ system. Miliary TB can occur in any individual organ, in several organs, or throughout the whole body, including the brain.^{15,16} Abdominal TB along with pulmonary TB is very common in developing countries of South Asia and is commonly encountered by the surgeons in Pakistan and other tropical countries.¹⁷ Abdominal TB mimics clinically and radiologically some other conditions

like Crohn's disease.¹⁸ The incidence of pulmonary TB along with abdominal TB is variable; it is 39% in the present study, which is comparable to 21% documented in another study carried out in Pakistan,¹⁹ though the sex distribution remained different (i.e., male to female ratio of 1:1.7 versus 1:2 respectively).

About 85% patients presented with abdominal pain whereas 82% had abdominal distension. These results are comparable to those documented by Al-Quorain et al.²⁰ In 74% patients exploration was done; the most common finding was the presence of typical tubercles on various viscera which strongly proved the presence of the intra-abdominal TB; 32% had ileocaecal mass, whereas 25% had ileal perforation. These perforations represent the changing behaviour of the disease and late recognition of the signs and symptoms by the patients. Associated lymphadenitis was found in 59% cases. The typical straw-coloured fluid was present in only 4% patients, along with widespread tubercles on various viscerae and lymphadenitis; these patients presented with signs and symptoms of peritonitis. Three patients presented with sign and symptoms of acute appendicitis but on exploration, appendices were found to be normal. Two had ileocaecal mass and one had enlarged mesenteric lymph nodes. The most commonly involved segment of gut was ileocaecal junction (36%), followed by terminal ileum (25%), whereas according to Fakhar et al,¹¹ the terminal ileum was involved in about 50% of the cases followed by the ileocaecal junction. These differences can be explained due to geographical distribution. The perforation of gut secondary to abdominal TB varies in different studies and similarly mortality rates in these cases have been described from 8% to 19.4%.^{20,21} But in the present study it was found to be 7%.

As the incidence of TB is increasing once again especially due to MDR strains and HIV patients, emphasis must be directed to the early recognition and treatment. As intra-abdominal TB can mimic various surgical conditions, surgeons living in the endemic areas must direct their attention to the early recognition and proper treatment of the intra-abdominal TB.

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SPINAL ANAESTHESIA FOR CAESAREAN SECTION

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ABSTRACT:

A prospective, non-comparative study was carried to evaluate the role of spinal anaesthesia for caesarean section. A total of 50 patients were included in the study. Factors which were taken into account were cost-effectiveness, apgar score of newborn and morbidity associated with spinal anaesthesia in pregnant patients. Study concluded that spinal anaesthesia does not deserve to remain in doldrums in modern obstetric practice.

KEY WORDS: *Spinal anaesthesia, caesarean section, anaesthetic techniques.*

INTRODUCTION

Introduction of local anaesthetic agent into the subarachnoid space to effect sensory, motor and sympathetic blockade has been in vogue for years. It has been effectively utilized for providing analgesia for vaginal delivery, for caesarean section and surgery on perineum as well.

Subarachnoid block has an edge over general anaesthesia when used in obstetric practice. Absence of placental cross over of drug means that neonate is born with good apgar score and is not sedated. Suckling can also be established soon after delivery and this may explain a higher frequency of successful breast feeding after regional anaesthesia than after general anaesthesia.¹ Similarly there is maternal safety against the hazard of aspiration of gastric contents leading to pneumonitis, pulmonary edema and death. A successful regional anaesthesia effectively suppresses many of the pain mediated stress responses to surgery such as rise in blood pressure, heart rate and increase in plasma concentrations of catecholamines, cortisol and glucose. The net advantage is that placental perfusion is maintained. It is cost effective, as lesser number of drugs are required, making it relatively inexpensive. Spinal anaesthesia is considered appropriate for virtually all cases, except where there is raised intracranial pressure,

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sepsis at injection site and known allergy to local anaesthetic drugs.

Local anaesthetic drug can be used alone or in combination with adjuvant drugs.² Hyperbaric bupivacaine is the agent most commonly used and it avoids prolonged motor block and duration of anaesthesia is found appropriate for caesarean section. The onset is quick with in 7 to 8 minutes, whereas maximum motor block and maximum motor dermatome level are achieved within 8 to 10 minutes. For caesarean section T 4 dermatome level is required due to referred pain from the traction on peritoneum and uterus. Hyperbaric bupivacaine has longer duration of action and also produces post-operative analgesia for subsequent 1 to 2 hours.

With any form of spinal block, anaesthetist should be fully prepared to administer general anaesthesia, in case the need arises. Spinal block may produce hypotension, intrapartum nausea and post dural puncture headache. Most of these symptoms are manageable with pre-operative fluid load, use of anti-emetics, avoidance of ergot derivatives and use of appropriate 25 to 26 gauge fine needle for spinal puncture.

PATIENTS AND METHODS

A prospective study to evaluate the role of spinal anaesthesia for caesarean section was carried out to find out cost effectiveness, post-operative recovery, apgar

score of neonate and morbidity associated with spinal block. A total of 50 patients were recruited in the study from private hospitals. An informed consent was obtained for the procedure the procedure had been explained to the patient. Spinal block was used both for emergency and elective caesarean section. In cases of elective caesarean section care was taken to preload the circulation with crystalloid solution. The spinal needle used for the procedure was of 25 gauge. The local anaesthetic agent used was hyperbaric bupivacaine. The quantity of drug injected varied between 1 to 1.6 ml. Spinal puncture was carried out in right lateral decubitus and in sitting position. All aseptic measures were strictly observed. After successful spinal tap, and injection of drug patient was immediately turned back into supine position with a wedge underneath to avoid aortocaval compression. Duration of operation was between 30 to 45 minutes. Apgar score of baby, intrapartum and post-operative morbidity associated with spinal block was specially noted. For post dural puncture headache patients were visited daily and asked specifically about the presence and severity of headache.

RESULTS

Table-I shows the indication of caesarean section. In 20% cases emergency caesarean section was carried out for fetal distress. In 8% cases there was an ultrasound evidence of intrauterine growth restriction. Spinal block is considered more suitable in such cases, especially as there is no neonatal depression due to cross over of anaesthetic drugs. In 20% patients the indication of caesarean section was mild to moderate pregnancy induced hypertension, along with other obstetric complications. In these patients coagulation screen was not carried out. In the above study, 5 patients had diabetes mellitus and were on insulin therapy. Early mobilization and early initiation of oral intake were the main advantages observed with spinal block.

TABLE-I INDICATION FOR CAESAREAN SECTION (N=50)	
	Number of patients
Fetal distress	10(20%)
IUGR	4(8%)
Breech presentation	10(20%)
Cephalo pelvic disproportion	10(20%)
Previous cesarean section	5(10%)
Pregnancy induced hypertension	10(20%)
Precious pregnancy	1(2%)

Table-II shows the intrapartum complications with spinal anaesthesia. 10% patients had an episode of intraoperative nausea, which responded to intravenous injection of metoclopramide, along with the correction of fluid balance. Hypotension was found associated with spinal block and was observed in the beginning of the

study. In subsequent cases care was taken to adequately preload the circulation with crystalloid, though its role is still controversial. The procedure could not be completed in 3 patients and general anaesthesia was administered to carry out caesarean section. Positioning of patient is considered important for successful sitting of spinal tap. Gravid mothers have usually some sort of difficulty in both sitting and lateral position.

TABLE-II COMPLICATIONS ASSOCIATED WITH SPINAL BLOCK (N=50)	
Complications	Number of patients
Intrapartum nausea & vomiting	5(10%)
Hypotension	12(24%)
Post dural spinal headache	2(4%)
Failed spinal tap	3(6%)

Table-III shows the apgar score of babies. None of the babies in the above series needed admission in nursery. Spinal anaesthesia also leaves the anaesthetist to give necessary attention to the baby.

TABLE-III APGAR SCORE OF NEW BORN	
	Number of patients
Apgar score 7 – 10	45(90%)
Apgar score 4 – 6	5(10%)
Apgar score < 4	0(0%)

DISCUSSION

Spinal anaesthesia has recently gained more popularity for caesarean section. Morbidity associated with general anaesthesia, rising cost of drugs and their special requirement for specific temperature, use of multiple drugs are the multiple factors which make spinal anaesthesia more attractive to both anaesthetist as well as obstetrician. Not only the patient is awake, her airway is also safe. Her pain sensation is abolished which facilitates caring for baby, early initiation of breast feeding as well as early mobilization of mother. Spinal block is sometimes criticized for delay in terms of time management. With a little experience the technique is as quick as giving general anaesthesia. Spinal block is also associated with lesser amount of surgical haemorrhage. The cost effectiveness of spinal block is unquestionable. Use of a single ampoule, a spinal needle in contrast with multiple drugs and multiple injections with their own inherent risks, are some of the reasons for the popularity of spinal block. Necessary preparations for spinal block include antacids, intravenous access, wedge, sucker, an assistant who can give cricoid pressure and full instruments for general anaesthesia. In the above study the procedure could not be completed in 3 patients and they had to be given general anaesthesia. Pregnant women need smaller volume of

spinal anaesthetic solution in order to obtain given height of block. For caesarean section, anaesthesia should extend to the level of T6 to be completely successful. Usually around 1.6 ml of hyperbaric solution is required to achieve the desired level of anaesthesia. The procedure can be started within 6 to 8 minutes. Preloading of circulation is considered beneficial as it decreases the incidence of hypotension in mother. Hypotension can be treated with use of intravenous fluids and use of vasopressor drugs. Hypotension, if persists in mother for long period result in low apgar score of baby. After delivery of the baby syntocinon is the drug of choice as it decreases the incidence of maternal nausea and vomiting.⁹

The incidence of post dural spinal headache depends upon the numbers of unsuccessful taps and gauge of spinal needle. Spinal needles with a pencil point tip and

with a finer gauge are associated with a lower incidence of post dural puncture headaches. In the above study we did not observe headache in our group of patients, reason may be the successful block in a single tap and use of 25 gauge spinal needle. The above study concluded that spinal block should be the anaesthetic procedure of choice for caesarean section.

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ENTEROCUTANEOUS FISTULA

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ABSTRACT:

A retrospective study was carried out at Hamdard University Hospital and Saifee Hospital, Karachi to compare the results of conservative management with operative treatment for enterocutaneous fistulae. A total of 13 patients, 5 male and 8 female (age range 39 to 75 years) were managed from September 1997 to July 2001. Fistulae drain less than 500 ml per 24 hour were 5 in number. Those have discharge more than 500 ml per 24 hours were 6 in number. There were 2 cases who had complex fistulae having more than one openings. Eight patients were managed, conservatively with central line and total parenteral nutrition. 2 died with a mortality of 25%. Five patients were operated, 4 cured and 1 died with a mortality of 20%. The overall mortality was 22.5%.

Enterocutaneous fistula is a complex surgical problem. Once distal obstruction is ruled out conservative treatment is advised which showed a mortality of 25% in this study. Once patient showed no improvement on conservative line of management in two weeks time or there is distal obstruction surgical intervention performed. The mortality with this mode of management was 20%.

KEY WORDS: Enterocutaneous fistulae, parenteral nutritional, complex fistula.

INTRODUCTION

Enterocutaneous fistula is a complex entity and despite the advancement in medical sciences, it still has significant morbidity and mortality.^{1,2} The mortality in 1950's was around 50%.³ With the introduction of central line and total parenteral nutrition, correct evaluation, maintenance of electrolyte balance, skin care and prolonged respiratory support and advances in antibiotic therapy, the mortality has significantly dropped down to 20% in year 2000.

Enterocutaneous fistulae in the West are mostly due to inflammatory bowel disease, abdominal trauma, neoplasm, radiotherapy and intestinal lesions during the surgical procedure. Enterocutaneous fistulae lead to leaking of intestinal contents thereby resulting in electrolyte imbalance and malnutrition. The cause of death in these cases is malnourishment and sepsis.^{4,5}

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The purpose of this study is to describe our experience of management of enterocutaneous fistulae.

PATIENTS AND METHODS

A retrospective study on patients with enterocutaneous fistulae was carried out at Hamdard University Hospital and Saifee Hospital, Karachi from September 1997 to July 2001. In this study patients with spontaneous enterocutaneous fistulae secondary to abdominal tuberculosis, post operative complications, inflammatory bowel disease and adult Hirschsprung's disease and typhoid fever were included. Cases with established biliary and pancreatic fistulae were excluded.

Those fistulae which has a discharge less than 500 cc/24 hour were labeled as simple fistulae and those which has a discharge more than 500 ml/24 hour labeled as high output fistulae, whereas complex fistulae were those which had more than one opening.

Criteria for malnourishment were clinical examination and serum albumin. Serum albumin less than 3 gm/dl, and loss of body weight more than 10% were other criteria of

malnourishment. Patients with serum albumin of less than 2 gm/dl and loss of body weight more than 15% are labeled as severely malnourished.^{5,6,7}

The treatment of enterocutaneous fistulae was given after thoroughly assessing the cause of fistulae, nutritional status of patient and presence or absence of infection. Majority of these cases has central line placed via subclavian routes, adequate skin care using zinc oxide paste and collection of effluent via appropriate colostomy bag. In majority of cases when there was no distal obstruction the patient responded well to conservative line of management.

The surgical alternative was chosen in cases, which did not respond well to conservative treatment with total parenteral nutrition and maintenance of electrolyte balance for 6 weeks. The patients were followed after discharge and considered to be disease free when they fulfill the criteria of no discharge and skin remained closed in the subsequent follow-up.

RESULTS

There were a total of 13 patients (5 male and 8 female) with ages ranging from 39 years to 75 years and a mean age of 57.6 years. The fistulous site was only small intestine in 9 cases and large intestine in 4 cases. There were two complex fistulae one had 2 openings and other had 3 openings.

Eight patients were offered conservative line of management with central line and TPN for 4 – 6 weeks. Fluid, electrolyte and acid base balance done meticulously and special care were given to fistulous site with colostomy bags and zinc oxide paste. Six patients were cured and 2 died. Five patient were operated one of whom died. The only patient who died had complex fistulae with more than one opening.

Abdominal tuberculosis	1
Operated for gynaecological procedure	2
Adult Hirschsprung's disease	1
Typhoid enteric perforation	1
Total	5

Those patients who were submitted to surgery had following diagnosis (Table-I).

Four of these patients had excision of the bowel and end-to-end anastomoses; one had an intestinal bypass which excluded the diseased segment. Fistulectomy and resection of the diseased segment was performed four months later.

DISCUSSION

The patients with enterocutaneous fistulae were referred to us after various clinical and surgical failures. They presented in malnourished state and sepsis. The success of the treatment depends on approach of all these problems by a trained multidisciplinary staff. The multidisciplinary group consists of surgeon, physician, specialized nurses, nutritionist and psychologists. In the treatment of enterocutaneous fistulae following criteria has to be established.

- Define origin of the fistulous tract by fistulography.
- Exclude presence of sepsis.
- Evaluate nutritional state and start on total parenteral nutrition.
- Apply collecting bag on fistulae to collect fistulous contents.
- Achieve accurate fluid and electrolyte balance.
- Take proper care of the skin using colostomy bags and zinc oxide paste etc.
- Rule out distal obstruction.

Once distal obstruction is ruled out, the fistulae were classified into simple or complex fistulae and according to the total output per 24 hours into low and high output fistulae. Central venous catheterization is done and TPN started reversing the state of malnutrition and hypercatabolization. The spontaneous healing of ECF treated exclusively with TPN usually occurs within a period of six weeks.^{8,9,10} The response to conservative treatment with parenteral nutrition is expected in those patients who presented with simple fistulae, no distal obstruction and no total dehiscence of anastomoses.^{10,11,12}

Special attention should be given to skin care around enterocutaneous fistulae. We used colostomy bag and adhesive paste, which gave us dual advantage, firstly helped to prevent skin excoriation and secondly helped in maintaining accurate intake output balance.

When there is no improvement in ECF inspite of adequate treatment with TPN and control of sepsis surgical treatment is indicated. The kind of surgical treatment is dependent on type of fistulae, general condition of the patient and condition of the surrounding skin. For a fistulae with discharge less than 500 cc/24 hours, with good general condition of the patient and without severe lesions of skin and abdominal wall the fistulectomy and excision of the compromised segment and primary end-to-end anastomoses is correctly indicated and gives good results.^{8,13}

In cases of complex fistulae, with discharge more than 500 cc/24 hours with severe skin and abdominal wall lesions, we adopted laparotomy with intestinal bypass excluding the disease segment allowing alternative intestinal transit and significantly decreasing the fistulous discharge. The procedure is quick and anastomosis is performed in relatively healthy intestine with less probability of dehiscence. This technique allows re-introduction of oral feeding, control of fistulous drainage and early hospital discharge. Fistulectomy and resection

of the affected intestinal segment are to be made in second stage, 4-6 month after first operation.

In conclusion following approach is suggested for patients with enterocutaneous fistulae. Simple fistulae with low or high output with the exception of distal obstruction and without abdominal sepsis, clinical treatment with TPN for 6 weeks, usually gives success rate of around 70 – 75%. If this approach is not successful fistulectomy followed by resection of affected segment and primary anastomosis is indicated. For complex fistulae with malnutrition the best option is TPN and control of sepsis followed by laparotomy and bypass of affected segment, the definite operation could be performed 4-6 months later.

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PENILE FRACTURES AND ACCOMPANIED URETHRAL INJURIES

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ABSTRACT:

A retrospective study of penile fractures treated at Bolan Medical College / Sandeman Provincial Teaching Hospital, Quetta, during the period 1994 to 2000 was carried out. Most of the patients treated (n – 20) were of younger age group. Common causes were blunt trauma during sexual intercourse, masturbation, unconscious nocturnal penile manipulation and fall on to an erect penis. Attempt should be made to introduce foley's catheter to relieve the retention before carrying out proper surgical repair.

KEY WORDS: *Penile fractures, urethral injuries.*

INTRODUCTION

Penile fracture is a rare entity and frequently occurs in younger age group.¹ At presentation, the patient has penile pain and hematoma.² It comprises of disruption of the tunica albuginea of one or both corpora cavernosa following injury to an erect penis.³ The most common causes are blunt trauma during sexual intercourse, masturbation, unconscious nocturnal penile manipulation or a fall on to the erect penis.⁴ Total avulsion of the penile skin with cavernosal injury may occur from machinery injuries.⁴ The reason why rupture of the albuginea occurs only during erection lies in the fact that, in the normal flaccid condition the penis occupies a position, which is well protected against blows or blunt traumas.⁵ During erection, the tunica albuginea thins from 2 mm to 0.25 - 0.5 mm and thus it is more susceptible to traumatic tearing.⁶ Penile fracture associated with urethral injury is even uncommon and accounts for 10 to 20% of reported cases. Penile amputation is seen occasionally in few lunatic patients and the penis can be surgically replaced by micro surgical techniques.⁷ Prompt diagnosis and immediate surgical repair allows for earlier resumption of sexual activity and gives a lower incidence of penile chordee secondary to blood clot absorption and fibrous tissue formation.² Surgical correction is mandatory for the prevention of late sequelae following injury especially in cases associated with urethral

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rupture. Obstructing rings placed around the base of the penis may cause gangrene and urethral injury.⁸ These objects must be removed without causing further damage. At times the corporeal tear is very large and in patients with concomitant lesions involving the urethra, surgical repair can become difficult and require particular technical shrewdness. This study describes our experience of management of this rare condition.

PATIENTS AND METHODS

Thirty cases of penile fractures were treated during the period 1994 – 2000 and among these ten cases had associated urethral injuries. Majority of cases were referred from the rural areas of Balochistan and Afghanistan. Patients were admitted as emergency cases between 2 and 72 hours following the trauma. History revealed that sexual intercourse was the commonest etiology (6 cases), followed by masturbation (2 cases) and a fall onto the erect penis as a consequence of heavy alcohol intake in one patient. One lunatic patient had injured his penis himself. We were not able to identify the site of injury by simply palpating the penis, as has been reported in the literature by others authors, in any of our patients. Among ten cases, 3 cases had sever hematoma and shaft deformity so that immediate cystoscopy and explorative surgery were done without any further investigation. In all patients, blood loss from the external urethral meatus was present and they complained of the inability or difficulty to urinate since the time of the

accident. An attempt to introduce foley's catheter was made to relieve the retention before the proper surgical repair. It successfully passed only in three patients because of partial urethral injury. In the remaining 7 patients, presenting a more circumscribed hematoma, the site of injury i.e. the lesion in albuginea was determined by means of penile ultrasound, ascending urethrogram and also supported by contrast-enhanced cavernosography in few doubtful cases. Preoperative cystoscopy was however performed to assess the site and extent of urethral injuries followed by operations via a circumferential sub coronal incision in all cases. After evacuation of the hematoma with the help of heparinized normal saline solution, the lesions of albuginea were identified and closed with a 4/0 PDS interrupted suture. In two cases, the corpus-spongiosum and urethra were partially severed. Repair was performed using a 6/0 polyglactin sutures. In one case the lesion was very large and reconstruction of the corpora was carried out by means of a split thickness dermal graft harvested from the left thigh. A 14 Fr. foleys catheter was placed during surgery and repair of urethra done with absorbable sutures in order to prevent inadvertent urethral damage and to prevent the possibility of future strictures. Catheters were removed 24 hours after the operation in cases of simple urethral contusion. In those patients in whom the urethra was reconstructed, the catheters were removed after 7 days. Third generation cephalosporin antibiotic was administered perioperatively as prophylaxis in all cases.

RESULTS

All patients referred have heard a characteristic "cracking sound" during intercourse followed by immediate loss of erection, onset of severe pain and swelling of the penis. The subsequent penile hematoma which formed, caused penile deformity and discoloration, which varied in severity from patient to patient. Follow-up ranged from 3 months to 2 years (average 1.7 year). There were no significant postoperative complications and the patients were discharged from 3 days following operation. Six patients have normally conformed penis on erection with optimal functional and aesthetic result whilst two had a mild curvature due to residual fibrosis. These two patients underwent surgery 24 and 48 hours after the trauma, one has a follow-up, which is too short to be significant (2 months). All patients were potent as evidenced by means of pharmacological (prostaglandin) induced erection and as patient himself reported. Urethrography and cystoscopy demonstrated an excellent urethral healing at 8 months and 2-year follow-up after urethral reconstruction.

DISCUSSION

In a literature review approximately 200 cases of penile fracture have been reported and 10% of these had an associated urethral injury.^{14,15} In this series, it is 33.3% as combined peno-urethral injuries. Penile fracture, also called penile rupture, is the tear of the tunica albuginea of

the erect penis during blunt injury. The primary mechanism of penile rupture is intercourse, usually when the penis slips out of the vagina and is thrust against the perineum or symphysis pubis.^{16,17} The patient reports a "popping sound" followed by severe pain, swelling, and immediate detumescence.¹⁸ The penis deviates toward the uninjured side. Generally, only one corporal body is affected, but blood at the meatus or hematuria suggests urethral/spongiosum involvement.¹⁸ In rare cases where the diagnosis is in question, cavernosography and ultrasound have been used. This injury requires immediate operative repair to avoid long-term side effects such as penile deformity, infected hematoma, and impotence.⁶ If signs such as blood at the urethral meatus or scrotal hematoma are present, a retrograde urethrogram needs to be performed to evaluate the urethral injury. Diagnosis is generally made from the history and physical examination. However, at times it may be difficult especially if urethral injury is not suspected or the penile hematoma is limited, because hematoma is not pathognomonic for corpora cavernosa rupture. Preoperative cavernosography must be strongly recommended in cases with limited hematoma or penile skin ecchymosed because the extent of the lesion in corpora cavernosa is not always comparable to physical signs, as mentioned above.⁹ In fact we observed one case of urethral rupture and two cases of a large albuginea tear (more than 2 cm.) with only a limited hematoma and slight penile swelling. Ultrasound examination can show the albuginea defect when the subcutaneous edema and the hematoma are limited. When a urethral rupture is suspected following urethral bleeding or an inability to urinate, then a preoperative cystoscopy examination is mandatory and allows one to make the correct diagnosis in all cases with minimal invasion.¹⁰ Unlike urethrography, this maneuver can be performed during the operation with a sterile technique thus avoiding surgical field contamination and a waste of time.

We recommend immediate explorative surgery in the presence of evident physical signs of major hemorrhage and penile deformity because ultrasound diagnosis is more difficult in these patients due to the pronounced subcutaneous blood embedding and edema.¹¹ In these conditions a corporeal albuginea tear is present in 100% of patients. Prompt surgery gives better aesthetic and functional results, as evidenced by our study. Experience with penile and urethral surgery is important when a lesion is severe or associated with urethral injury. In fact, surgical skills avoid postoperative complications such as shaft curvature, corporal narrowing or urethral strictures.^{12,13} When a corporal lesion is associated with urethral injury great care must be taken to avoid contact between the severed spongy tissue and corporal tissue in order to obviate the risk of post-operative impotence as a consequence of a spongio-cavernous fistula.¹⁰

In conclusion patients with penile injury should be carefully evaluated and treated according to laid down guide lines. Planned surgery gives better aesthetic and functional results. Such injury requires immediate assessment and operative repair to avoid long-term side effects such as penile deformity, infected hematoma, and impotence.

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USE OF PEDICLED OMENTAL GRAFT AS AN AID TO VESICOVAGINAL FISTULA CLOSURE

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ABSTRACT:

To determine the role of omental graft in the outcome of vesicovaginal fistula (VVF) repair, a prospective study was conducted from June 1997 to June 2001 in Obstetrics & Gynaecology Department of Bahawal Victoria Hospital, Bahawalpur. Twenty six patients with VVF were included in the study. All were having the symptoms of uncontrolled passage of urine vaginally. Thirteen patients were having history of prolonged obstructed labour with cephalic presentation. Six patients developed this complaint after caesarean hysterectomy and 7 patients after failed earlier repair. All the fistulae healed successfully and no recurrence was seen with the technique of pedicled omental graft (POG).

KEY WORDS: *Vesicovaginal fistula, Transabdominal approach, Omental pedicle graft.*

INTRODUCTION

Vesicovaginal fistula is an abnormal communication between the bladder and the vagina that allows continuous flow of urine through the vagina. Most of the vesicovaginal fistulae are caused by either obstetric or surgical trauma. VVF was considered a hopeless condition before the 17th Century. Practical efforts were aimed at making receptacles to catch urine, thus making the life of the afflicted woman more endurable.¹ VVF often results in extreme distress for both the patient and physician. Historically birth trauma accounted for most vesicovaginal fistulae in many under developed nations with limited medical resources.² Fortunately, modern obstetric care has made obstructed labour a relatively rare cause of VVF.³

The history of surgical treatment of obstetric fistulae is fascinating and instructive. Before the efforts of surgeons such as James Marion Simms (mid to late 1800s) urinary fistulas were generally considered to be inoperable, with the affected individual doomed to a life of incontinence.^{4,2} Through their innovations in surgical technique, most importantly their routine use of postoperative catheter

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drainage of the bladder, they were first to demonstrate that surgical treatment of urinary fistulae offered a reasonable chance for cure.³

Omental pedicle graft provides healing tissue a support. It can replace tissue loss in the pelvis and perineum. It has the advantage of suppleness and does not result in dense fibrosis, which makes re-exploration (if necessary) much easier. It can be mobilized on the gastroepiploic arch in the greater curvature of the stomach and used as an interposition graft. The omentum must overlap the fistulous repair so that if it fails to heal, the exposed omentum will become epithelialized.^{3,5}

PATIENTS AND METHODS

This study was performed for 4 years from June 1997 to June 2001 in the Obstetrics & Gynaecology Department of Bahawal Victoria Hospital, Bahawalpur. During this period 26 patients were referred with the diagnosis of vesicovaginal fistula. On admission detailed history regarding the incontinence, any desire for micturition, amenorrhoea, past obstetric history and previous attempts of repair was taken. A careful examination was carried out, following which urine analysis, renal function tests and intravenous urography were performed. Preexisting urinary tract infection was cleared. The principles

observed in each case were: sufficient time given for spontaneous healing (> than 12 weeks), interposition of omental pedicle graft without tension, use of fine suture material and uniting broad raw surfaces without tension and ensuring free postoperative urinary drainage.

Examination under anaesthesia was done in all patients before surgery to access the site and size of fistula, mobility of the tissues and to decide about the route and position of the patient for operation. The site of the fistula often dictated the surgical approach. Supratrigonal fistulae (fistula above the interureteric ridge) were approached transabdominally. Infratrigonal fistulae (fistula below the interureteric ridge) were corrected transvaginally.^{9,10,11}

In the transabdominal approach procedure the patient was put in a modified lithotomy position. A urethral catheter was then inserted and an infraumbilical incision made and carried down into the peritoneal cavity. The pouch of Douglas was exposed, the bladder was completely mobilized, and bivalved at the dome. The ureteral orifices and the fistulous tract was identified. Both ureteral orifices were cannulated with pediatric feeding tubes for easy identification. The fistula was circumscribed and excised. The bladder was separated from the vagina. As omental interposition was also performed, so the abdominal incision may be carried to the epigastrium, with mobilization of the omentum. Avascular adhesions to the transverse colon were separated. The left gastroepiploic and short gastric vessels were divided and ligated. The omentum was mobilized using the right gastroepiploic pedicle. The ascending colon and hepatic flexure were mobilized. The omentum, which is hinged on the right gastroepiploic artery, was passed behind the ascending colon and into the pelvis.

Vagina was closed. The distal part of the omentum was sutured to the distal limits of the space between the vagina and the bladder. The bladder was closed in 2-3 layers. The suprapubic tube and pelvic drains were placed.^{11,12,13}

Broad-spectrum intravenous antibiotics were given perioperatively (third generation cephalosporins combined with metronidazole).^{9,12} To prevent bladder spasms, anticholinergics were given.^{14,15} Pelvic drains were removed when the output became minimal. Urethral catheter was removed 21 days following surgery.

RESULTS

Twenty-six patients of vesicovaginal fistula were repaired with pedicled omental graft through abdominal approach during 4 years, from June 1997 to June 2001. The ages of the patients were between 20-30 years-18 patients, 30-

35 years 6 and 35-40 years 2-patients. The cases reported per year are: 1997-98 -4, 1998-99 -7, 1999-2000 -7 and 2000-2001 -8 patients. The etiological factors were: 13 developed after prolonged obstructed labour, 6 after abdominal hysterectomy and 7 following failed repair (previous history of obstructed labour).

Twenty five patients healed smoothly without any problem, but one elderly patient, who was diabetic and with a fistula of about 5cm diameter started bed wetting on the third day. Strict diabetes control with insulin and adequate uninterrupted bladder drainage continued for four weeks. After 2 weeks there was no bed wetting. So the results turned out to be 100% with the technique of pedicled omental graft in a vesicovaginal fistula, repaired through abdominal route.

DISCUSSION

A fistula may be defined as an abnormal communication between two epithelial surfaces. The aetiology of urogenital fistula is varied and may be broadly categorized into congenital or acquired, the later may be divided into obstetric, surgical, radiation, malignant and miscellaneous causes.⁷ In most third world countries over 90% of fistulae are of obstetric origin, whereas in the UK over 70% follow pelvic surgery.⁸

Bahawalpur is a remote and backward area of the Punjab & Bahawal Victoria Hospital is a tertiary care referral Hospital. Most of its draining area consists of Cholistan where medical facilities are not up to mark as compared to other peripheral areas of the Punjab, so VVF is a quite common problem in this area due to prolonged obstructed labour.

As all the cases were after prolonged obstructed labour, the intervening tissues (anterior vaginal wall and bladder wall) were devitalized by ischaemia. The devitalised area separated as a slough usually between the 3rd and the 10th days of the puerperium, with the resulting incontinence.⁷

The tissues surrounding vesico vaginal fistulas are usually relatively avascular, rigid and fibrosed, so the fistulae are difficult to heal with routine repair methods and need 2 to 3 repair attempts. It is therefore necessary to bring fresh pliable, well vascularized tissue into the operative field to support the repair and facilitate healing. Neovascularization has been proved experimentally. Small arterioles migrate from normal into ischemic tissues of the repair site.¹

The reported success rate of vesicovaginal fistula closure in the literature varies from 70% to 96% by the vaginal route and from 70% to 100% by the abdominal route.^{5,8,14} The same is the case, in our experience of 26 cases which gave 100% results.

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EXPERIENCE OF BILE DUCT INJURY

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ABSTRACT:

This retrospective study includes 16 cases of bile duct injury. Seven injuries occurred in our hospital and 3 patients were referred from elsewhere. Fifteen out of 16 patients were explored. Hepaticojejunostomy was performed in 9 patients, left hepaticojejunostomy in 2, primary repair with end-to-end anastomosis over T-tube in 2, choledochodudenostomy in one, incision and drainage in one and one patient managed conservatively. Two out of 16 patients died and others recovered well.

KEY WORDS: *Bile duct injury, Management.*

INTRODUCTION

Cholecystectomy is a commonly performed operation in general surgical practice. Bile duct injury, though rare, is a dreaded complication and difficult to manage. This study describes management of patient with bile duct injury.

PATIENTS AND METHODS

This is a retrospective study of 16 patients who were operated in Jinnah Postgraduate Medical Centre, Karachi from January 1995 to October 2001. All patients underwent cholecystectomy, both open and laparoscopic. The patients with malignancy and common bile duct (CBD) strictures were excluded.

RESULTS

Among 16 cases studied, 14 had open cholecystectomy (OC) and 2 laparoscopic cholecystectomy (LC). The age of patients varied from 27 to 60 years with female preponderance (female 11 and males 5). The time lapse between the first operation and presentation of symptoms ranged from immediate postoperative period for complete transaction to 2 years at the most, although majority of patients presented within one year.

Jaundice was the main complaint in 15 patients at the time of presentation. Four patients complained of pruritis. Fever was present in only one patient while 5 had pain in

right hypochondrium (RHC) and one had generalised abdominal pain. Hepatomegaly was found in 4 patients. Type of injury was Bismuth type I in 6, type III in 2, type IV in 1. Complete transaction of common bile duct (CBD) was found in 1 and partial in 2. Two patients had stricture of CBD. In one patient avulsed cystic duct was present while in one patient only bile leakage was seen.

Ultrasound showed intrahepatic biliary dilatation in 8 cases. HIDA scan was performed in 6 cases and showed narrowing of the CBD in 5 cases and extravasation of dye in peritoneal cavity in one case. One patient had ERCP that showed stricture at the lower end. In 2 LC patients injury was recognised preoperatively and LC were converted to OC.

Fifteen patients underwent exploration. Hepaticojejunostomy was performed in 9 patients, left hepaticojejunostomy in 2, primary repair with end-to-end anastomosis over T-tube in 2, choledochodudenostomy in one and one patient was managed conservatively. In one patient with biliary leakage, exploration was negative. Drainage of collection was done twice.

Two patients died, one in postoperative period while another after one month. Rest of the patients recovered well, except one with biliary leakage who needed drainage for deep seated wound abscess.

DISCUSSION

Bile duct injury following cholecystectomy carries significant morbidity.¹ Even experienced surgeons are not

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immune from traumatizing biliary tree.^{1,2} The risk of bile duct injury during open cholecystectomy (OC) ranges from 0.1 – 0.2%. Initially, laparoscopic cholecystectomy (LC) was associated with greater than 2% risk of injury to biliary tract, but nowadays it has dropped to <0.5% showing that as experience is increasing the risk is decreasing to equalize with open cholecystectomy.^{1,3} That is why laparoscopic cholecystectomy is the "gold standard" for uncomplicated gall stones.^{1,4}

We performed 1485 open cholecystectomies from January 1995 to October 2001 and treated 16 cases of bile duct injuries. Three patients were referred from other hospitals, 2 had laparoscopic cholecystectomy and one open cholecystectomy. We carried out 625 open cholecystectomies during the period 1995-1998 and 9 injuries occurred with a frequency of 1.44%. From 1999 to Oct 2001, 860 operations were performed and 4 injuries encountered with frequency of 0.46%. However, overall frequency of iatrogenic injury is 0.87%. We do not routinely perform intraoperative cholangiogram and our figures reflect greater frequency of iatrogenic injuries than reported in international literature, but in later part of our study there is a decline in frequency of injury, but still double the international figure of 0.2%.

It is believed that iatrogenic injury is grave in laparoscopic cholecystectomy than open cholecystectomy.⁵ The same trend is reflected partially from our study where one complete transection and one partial transection occurred during laparoscopic cholecystectomy. Bile duct may be more liable to damage by use of diathermy and excessive dissection to delineate the anatomy of Calot's triangle. This may result in ischaemic injury to biliary tract.¹ Other risk factors include difficulty in dissection due to acute and severe chronic inflammation, morbid obesity, bleeding and presence of anomalous ducts or vessels.⁴

Some surgeons are of the view that routine intraoperative cholangiography (IOC) itself causes bile duct injury if anatomy in Calot's triangle is not clearly delineated or if before careful dissection intraoperative cholangiography is attempted.⁶ IOC is helpful for defining anatomy, detecting choledocholithiasis and preventing, recognizing or decreasing the severity of biliary tract injury.^{4,7} On the other hand there is a group of surgeons who do not recommend routine intraoperative cholangiography.^{6,8} If surgeons are not experienced in IOC they will not be able to deal with common bile duct stones encountered during cholecystectomy, in which case surgeon has to explore CBD.⁶ We agree with the second group of surgeons. IOC is no substitute for careful dissection and identification of ductal structures. But, when undertaken properly it reduces the risk of injury.¹

However, there is a risk of damaging biliary tract during IOC, but studies show routine IOC practice in teaching

hospitals is advantageous in identifying biliary tract injury early and dealing successfully with associated choledocholithiasis, than those institutes where this is not routinely practiced.^{5,6} Endoscopic retrograde cholangiopancreatography (ERCP) should be done preoperatively where it is indicated, not solely for anatomical purposes because of its associated risks.⁶

Most common presentation with iatrogenic biliary tract injury is progressive jaundice postoperatively. Other symptoms include pruritis, biloma, biliary fistula, biliary peritonitis, recurrent cholangitis and pain in right hypochondrium.

Two patients who underwent left hepaticojejunostomy in our series died postoperatively, one due to hepatorenal syndrome and other due to sepsis. Both patients presented after 8 months and their condition was not good. Success rate in our study was 87.5% with 12.5% mortality which is high as compared to 7.9% rate in internationally published studies.⁹

In patients with suspected bile duct injury ultrasonography is the investigation, of first choice because it is without risk, of low cost, detects collections, duct dilatations and at the same time aspiration of collections can be attempted. ERCP is the best investigation as it detects the level and site of injury and can be therapeutic. Studies have demonstrated good results of endoscopic stenting and sphincterotomy in cases of bile leaks. Percutaneous transhepatic cholangiography is used to define the proximal biliary tree when there is a complete obstruction and in cases of emergency decompression. ERCP and percutaneous transhepatic cholangiography are also used preoperatively to put stents that preoperatively helps in identifying bile duct and lobar ducts.

The results of surgery are better than the endoscopic dilatation and primary repair has the lowest morbidity and mortality. Various options are available for surgery but hepaticojejunostomy is the gold standard. Instrumental perforation, ligature and small defect of common bile duct can be safely managed by external T-tube drainage and sphincterotomy with or without anastomosis over T-tube, while for rest of the bile duct injuries hepaticojejunostomy is safe and easy. Results of other procedures are inferior to hepaticojejunostomy. Patients with biliary fistula should initially be managed for leak non-operatively and later definitive surgery should be done when inflammation has subsided, otherwise there are high chances of stricture formation. Mortality from surgery should be less than 5% but rates between 10 to 30% are reported in various studies.

Whenever intraoperative injury to biliary tract is suspected intraoperative cholangiogram should be carried out and if injury is detected, repair is done at the same time.

To conclude, sooner the injury is recognized the best is the prognosis and later the recognition of injury, graver the outcome. The fact is reflected in our study where 4 injuries were identified peroperatively and repaired had favourable outcome with no mortality and patients went back to their preinjury activity level postoperatively and 2 patients who presented late, died due to postoperative complications. Also, type of injury is a significant denominator in prognosis as one patient with Bismuth IV and one with Bismuth III died in postoperative period.

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QUININE COMPARED TO ARTEMETHER IN ADULTS WITH CEREBRAL MALARIA

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ABSTRACT:

Quinine is the standard drug used for the treatment of cerebral malaria. Artemether is a new product and claimed to be more effective in cerebral malaria. This study was conducted to compare artemether with quinine in the treatment of cerebral malaria in Medical Unit-III, Jinnah Postgraduate Medical Centre, Karachi.

Forty-one cases of proven cerebral malaria were entered in the study and randomly grouped into two groups: A (n=21) and B (n=20). Group-A was given quinine infusion and B was treated with artemether, each for 7 days. In group-A, 19 patients recovered and two patients expired, while in group-B only one patient expired. Hypoglycaemia was documented in three patients in group-A and none in group-B, no other significant side effect was documented in both groups.

It is concluded that both quinine and artemether are effective in the treatment of cerebral malaria. Chance of side effects is comparably greater with quinine, overall effectiveness being similar.

KEY WORDS: Cerebral malaria, Artemether, Quinine

INTRODUCTION

Today malaria is a public health problem in more than 90 countries inhabited by 40% of the world population.¹ Cerebral malaria is the most common, important, and fatal complication of severe falciparum malaria.² Quinine has always been considered a reference drug in cerebral malaria. However, since *P. falciparum* has been showing a trend towards resistance to quinine and also because quinine is more liable to cause serious side effects like hypoglycaemia and cardiac arrhythmias, it must be administered in an infusion in a hospital setting.³ This has led to a search for an effective alternative anti-malarial drug with minimal side effects and easy administration. Artemether, derived from Chinese medicinal plant Qinghaosu (Artemesinin), is rapidly acting, easy to administer and has little side effects.⁴

We investigated the efficacy of intramuscular artemether in cerebral malaria patients in comparison to the conventional treatment with quinine infusion.

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PATIENTS AND METHODS

The study was conducted in Medical Unit-III, JPMC, Karachi, from March 1998 to March 1999. WHO criteria for the diagnosis of cerebral malaria was used. Patients fulfilling following criteria were included into the study

1. Fever followed by coma lasting >30 minutes.
2. Demonstration of asexual forms of *P. falciparum* in peripheral blood film.
3. Similar other conditions having been excluded.

Forty-one patients fulfilling the above criteria were included into the study. Patients had following characteristics on admission (table-I).

Forty-one patients were randomly divided into two groups to receive either Quinine or Artemether.

Quinine Group (Group A)

A loading dose of quinine dihydrochloride at 20 mg/kg, followed by quinine dihydrochloride 10 mg/kg 8 hourly for seven days was given. Quinine sulfate tablets were given

TABLE-I **CLINICAL FEATURES AND LABS**

Fever	41 (100%)
Coma	41 (100%)
Jaundice	23 (56%)
Fits	9 (22%)
Anaemia	14 (34%)
Splenomegaly	29 (71%)
Hepatomegaly	24 (59%)
Hypoglycaemia	10 (24%)
Shock	5 (12%)
Hyperpyrexia	10 (24%)
Pitillac	21 (51%)
Leucocytosis	5 (12%)
Leucopenia	3 (7%)
Electrolyte imbalance	11 (29%)
Raised urea/creatinine	12 (29%)

instead of quinine dihydrochloride infusion as soon as the oral medication was possible.

Artemether Group (Group B)

Artemether 160 mg intramuscularly as loading dose, followed by 80 mg intra-muscularly daily for another six days was administered.

RESULTS

Patients in both groups were comparable in age, coma score on admission, vitals, haemoglobin and white cell count, and severity of the disease. Of the 41 patients included in the study, 10 were females and 31 males. Fever resolution time was 3.76 days in the quinine group while it was 3.35 days in artemether group ($P>0.28$). Mean PCT in quinine group was 3 days and 2.45 days in artemether group ($P>0.010$). Coma resolution time was 3.71 days in the quinine group and 2.90 days in the

artemether group ($P>0.09$). Mortality was 10% in group-A and 5% in group-B ($P>0.96$). Hypoglycaemia was noted in three patients in group-A and none in group-B. Average cost of therapy in group-A was Rs. 604/- for seven days while it was about Rs. 636/- in group-B (artemether group).

DISCUSSION

Artemether was found to be an effective alternative anti-malarial to quinine in the treatment of cerebral malaria. The dose used in this study was slightly higher than the regimen recommended in China (600 mg given over five days). Artemether is well tolerated and easier to administer than quinine but the speed of parasite clearance, fever clearance and coma resolution did not differ from quinine. Also the survival and mortality rates were similar in both treatment groups. Further studies with a larger group size are needed to show if there is any significant difference in survival rate.

It is concluded that artemether is promising in cerebral malaria and can be considered an alternative therapy to quinine.

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INSULINOMA

A CASE REPORT

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ABSTRACT:

Presented here is a rare case of insulinoma (with no focal detectable lesion) in a 56 year old male. The patient was diagnosed as a case of neuropsychiatric disorder and epilepsy. He remained under treatment of various specialists, hakims and homeopaths as an epileptic, until the diagnosis of insulinoma was made. Blood sugar levels were initially not significantly low. CT scan, MRI scan etc., failed to localize any pancreatic tumor and therefore, selective trans-venous sampling of insulin was done from various sites around the pancreas. These were suggestive of a lesion in the distal third of the pancreas. Per operatively, no tumor could be identified and a sub-total pancreatectomy was done removing about 60-70% of the pancreas including the tail and body. Unfortunately, the hypoglycemic attacks persisted following surgery with associated neuropsychiatric symptoms. Thereafter, the patient was put on diazoxide, which controlled almost all his symptoms by maintaining normal blood sugar levels. Hence, need for any further surgical intervention was avoided. Various behavioral and epileptiform attacks of the patient settled and he is asymptomatic over the last five years of regular outpatient follow-up.

KEY WORDS: *Insulinoma, Management*

INTRODUCTION

Most causes of fasting hypoglycemia, other than insulinoma in adults, can be recognized clinically by history and examination.¹ Insulinomas are quite rare tumors, i.e. about 1-2 cases/million population per year. The hallmark of pancreatic cell tumors is the development of symptomatic hypoglycemia from unregulated insulin hyper secretion. They arise most frequently in the fifth to seventh decades, although cases have been reported at all ages. Ninety percent of such tumors are single and benign, but multiple adenomas can occur as well as malignant tumors with functional metastases.^{2,3} The presentation of some of these patients may mislead the physician regarding the diagnosis, as illustrated in this case.

PATIENTS AND METHODS

A male person, 56 yrs age, married, resident of Karachi, presented about seven years back with alteration in behavior, irrelevant talk, disorientation at times, episodes of palpitation and symptoms of depression for which he was referred to a psychiatrist. He was a non-smoker, non-

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alcoholic with no other addictions. He was diagnosed as a case of depressive illness and was found to have a small non-toxic multinodular goitre for about 20 years. He was started on clonazepam, carbamazepine and amitryptiline. He continued follow up for about an year but his symptoms did not improve. He then consulted a medical specialist who discovered that he had frequent ectopics and mild labile hypertension. His ECG only showed atrial ectopics and no other changes. After excluding other causes for the ectopy, an echocardiogram was performed, which was normal. Propranolol 10mg tid was added to his treatment. His neuro-psychiatric symptoms failed to respond to these drugs and he then consulted several other medical specialists and neurologists. An EEG performed at this stage showed a non-specific abnormal record with higher amplitude activity in the posterior occipital and midline parasagittal areas. He also started developing periods of altered consciousness and a diagnosis of epilepsy was made. His CT scan brain with contrast was normal. A subsequent MRI of the brain showed evidence of mild cerebellar atrophy. Phenytoin sodium was added to his treatment regimen.

His other investigations including CBC, ESR, liver function tests, urea, creatinine electrolytes, fasting serum calcium, phosphate, serum albumin, uric acid, fasting lipid profile, urine R/E were all normal. Fasting blood sugar was 69mg% and random blood sugar was 129mg%. Radioisotope thyroid scan showed non-toxic multinodular goiter and his thyroid function tests were normal. 24-hour Holter monitoring revealed frequent atrial premature beats with occasional bigeminy and trigeminy of supra-ventricular type. There were frequent episodes of sinus tachycardia up to 157 bpm, which correlated with the patient's symptoms. Ventricular ectopics were occasional with no evidence of sustained atrial or ventricular tachycardia. He got fed up with specialists and hospitals and went for alternative treatment by hakims and homeopaths, he continued for a few months during which his condition began to deteriorate.

He started having more frequent attacks of altered consciousness and palpitations during these episodes, shortness of breath on exertion, generalized weakness. He also complained of putting on weight due to over eating. He was admitted to our hospital in 1996 where he also gave a history of heartburn and increased appetite. His pulse and blood pressure were normal. There was a small multinodular goitre but he was clinically euthyroid. Physical examination revealed no neurological signs. Rest of the examination including his mental status was normal. His random blood sugar was 134mg/dl and fasting blood sugar was 60mg/dl. When repeated, his FBS was 51mg/dl. Various other relevant investigations were unhelpful. However, in view of his low FBS initially, plasma Insulin, C-peptide⁴ and FBS were done simultaneously. Plasma Insulin level was high at 32.6 uU/ml (NR- Adults after 12 hour fasting 1.0-17.5 uU/ml) and C-peptide level was also raised at 6.8uG/ml (NR 0.8-4.0 uG/ml) with an FBS of 46mg/dL. He was kept under close observation. Blood sugar was frequently monitored and there was evidence of almost persistent hypoglycemia if his oral and IV intake of glucose were held back. There was therefore no need to make him fast. The blood sugar was even down to 29mg/dl and during these low blood sugar levels he used to become drowsy and at times lose consciousness. Frequent intake of sweets and IV dextrose boluses and infusion made him feel a lot better. In view of the above reports, a diagnosis of hyperinsulinism causing hypoglycemia accounting for most of his symptoms, including neuropsychiatric, was made, consistent with insulinoma. Ultrasound abdomen and chest X-Ray were normal. CT scan whole abdomen was also normal showing no abnormality in the pancreas. MRI of the abdomen and pelvis was also normal.

In order to localize the insulinoma, a selective trans-venous sampling of insulin levels from different venous drainage sites in and around the pancreas was done. The

results of insulin levels shown from different sites in revealed markedly increased insulin production from the distal third of the pancreas, suggesting that there was an insulinoma at this site (Table-I).

TABLE-I PLASMA INSULIN LEVELS AT DIFFERENT VENOUS SITES

Normal Range Of Plasma Insulin after 12 hours fasting	
a. From Forearm vein	NR-1.0-17.0 uU/ml
b. Site No.1: Distal splenic vein (SV)	33.7 uU/ml
c. Site No.2: SV distal to inferior mesenteric vein (IMV)	299.30 Uu/ml
d. Site No.3: IMV	92.50 uU/ml
e. Site No.4: SV between IMV and superior mesenteric vein (SMV)	43.10 uU/ml
f. Site No.5: Proximal SMV	34.80 uU/ml
g. Site No.6: Distal SMV	32.50 uU/ml
	32.60 uU/ml

It was then decided to resect the involved part of the pancreas depending on the insulin sampling reports and per-operative findings. During surgery, no focal lesion was identified and distal sub-total pancreatectomy and splenectomy was performed.

This involved removal of the tail and body of the pancreas, amounting to approximately 60-70% of its total structure. Histology of the pancreatic and splenic tissue excised were normal.

Unfortunately, on second post-operative day, his hypoglycemic state recurred with blood sugar levels going down to 40mg/dl despite being on 5% IV dextrose. His IV dextrose concentration had to be increased to maintain reasonable blood sugar levels along with 25% dextrose IV bolus injections. Octreotide was used subcutaneously. This continued for 4-5 days and the patient refused to undergo any further investigation or surgical procedure. Post operatively, IV dextrose was continued until he could take orally, when frequent high carbohydrate meals were added. When IV dextrose was stopped, his symptomatic hypoglycemic attacks recurred with blood sugar levels going down to 30-40mg/dl. He was therefore advised higher and frequent CHO rich diet every 3-4hours, even during the night.

On discharge from hospital, he was started on oral diazoxide. A diagnosis of insulinoma was made which had failed to resolve by sub-total pancreatic resection. He was also put on oral verapamil for his supraventricular arrhythmias. His condition improved significantly after a period of 2-3 weeks on diazoxide with almost no symptomatic hypoglycemic episodes. His blood sugar remained within the normal range with treatment, and on stopping diazoxide, he would restart getting hypoglycemic attacks.

Over five years following surgery, he is still under follow up in our outpatient clinic remaining quite stable, mentally and physically, on diazoxide 300mg tid showing no side effects.

DISCUSSION

Although a 72-hour fasting under close supervision may have to be done to diagnose insulinoma, most patients develop hypoglycemia within 24 h, as evidenced by a serum glucose level of less than 50mg/dL in men or 45 mg/dL in women. However, there is no absolute glucose level that defines hypoglycemia, so the diagnosis of insulinoma depends on the demonstration of inadequate insulin suppression in the face of falling glucose levels. Since insulinomas are usually small (most are <2 cm in diameter), only half are detected by CT scan. MRI may not also be very helpful in such cases.⁵ Two-phase (arterial and parenchymal) contrast techniques improve the sensitivity of CT somewhat. In contrast, endoscopic ultrasonography detects 80 to 90 percent of tumors.⁶ Angiography with selective venous sampling for insulin levels is also about 80 percent sensitive⁷ (as was done in this case), as is palpation during surgery. If no tumor is found during surgery, or if multiple tumors are present, pancreatectomy is limited to 70 to 80 percent to preserve digestive and endocrine pancreatic function.

This rare case highlights a few important points. A patient presenting with neuro-psychiatric disorders must be carefully evaluated for the hypoglycemia of insulinoma, which may initially be mild and episodic, and hence difficult to diagnose. Then, even localization by various non-invasive and invasive methods, including selective venous sampling for insulin may be deceptive and not foolproof. Surgical resection based on these insulin level results may lead to failure.⁸ A diffuse insulinoma may not

be identifiable even during surgery. Finally, as in this patient, when surgery did not help, long-term use of diazoxide was very helpful. It relieved the patient of his symptoms related to hypoglycemia, and has not produced any notable side effects until now i.e. after five years of regular postoperative follow-up.

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MANAGEMENT OF DELAYED INFECTION AFTER TOTAL HIP REPLACEMENT CASE REPORT

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ABSTRACT:

Total hip replacement is a well-established method of treating advanced osteoarthritis of the hip joint. This method of treatment dramatically changes the outlook of life for an incapacitated patient. However it is marred by certain complications of which the most disastrous is the postoperative infection. However the advent of latest techniques and modified approach to this problem has resulted in better prognosis and quality of life in such patients. The patient presented in this case report suffered from delayed infection after total hip replacement (THR). This article describes management of this condition.

KEY WORDS: *Osteoarthritis, Total hip replacement, Deep Delayed infection*

INTRODUCTION

At the Royal National Orthopaedic Hospital, Stanmore London, a 72 years old male presented with complaints of severe pain in his right hip joint. He had undergone right Charnley's total hip replacement 14 months ago for advanced osteoarthritis. For the last six months, he re-developed pain in his right hip joint, which had progressively increased in severity. Since the last ten weeks, the patient also felt low-grade intermittent fever.

On examination, the patient had right antalgic gait and walked with support of a walking stick. Hip was kept in position of slight flexion of 10 degree. The range of movements was 85 degree flexion, restricted extension, 25 degree abduction, 20 degree adduction, external rotation of 30 degree and an internal rotation of 10 degree. Thomas test revealed the presence of fixed flexion of 40°.

Laboratory tests revealed an ESR of 54mm at the end of first hour by Winthrobe method and Hb of 13.5 gm%. He was positive for raised C- reactive proteins. Radiological

examination revealed a 1.5 mm area of radiolucency in Gruen zone 2 on the femoral stem side and 3.5mm in DeLee zone 1 on the acetabular component side, at bone cement interface. Acetabular cup prosthesis also showed evidence of superior shift and consequent decrease in primary arc range. Technetium 99-triphase bone scans revealed increased activity in the same zones and Indium111 WBC scan showed increased activity only in the superior acetabular cup bone-cement interface. Right hip joint aspiration was performed for culture studies, followed by an on table fluoroscopic arthrogram, which showed a pocket of contrast in DeLee zone one. Culture reports revealed staph. epidermidis, confirming infection as the cause of loosening and failure of the arthroplasty. Two-stage revision arthroplasty was planned. In stage one the prosthetic components, polymethylmethacrylate cement and all the redundant surrounding loose tissue were removed and were subjected for culture and sensitivity studies, which revealed the same organism. The patient was put on intravenous antibiotic and a week later was switched over oral antibiotic with the advice to continue the same for two months.

Patient was readmitted for second stage surgery after three months. Joint aspirations were done, which revealed no growth on culture. Vancomycin impregnated PMMA (Poly methyl metha acrylate) cemented revision

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arthroplasty of the hip was carried out with custom-made Stanmore long stemmed femoral and acetabular components. Patient was discharged on the 21st postoperative day. He started weight bearing with the help of a walking stick, after physio-rehab for two months, and was completely satisfied with the results of surgery.

DISCUSSION

Deep delayed infection after THR occurs usually between six to 24 months after surgery.¹ The incidence of infection following THR is 4.98% - 10.3%. In a period exceeding six months after THR, infection is probably the only complication, which can occur.² In most cases, the infection is present for more than 04 weeks, thus allowing the infective organism to enter the bone-cement interface, leading to subsequent loosening of the prosthesis and failure of THR.

A history of contributory factors, like presence of skin infections, prolonged pre operative hospitalization, steroids, diabetes, advanced age, large mass of implanted material, sickle cell disease, prolonged operation time and immuno-compromised state etc, predispose the patients who develop delayed infection after THR. Adequate pre-operative management and control of concomitant diseases along with use of intravenous perioperative antibiotics have been found to be one of the most effective methods of prevention of delayed infection after THR. Similarly theatre laminar airflow, pulsed lavage and Charnley's closed body suits also play a major role in prevention of infection.

ESR is a sensitive indicator of infection in these patients, but is nonspecific. Radiological analysis of failure of the THR usually manifests as areas of radiolucency in Gruen zones on the femoral side³ and DeLee zones on the acetabular side. Various latest trials have found indium 111 scans to be nearly 88% accurate in detecting THR failure in these patients, as compared to 62% in gallium and technetium scans.

Culture studies are both sensitive and specific. Coagulase negative staphylococcus is the usual infective pathogens after THR and among these, Staph. epidermidis is the most common organism encountered. In some series the infection rate with staph. epidermidis has been found to be about 13%.⁴ Other usual pathogens include staph. aureus and group B streptococci. Gristina and Costerton et al, have found in their studies that the infecting organism usually forms a polysaccharide glycocalyx, around the prosthesis allowing the bacteria to adhere to the prosthesis.⁵ This helps to seal off the bacterial colony from the onslaught of the body immune system. Randomized controlled trials have revealed that the glycocalyx cannot be scrubbed off completely and therefore the removal of the prosthesis, PMMA cement,

along with adequate debridement of the surrounding tissues is mandatory for adequate control of the infection. Removal of the prosthetic implant is usually followed by prolonged antibiotics for at least 4 to 6 weeks, so as to ensure effective eradication of the pathogen.

A benign clinical exam, normal ESR, negative WSR and CRPs,⁶ negative indium111 WBC radioisotope scan, and a negative pre-operative aspirates for bacteria, are the main indicators for initiation of stage two of revision arthroplasty in such cases. Per-operative frozen sections for polymorphs (5-10 PMNs / HPF, are safe limit for negative cases) are also being studied in some centers as an indicator of effective infection control.

The most in vogue trend in operating such patients is to perform two staged revision arthroplasty, but in a few centers single stage revision arthroplasty utilizing antibiotic impregnated cement is being done.⁷ Gravin et al have shown better results with two staged procedures using gentamicin impregnated cement.⁸ In severely compromised, ill and frail patients marred by various medical problems Girdlestone's resection arthroplasty is performed. Those patients in whom the stage one tissue debridement resulted in significant soft tissue loss, revision arthroplasty results are usually poor and so arthodesis is a better option. Only in a few, patients where infection cannot be controlled in spite of all the efforts or there is unduly extensive tissue loss, amputation is performed.

Many centers are performing the non-cement revision arthroplasty^{6,10} but the use of antibiotic impregnated PMMA gives excellent results, as reported by Buchholz and Elson.⁷ Per operative antibiotic impregnated PMMA cement¹¹ or local antibiotic beads are used in many centers for antibiotic cover. Studies have revealed that the elution of antibiotics from the PMMA depends on the porosity of the cement, monomer size and antibiotic concentration in the cement.¹² The most commonly used antibiotics used in cements are gentamicin,⁹ vancomycin, tobramycin and cefoxitin. Use of antibiotic impregnated spacers following stage one; are also found helpful to preserve soft tissue envelope as well as to provide an effective infection control.

Following revision arthroplasty controlled studies have revealed that about 45% of such patients have some degree of instability of the revised hip joint for 2-6 months and a restricted hip flexion between 60-90 degrees. Programmed postoperative rehabilitation has been adapted as of pivotal importance and three monthly follow up in the first year following revision arthroplasty is the most preferred method. Those patients, who have done well after the revision arthroplasty, should be completely asymptomatic within an year's time with a good functional range of hip movements. The joint aspirates done after six months should be negative.

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UNDESCENDED TESTIS AND A LARGE ABDOMINAL MASS

A CASE REPORT

M.A. NAUSHAD BEG

ABSTRACT:

Testicular cancer is 3 to 10 times more common in undescended testis and orchidopexy does not reduce this incidence. This case report describes a patient presenting with mass in lower abdomen with undescended testis.

KEY WORDS: Undescended testis, Carcinoma.

CASE REPORT

A married man of 25 years was referred with a large hypogastric mass. History and examination revealed that the patient had abdominal distension for the last one month and slight abdominal pain for the last 15 days. A palpable intraabdominal mass was found in hypogastrium. It was firm, nontender, nonpulsatile, measuring 10 to 15 cms arising from the pelvis and filling nearly the whole lower abdomen. Inguinal orifices were clear and liver, spleen and kidneys were not palpable. Genital examination showed an absent right testis while the left testis was normal. (Fig.-I)



Figure I: Absent right testis.

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Ultrasound examination revealed a well defined, mixed echogenicity mass, occupying almost the whole of lower abdomen and pelvis. Exact origin could not be determined. There was no evidence of free fluid in the peritoneal cavity, pleural effusion or retroperitoneal lymphadenopathy. Liver, pancreas, spleen, kidneys were normal. Other investigations showed a normal serum beta HCG and alpha fetoprotein. The abnormally detected in blood chemistry was a raised alkaline phosphatase level of 1520 unit/liter.

Laparotomy was done and a well encapsulated mass arising from pelvis and occupying both iliac fossae and extending upto the umbilicus, loosely adherent to the surrounding gut found. A pedicle was identified and ligated and mass removed. (Fig.-II)

Histopathology report read as 'multiple blocks from the tumour mass taken but all show completely necrotic tissue. No cellular or nuclear details are visible. The regularity of the ghost outline of the large necrotic cells and lymphoid infiltrate in places suggest that this is a necrotic tumour'.

DISCUSSION

In this case the investigations done failed to reveal the organ of origin. The importance of thorough clinical examination cannot be overemphasized. All male patients with an abdominal mass or acute abdomen should undergo genital examination to detect undescended testis. This patient was actually referred as a hypogastric mass without any mention of any absent scrotal testis.



Figure II: A circumscribed abdominal mass with pedicle removed at laparotomy.

Testicular carcinoma, when detected early, has a high cure rate but an undescended testis not accessible to physical examination is a serious handicap. An attempt to bring down all undescended testis to the normal scrotal position within the first two years should be taken. However orchidopexy does not reduce this incidence of testicular tumours and a regular followup is advisable. ^(1,2,3)

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CARDIAC ARREST- PATIENTS' IMPRESSIONS

CASE REPORT

TARIQ MAHMOOD MUFTI

ABSTRACT:

The experiences of patients, who had cardiac arrest but were revived immediately, are recorded. Surprisingly, they remained 'brain-wise' active and remembered strange experiences. Cardiopulmonary cerebral resuscitation with an immediate attempt to defibrillate the heart, should always be tried as early as possible. Patients may be having various unusual stories to tell following revival.

KEY WORDS: *Cardiopulmonary cerebral resuscitation, Cardiac defibrillation, Interesting experiences.*

INTRODUCTION

It is estimated that over 30% of patients in cardiac arrest will initially with or following an electric counter shock convert to asystole or a pulseless ventricular rhythm.^{1,2} Patients' outcome in both cases is poor, as these dysrhythmias are often unresponsive to pharmacological agents. Pulseless ventricular rhythm has electrical activity but the ventricular muscle does not contract with enough force to generate effective perfusion and blood pressure, so the choice remains the cardiopulmonary cerebral resuscitation (CPCR). Combination of basic life support, electric counter shock and antiarrhythmic drugs have proven to be reasonably effective in instances of ventricular fibrillation. A positive outcome is always expected if an effective CPCR is started within 3-4 minutes.

CASE SERIES

Six patients, who were immediately revived from cardiopulmonary arrest, communicated within five to ten minutes of the cardiac arrest told strange stories. Two of them were already on cardiac monitoring in intensive care unit after surgery and the other two were on the operation table and suffered hypotension and cardiac arrest after spinal anaesthesia and immediately revived. One of the

remaining, two suffered cardiac arrest because of low serum potassium and the second suffered when his heart was being catheterized in cardiac catheterization laboratory. They narrated interesting phenomenon after revival.

Case-1

A 28 years old patient in intensive care unit who had mitral valve replacement a month ago, developed subacute bacterial endocarditis, left heart failure and atrial fibrillation. He was placed on cardiac monitoring. He developed cardiopulmonary arrest with a visible ventricular fibrillation on the cardiac monitor. He was successfully revived with just a good precordial thump followed by a DC shock, ambu assisted ventilation and oxygen. His version of the experience was: "Initially I slept and then started floating in air, yet I had not gone out of my room and felt tired, moreover I was stuck with ceiling of room. Doctors hit my chest, gave me an electric shock and I suddenly fell down on my bed.

Case-2

A young patient of 22 years with a double valve replacement was sitting in his bed with a back rest and an oxygen mask and was being monitored for pulse, B.P. and E.C.G suddenly collapsed. The E.C.G. trace had changed to ventricular tachycardia and then a coarse ventricular fibrillation. He was given a DC shock. He recovered from

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cardiac arrest and on regaining consciousness, had following story to tell:

"Four persons came, with a white bedsheet, and asked me to sit on that, which I did. Each one of them caught hold of a corner of the sheet and started flying me in the air. When they had just raised me a little in air, another person met them with a asked them to release me. All of them loosened the grip and I came down to my bed and when I opened my eyes, I heard the doctor's your voice calling my name.

Case-3

An 65 years old man otherwise ASA-1, under spinal anesthesia for right sided inguinal herniorrhaphy, developed sudden hypotension followed by deep breathing and cardiac arrest, while being treated for spinal hypotension. He was successfully resuscitated with a strong precordial thump, intravenous fluids and inotropes bolus. When interviewed, he stated that: " I went to a graveyard to look for my own grave but could not find it. Therefore, I came back".

Case-4

A young boy of 18 suffered multiple gun shot wounds of abdomen. On examination he was pale, apprehensive looking, with low levels of serum potassium (2.6 m Eq/L). At laparotomy, just before induction of anaesthesia, he suddenly collapsed with absent pulse and B.P. Precordial thumps were followed by intravenous adrenaline, fluids and 100% oxygen administration. His blood pressure came up to 100/60 with a heart rate of 125/min. A deficit in serum potassium deficit was corrected before the surgery. On being asked, he replied "I was asked to see some beautiful flowers which I started smelling and felt an irresistible sleep. After that I flew with my friend who is not in this world, who told me to go back as I was not invited to come with him".

Case-5

A man of 45 years, during coronary angiography got cardiac arrest, and was immediately resuscitated, but again went into cardiac arrest. He was managed with IPPB through endotracheal intubation and inotropes infusion. He was immediately shifted to the operation theater for emergency CABG surgery. When he regained consciousness he narrated his story that when his heart was being catheterized, he suddenly felt that his legs became senseless, very heavy and had came out of his body and stood beside his table where he was lying. He could see doctors working on his body and after having received some injections, he went back into his body lying on the table. He felt that he was again captured in his body back from a very nice and beautiful world. He could appreciate the first cardiac arrest in which he was revived immediately but he was not aware of the subsequent cardiac arrest.

Case-6

A retired officer of 65 years with ischemic heart disease and ejection fraction of 28% on echocardiography had giddiness and fell in the bathroom. He sustained a scalp wound, Colles' fracture and fractured neck of femur. His scalp wound and Colles' fracture were managed under local anaesthesia and minimal sedation. For fractured neck femur, unilateral low dose spinal anaesthesia was given with guarded fluid administration with inotropic support. The patient had cardiac arrest and was immediately revived. His narration on the experience is: "I had gone to a very beautiful place where I saw many charming faces. They were playing in groups, as A and B teams. I was asked, will you join us and in which team? But someone told them that I could not join them and then I heard your voice. "Thank God he has revived". I cannot explain more but it was exciting to see and difficult to narrate the beauty of that place where I had been flying. However, I am much grateful to you".

DISCUSSION

Moody describes³ near death experiences have become much more common in recent decades due to advances in resuscitation techniques. He also describes that not every one who survives a clinical "death" remembers anything whatsoever about it. Many people were actually interviewed after successful resuscitation but they remembered nothing.

During a study of 583 cardiac arrests, 87% were primarily cardiac in origin with an incidence of 55% witnessed and 45% un-witnessed. There was no survivor in the un-witnessed group. Factors associated with survival included: a call for help within 2 minutes and CPR within 4 minutes, ambulance services at less than one mile from arrest and advanced cardiac life support within 16 minutes. 80% hospital deaths in this study were due to neurological complications and consistent with slow response time. Even with a short time to begin CPR and a delay in defibrillation reduces the chances for survival from cardiac arrest.²

During ventricular fibrillation the blood pressure remains around 20-30 mm of Hg, probably due to the residual vascular tone while there is no flow of blood across the brain, metabolism continues at about the normal rate.⁴ Earlier the resuscitation, better is the outcome. If brain perfusion is restored immediately and hypoxic brain insult is avoided, probably a healthy mind can recall the events if such patients are interviewed immediately, though not always. During resuscitation procedure attempt is made to perfuse the brain with oxygenated blood. Variation in temperature of the patient can affect the rate at which the brain may be damaged. Severe brain damage is not unusual in patients who suffer an unwitnessed cardiac arrest or patients who get a late start in resuscitative

measures. It had also been studied by Moody³ that many people who experienced the phenomenon of getting out of their bodies, felt no pain and had stopped feeling pain of even intravenous needle pricks. Some report that even though they could see their physicians or other medical personnel pounding on their chest while in the out of body state, they felt no pain at all from resuscitative activities and started feeling pain immediately once they were revived. Recall of the events relates to the duration of cardiac arrest and cardiopulmonary resuscitation and senses is remembered by all the patients after been revived and it seems to be related to the degree and quality of brain perfusion during this whole period. Early defibrillation in a high percentage of patients with nontraumatic cardiac arrest in ventricular fibrillation in the first few minutes following their collapse brings a positive outcome.⁵

Basic life support, electric counter shock and necessary pharmacological agents should be used as the metabolism continues at about the normal rate,⁴ with a blood pressure of 20-30 mm Hg immediately after cardiac arrest, resuscitation without delay possibly only in witnessed cardiac arrests of the ventricular fibrillation type, may bring back a patient with a capacity to recall. Interested in such communications may try to probe the patients after revival from witnessed cardiac arrest.

Moreover it is extensively studied that if the cardiopulmonary resuscitation is started early, failing to defibrillate by counter shock, may worsen the situation.⁶ The delay in establishing

an adequate cerebral perfusion may cause a variable degree of brain damage even if a patient has revived eventually from a cardiac arrest, so expected communication will not be possible. Time taken to reestablish the brain perfusion, body temperature, the associated ailments and its duration along with its overall systematic ill effects, the drugs a patient had been taking and the drugs a patient receives as a cerebral protector during cardiopulmonary resuscitation are the important factors related to the extent of brain damage and their ability to communicate after revival.

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