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Approved by the
Pakistan Medical & Dental Council
&

Index Medicus for the Eastern
Mediterranean Region

Published by: Prof.Abdul Aziz for
 Prof.F.U.Baqai, Baqai Postgraduate
 Medical Institute, IIIC, 1/12, Nazimabad,
 Karachi

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Subscription rates: Per copy-in Pakistan
 Rs.100/= in SAARC countries U.S. \$20, in
 other countries U.S.\$30, Annual- in
 Pakistan Rs.300/= in SAARC countries US
 \$ 60, in other countries U.S.\$90.

Layout by : Aleemuddin Siddiqui
 Kazi Abdul Wahid.

VOL. 10 NO. 2 (APRIL — JUNE 2005)

QUARTERLY

JSP **JOURNAL OF**
SURGERY
PAKISTAN
 INTERNATIONAL

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EDITORIAL:

KEEPING PACE WITH MEDICAL INNOVATIONS

20th century has tipped balance of many disciplines of the human knowledge positively and by a measure unknown in the past to mankind. Such increased awareness and new knowledge has helped many innovations and inventions. Many facilities affecting the human life have positively changed for the better to unimaginable extent.

Advancements in physics and chemistry and man's eagerness to explore space has had a direct fall-out benefit on the medical facilities because of necessary new inventions for such endeavors and applying insight derived from it to medicine. Medical science itself has advanced in leaps and bounds. With this, the understanding of diseases, and their diagnoses have advanced to allow easier management and treatment of ultimate beneficiary, the patient.

New knowledge in physics have allowed us the development and usage of microscope, allowing us to see the previously "invisible" causative organisms of many diseases. New understanding of telescopes, laser, x ray, radioactive materials, ultrasound, oil refining and its down stream chemicals, energy, electricity, and electronics, have totally changed the way physicians of the past used to think and manage their patients.

In past five decades only we have witnessed miraculous changes in management of patients. A diabetic whose sugar in urine had to be tested in laboratory with Benedict's solution now can measure his blood sugar levels at his convenience at home. Insight and awareness of blood components now can tell four months average blood sugar of a patient by HbA1c, dramatically changing the management of diabetics. First the streptokinase and now C reactive protein gives an advance warning of an impending myocardial infarction and the extent of damage.

Today's senior physicians from 50s and 60s were trained on solid broncho, gastro and colonoscopes. Now every scope is flexible, adding laparoscope and arthroscope to physician's armaments. X ray of lung was a huge advancement once, now the PET and CAT scans are becoming common. CAT scan has now gone to 64 slices, helping noninvasive diagnoses of clogged or blocked coronaries; first of this was installed only a few weeks ago at John Hopkins. This is bound to make an indelible mark on the usage of coronary angiogram as curative procedure only in future, from being an invasive diagnostic one. To move away from even slightly possible harm from radioactive x rays, ultrasonograms, and MRI are added to diagnostic kit. Even MRI has improved to let the physicians have the exact pictures of moving parts in the position of pain and weight bearing.

Combination of x rays and contrast studies have changed the ways of diagnosing many diseases of gastro-intestinal tract, urinary tract, brain and spinal cord. Arterial catheters with radio opaque materials now allow indirect assessment of the blockages of coronary arteries.

Last five decades have also brought us the organ transplantation and joint replacements have become the daily usage technology. Nanotechnology is now allowing us to comprehend the sub-cellular activities and its implications on development of management of patients will change in all different ways. Stem cell research is yet another side of the new appreciation, as to how we may treat patients with neurological deficits and is opening up many other avenues of its application, once it is legally cleared and morally accepted to be fully developed for cloning.

Today's graduates must learn this history of changes of recent past in medical science and patient management. They must understand the paradigm shift from invasive to no invasive methods, be it diagnosis or treatment. And when invasive, it is minimally invasive like laparoscopes for many intra-abdominal conditions. All these changes will change the role of surgery in management of patient. However, a few elements of practice will never change in its importance in diagnosis and management of patients. They are simply a good history and clinical examination and meticulous methods in surgical practice, when indicated, all of which can and must be learnt by continuous repetitive practice only.

SUR. BARKAT ALI CHARANIA

OUTCOME OF STRANGULATED INGUINAL HERNIA

MUHAMMAD HASAN ABBAS

ABSTRACT

Objective

To document various presentations of strangulated inguinal hernia and its associated morbidity and mortality.

Patients and Methods

Fifty consecutive patients presenting over one year period to emergency department with non-reducibility and pain inguinal hernias were included in the study. Symptomatology and clinical findings at presentation were noted and patients were followed through their operative and postoperative period.

Results

Most of the patients (56%) were above fifty years of age. Ileum (74%), omentum (36%) and large gut (14%) were encountered in strangulation in descending order of frequency. Fifty four percent of contents were non-viable. Duration of symptoms at presentation was the most important determinant factor regarding gut viability (14.48 hours [viable] vs. 59.04 [non-viable], $p= 0.004$) and mortality (26.26 hours [alive] vs. 101.29 [dead], $p= 0.0001$). Mortality was also noted to be higher in older age. Pre operative findings of absent bowel sounds, abdominal distension and redness of swelling were associated with non-viable contents ($p < 0.05$) and along with peritonitis, when present were associated with high mortality ($p < 0.05$). Overall mortality was 14%.

Conclusion

Operative mortality of strangulated inguinal hernia remains high. Late presentation is the most important determinant of this outcome. Constipation, abdominal distention, absent bowel sounds and redness of swelling are important pre-operative findings associated with higher morbidity and mortality.

KEY WORDS:- Strangulated hernia, Inguinal hernia, Outcome.

INTRODUCTION

Hernia is a common condition afflicting both men and women since time immemorial. The dominance of inguinal hernias amongst external hernias is universal.¹ Strangulation is the most important and potentially life threatening complication of inguinal hernia.² The overall incidence of hernia itself and the incidence of its different complications especially strangulation is difficult to

establish even in the developed countries.³ In a developing country like ours, the incidence is likely to be even higher as people tend to present late and usually come when some complication sets in.⁴ True incidence can only be calculated if population at risk is known. This is very difficult in our circumstances. We, therefore, decided to study presentation, management and outcome of strangulated inguinal hernia in the surgical department of Mayo Hospital, Lahore.

PATIENTS AND METHODS

It was an observational study which included fifty consecutive patients, of either sex, above 12 years of age,

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who presented to the surgical emergency of Mayo Hospital with the complaint of irreducibility of inguinal hernia from July 2001 to July 2002. It was assumed that every patient presenting to the emergency with an obstructed inguinal hernia and new onset pain had strangulation until proven otherwise.⁵ Protocol also included all the patients fulfilling these criteria who subsequently died. No patient died in preoperative period.

After admission the patients underwent thorough assessment and all the data collected. The information recorded included; age, sex, detailed symptomatology at presentation including the chief complaint and related symptoms, duration of symptoms, past medical history, presence of coexisting diseases e.g. diabetes mellitus, hypertension, congestive cardiac failure or other cardiopulmonary diseases, ischemic heart disease etc. Important examination findings noted included vital signs, local examination of swelling including two dimensional sizes of swelling, findings on abdominal examination and bowel sounds. Other standard treatment measures (intravenous fluid/blood resuscitation, antibiotics, nasogastric aspiration etc.) were continued as necessary and not interfered for the purpose of the study alone. Also noted were operative findings and analysis of contents of hernial sac, type of anesthesia and surgical procedure for repair. Other parameters noted included post operative recovery, complications, mortality and hospital stay. The type and route of anesthesia was dictated by the condition of the patient. In most cases general anesthesia was administered through endotracheal intubation. A supramarginal hockey shaped incision was made, extending into upper part of scrotum. Method of hernia repair was mostly by Darning.

RESULTS

A total of 50 consecutive patients, above twelve years of age, were included in the study. All the patients presented to the surgical emergency of Mayo Hospital. Table 1 gives salient presenting features of strangulated inguinal hernia.

Mean age at presentation was 56 ± 20 years. Twenty eight (56%) patients were between 51 to 80 years of age. Among the 50 patients who presented with strangulated hernia, there was only one female patient (2%). The largest hernia presented was approximately 3015 cm² and the smallest one 33 cm². The average size of hernia was 286 cm². The time elapsed after the onset of strangulation and presentation was variable. The shortest duration at presentation was one hour while longest was 240 hours. The mean duration at presentation was 36 ± 51 hours.

The most frequent strangulated content encountered during surgery was small intestine (ileum, 74%). Omentum was next in frequency (36%) followed by large gut (14%). Table II shows frequencies with which various

TABLE-I PRESENTING CLINICAL FEATURES OF STRANGULATED INGUINAL HERNIAS

Clinical feature	No. of patients (n=50)	%age
Pain in swelling	50	100
Redness of swelling	7	14
Generalized abdominal pain	35	70
Vomiting	33	66
Abdominal distention	16	32
Constipation	23	46
Tenderness of swelling	50	100
Irreducibility of swelling	50	100
Absent cough impulse	50	100
Tense (swelling)	43	86
Abdominal tenderness	38	76
Absent bowel sounds	26	52
Peritonitis	11	22
Shock (at presentation)	1	2

contents were encountered in strangulated hernia according to their viability status and table III gives operative procedures performed. A total of 32 procedures were done on 28 patients. The most frequently performed procedure were resection and anastomosis of ileum (44% of procedures), omentectomy (40%) and stoma formation (8%).

In 46% of the cases operated, all the contents of hernial sac were viable and in another 46% all the contents were nonviable. In the rest (8%) among the double contents,

one was viable. Important clinical characteristics and operative findings associated with viability of contents are presented in table IV and V. Among the clinical features, presence of bowel sounds was an accurate predictor of gut viability (Table V). Abdominal distention when present

TABLE-II PRESENTING CLINICAL FEATURES OF STRANGULATED INGUINAL HERNIAS

Content	No. of Patients with Content N=50	Non- Viable Contents	Viable Contents
Ileum	37	17 (46%)	20 (54%)
Omentum	18	13 (72.2%)	5 (27.7%)
Large Gut	7	1 (14.3%)	6 (85.7%)
Testis	2	1 (50%)	1 (50%)
Meckel's Diverticulum	1	1 (100%)	0
Appendix	1	0	1 (100%)

was the strongest negative predictor of gut viability (Odds Ratio 0.147, $P < 0.0001$). All the patients with features of peritonitis and redness of swelling had nonviable gut. Postoperatively the group with nonviable hernial sac contents again had more frequent incidence of various complications.

The duration of hospital stay was variable. In patients with viable contents peroperatively and with no postoperative complications, average hospital stay was 2-3 days. Patients who underwent gut resection or had other

TABLE-III SURGICAL PROCEDURES PERFORMED AND TECHNIQUES OF HERNIA REPAIR USED

Procedure (n=32)	Frequency	%age
Resection and anastomosis of ileum	14	44
Omentectomy	13	40
Ileostomy and mucus fistula	3	9
Colostomy of large gut	1	3
Orchiectomy	1	3

Type of repair (n= 50)	Frequency	%age
Darning	35	70
Obliteration of inguinal canal	11	22
Bassini	4	8

postoperative complications had a prolonged stay (6-8 days). Twenty patients (40%) developed some postoperative complication. These included pneumonia

TABLE-IV FACTORS AFFECTING OUTCOME

Signs/Symptoms	Odds ratio for viability	P Value	Odds ratio for death	P Value
Abdominal tenderness	0.854	0.325	1.152	0.516
Bowel sounds	2.201	0.012	0.813	0.069
Constipation	0.626	0.142	1.303	0.023
Abdominal distension	0.147	0.0001	3.071	0.003
Generalized pain	0.783	0.193	1.125	0.328
Peritonitis	0.41	0.001	2.144	0.000
Redness of swelling	0.46	0.008	1.587	0.018
Tenderness of swelling	0.60	0.40	-	-

(lobar or bronchopneumonia) (20%) sepsis syndrome (14%) and local wound infection (6%). Septicemia carried

TABLE-V FACTORS ASSOCIATED WITH UNFAVORABLE OUTCOME

	Viabile contents	Non-Viable contents	P Value	Alive	Dead	P Value
Age	53.96	58.56	P= 0.40	53.91	70.71	0.042
Duration	14.48	59.04	P = 0.004	26.26	101.29	0.0001
Size of Swelling (cm ²)	396.04	427.60	P = 0.105	231.47	623.29	0.100
Stay (days)	4.26	5.35	P = 0.231	-	-	-

the worst prognosis with 100% mortality.

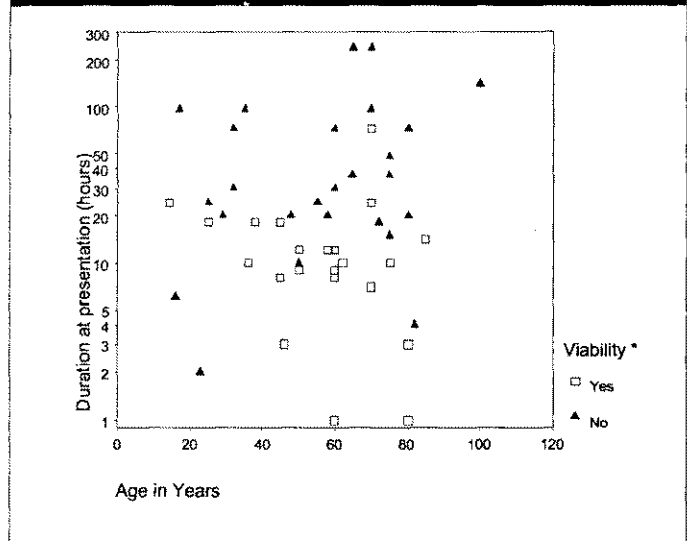
There were 7 mortalities (14%). Factors associated with mortality included: age above 60 years, duration of strangulation of more than 48 hours, nonviability of gut and postoperative septicemia. Duration of symptoms turned out to be most important determinant of subsequent gut viability, post operative complications and death (Graph 1).

DISCUSSION

The exact incidence of occurrence of strangulated inguinal hernia is difficult to establish. Attar Z previously reported an incidence of 9.6% in children⁶. Western studies variously described an incidence of 4-5%^{7,8} and 2.8%.⁹ This study this did not attempt to look for this incidence.

Strangulation of inguinal hernia may occur throughout life. The mean age at presentation in this study was 56 ± 20 years. Andrews reported a sharp rise in incidence of strangulation after 60 years of age which peaks at 70-76 years.¹⁰ Another western study observed an age range between 40-70 years.⁵ A French study, however, noted most of patients (80%) who presented with strangulated inguinal hernia were below 45 years of age.¹¹ In the present study only one out of fifty patients was female. Various Western studies, however report a male to female

GRAPH - 1 VIABILITY OF HERNIAL CONTENTS ACCORDING TO AGE AND DURATION AT PRESENTATION



incidence of 10:1 and 6:1.⁸ A study in Pakistan showed no female presenting with strangulation among 65 patients.¹²

The duration of strangulation at presentation was variable. Western series also show that delay in presentation is not uncommon ranging from 1-8 days with 30% having duration of strangulation of more than 24 hours.⁷ A recent study from Turkey shows similar figures (1-4 days) with 35% presenting after 48 hours.¹³ The most frequent content encountered in hernial sac involved in strangulation was ileum. It was present alone or along with other contents in 74% of cases, which is similar to the incidence noticed by Raymond Pollock (70-80%).⁷ Omentum as a sole content was present in 12% of cases. A western and a mediterranean studies noted an incidence of 10% and 27%, respectively, for omentum alone.^{5,14} Large gut was present in 14% of cases, the most frequent being sigmoid colon. Different western authorities have noted an incidence of 0 % to 5% of large gut involvement in strangulation.^{5,15} Gut (both small and large) was present in 44 out of 50 cases and in 18 out of 44 cases; it was nonviable (42%). In 6 out of 18 cases where gut was non viable the duration of strangulation was less than 24 hours. This observation differs from that noted by Bowesman who did not note any incidence of gut nonviability if the duration of strangulation was less than

24 hours.¹⁶ In the present study a gut resection rate of 33% was noted in bowel released within 24 hours of strangulation, which also differs from that described by Andrews and Bowesman.^{5,16} In the study done by former author resection rate of 7%, 11% and 27% was noted in gut released in less than 24 hours, 24-27 hours and after 48 hours respectively. Another study noted resection rate of 51% after 48 hours of strangulation.¹⁵ Omentectomy was done in 13 cases including 8 cases in which omentum was released within 24 hours of strangulation. This is again in contradiction to that described by Bowesman.¹⁶

The most frequent postoperative complication was bronchopneumonia and basal lung collapse. Complications related to chest occurred in 10 patients (20% incidence). In another large pulmonary complication occurred in 7% of patients.⁷ Most of the patients developing pulmonary complications in the present study were beyond middle age and had long history of smoking. Half of these patients had past history of chronic obstructive pulmonary disease. All the patients with gangrenous intestines (6 out of 20) developed postoperative septicemia. Post operative incidence of septicemia was therefore 33% with nonviable gut. R&T noticed this rate to be 77%.¹⁷ Postoperative wound infection developed in 6% of patients. All these patients had undergone gut resection.

Seven patients died in the post operative period (mortality rate of 14%). Various studies done previously on strangulated hernia attribute mortality to advanced age, duration of strangulation and presence of coexisting diseases. All the patients who died in this study were above 60 years of age. Hancock noticed a mortality rate of 5.4% at the mean age of 43 years rising to 11.5% at the mean age of 66 years in patients presenting with strangulated hernia.¹⁸ A Mediterranean study reported figures of 10% and 18.2% mortality at ages below and above 60 years respectively.¹⁴ A 5 year long study in US army personnel reached similar conclusions.¹⁹ Older persons have less physiological reserves to deal with stress.²⁰ None of the studies quoted above analyzed the contribution of age alone to the higher mortality. The contribution of coexisting diseases (e.g. diabetes mellitus, COPD etc) prevalent in older age is well recognized and described in all these studies. This study also noted a tendency at older age to present late (24.41 vs. 53.81 hours at below and above 60 years respectively). The mortality at above sixty years, however, remained statistically significant even after controlling for duration at presentation and concomitant diseases. The results, however, should be interpreted with caution because of rather small sample size.

Duration of strangulation at presentation is the most important determinant of the outcome regarding gut viability, resection-anastomosis rate, morbidity and most

importantly mortality. Andrews noted a mortality rate of 1.4%, 10% and 21% when strangulated hernia presented within 24 hours, 24-47 hours and after 48 hours respectively. In the present series these rates were 2.86%, 40% and 50%. It was noticed that absence of bowel sounds, distending abdomen, generalized abdominal tenderness as subtle evidence of peritonitis and redness and warmth of swelling were all associated with a high probability of finding nonviable gut which in turn is associated with higher post operative mortality. We could not find studies which analyzed the preoperative probability of such outcomes based on the presence of these clinical findings. The most probable reason of this could be that almost all the literature available on strangulated hernia is retrospective in nature.

It appears that dynamics of strangulation of contents of hernial sac and its vascular supply do not behave in a sufficiently predictable way to give uniform and comparable outcome based on the duration of strangulation, age of patient and other demographic variables as seen above in comparison of various studies. The clinical examination of local swelling and generalized signs may be more helpful in an individual case in predicting outcome and need to be looked into larger prospective studies as these signs and symptoms have not been adequately addressed in largely retrospective analysis of available data.

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LICHTENSTEIN REPAIR VERSUS DARNING REPAIR IN DIRECT INGUINAL HERNIA

ASHFAQ AHMED JAVED, RAEES AHMED, AURANGZEB

ABSTRACT

Objective:

To compare the merits of Lichtenstein repair with Darning repair in Army soldiers having direct inguinal hernia.

Study Design and Setting

A comparative, interventional clinical study in 100 cases, carried out in Combined Military Hospital, Malir, Karachi and Pakistan Air Force Hospital Faisal Base, Karachi from March 2002 to March 2004.

Patients & Methods:

During the study period, serving soldiers reporting to the surgical outdoor department of both hospitals were selected according to the inclusion criteria and randomly assigned to either group A (Lichtenstein repair) or group B (Darning repair). Written informed consent was obtained from all the patients before induction in the study groups. 50 patients each were assigned to both the groups. Thorough clinical examination and laboratory profile was done to assess pre operative fitness for general anesthesia. The parameters used to assess the results were duration of stay in hospital, patient comfort and fitness, complications and recurrence. After the respective procedure, as per the group of the patients, they were followed up on day 7, 1 month, 3 months, 6 months and 1 year. On each visit thorough history and clinical examination was done to assess the condition of the patient. Physical efficiency requirements for serving soldiers were also assessed and complications noted.

Results:

Overall 58% patients presented with right inguinal hernia and 39% with a left, while 3% patients had bilateral hernia. The overall incidence of postoperative complications was 10.4%. Scrotal hematoma occurred in 3% in group A and 6% in group B. The wound infection occurred in 1% of patients in group A and 3% in group B. 10% of group A and 15% of group B had postoperative pain, which required oral NSAIDS for 4-7 days. 2% patients of group B and none of group A developed urinary retention post operatively.

Conclusions:

The incidence of complications and recurrence is lower in Lichtenstein repair as compared to Darning repair; therefore, we recommend Lichtenstein hernial repair for direct inguinal hernia.

KEY WORDS:- *Inguinal Hernia, Darning repair, Lichtenstein.*

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INTRODUCTION

Inguinal hernia is a common problem in soldiers. There are several predisposing factors leading to the development of hernia in an army soldier e.g., strenuous

exercise, lifting heavy weight, cough, constipation etc, as all these lead to weakening of fascia transversalis¹. Regarding indication for repair of inguinal hernia the symptoms of groin pain and dragging sensation are important. The risk of strangulation should not be the sole criteria for operation but patient's symptoms and hours of work lost in the job should be taken into consideration². The diagnosis of inguinal hernia depends upon good physical examination including ring occlusion test, cough impulse test, and reducibility³.

Description of inguinal hernia anatomy dates back to early 19th century. It was a contribution of four surgeons named Camper, Cooper, Hesselbach and Scarpa. With the advent of general anesthesia; many different techniques of inguinal hernia repair were devised⁴. All these repairs were based on the principles of reinforcement of the posterior wall of the inguinal canal with tightening of internal ring and reinforcement of anterior wall of inguinal canal with tightening of external ring. This can be done either externally (Lucas Champinere, Shouldice 1949, Lichtenstein 1987, Stoppa 1989) or via an intra-abdominal approach by laparotomy (ail 1891) or laparoscopically (Gen 1990, Velez and Klein 1990). The repair of inguinal hernia has over the years been revolutionized, but still Darning is the most prevalent method of open repair. However the advent of day care surgery and use of local anesthesia have markedly improved the different techniques for hernia repair⁵.

Different randomized trials have over the years shown that regarding the criteria of the good repair the factors like operative time, duration of hospital stay, patient comfort and recurrence, different repair methods can be compared. Shouldice repair has been declared as the best procedure for repair of primary inguinal hernia. It can be done under local anesthesia⁶. Similarly different comparative clinical trials have also been done comparing these methods with conventional open repair methods. In all these studies there was no significant difference in the postoperative outcome regarding recurrence and patient comfort. Only difference in these trials was in the operative time and postoperative complications and as in days to resume normal daily activity⁷.

Darning is done after ligation of hernial sac by applying a loose mesh with non-absorbable suture prolene¹ in a round body needle in a figure of 8 fashion between conjoint tendon and inguinal ligament. Lichtenstein repair is done by applying mesh made of some non-absorbable material like prolene and applying interrupted sutures with prolene 2/0⁸. This stresses the need to compare these two techniques in light of criteria used in many studies and evaluates the superiority of the one of the two repairs in army soldiers.

PATIENTS AND METHODS

A comparative, interventional clinical study in 100 cases, carried out in Combined Military Hospital, Malir, Karachi and Pakistan Air Force Hospital Faisal Base, Karachi from March 2002 to March 2004.

Inclusion Criteria:

- 1- Age 20-50 years
- 2- Simple direct hernia
- 3- Serving soldiers

Exclusion Criteria:

- 1-Associated conditions (constipation, bronchitis, hypertension and diabetes mellitus)
- 2- Previous abdominal surgery
- 3- Age < 20 or > 50 years
- 4- Recurrent or complicated hernia

Equal number of patients (50 in each group i.e., group A Lichtenstein repair and group B Darning repair) were selected and randomly assigned to both groups using odd and even numbers. All were male from 20-50 years of age.

Darning repair was performed by making a figure of 8 mesh starting from the pubic tubercle till the deep inguinal ring with prolene No.1 (round body). First bite was always taken from the periosteum of the pubic tubercle. The mesh was made between the conjoint tendon and inguinal ligament.

LICHTENSTEIN REPAIR

Prolene mesh 6 X 11 cm size was shaped and sutured to fill the defect between inguinal ligament and conjoint tendon and muscle with 00 prolene.

All patients were given diclofenac sodium intramuscularly in two doses post operatively as well as injection cefuroxime 1 gram 8 hourly for 24 hours. Skin stitches were removed after 7-10 days. They were followed up for one year and were called for examination at 3-5 days, 1 month, 3 month 6 month, 1 year. Patients were discharged from hospital after 7 days and were sent back to their units with instructions to avoid any strenuous work, running, physical training and parade for 4 weeks.

During postoperative follow up patients were given a thorough clinical examination with inspection of the operation wound. Development of any associated conditions leading to increased intra abdominal pressure was noted. Physical efficiency test (PET which consists of a two mile run in 22 minutes, 20 push ups, 20 sit ups in 2 minutes and 20 feet rope climbing), which is a strict criterion to assess battle worthiness of soldiers in army, was undertaken after 3 months in all the patients. Patients were re-examined at 6 months, 9 months and 1 year for follow up.

RESULTS

100 patients with primary inguinal hernia were included in the study. The age range of the patients was between 20 to 50 years of each group, with mean age and standard error of mean in-group A and group B respectively (Table I). 10 patients out of 50 were having hernia on left and 40 patients having right sided in group A. Nine patients out of 50 were having hernia on left side and 41 patients having right sided in group B. Hospital stay was 03 days in Group A and 05 days in Group B equal in both groups in those cases who recovered smoothly. Those patients who developed complication in both groups were kept for management of complication for another few days. There was significant difference between postoperative complications in two groups as scrotal hematoma wound sepsis, postoperative fitness and performance as soldier regarding physical efficiency test. Because of lesser complication rate, less duration of hospital stay, low recurrence and early return to units as fit soldiers, Lichtenstein repair was concluded to be the better option of the two open repair techniques.

S. No	Variables	Group A		Group B	
1	Side of Hernia	Rt. 36 Bl 06	Lt. 08	Rt. 35 Bl 06	Lt. 09
2	Age	34 yrs.		35 yrs.	
3	Hospital Stay	03 Days		05 Days	
4	Return to work	14 Days		28 Days	
5	PET (Number of patients passing)	03 Month 40 / 50 06 Month 50 / 50 12 Months 50 / 50		03 Months 25 / 50 06 Month 40 / 50 12 Month 45 / 50	
6	Complications				
	Infection	02%		04%	
	Scrotal Hematoma	04%		06%	
	Recurrence	Nil		02%	
	Post Op Pain	10%		15%	
	Urinary Retention	Nil		02%	

DISCUSSION

Inguinal hernia is the commonest and the oldest surgical problem all over the world. The peak incidence is 40-50 years of age (48%). Inguinal hernia was more on the right side (> 70 %), which is in comparison with other studies in Pakistan⁹. Hernia is a disease of the labor class as most of our patients are manual worker (56%) as many different local studies have proved¹⁰. The fundamental defect is in the anterior abdominal wall e.g., the deficiency in the transversalis fascia. If this layer remains intact, hernia is

unlikely to develop. So repair of hernia in adult must include restoration of this layer, which constitute the posterior layer or strengthening it with mesh. Various methods have been described for reconstruction and repair of posterior wall of inguinal canal. It is the technique, experience and skill of surgeon that account for difference in the final results¹¹.

The transversalis fascia should never be depended upon in groin hernia repair as it contains few aponeurotic fibers from overlying transversus abdominus tendon. This fascia inserts into Cooper's ligament. Conjoint tendon is a myth. Almost invariably internal oblique is muscular in groin until it reaches the rectus sheath. There is only one tendon structure above the canal floor in the groin and that is a transversus abdominus. It inserts into the rectus sheath¹².

Good operative technique, use of postoperative antibiotics and better postoperative care has considerably decreased postoperative complications. However, some of the complications do occur due to difference in repair technique in our study¹³. Wound sepsis was seen in 2% of patients with Lichtenstein repair and 4% in darnning repair. The increased proportion of the wound infection in Darning repair was due to more scrotal hematoma in this group. Average proportion was 10% in darnning and 14% in Lichtenstein repair as most of the trainees were not familiar with Lichtenstein repair technique¹⁴. Wound infection in Darning repair is close to 6% same as superficial wound infection seen in the study of 100 patients with Darning repair at Veterans Medical Center, Long Beach California. In our study infection rate was 2% in Lichtenstein group and 4 % in Darning group. Similar results have been reported in most of the studies in Pakistan. Hematoma is the most common cause of wound infection¹⁵.

Scrotal swelling is mostly due to collection of blood, temporary obstruction of venous and lymphatic flow at the deep ring caused by the Lichtenstein repair is also one of prime factor. 16% of patients with Lichtenstein repair developed scrotal swelling compared to 11.8% patients in another study in Rawalpindi¹⁶. Lack of recurrence has always been the criteria of good repair as it is main thing one sees in follow-up. Although in small group of patients recurrence is attributed to inadequacy of fascial elements but vast majority of recurrences result from poor operative technique and failure to identify sac¹⁷. A Hernia repaired under tension does not heal normally and is subject to disruption throughout the period of wound healing¹⁸. The maximum incidence of recurrence is seen in first 6 months after surgery, there after the incidence falls off to the plateau at 5 years. Lichtenstein has reported recurrence rate of 3.5% and Darning has 3.3% rate¹⁹. In our study 05% recurrence was seen in case of Darning repair while there was no recurrence in Lichtenstein repair. It is

therefore suggested that recurrence seen after 6 months is due to factors other than technical errors or selection of inferior procedure. Late recurrence is due to decreased synthesis of collagen or increased collagen degradation.

It is now generally accepted that patients should return to work within 4 weeks of an uncomplicated hernia repair. Much of the postoperative tissue strength is present in immediate postoperative phase due to use of prolene mesh, so this encouraged early ambulation. 90 % of soldiers qualified PET in Lichtenstein group and only 50% in Darning group after 3 months of surgery due to local pain and stiffness²⁰.

In our study there was no recurrence in initial 6 weeks in both groups but in one year follow up 5% of patients developed recurrence in Darning group and no recurrence in Lichtenstein group.

Now laparoscopic mesh repair is coming up but considerably costly in our setup. Moreover the limitations of laparoscopic method in repair of recurrent hernia have also added to the importance of Darning and Lichtenstein repair.

CONCLUSION

Primary inguinal hernia is a common occurrence in soldiers performing heavy duties. It is concluded that "Lichtenstein" type of repair is the more better as compared to Darning with respect to patient comfort and fitness, complications and recurrence along with performance of required strenuous physical duties by a soldier. Lichtenstein method, which is tension free, easy and recommended for direct inguinal hernia.

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PROGNOSTIC FACTORS IN ACUTE MESENTERIC ISCHEMIA

SYED ASIM ALI JAFFARY

ABSTRACT

Objective

The objective of the study was to explore the prognostic factors by comparing survivor from non-survivor group with the diagnosis of acute mesenteric ischemia.

Patients and Methods

This study was conducted at the Aga Khan University Hospital, Karachi over six and half years, Eighteen patients were hospitalized with the diagnosis of acute mesenteric ischemia (AMI). Survivor and non-survivor groups had 8 and 10 patients respectively, giving the overall mortality rate of 56%.

Results

The surviving patients had significantly shorter length of bowel necrosis, i.e. 176cm (mean) compared to 525cm (mean) in non-survivor group (P-value 0.0003). The surviving patients also had less number of "re-look" laparotomies as compared to non-survival group; mean 1.1 and 2 respectively (P-value 0.0002). The higher number of "re-look" laparotomies were attributed to incorrect visual determination of bowel viability at the time of first laparotomy. The duration of symptoms and interval between arrival to hospital and operation were not different between the two groups (P values 0.98 and 0.65 respectively).

Conclusion

Length of bowel necrosis and number of surgical procedures are the prognostic factors in acute mesenteric ischemia. Comparing the two groups also showed that difference in age, sex and symptoms were insignificant.

KEY WORDS:- *Acute vascular insufficiency intestine, Mesenteric ischemia, Superior mesenteric artery embolism, Superior mesenteric artery thrombosis.*

INTRODUCTION

Acute mesenteric ischemia (AMI) in the distribution of superior mesenteric artery affects all or part of the small intestine and the right half of the colon. AMI is a life threatening vascular emergency that has a mortality rate of 50% to 90%¹. It is being diagnosed with increasing frequency in the past few decades. This is because of growing awareness of the disease and increase in the elderly population, the group at a higher risk for this catastrophe. Despite the progress in understanding the

pathogenesis and the development of modern treatment modalities, acute mesenteric ischemia remains a diagnostic challenge for clinicians, and the delay in diagnosis contributes to the continued high mortality rate. Early diagnosis and prompt effective treatment are essential to improve the clinical outcome². The objective of this study was to explore the prognostic factors and measures, which will improve the management and outcome.

PATIENTS AND METHODS

This study was conducted in the general surgery service of the Aga Khan University Hospital, Karachi. The time frame of this study was six and half years. All cases with the diagnosis of "acute vascular insufficiency intestine" were searched in the hospital medical record by using the

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International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) and the cases with the diagnosis of acute mesenteric ischemia were studied. Data on the following variables was collected; age & sex, presenting symptoms with their duration, imaging studies, time taken to operate, operative procedure and findings, outcome and follow up. The data was compiled into DBase III Plus. Statistical comparisons between the surviving and non surviving patients were made using the Chi square and t-tests. A P-value using Epi Info statistical package of less than 0.05 was considered significant.

RESULTS

During the study period, 18 patients were diagnosed as having acute mesenteric ischemia. The male to female ratio was 2.6:1. Mean age was 51.1 years, but interestingly one was 15 years old and two were between 20 and 30 years. All patients complained of abdominal pain. Vomiting and nausea were present in 13 and 8 patients respectively. Diarrhea was the third most common complaint in nine patients. Hematochezia and hematemesis were present in four and one patient respectively. Duration of symptoms defined as the interval between the onset of symptoms and arrival to hospital, was four days (mean). Most of the patients were getting some sort of treatment from general practitioners. Two patients were transferred from local hospitals and two were brought from interior Sindh. One patient came to our emergency room and was discharged after symptomatic treatment. After six hours the same patient came back, and this time he was operated.

In this study angiography was performed in two cases (Fig. I) and CT scan in four patients. CT scan showed vascular occlusion in three patients (fig. II & IIIa and IIIb). Time to operate was defined as the interval between the arrival of the patient to the hospital and start of surgery. The average time to operate was 38 hours in survivor group and 30 hours in non-survivor group. Five patients were operated within 12 hours and four were operated after two days of admission.

In this study average length of necrosed bowel was 368 cm. It was less than 127 cm. in five patients. Eight patients had more than 80% of bowel necrosis, while in four patients whole length of the bowel supplied by the superior mesenteric artery was necrosed. A total fourteen re-look operations were performed. In eleven laparotomies further resection of bowel was done. In four patients the procedure was abandoned as the whole of the bowel supplied by the superior mesenteric artery was necrosed. Only in one case resection and primary anastomosis was done because small segment of small intestine was necrosed without any gross contamination. The surviving patients were shown to have a significantly shorter length of bowel necrosis, (P-value 0.0003).

FIGURE - I SELECTIVE MESENTERIC ANGIOGRAM SHOWING THE STENOSIS JUST AT THE BEGINNING OF SUPERIOR MESENTERIC ARTERY



FIGURE - II CT SCAN SHOWING THE EMBOLUS IN THE SUPERIOR MESENTERIC ARTERY



FIGURE - III - A CT SCAN SHOWING THROMBUS IN THE SUPERIOR MESENTERIC ARTERY



Comparing the survivor and non-survivor groups revealed that differences in the variables like age, sex, symptoms and duration of symptoms were present but because the differences were small and total number of cases was few;

FIGURE - III - B



these differences were not statistically significant. Time to surgery was unexpectedly longer i.e. 38 and 30 hours in survivor and non-survivor groups respectively. This prolonged duration in survivor group was due to one of the patients who, was initially admitted in medical ward for five days. If this case was excluded then the average time would be 30 hours in both groups. The length of the bowel necrosed and the number of surgical procedures per patient for resection showed significant difference in the two groups. The mean number of surgical procedures for resection in survivor and non-survivor groups was 1.1 and 2.0 respectively (P. value 0.004). In eleven re-look operations further resection of bowel was performed. Ten such laparotomies were done on patients who ultimately expired. The difference in the length of the bowel necrosed in the two groups was also significant (P. value 0.0003) (Table I).

DISCUSSION

Acute mesenteric ischemia is a surgical emergency diagnosed with an increasing frequency within the last few decades. This increasing frequency is mainly secondary to increasing awareness of the disease. Unfortunately in Pakistan the incidence, etiology, presentation and outcome of the disease is not fully known. The peak incidence of AMI is in the sixth and seventh decade with a male dominance^{2,3}. In our series the mean age was 51 years. The etiology of AMI includes superior mesenteric artery embolism (50%), superior mesenteric artery thrombosis (25%), superior mesenteric vein thrombosis (5%) and low-flow non-occlusive state (20%)¹. The literature suggests that early recognition and aggressive treatment of acute mesenteric ischemia results in a good survival rate⁴. Our series has confirmed that early recognition of AMI is difficult and a continuing diagnostic problem. The non specific early symptoms, signs and laboratory investigations were unhelpful in early diagnosis. Angiography is the investigation of choice as it can diagnose ischemia before infarction⁵, can differentiate

TABLE-I COMPARISON BETWEEN SURVIVORS AND NON-SURVIVORS

Variables	Survivor n-8	Non-survivor n-10	P-value
Mean age	49 years	52 years	0.739
Mean duration of symptoms	4 days	4 days	0.98
Mean time to operate	38 hours	30 hours	0.659
Mean number of surgical procedures	1.1	2	0.004
Mean length of bowel necrosis	176 cm	525 cm	0.0003

between occlusive and nonocclusive ischemia and transcatheter intra-arterial medication to overcome vasoconstriction can be given. Early and extensive use of angiography is mandatory in all suspected cases of mesenteric ischemia.

CT scan can give early diagnosis and exclude other intra-abdominal pathologies. Contrast-enhanced spiral computed tomography is sensitive and highly specific in the diagnosis of AMI⁶. In this study angiography was performed in two cases and CT scan in four patients. We found vascular occlusion in three patients who had CT scan. Angiography is an invasive procedure and requires expertise to perform and to interpret the images. As a pre requirements for angiogram the clotting profile should not be markedly deranged. All these factors are time consuming particularly at odd hours so CT scan was preferred to angiogram in a few instances.

Two variables were identified which were statistically significant in the patients' outcome. The surviving patients were shown to have a significantly smaller length of bowel necrosed and less number of re-look surgical procedures. The higher number of re-look procedures can be attributed to incorrect determination of bowel viability at the time of first laparotomy. The visual assessment of bowel viability is notoriously unreliable⁷. It is estimated that visual assessment has sensitivity of 78% and specificity of 90%⁸. To assess the bowel viability more accurately the fluorescein dye and/or doppler studies are used pre-operatively. Reported predictive factors for survival are the time duration between onset of symptoms and therapy⁹. In our study the mean interval between the onset of symptoms and arrival to hospital was 4 days and mean interval between hospitalization and surgery was 34 hours. Both these intervals need to be decreased markedly for better outcome. This is possible only when one has a high index of suspicion and aggressive approach for restoration of mesenteric perfusion. Early diagnosis by angiography or CT scan and immediate start of therapy are essential to improve the outcome of patients with acute intestinal ischemia.

To avoid short bowel syndrome bowel (SBS) resection should be combined with mesenteric revascularization. Resection of malperfused bowel should be done

cautiously and should be followed automatically by second look operations. Special expertise and good team work of visceral and vascular surgeons are required to achieve better therapeutic results^{10,11}. Creative surgical techniques have been devised to treat SBS and include intestinal tapering and lengthening procedures to prolong intestinal transit time, bowel interposition, and the creation of neosphincters and valves to treat rapid intestinal transit^{12,13}. These procedures remain controversial. Improved surgical techniques and refinement of anti-rejection medications have taken small bowel transplantation from an experimental procedure to one now accepted as an option for managing SBS. The United Network of Organ Sharing reports that 392 small bowel transplants were performed. This number excludes multivisceral transplants where small bowel transplant was also performed. Since 1997, patient and graft survival rates expressed as a percentage of those transplanted at one, three and five years are 78.9/63.8, 62.0/48.9 and 49.6/37.4¹⁴. Postoperative death is most often due to sepsis associated with acute rejection, technical failure and central venous line or chest infection¹⁵. Late postoperative mortality is due to Epstein-Barr virus-associated lymphoproliferative disease. Since survival rate in patients on home peripheral nutrition for benign conditions at one and three years ranges from 87-96% and 70-90%¹⁶, small bowel transplant should be reserved for patients with limited venous access due to repeated bouts of venous thrombosis and/or catheter sepsis and severe PN-associated liver disease.

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COMPARATIVE STUDY OF LATERAL INTERNAL SPHINCTEROTOMY WITH ANAL DILATATION FOR THE TREATMENT OF CHRONIC ANAL FISSURES

TARIQ GR, BANGASH KA

ABSTRACT

Objective

To compare the results of lateral internal sphincterotomy with anal dilatation in chronic anal fissure.

Design

Interventional study

Place and Duration of Study

It was carried out in surgical department of PNS Shifa hospital Karachi, from October 2003 to September 2004.

Patients and Methods

The first 80 consecutive patients of either sex irrespective of age were included in this study. All these patients were with chronic anal fissure, with failed medical treatment and long history. They were divided into two groups each comprising 40 patients, Group A had lateral internal sphincterotomy (LIS) and Group B had anal dilatation (AD). All these patients were operated under spinal / general anesthesia in lithotomy position.

Results

LIS was associated with remarkably low incidence of postoperative complications. Anal incontinence was seen in 12.5% and recurrence in 2.5% of patients in case of LIS, while the corresponding figures for AD were 50% and 7.5% respectively.

Conclusion

LIS being a superior surgical procedure than AD should be the procedure of choice in chronic anal fissures.

KEY WORDS

Chronic anal fissure, Lateral internal sphincterotomy

INTRODUCTION

Fissure consists of a crack or tear in the vertical axis of the squamous lining of the anal canal between the anal verge and the dentate line¹. Fissures are often associated with secondary changes that may include a sentinel tag, hypertrophied anal papilla, induration of the edge of the fissure, and relative anal stenosis secondary to spasm or a fibrotic internal sphincter^{2,3}. Anal fissure occurs most

frequently in young adults and affects both sexes equally. The great majority of fissures occur in the posterior midline; although anterior midline fissures are seen in 25% of affected women and 8% of affected men⁴. About 3% of patients have both anterior and posterior fissures. The symptoms manifested by patients with fissures are pain during and after defecation, constipation, bleeding, discharge, and itching. Avoidance of defecation due to pain further compounds the problem⁵. Chronic anal fissure is a common surgical disease⁶. A right combination of proper diet, bulk laxatives, short-term topical creams and sitz baths can help in effectively managing acute (superficial) fissures. Topical 0.2% glyceryl trinitrate may

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also give dramatic relief of pain⁷. Medical treatment has a limited role in chronic anal fissures. Chronic fissures are managed by subcutaneous or open lateral internal sphincterotomy, posterior internal sphincterotomy or manual dilatation^{8,9}.

This study was conducted to compare lateral internal sphincterotomy (LIS) with anal dilatation (AD) for effectiveness, ulcer healing, complications and recurrence.

PATIENTS AND METHODS

This interventional study was carried out in surgical department of PNS Shifa hospital from October 2003 to September 2004. The first 80 consecutive patients, 56 males and 24 females with age ranging from 18-40 years having chronic anal fissure were included in this study. Patients having fissures associated with other pathologies e.g. hemorrhoids, fistula-in-ano, perianal abscess, inflammatory bowel disease, intestinal carcinoma, hypertension, diabetes mellitus, tuberculosis and previous surgical procedures on anal canal were excluded.

All these patients were with symptomatic anal fissures, having failed medical treatment with long history. They were divided into two groups each comprising 40 patients. Group A had lateral internal sphincterotomy (LIS) and Group B had anal dilatation (AD). All these patients were operated under spinal / general anesthesia in lithotomy position. Digital rectal examination and proctoscopy were done. In LIS, internal sphincter was divided for a length of 2 cm. The anal skin tag or fibrous polyp if present was excised. Haemostasis secured and gauze dressing applied. Patients were discharged after 24 hours. Patients assigned to AD were examined under anesthesia and a four-finger dilatation was done. A gradual anal stretching up to four (2+2) fingers with gentle circular maneuvering of the inserted fingers was used to achieve the desired effect. Gauze was placed inside the anal canal for 8 hours. Patients were discharged after 24 hours. A follow up after 1st, 2nd and 6th week and then after 3 months was carried out for all patients.

To assess the effectiveness of both treatment modalities the fissure healing was assessed by looking for epithelialization at base of fissure. Both groups were also analyzed for the range of complications and recurrence.

RESULTS

Male to female ratio was 2.3:1. Common presenting complaints in these patients were painful defecation in all 80 patients and constipation (Table I).

In this study 70 (87.5%) patients had posterior midline fissure, 9 (11%) had anterior midline fissure and only 1 (1.2%) patient had both anterior and posterior fissures. In

our study fissure healing at the end of 6th week was almost comparable in both groups as it was 97.5% (39

TABLE-I PRESENTATION OF ANAL FISSURES (N=80)

Symptoms	No of Patients	%
Painful defecation	80	100%
Constipation	72	90%
Bleeding per rectum	44	55%
Discharge per rectum	23	29%
Pruritus	17	21%

patients) with LIS and 95.5% (38 patients) with anal dilatation. In patients who underwent LIS, incontinence for feces and incontinence for flatus was 5 % (2 patients) and 7.5% (3 patients) respectively. Incontinence for feces and incontinence for flatus turned out to be 20% (8 patients) and 30% (12 patients) with AD respectively. Recurrence of fissure was 2.5% (1 patient) and 7.5% (3 patients) for LIS and AD respectively.

DISCUSSION

The cause of anal fissure has been debated for many years. Trauma, usually because of passage of a large or hard stool, is believed to be a common initiating factor. Yet, some patients offer no such history; others simply experience a bout of diarrhea. More importantly from a practical view is the question of why many simple traumatic fissures proceed to heal while others become chronic. The key insight into this problem came with the observation in the 1970s that resting anal pressure is elevated in fissure patients^{10,11}. This observation, even if it did not fully explain the pathogenesis of fissure, at least provided an explanation for the accepted (and successful) surgical therapies of the time: anal dilatation and internal sphincterotomy, both of which decrease resting pressure. More recent studies using ambulatory manometry have confirmed the presence of sustained resting hypertonia, with abnormally few episodes of spontaneous internal anal sphincter (IAS) relaxation in chronic fissure patients¹².

In our study fissure healing at the end of 6th week was almost comparable in both groups as it was 97.5% (39 patients) with LIS and 95.5% (38 patients) with AD. This is also supported by study of Khalid M. et al¹³ and study of Weaver RM¹⁴. In patients who underwent LIS, incontinence for feces and flatus was 12.5% (5 patients), which is also verified by the study of Pernikoff et al^{15,16}, which showed 15% incontinence rate with LIS. In one study incontinence for feces and flatus turned out to be 50% (20 patients) with AD which was remarkably high in comparison to LIS. Nielsen et al¹⁶ performed endoanal ultrasound in 20 patients who had undergone dilation for fissure and found sphincter defect in 13 (65%). AD has been widely criticized for causing poorly controlled or diffused sphincter damage.

In our study recurrence of fissure was 2.5% (1 patient) and 7.5% (3 patients) for LIS and AD respectively. This is also supported by the study of Oueidat D¹⁷, a comparative study in anal fissure treatment which reported 3% and 7% recurrence of LIS and AD respectively and the study of Zahra F et al¹⁸, which reported 0% and 6.6% recurrence of LIS and AD respectively. In a retrospective review, Abcarian¹⁴ and Hawley¹⁹ in a randomized trial, each concluded that LIS was the preferred operation. The vast majority of patients heal after LIS, and recurrence rates are low as compared to AD. In contrast to LIS, the rate of complications and recurrence is significantly high with AD. Thus, our study concluded that LIS is a better surgical procedure and it should always be adopted as a method of choice for chronic anal fissures.

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PILONIDAL SINUS EXCISION, PRIMARY LATERAL CLOSURE WITH WOUND DRAINAGE

FARZANA MEMON, NAUSHAD BAIG, SHAHIDA PARVEEN

ABSTRACT

Objective

To find out the efficacy of excision of pilonidal sinus, primary lateral closure and wound drainage in terms of rapid healing of the wound, decreased morbidity, hospital stay, expenses and early return of the patient to work.

Design

Interventional Study

Place and Duration

Surgical unit VII of Dow Medical College and Lyari General Hospital Karachi, over a period of 3 1/2 years from January 2001 till June, 2004.

Patients and Methods

A study was conducted on 30 patients fulfilling the criteria for excision of pilonidal sinus, primary lateral closure and wound drainage. Patients were having either one or multiple discharging sinuses without abscess formation and those with multiple sinuses, opening not more than 2cms from the midline. Patients with past history of abscess formation, surgery and diabetes were excluded from the study. Patients' age, profession, height, weight, symptoms, signs and their duration, previous treatment, duration of operation, hospital stay and total cost and return to normal activity were noted.

Results

Excision of pilonidal sinus primary lateral closure and wound drainage had excellent results. Healing with primary intention took place within 10 days in all cases with return to work in 2 weeks time. Patients were followed up till June, 2004 without any evidence of recurrence.

Conclusion

Excision with primary closure of wound lateral to midline to flatten the natal cleft and post operative drainage of the wound with use of antibiotic are mandatory for smooth healing, thus preventing complications and recurrence.

KEY WORDS:- Pilonidal sinus, surgical technique.

INTRODUCTION

Pilonidal sinus consists of a characteristic midline opening or a series of openings in the natal cleft a few cm from the anus through which tuft of hair may be seen emerging'. It was long considered as congenital disease, a vestigial structure, cystic remnant of medullary canal, result of dermoid inclusion due to the faulty development of

median coccygeal-raphé. But now it is widely accepted as an acquired lesion^{1,2,3,4}. They develop from penetration of shed hair shafts through the skin, which ultimately leads to an acute or chronically infected sinus. Presentation varies from asymptomatic pit in intergluteal region to painful draining abscess.

Pilonidal sinus is predominantly a young men disease⁵. It is commonly seen in hairy, obese individuals having sedentary jobs^{6,7}. Pilonidal sinus is considered as a minor problem but it causes chronic intermittent infection with high morbidity in spite of its simplicity, therefore adequate treatment of pilonidal sinus is important in order to

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improve the quality of life of the affected patients. Although it is surgically treated since more than 100 years, its management remains controversial. Many surgical procedures have been described for treatment of this condition varying from conservative to most radical operations. None of these had stood test of time because of associated morbidity and recurrence rate. Our study describes the technique of excision of sinus, primary lateral closure of wound 1-2 cm away from midline with drainage of wound.

PATIENTS AND METHODS

This study was conducted on 30 patients fulfilling the criteria for excision of pilonidal sinus primary lateral closure and wound drainage and included patients having one or multiple discharging sinuses without abscess formation and those with multiple sinuses having opening not more than 2cms from midline. Patients with past history of abscess formation, surgery and diabetes were excluded. Patients' age, profession, height, weight, symptoms, signs and their duration, previous treatment, duration of operation, hospital stay and total cost and return to normal activity were noted. Almost all the patients presented with discharging sinus.

Discharge was present in 21 patients mainly watery. In 6 patients there was past history of seropurulent discharge but at the time of presentation to us there was no purulent discharge in these patients. Single opening found in 6 and 2-3 opening in 24 patients. Mild tenderness was present over the natal cleft in most of the cases. All patients had these symptoms for 2-3 years.

Surgical procedure:

The area was shaved and first generation cephalosporin plus metronidazole were used in fifteen and second-generation cephalosporin alone in another fifteen patients to compare the results of both groups of antibiotics in soft tissue surgery. Patients were positioned on operating table with tension plaster applied to buttocks for proper exposure. The sacral area was disinfected with povidone-iodine.

The sinuses were injected with a few ml of methylene blue in order to stain all sinuses and their branches. An elliptical incision was marked around the sinus along its long axis oriented in midline. The skin incision was deepened down to subcutaneous tissue, excising all the marked tissues, presacral fascia was spared. Flaps were mobilized for lateral closure. Hemostasis achieved with diathermy, drain placed along the length of operative cavity and brought out laterally in gluteal region 5cm away from lower end of the wound.

Subcutaneous tissue plain was closed with interrupted chromic catgut sutures, in 20 cases. Three patients had

one to two cut through stitches on 6th post operative day therefore in next 10 patients we used polyglycolic suture for subcutaneous tissue to avoid gaping of wound if there was any cut through. After removing the tension plaster skin was closed atleast 1- 1.5cm lateral to midline with polypropylene by interrupted mattress sutures to avoid skin inversion. Mean operating time was 30 minutes. Post operative antibiotics were given for 5 days. Analgesic was given on demand and light diet was advised for first two days. Patients were discharged after removal of the drain.

RESULTS

Out of 30 patients selected for this study 21 were females. Patient's age ranged from 15 to 55 years. Females were of younger age group 15-25 years. Males were between 24-55 years. Almost all patients were obese and hairy. Females were house wives and males belonged to labor class, none had sedentary jobs.

General anesthesia was used in 25 patients. In 5 spinal anesthesia was used according to patient's choice. No complications due to anesthesia were observed. All patients were admitted in hospital a day prior to surgery and stayed till 2nd postoperative day when the drain was removed. Mean hospital stay was 4 days.

Twenty seven patients had smooth healing of the wound without any complication. Three patients had 1-2 cut through superficial skin stitches on 6th post operative day and developed an area of inflammation which was controlled by the use of anti-inflammatory agents, and even in these cases stitches were removed at usual time. Patients were able to return to normal activities immediately after removal of the stitches on 10th day, by which time the operative scar was strong enough but the patient advised to avoid strenuous activities for 3-4 weeks. Patients were followed up fortnightly for three months, every month for 6 months and three monthly intervals up till June, 2004. No recurrence has been reported yet in last 3 1/2 years in any of the cases.

DISCUSSION

Pilonidal sinus is a disease which affects all ages, children, adolescent and adults as well as old age but more common from puberty onward, when sex hormones exert their effect on pilosebaceous gland in natal cleft². In young patients pilonidal sinuses must be differentiated from coccygeal sinuses which are congenital skin adherence to the coccyx. In international studies there is over all male predominance. But in our study females were affected more and were mainly of younger age group. All the cases operated were obese and hairy. Excision and primary lateral closure of the pilonidal sinus is best possible option if following points are kept in mind. In

excision and, curettage method⁸ wound is kept open for several weeks and requires prolonged care, puts lot of burden on patient and health care team, requires an average healing time of about 50 days and off work delay of about 389-10 days. Postoperative close supervision is required to avoid pocketing, primitive closure or bridging of skin edges with under lying incompletely healed cavity. More over prolonged opened wound is not acceptable to the patients particularly in females.

Excision and primary lateral closure offers complete healing within 2 weeks time in comparison to 2-3 months of healing by excision and open techniques⁹. Hematoma formation, early and late break down of the wound in primary closure are reported in international studies^{2,3} at a rate of 9% to 49% but we have overcome this problem by using drains of 14 F size for wound cavity and use of selective suture material. In early cases we used chromic catgut for subcutaneous tissue, polyglycolic in later cases after the evidence of cut through stitches in three patients to avoid wound gaping. Skin suturing with polyglycolic was done lateral to the midline resulting in flattening of the natal cleft and shifting of the scar line lateral to midline. This removes the essential cause of pilonidal sinus and avoids the recurrence, as midline scar acts as a site of reinsertion of hairs. No fluid collection was noticed in our patients. Signs of inflammation were noted in three patients who had 1-2 cut through stitches. Inflammation was controlled by anti-inflammatory agent (Denzene) used for 2-3 days. No recurrence noted in our patients.

For excision of pilonidal sinus and primary lateral closure and wound drainage recurrence reported in a range of 0-6.6 %¹¹⁻¹³. Comparable results have been obtained by others who had used similar technique. Akinci et al¹⁴ found in series of 112 patients treated with primary closure, 2 wound infection, 2 wound break downs, 3 collections and one recurrence. In their work collection was reduced to zero by suction drainage. William¹⁵ reported a series of 31 patients out of which 29 were infection free wound union, 2 wound break down occurred in 3 cases with no recurrence. Serour F et al¹⁶ reported a series of 34 patients in whom primary healing with no complications occurred in 30 patients. One underwent partial opening of the wound because of rupture of drainage tube. Wound break down occurred in 3 cases. No recurrence was found at 12 months follow up. One recurrence noted 3 years after surgery. Z. A. Choudhri¹⁷ reported a series of 25 patients. Smooth healing occurred in 18 patients. Seven patients had complications including stitch abscess in 3 patients, hematoma formation in two patients and wound infection in two patients.

CONCLUSION

Though numbers of patients were limited to 30 in our series but the procedure offers advantages of quicker

healing time, few post operative visits, shorter time off work, less incidence of recurrence, less socio economic burden and maintains the quality of life during recovery.

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ANALYSIS OF CLINICAL PROFILE OF CHILDREN WITH CONGENITAL ADRENAL HYPERPLASIA

JAMAL RAZA, MUHAMMED ALAM

ABSTRACT

Objective:

To evaluate our data of children with congenital adrenal hyperplasia (CAH).

Design:

Descriptive study

Place & Duration of Study:

The study was conducted at the National Institute of Child Health, from 2001-2004.

Patients & Methods:

All children with CAH presenting at the endocrine clinic were included. A questionnaire was completed regarding age, sex, mode of presentation etc.

Results:

Out of 54 patients of CAH seen at our clinic in five years, we found significantly fewer males (9 - 16.6%) than females (45 -83.4%). Nineteen had salt wasting (SW) and 35 had simple virilizing (SV) type of CAH. Time elapsed before the diagnosis was 46 days in our children with SW variety.

Conclusions:

The fewer number of salt waster CAH along with the fewer male patients strongly indicate that these children may be dying from an undetected salt wasting episode or we may have a different genotype. It is therefore recommended that increased awareness of the condition is required both in the general population as well as the medical community. Further work on the genotype/phenotype correlation is also needed to look at the local genotype involved in this condition.

KEY WORDS:- Congenital adrenal hyperplasia, Clinical features, CAH Types

INTRODUCTION

Congenital adrenal hyperplasia is one of the most common endocrine disorders with hereditary basis, mainly expressed in an autosomal recessive manner^{1,2}. Clinically three sub types of 21-hydroxylase (OH) deficiency have been identified^{4,5,6}. The salt wasting (SW) form of CAH is characterized by life threatening metabolic crisis, typically presenting in the first few weeks of life with the hyponatremia, hyperkalemia, dehydration, shock, and genital ambiguity in females. The incidence of the severe variety in Caucasians is 1:15,000³. These patients cannot

synthesize sufficient aldosterone to maintain sodium balance. In simple virilizing (SV) form, patients have sufficient aldosterone production and hence no salt wasting. They are recognized by variable degree of ambiguity of genitalia in females and pseudo precocity in males. The non-classical form is milder disorder and is rarely diagnosed before the onset of puberty and usually suspected in females because of hirsutism and cyclical irregularities⁴.

In the classical form, 21-OH activity is reduced to 0-1 % of normal in SW, 1-2 % in SV and 22-50% in non-classical form. However an exact classification of CAH subtypes is sometimes difficult, owing to substantial overlap in clinical symptoms and laboratory findings^{5,6,7,8}. From the therapeutic point of view the aim would be

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- To detect SW before the occurrence of life threatening SW crisis
- To diagnose SV early in life to avoid acceleration in bone maturation and ultimate short adult stature.

Most of the females SW patients are diagnosed as a result of their ambiguous genitalia before the occurrence of SW crisis. Male SW may not be identified until crisis appears which may be difficult to diagnose. Similarly female SV may be diagnosed early because of symptoms of virilization but male SV with sign of pseudo precocious puberty may come to attention at a later time in life or remain undiagnosed^{3,5}.

The local data on such patients with congenital adrenal hyperplasia is scarce. In this study we analyzed our data of CAH at our Institute.

PATIENTS & METHODS

National Institute of Child Health is a tertiary care regional referral centre. In this study all children (age 0-15 years) diagnosed as congenital adrenal hyperplasia and enrolled at paediatric endocrine clinic were included. The study duration was from year 2001 -2004. A questionnaire regarding the family history as well as basic clinical and lab data at diagnosis and during follow up was made and information recorded. The diagnosis was based on typical clinical symptoms of CAH (Classical forms) and elevated blood 17 hydroxy progesterone (17-OHP) level.

The SW form of CAH was considered if SW crisis has occurred i.e. dehydration and serum Na < 125mEq/dL and serum K > 6mEq/dL. The SV form was diagnosed if clinical symptoms of CAH without SW were present. Results were analyzed using the SPSS 10.0 version for frequencies and mean. Student t test was applied when comparing groups and a p value of < 0.05 was considered significant.

RESULTS:

The total number of patients in our study were 54. We found markedly fewer males 9 (16.6%) than females 45 (83.4%) among our cohort of patients with CAH. Nineteen children suffered from SW form of disease and 35 were of SV type. Out of 45 female patients, 10 were wrongly assigned a male gender at the time of birth and were raised as males till the diagnosis was established. Eight patients had their gender changed subsequent to the diagnosis whereas two were still reared as males as the age of diagnosis was too late and genitalia too virilized for a reversal^{9,10}.

The mean time interval before diagnosis was longer in males than female in SV i.e. 18 years versus 3.2 years.

Similar trend was found in SW. We had only one male, in whom diagnosis was made in 30 days. In female SW, a mean duration of 46.2 days (1-180 days) was found before the diagnosis was established. According to estimated infant mortality rate in our part of world, approximately 6 infants out of 71 are expected to die within 1st year of life. But in our series 8 siblings died which was higher than what is reported in general population. Only two siblings died of a presumed salt losing episode. In the rest of the deaths no definite cause was ascertained but the deaths were apparently unrelated.

DISCUSSION:

There are some very interesting observations derived from the current analysis. At first, the low male ratio in SW children, seen in our series was much too low to be explained on the basis of population distribution. The natural occurrence of the disease, though, is very similar in both gender. This was also much lower compared to the western literature suggesting the difficulties in identifying a male affected child. The lack of genital ambiguity in a male child and the lack of recognition of a salt wasting episode, may be cited as the most likely reason for this distribution. There is a fear that the actual numbers are higher and quite a few of them may die from a salt wasting episode before a diagnosis could be established. This assumption was strongly supported by another observation in our series about the number of salt wasting versus simple virilizers. As the SW in our series formed only one-third showing a complete contrast to the European data in which nearly two-third presented with the salt wasting variety.

The other possibility that is to be kept in mind regarding above mentioned observation is the genetic type of our population, that is different from the west, thus may be producing a different variety of CAH with a higher number of simple virilizers and lesser number of salt wasting type. This warrants genetic analysis for the known mutations and new mutations to look at the genotype-phenotype correlations of our cases. However, still a far more likely possibility is again the failure to pick up these cases. As the conditions such as gastroenteritis and septicemia are very common in our community especially in the newborns, it is possible that episodes of salt wasting are also labeled and managed as sepsis. Serum electrolytes are either not performed or their abnormalities are explained on the basis of infection. This may culminate in death of these cases prior to the diagnosis.

According to our data the time elapsed before the diagnosis was significantly longer in males than in females. This difference was more pronounced in SV especially in male patients. Similar predilection was found in western literature⁵. This clearly signifies the difficulty in identifying a male patient with CAH both in SW and SV

form. In the latter, some of these children were only picked up when a female sibling was diagnosed. Early puberty in a boy is also not easily identified in our society. Also there are a lot of taboos associated with these conditions especially in the lower socio economic group and initially efforts are made to 'handle' these issues without going to a doctor. However in case of SW, we had only one male in whom diagnosis was established in 30 days. Female SW had a mean duration of 41.43 days (range 1-180 days) before the diagnosis was made. The reported duration in the European literature is 13 days, which is significantly shorter than our patients. Females, of course have a better chance of being diagnosed early because of the ambiguity of genitalia. The problem in detecting males CAH patients is also apparent from the above observation as it took 2.5 times as long to diagnose male as it did to identify females SV. However we did not have significant numbers in SW to prove this trend.

As we know that all males with CAH and some females with 'non-classical form' of CAH do not present with sexual ambiguity at birth, hence these patients may go undetected unless they present with SW crisis, hirsutism or cycle irregularities at puberty. One strategy for reducing the number of undiagnosed CAH patients has been the introduction of newborn screening based on measurement of 17- OHP level^{11,12,13}. Worldwide studies have demonstrated its effectiveness in early recognition of SW thus preventing the life threatening crisis^{14,15}. It also diminishes the psychological stress which is consequential of prolonged incorrect gender assignment^{7,8}.

In country like ours where the strategy of neonatal screening for even for well established conditions like hypothyroidism is hitherto not available this seems like a very far fetched strategy. The economic burden of such a screening would only add to misery of already burdened health system. Therefore, till such time that screening becomes available the answer lies in enhancing the awareness of public in general and medical community in particular for presence of such disorder and the salt wasting crises especially in a male child in order to identify more and more children with congenital adrenal hyperplasia.

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TRANSURETHRAL INCISION OF PROSTATE AS TREATMENT OF BENIGN PROSTATIC HYPERTROPHY

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ABSTRACT

Objective

To evaluate efficacy of transurethral incision of prostate (TUIP) as a treatment modality for BPH.

Patients and Methods

During the period between May 1999 and April 2004 all patients with LUTS and prostates of less than 30 grams underwent transurethral incision of prostate. The operative course, early and long term complications were recorded till six months of follow up.

Results

A total of 85 patients were operated during the study period with the mean age of 56 years and average operating time of 22.5 minutes. Most patients (n=84) were discharged within 2 to 5 postoperative days. Early postoperative complications included hemorrhage requiring blood transfusion in two patients, clot retention in two patients and failure to void after catheter removal in two patients, which needed transurethral resection of prostate in the same admission. Seventy-eight patients reported improvement in symptoms while two patients reported no relief in symptoms. None of the patients reported worsening of symptoms or incontinence. Out of 58 sexually active men, 42 reported retrograde ejaculation and 8 patients suffered decreased ejaculate. Two patients reported erectile dysfunction.

Conclusion

TUIP in prostates of less than 30 grams causing lower urinary tract symptoms is an effective and reliable procedure for young, sexually active men.

KEY WORDS:- Prostate, Benign prostatic hyperplasia.

INTRODUCTION

Lower urinary tract symptoms (LUTS) due to bladder outflow obstruction in men have been described for many centuries now¹. Although the development in treatment strategies started showing pace from the time of introduction of anesthesia in 1846, real thrust was noted after 1954 when rod lens "fiberscope" was invented². Benign prostatic hypertrophy (BPH) is by far the commonest cause of troublesome LUTS in men and

transurethral resection of prostate (TURP) has been the gold standard of surgical management of this condition for many years^{3,4,5}. The trend of modern surgery is towards less invasive procedure which give satisfactory results with low patient morbidity and mortality. Moreover, in our social setup low level of health awareness manifests as a cause of delayed presentation to clinics, and fright of surgery along with financial hold up. Therefore, cost effectiveness becomes one of the factors of primary importance.

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Mebust et al, in 1989 suggested that many patients undergoing TURP could be treated with a similarly effective but cost effective and less invasive technique of

transurethral incision of prostate (TUIP)⁶. Since then many other workers also augmented the comparability of TUIP with TURP in selected cases of BPH⁷. However, for unexplained reasons, the technique still remains under used world wide^{8,9,10,11}. The aim of our study was to evaluate efficacy of TUIP as a treatment modality for BPH in our set up.

PATIENTS AND METHODS

Between May 1999 and April 2004, all patients undergoing TUIP for BPH were recruited for the study. The decision for performing TUIP was taken on table after confirmation of size of prostate on digital rectal examination (DRE) under anesthesia and urethrocytostocopy. Patients with prostate size more than 30 mg were not included in the study. Other inclusion and exclusion criteria are given in Table I. Data was collected regarding each patient's age, presentation (emergency or elective), symptomatology (irritative or obstructive), sexual function (active or inactive), weight of prostate after on table examination, operative time, early and late post operative complication and length of hospital stay.

TABLE-I **INCLUSION CRITERIA & EXCLUSION**

Inclusion Criteria	Exclusion Criteria
1. Men with lower urinary tract symptoms	1. Previous prostate or bladder surgery
2. Significant post void residual urine on ultra sound bladder	2. Intake of medication known to influence voiding
3. Up to 30 grams of prostate on digital rectal examination and urethrocytostocopy under anesthesia	3. High PSA levels
	4. Urethral stricture
	5. Patients with formidable median lobe, large prolapsing lateral lobes and marked asymmetry in the size of the 2 lateral lobes on urethrocytostocopy

All cases were performed under general or spinal anesthesia, in lithotomy position. Once the decision for TUIP was taken, patient's urethra was dilated up to 28 F. A 26 F continuous flow sheath (Storz, Germany) was then introduced to perform TUIP as follows: a single incision with Colling's knife was made at 6 o'clock position starting from the interuretric bar and extending distally to the verumontanum. Prostate was then divided layer by layer including the true capsule. Glycine 1.5 % was used for irrigation during the procedure. After surgery a three way catheter was inserted. Prophylactic antibiotics were given. Catheter was removed when bleeding had stopped. Patients were discharged as soon as they could void satisfactorily. Follow-up assessment was done after two weeks, 6 weeks, one month and 6 months of surgery. This included subjective assessment of lower urinary tract symptoms, retrograde ejaculation and sexual function, where applicable.

Analysis of data was performed to evaluate patient satisfaction and cost effectiveness of the procedure. Patient satisfaction was evaluated by looking into pre and post operative symptomatology, sexual function, and early and late complications. Cost effectiveness was evaluated

by monitoring operative time and length of hospital stay.

RESULTS

A total of 85 patients fulfilled the inclusion criteria; the mean age was 56yrs (range 37 to 90). Twenty patients presented as an emergency with acute urinary retention. Eight patients had irritative symptoms including frequency, urgency, nocturia and urge incontinence. 54 patients had obstructive symptoms of hesitancy, weak stream, dribbling and retention of urine. 58 patients were sexually active. 80 % of the total had prostate weight between 20 and 30 grams.

Average operative time was 22.5 minutes (range 15 to 30). Three ways Foley's catheter was removed within 24 hours in 52 patients, within 48 hours in 25 patients and between 48 to 72 hours in eight patients. All patients were discharged within 2 to 5 postoperative days except one patient whose stay was prolonged till 9th postoperative day due to his medical condition. Early postoperative complications included hemorrhage requiring blood transfusion in two patients, clot retention requiring manual catheter wash-out in two patients and failure to void after catheter removal in two patients. Patients who failed to void needed TURP in the same admission.

Seventy-eight (91.7%) out of 85 patients reported improvement in symptoms while two patients reported no relief in symptoms during follow-up of up to six months. None of the patients reported worsening of symptoms or incontinence. Out of 58 sexually active men, 42 reported retrograde ejaculation and 8 patients suffered decreased ejaculate. Two of the 58 sexually active patients reported erectile dysfunction.

DISCUSSION

Men with BPH from a significant bulk of work of a urologist. An autopsy based study showed that by the age of 50 years 50% of men have an enlarged prostate and incidence rises to 85% in octogenarians¹². Most of the prostates are manageable by transurethral routes. TURP, although a gold standard, is still a major undertaking.

During the last 20 years there has been increasing interest in other operative treatments for BPH. Using various modes of incision of the prostate gland, a simplified pre and post operative course has been expected, thus minimizing the cost of treatment¹¹. TUIP in selected patients has shown to function as an effective substitute for transurethral resection. Moreover, it has advantages in shortening the duration of operation and hospitalization, in requiring significantly fewer transfusions and is considered to be a far easier procedure to be learned and taught^{7,8,13,14}. This study, like others¹⁵, also showed a small complication rate (including blood transfusions), duration of surgery and hospital stay for patients undergoing TUIP. This reduces the cost of overall

treatment which is a major dependent factor in third world countries like ours.

Long term follow up is highly important in assessing the effectiveness in terms of patient satisfaction. We performed a follow up of six months, although one year follow up was thought to be required initially. Most of our patients did not return after six months period. At six months of follow up, patients showed a satisfactory course. Similar results were also seen by others who followed their patients for six months after TUIP¹¹. A longer follow up is perhaps required to evaluate fully.

In our opinion, patient selection remains the single most important factor in determining the early and long term success of TUIP. We selected patients with prostate size of less than 30 grams. Among those, two groups were identified; one between 20 and 30 grams and other of less than 20 grams. The few complications that we had were in the former group of patients. Riehmman et al⁷ and Johnson and co workers¹¹ recommended in their separate studies that TUIP should preferentially be performed on prostates of less than 20 grams. In most other published series, prostates up to 30 grams were treated by TUIP^{9,10,16,17,18,19}. In most of these studies DRE and cystoscopy were used to assess the size of prostate. However, few sized their patient's prostate by using trans rectal ultrasound (TRUS)^{11,16}. Although, we measured the size of prostates by using DRE and cystoscopy due to cost constrains, TRUS remains a more reliable technique²⁰.

Maderbacher and Marberger²¹ stated in their review of six randomized controlled trials that entire transition zone need not be removed to relieve bladder outlet obstruction; particularly in patients with prostates of less than 30 ml, consequently, TUIP is an ideal therapeutic option for younger, sexually active men with small prostates²².

CONCLUSION

We augment the reported benefits of TUIP in prostates of less than 30 grams causing LUTS. It is a cost effective and reliable procedure for young, sexually active men, therefore, should be preferred in our set up. However, randomized controlled trials with a longer follow up are required.

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CORONARY ARTERY BY PASS GRAFTING IN PATIENTS WITH RENAL DYSFUNCTION

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ABSTRACT

Objective

This study was planned (a) to document the hospital morbidity and mortality of patients undergoing CABG surgery, who had preexisting renal impairment, (b) to document further deterioration in renal dysfunction in these patients.(c) to evaluate the safety profile of coronary artery by pass grafting (CABG) surgery in such patients.

Patients and Methods

A total of 63 patients with documented chronic renal dysfunction underwent CABG. These patients were divided into three groups;

(1) Those with serum creatinine level up to 3.5mg%. (2) Those with serum creatinine level more than 3.5mg%, and (3) those patients already on regular haemodialysis.

Results

The commonest cause of renal impairment was diabetes mellitus. Most of the patients did very well after surgery. Renal function deteriorated in significant number of patients.

Conclusion

All these patients required an extended I.C.U and hospital stay. Low cardiac output, need for prolonged ventilation, fluid overload, thin coronaries and obesity were found to be the major risk factors for deterioration in renal function.

KEY WORDS:- CABG, Chronic renal failure, Haemodialysis, Renal dysfunction.

INTRODUCTION

Many patients who undergo coronary artery by pass grafting (CABG) have varying degree of renal impairment, because of the common etiological factors for both disease entities. Cardiopulmonary bypass gives a non – pulsatile flow during open heart surgery with the resultant decrease in microcirculation of kidneys. This is the major factor, which leads to deterioration in pre-existing renal dysfunction. Surgical trauma, anaesthetic agents, use of antibiotics, haemolysis secondary to heart lung machine

usage and need for multiple transfusions further augments the chances of renal damage. Many studies have confirmed an elevation in serum creatinine level after CABG operation in patients with or without preexisting renal damage^{1,2,3,4}. Researchers have documented an increased incidence of dialysis post operatively, in dialysis dependent patients^{5,6,7}. Serum creatinine is a readily available means of indirectly assessing overall renal function. It can safely be used to evaluate any deterioration in renal function.

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With these facts in mind this study was planned, to document the hospital morbidity and mortality of patients undergoing CABG surgery, who had preexisting renal impairment, to document further deterioration in renal

functions in these patients, to evaluate the safety profile of CABG surgery in such cases.

PATIENTS AND METHODS

All the patients with preexisting renal dysfunction who underwent CABG in a local private hospital by same surgical and anesthesia teams were included in this study. A total of 63 patients with documented pre operative renal dysfunction underwent CABG. These patients were divided into three groups

1. Those with serum creatinine level of up to 3.5 mg%.
2. Those with serum creatinine level of more than 3.5 mg%.
3. Those patients already on regular haemodialysis.

Redo CABG, patients with associated procedures, emergency surgery, recent myocardial infarction and failed angioplasty were excluded.

Operation was performed through median sternotomy. Patients were put on by pass through aorto caval cannulation. Surgery was performed at moderate hypothermia. Left internal mammary artery was used to by pass left anterior descending artery. Saphenous vein was used to by pass all other coronaries. Intermittent aortic clamp with fibrillation was employed as mode for myocardial protection.

RESULTS

A total of 63 patients were found to have pre-existing renal dysfunction. Of these 2 were females and 61 males. Age ranged from 44 to 72 years. There were 43 patients in group 1, 12 patients in group 2 and 8 patients in group 3. Co-morbids in this patients population included diabetes mellitus (21 patients), hypertension (28 patients), left main stenosis (6 patients), severe left ventricular dysfunction (12 patients) and diffuse coronary artery disease (32 patients). Of these 63 patients, 21 (33.3 %) required an extended ICU stay; median being 2 days. 45 patients in our patients population (71.4 %) required an extended hospital stay; median being seven post operative day. Of these 63 patients, 54 (85.71%) showed a raised creatinine level an initial 2-12 post operative days. Thirty six patients (57.14 %) showed a transient decrease in urinary output, starting immediately after cardiopulmonary bypass.

Fourteen patients (22.2%) in our patients population had severe left ventricular dysfunction. Eight patients in this subgroup of 14 patients (57.14 %) showed more than 30% increase of serum creatinine level after surgery. Eleven patients (78.57%) in this subgroup of 14 patients were diabetics. All the patients in our study group had a uniform bypass time (less than 90 minutes). A total of 202 grafts were anastomosed in these patients (average 3.2 grafts per patient), internal mammary artery was used to bypass left anterior descending artery in 60 patients.

One patient died in this series (mortality 1.5 %). This patient had pre operative creatinine level of 4.2 mg%. Surgery and early post operative period was uneventful. Patient was shifted to ward on third post operative day. This patient underwent haemodialysis on second post operative day, which went uneventful. A second dialysis was performed on fifth post operative day. During dialysis, he collapsed and could not be resuscitated.

DISCUSSION

Open heart surgery may lead to some degree of renal dysfunction. It is usually transient and completely reversible^{8,9}. In the presence of a preexisting renal dysfunction, this negative effect of open heart surgery is more pronounced^{10,11}. To evaluate this renal dysfunction, measurement of glomerular filtration rate and renal creatinine clearance are the more accurate measures available. On the other hand increase in blood urea and serum potassium can be influenced by a number of unrelated factors. In this scenario, measurement of serum creatinine can be used as a prognostic value indicator to asses any deterioration in pre existing renal dysfunction. One of the constant findings in our patient population was an increase in serum creatinine level during first few post operative days. Veterans affairs data base has supported this finding¹². Although this study has shown an increased mortality, we are unable to comment on this aspect in our patient population due to smaller number, which makes it statistically insignificant.

A small group of patients showed a sharp increase of more than 30% in serum creatinine level after surgery. Commonest co-morbids identified in this subgroup included left ventricular dysfunction, diabetes mellitus, hypertension and diffuse coronary artery disease. This phenomenon can be explained by the fact that a larger number of renal glomeruli have a borderline function in these patients. Low cardiac output, borderline systolic blood pressure after surgery, prolong use of vasopressors, prolonged extracorporeal circulation with non pulsatile flow and haemolysis can cause extra insult to these already damaged glomeruli. This is the reason that two patients among these 36 patients (5.8%) required haemodialysis postoperatively. Prolonged pump time is associated with a proportionate deterioration in renal function¹³. In our patients population we did not come across any patient with a pump time of more than 90 minutes. So we were unable to prove or disapprove this aspect. Three patients in this series required haemodialysis post operatively. Their pre-operative serum creatinine levels were between 3 to 5 mg%. Although, these patients settled down later on but there hospital and ICU stay was prolonged. This aspect have been proved by other workers, as well^{14,15,16}. We strongly recommend that facilities for haemodialysis should be readily available in cardiac surgical ICU if such patients are to be treated. The

one patient who died was a 52 years old man. We postulate that because of autonomic instability, he had acute peripheral vasodilatation, which could not be immediately picked up in dialysis unit. This patient could have been saved had this procedure been performed in surgical ICU under close observation and better facility for resuscitation. Since this incidence, we included in our protocol that all such patients be put on low dose intravenous ionotropes during dialysis.

CONCLUSION

CABG surgery in patients with renal dysfunction, carries a higher morbidity and possibly mortality. A prolonged ICU and total hospital stay is expected in such patients. Some of the patients with border-line dysfunction may require haemodialysis.

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AN EXPERIENCE OF LAPAROSCOPIC CHOLECYSTECTOMY

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ABSTRACT

Objective:

To document our experience of laparoscopic cholecystectomy

Study design:

A case series.

Setting:

This study was carried out at private sector medical complex at Larkana.

Duration:

From 1st December 2002 to 31st May 2004 for a period of 18 months.

Patients & Methods:

Two hundred consecutive cases, suffering from symptomatic cholelithiasis, were admitted for laparoscopic cholecystectomy. Their case record was retrieved and analyzed.

Results:

There was female preponderance with male to female ratio of 1:4.5. Mean age was 48 years. Majority of patients suffered from chronic cholecystitis. The conversion rate was 5% due to acute cholecystitis with friable adhesions, elderly patients with phlegmon, obscure anatomy and stones in CBD not detected on ultrasound. The mean hospital stay was 36 hours. No mortality occurred in this series.

Conclusions:

Laparoscopic cholecystectomy is an effective and safe modality of treatment for symptomatic gall stones in experienced hands. This technique was found to have distinct advantages such as shorter hospital stay, lesser postoperative pain and good cosmetic results.

KEY WORDS:- *Laparoscopic cholecystectomy, Complications*

INTRODUCTION

With the growing interest of using endoscopic and laparoscopic equipment fitted with video assisted electronic devices, the pendulum has swung towards minimally invasive surgery. The scope of minimal access therapy is to minimize the traumatic insult to the patients without compromising the safety and efficacy of treatment compared with conventional open surgery¹.

Traditional open cholecystectomy has long been accepted as gold standard treatment of gall stones². Revolution in the treatment of gall stones came in 1987, when first laparoscopic cholecystectomy was carried out

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by Phillip Mouret et al in Lyon^{3,4}, though first reported series was by Dubois et al⁵. Since first laparoscopic cholecystectomy in Pakistan in 1991, it has been enthusiastically accepted. Now a days laparoscopic cholecystectomy has become an established procedure due to less pain, shortened postoperative hospitalization and minimum morbidity^{6,7,8}.

In our personal impression the cases of cholecystectomy in our population have more morbid anatomy and difficult to dissect as compared to western countries. To analyze the hypothesis that in our setup besides surgical access, more morbid anatomy, late presentation, different nature of biliary calculi and certain other factors such as age, sex, diabetes mellitus, hypertension, IHD and chronic liver diseases etc, may have a significant impact and influence on pre operative and post operative morbidity a study is needed.

In this study we are presenting our experience of 200 consecutive cases. The objective was to evaluate the safety and merits of laparoscopic cholecystectomy.

PATIENTS AND METEIODS

This study of 200 consecutive non-selected cases was carried out in Latief Medical complex, Larkana from 1st December 2002 to 31st May 2004. A proforma was made and information was recorded for each case accordingly. All patients presenting for treatment of symptomatic gall bladder disease underwent routine history. Previous history of jaundice or any surgery was noted. Physical examination, lab tests & ultrasonographic evaluation of gall bladder and common bile duct were carried out. All patients admitted a day before the surgery or on the day of surgery. Consent was obtained from all the patients and nature of the procedure and potential of conversion of the laparoscopic approach to an open cholecystectomy was explained. Patients unfit for general anesthesia, those with cholecysto- enteric fistula, any doubt of gall bladder malignancy, ductal calculi, pancreatitis, pregnancy, or previous surgery through upper abdominal scar were excluded from the study.

All patients were prepared and draped as per routine. The oro-gastric tube was inserted on table. Peri-operative dose of cefuroxime 1.5 gm was administered to all patients. Laparoscopic cholecystectomy was performed by using four port technique. All the ports were closed subcutically with polyglycolic acid.

Operative findings at laparoscopic cholecystectomy, duration of operation, pathological features of gall bladder and number of stones were recorded in all the cases. Post operative morbidity and mortality data were also recorded. Oral liquids were allowed on the night of surgery and regular diet was resumed the next morning. The majority of patients were discharged on 1st post operative day. Follow up examination was performed on 7th postoperative day

RESULTS

In this study there were 164 (82%) female and 36 (18%) male, patients with female to male ratio of 4.5:1. Age range between 22 to 74 years with mean age of 48 years. Clinical features suggestive of chronic cholecystitis were present in 150(75%) cases, where as diagnoses of acute cholecystitis on the basis of clinical and radiological findings was made in 40 (20%) cases. Six patients (3% had mucocele of the gall bladder, four patients (2%) presented with empyema gallbladder. By analyzing the risk factors it was found that 40(20%) patients were with acute cholecystitis, 12 (06%) patients with age 65 years and above, 10(05%) patients with cirrhosis, 44(22%) with diabetes mellitus, 36 (18%) with hypertension and 16(08%) with IHD.

Ultrasonography was accurate (100%) in the diagnosis of cholelithiasis. There was no case of acalculous cholecystitis. However, stone in common bile duct was present in 2 cases. These were missed by sonologist. In 190 (95%) cases laparoscopic cholecystectomy was successfully completed. In 10 (5%) cases laparoscopic procedure was converted to open cholecystectomy. Reasons of conversion were, acute cholecystitis with friable adhesions in 2 (1%) cases, elderly patients with acute cholecystitis in 4 (2%) cases, obscure anatomy at Calot's triangle in 2 (1%) cases and stones in CBD missed on ultrasound in 2(1%) cases.

Per operatively 4 (2%) patients had bleeding from liver bed but controlled with swab pressure and diathermy, Stones spillage occurred in 6 (3%) cases which were either picked up with forceps or smaller one sucked out with 10 mm suction tube. CBD was not injured in any case.

The drain placed in 4(2%) cases, was removed after 24 hours. Sixty (30%) patients had nausea and vomiting for 1st 24 hours, 100 (50%) cases felt excessive pain at the site of surgery for more than 24 hours. Sixteen (8%) cases developed umbilical port infection which was settled on antibiotics and dressings. Persistent abdominal pain was found in 3% cases.

Recovery was excellent in 148 (74%) cases and they felt completely cured. In 50 (24%) cases recovery was good and they felt improved. Two (1%) patients felt same symptoms after operation.

DISCUSSION

The laparoscopic of cholecystectomy (LC) is the treatment of choice for the majority of patients with gall stone disease⁹. LC became an established procedure due to less pain, shortened postoperative hospitalization & minimum morbidity, early return to home¹⁰. Laparoscopic cholecystectomy is more likely to require conversion in some cases. Moribund obese patients with chronic cholecystitis and a thickened gallbladder wall and patients with multiple co-morbid diseases undergoing LC are more likely to require conversion¹¹. These factors can help to counsel patients undergoing laparoscopic cholecystectomy with regards to the probability of conversion to an open procedure. Patients having high risk may be informed and scheduled appropriately. An experienced surgeon has to operate on these patients¹².

The popularity of LC both with patients and surgeon is such that this procedure now exceeds open cholecystectomy because of its promise for reduced morbidity¹³. LC performed by experienced surgeons is a safe, effective technique for the treatment, of acute cholecystitis. Patients treated within 48 hours of onset of symptoms experience lower conversion rate to an open procedure, shortened operative time and reduced hospitalization¹⁴.

In our study the rate of female patients is comparatively same as one of the series¹⁴ with the male to female ratio of 1:4.5. Mean age in our series is 48 years which in other series is ranging from 42 years to 51.2 years¹⁵. The mean hospital stay was 36 hours, which can be compared with other series ranging from 24-48 hours^{15,16}.

The conversion rate of 5% is always expected and justified which is ranging in other series from 3.6-12 %^{17,21}. Conversion was necessary because of adhesions from previous surgery, abnormal anatomy, intraoperative bleeding, and patients with acute cholecystitis, when it was difficult to handle tense gallbladder. Our conversion rate of 5% is justified as majority of these patients were having chronic cholecystitis. The incidence and type of complications after laparoscopic cholecystectomy vary considerably. The incidence of CBD injuries in our series was nil, however it is mentioned in literature ranging from 0-3%^{18,22,23}.

In our study no CBD injury occurred. Sixteen (8%) cases developed umbilical port infection which was settled on antibiotics and dressings. This is relatively in upper range of other series^{24,25}. Prolonged abdominal pain was found in 3% cases, which is nearly the same as in one of the series quoted in literature.

CONCLUSION

Laparoscopic cholecystectomy is an effective and safe technique of treating symptomatic gallstones in experienced hands because of accelerated recovery, negligible wound infection and wound related complications, less postoperative pain and short hospital stay. Therefore it is preferred technique now a days

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ANESTHESIA CRISIS RESOURCE MANAGEMENT

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ABSTRACT

The critical scenario in which rapid response is needed, for example, Malignant Hyperthermia, occurs rarely. Hence conducting training about such clinical events leaves no alternative but to use simulation. The aims of anesthesia crisis resources management (ACRM) training are to learn principles of complex problem solving, decision making, resource management and team work behavior to improve medical and technical skills.

In medical training, simulator can substitute for actual patients and recreate actual clinical environment for anesthesiologists, surgeons, radiologists, cardiologists, gynecologists, etc. for their training. Simulators range from simple mannequin to high fidelity simulators. Mannequin represents the patient, and the participants act as surgeons, anesthetists and operating room assistants in a replica of operation theatre. The high fidelity simulators are programmed to create a special situation which the trainees are required to diagnose and manage the situation and resources accordingly. A panel consisting of consultants and instructors trained in this field are observing and recording all the details on the video tape which is used later on for the debriefing sessions.

Simulators have high face validity because they ease trainees' transition to actual patient. Simulators can effectively identify errors and appropriateness of decision making. There is a risk that clinician might acquire inappropriate behavior or develop a false sense of security in their skills that could theoretically lead to harm the patient. The trainees develop an understanding that how stresses contribute to the occurrence of error. The ACRM training is an effort to improve our understanding about the crisis management aiming at reducing error and ultimately improve patient safety.

KEY WORDS:- Anesthesia, Resources management, Training

INTRODUCTION

Successful conduct of anesthesia depends on more than just having the requisite medical knowledge and technical skills. The critical scenario in which a rapid response is needed (e.g. malignant hyperthermia, which occurs 1 in 40000 anesthesia cases)¹ occurs rarely. To conduct

systematic training about managing such clinical events, there is little alternative but to use simulation. Improvements in the safety of commercial aviation may be in due part to this training². Over the past ten years, lessons from aviation's approach to team training have been applied to patient safety, notably in intensive care unit (ICU) and anesthesia training^{3,4}.

Crisis management in anesthesiology is aimed at both experienced practitioner and trainees. Team leadership may be of most importance to the anesthesiologist, who is the nominal head of the anesthesia care team.

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AIMS AND OBJECTIVES OF ACRM

LIKE TRAINING

1) Learn generic principles of complex problem solving, decision making, resource management, and team work behavior during clinical care in order to prevent, ameliorate, and resolve critical incidents and crisis situation.

2) Improve medical and technical, cognitive and social skills in the recognition and treatment of realistic, complex medical situations.

3) Build capacity for reflection, self discovery and team work and build a personalized tool kit of attitude, behaviors and skills which characterize expert performance through highly intensive and interactive instructions critique and feed back in realistic environment.

HISTORICAL BACKGROUND OF SIMULATORS

A simulator replicates a task environment with sufficient realism to serve a desired purpose⁵. In medical training, simulator can substitute for actual patients and recreate actual clinical environment for anesthesiologists, surgeons and radiologists.

The rehearsal of hunting and warfare remained the human activity since pre historic times. Good and Gravenstein⁶ point to the Roman quintain as a technologic device that crudely simulated the behavior of an opponent during sword fighting. Some air craft simulators were built between 1910 and 1927. In 1930, Edwin Link made pneumatically driven air craft simulators, which was a standard for flight training before World War II. In 1950s electronic control replaced pneumatic ones through analogue, digital and hybrid computers. The modern air craft simulators came in late 1960s, which are continuously being refined.

Singleton⁷ described the possible use of simulators in all types of complex work situations for training, testing and research. In 1960s, an electromedical realistic simulator was developed (Sim One)⁸⁻⁹. The goal was to construct a simulated patient for learning the skill of endotracheal intubations, along with the induction of anesthesia.

The modern realistic simulators were developed by David M. Gaba and De Anda in 1986, which were used commercially. The primary goal was conducting research into decision making by anesthetists¹⁰. Later Eagle and Virtual reality simulators were developed in 1990s.

APPLICATIONS OF ACRM PRINCIPLES IN MEDICINE

Its applications have been identified in several dynamic decision making health care environments, the operating

room, labor and delivery, and the emergency room¹¹⁻¹², cardiac arrest response team.

Patient simulators have been most widely studied in anesthesia where human error may account for over 80% of critical incidents¹³. Other fields where simulators can be used are radiology, surgery, gastroenterology and cardiology. Nonetheless, many of these have yet to be formally evaluated in terms of efficacy in improving physician performance in patient care.

A SIMULATOR SET UP

Simulators range from simple mannequins to high fidelity simulators that recreate the operating room experience. The mannequin represents the patient who is anesthetized and being fully monitored and the operation is going on. The participants act as operating room assistants, nurses, surgeons, etc. The high fidelity simulators are programmed to create a special situation like some crisis, which the trainee has to diagnose and act accordingly. A panel consisting of consultants and instructors who are trained in this field are observing and recording all the details on the video tape, which is used later on for debriefing session. All the medicines used are real. All the fluids and blood used are real which is sensed by the sensors of the simulator.

THE TRAINING

There is no universal ACRM training program. Each simulator center develops its own curriculum and style of training. The courses and training programs are run under the supervision of instructors with special training and experience in this field.

Simulations are conducted with personnel to individually represent those personnel found in the typical work environment of the participant, including nurses, surgeons, and technicians. Simulation scenarios require participants to engage in appropriate interactions with these individuals. The bulk of training consists of realistic simulations followed by detailed debriefings. At least 50% of the emphasis is given to crisis resource management behavior as opposed to the medical and technical aspects of managing the specific situations presented during simulation. The scenario includes situations in which the primary participant can request and receive help from other participants. The participants may rotate between different roles during different scenarios so as to gain different perspectives.

Debriefings led by one or more instructors are performed with the whole group of participants together, using audio and visual recordings of the sessions.

SIMULATOR SESSIONS

In the simulator sessions a realistic simulation is set up in an operating room in the simulator center. Groups of 4-5 participants undergo several hours of simulation during which each participant was the primary anesthetist for 30-

45 minutes (1-3 critical event scenarios). The remainder of the time they play other roles including that of another anesthetist who will be the first to be called into the room if help is needed (first responder) and that of the scrub nurse (which gives another perspective on the unfolding scenario). An OR nurse plays the role of the circulating nurse, while an instructor, surgical resident, or OR nurse play the role of surgeon. Most scenarios are designed to require significant interaction with the nursing and surgical personnel. The simulation sessions are recorded on the video tape (multiple views) and participants are encouraged to "think aloud" so as to aid the debriefing process.

DEBRIEFING SESSION

A debriefing session follows each simulation scenario, and lasts approximately 30 minutes. The participants view the video tapes and critique their own performance with the assistance of a specially trained anesthesiologist instructor. While medical and technical issues related to the scenario are discussed, the emphasis is on analyzing performance and options related to the generic principles of the crisis management behavior.

DISCUSSION

Simulators have high face validity because they ease trainee's transition to actual patients, which seems inherently beneficial as a means to avoid adverse events. Further procedural success is related to the experience of the operator, known as the volume-outcome relationship.¹⁴⁻¹⁵ De Anda, and Gaba¹⁶ found a detectable difference between novice residents and more experienced trainees, faculty and practitioners. There was a trend toward early detection and correction of the planned critical incident as the level of experience increased. The detection time decreased and like wise the latency time decreased with experience.

Studies have found that simulators can effectively identify errors and appropriateness of decision making. Proficiency on a simulator does not ensure proficiency in clinical settings. There are potential risks to simulation based training. Where the simulator can not properly replicate the tasks or task environment of caring for patients, there is a risk that clinicians might acquire inappropriate behaviors (negative training) or develop a false sense of security in their skills that could theoretically lead to harm. Although there are no data to suggest that this currently happens, such risks will have to be weighed and evaluated as simulators become more commonly used.

From the practical stand point, CRM programs typically include educating crews about the limitations of human performance¹⁷. Trainees develop an understanding of cognitive errors and how stresses (such as fatigue, emergencies and work load) contribute to the occurrence of errors.

CONCLUSION

Although there is currently little evidence that simulation training improve patient care, definitive experiments to improve our understanding of their effects on training will allow them to be used more intelligently to improve provider performance, reduce errors and ultimately promote patient safety.

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INITIAL MANAGEMENT OF INJURED PATIENT; A RECALL

HASSAN MAHMOOD TABASSUM

INTRODUCTION

Although infectious diseases remain a formidable enemy, non-communicable diseases and injuries are increasingly the health challenge¹. Among one million people killed on the roads during 2000, nearly 75% died in the developing countries of the world, about half of them in Asia. It is second or third leading cause of death in the 5-44 years age group².

The official statistics on the road traffic injuries are likely to underestimate their true impact³. The global pattern of disease due to road traffic injuries is expected to move from ninth position in 1990 to third position in 2020⁴. By then road traffic death will decline by 30% in high income countries but will increase by up to 87% in low and middle income countries⁵.

The main reasons for the higher burden of road traffic injuries are growth in number of motor vehicles, poor enforcement of traffic safety regulations, poor quality of roads and vehicles, and inadequate public health infrastructures⁶. The higher fatality among the pedestrians is probably due to wider traffic mix and lack of safe pedestrians walking areas⁷. Children from small homes, families with many children, or tents used as homes were at elevated risk of road traffic injuries⁸.

In a major summit of the members of the United Nations in 2000, a Millennium Declaration Goals (MDGs) was adopted which called for making the elimination of poverty, and promotion of sustainable development a global priority. World Health Organization paper explored the linkage between MDGs and impact of road traffic injury (RTI)⁹.

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Injuries in Pakistan take a considerable toll on individuals, families and health system¹⁰. One of the striking deficiencies in the current health delivery structure is lack of focus on the emergency care in primary health system, which is ill equipped to offer appropriate care in emergency situation resulting in high burden of preventable deaths and disability¹¹.

World Health Organization and its member states celebrated an edition of World Health Day (7 April 2004) on the theme of Road safety under the banner of 'road safety is no accident'¹².

DEVELOPMENT OF TRAUMA SYSTEM

Following the death of his wife and serious injury to his three sons in 1970, Dr. James Styner, introduced a structured trauma management program, which was basis for the development of the ATLS educational package¹³. Even more recently in 1988, Royal College of Surgeons of England, in a report on the management of the multiply injured patients highlighted that at least one in five, and possibly as many as on in three, deaths in hospital were avoidable. They further concluded that death in such cases were due to medical mismanagement at every level and throughout all specialties.

Philosophy behind Advanced Traume Life Support is to treat lethal injury first.

Element of Primary survey are

- 1 Airway with cervical spine
- 1 Breathing with ventilation
- 1 Circulation with control of hemorrhage
- 1 Dysfunction of central nervous system
- 1 Exposure in controlled environment

AIR WAY AND CERVICAL SPINE

An obstructed airway in a victim with head injury will kill in

3-4 minutes. Gloves are worn and a two finger sweep is used to clear solid material from the mouth and pharynx combined with good suction under direct vision to remove fluid and debris. Air-way patency is then maintained by chin lift and jaw thrust maneuvers, lifting the mandible forwards and, if appropriate, inserting an airway device (oropharyngeal / nasopharyngeal or endotracheal according to clinical judgment and skill available). If unable to open the airway by the above, a surgical cricothyroidotomy may be performed in-patient over the age of 12 years. Under the age of 12 years a needle cricothyroidotomy may buy time. Protection of cervical spine is by the use of well-fitting semi-rigid neck brace, sand bag and forehead strapping.

BREATHING AND VENTILATION

All the basic clinical methods i.e. inspection, palpation, percussion and auscultation must be used to detect these injuries.

- 1 Airway clearance is basic as above
- 1 Tension pneumothorax needs immediate needle thoracostomy in second intercostal Space followed by tube thoracostomy in fifth intercostal space.
- 1 Massive haemothorax necessitates tube thoracostomy.
- 1 Open pneumothorax needs tube thoracostomy along with sealing of wound.
- 1 Flail segment needs endotracheal intubation and mechanical ventilation.

CIRCULATION AND HAEMORRHAGE CONTROL

Tachycardia in a cold patient indicates shock.

Causes of shock in a trauma patient are as

- 1 Hypovolemic-haemorrhage.
- 1 Cardiogenic or pump failure (cardiac tamponade, tension pneumothorax or myocardial contusion).
- 1 Neurogenic
- 1 Septic (a late event >24 hours and associated with missed faecal spillage).

A good aid-memoir is 'Presence of blood on floor and four more i.e. chest, abdomen, pelvis and limbs. The presence of shock demands presence of surgeon. Shock needs intravenous/intraosseous fluid and bleeding stoppage. Intravenous fluid administration may have three responses.

- 1 Immediate and sustained return to normal vital signs followed by full secondary survey.

- 1 Transient responders need surgical intervention but a time for investigation and plan is available.
- 1 Non-responders need immediate surgical intervention.

DYSFUNCTION OF CENTRAL NERVOUS SYSTEM

A well organized and thought-full examination of central nervous system is mandatory as it is needed in transportation of the patient to avoid further injury to brain and spine.

- 1 AVUP and papillary assessment
- 1 A rapid assessment of motor and sensory function
- 1 Glasgow coma scale

EXPOSURE AND ENVIRONMENT EXPOSURE AND ENVIRONMENT

Any remaining clothing now must be removed. Blankets and heaters should be used if available especially in children to prevent hypothermia.

OTHER IMPORTANT POINTS

Good note keeping and record are vital.

A 'scoop and run policy' is the best where transfer time to hospital is short.

A 'stay and play policy' may be required in the face of entrapment. Referral to proper institution for proper management is vital. It is part of continuing education.

CONCLUSION

It is time for scientific community in all relevant sectors to join hands to prevent further loss of life and health through road traffic injuries. Network and reviewers provide a good model for the future collaborative efforts. Ironically, injury control and prevention are not the key components of most national health policies in our country. Emergency surgeon and attendant, being the key component of management, need to be best trained – that needs missionary spirit and repeated training.

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AN EIGHT YEARS AUDIT OF LAPAROSCOPIC CHOLECYSTECTOMY

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We are presenting an audit of laparoscopic cholecystectomy performed at private hospital of Quetta from 1995 to 2001

KEY WORDS:- *Laparoscopic Cholecystectomy, Morbidity.*

BACKGROUND

This study was carried out to document the safety of laparoscopic cholecystectomy and to identify the problems arising during and after surgery. The record of patients suffering from chronic cholecystitis/cholelithiasis who under went laparoscopic cholecystectomy, were analyzed.

All the patients who presented for post operative follow up underwent liver function tests and ultrasonography of hepatobiliary region. The patient who could not come for follow up were excluded from this study.

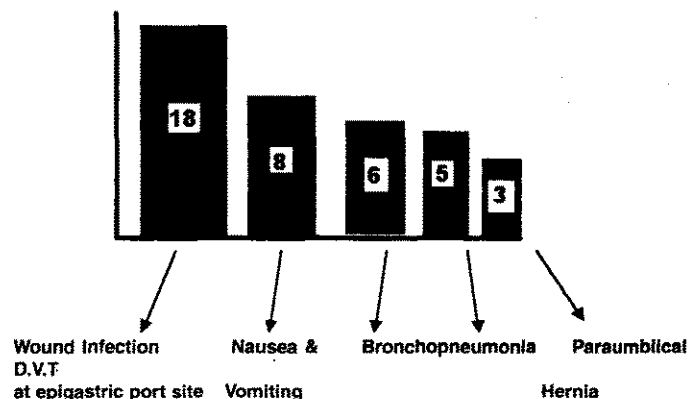
RESULTS

In this study our conversion rate to open conventional cholecystectomy was 4 % i.e. 58 were converted & 1422 patient under went successful laparoscopic cholecystectomy.

There were two intestinal injuries, one due to accidental burns & other due to duodenal adhesions at Callot's triangle. Two patients had C.B.D diathermy burns, 2 patients had clipping of C.B.D due to misidentification of cystic duct. One patient had total transection of C.B.D and in one patient partial damage of C.B.D and bile leakage noted.

We had 9 major bleeds that obscured the operative field, 4 patients bled from a gall bladder bed, 3 from multiple adhesions & 2 had bleeding from slipped and accessory cystic arteries.

Minor complications seen are depicted in (fig-1)

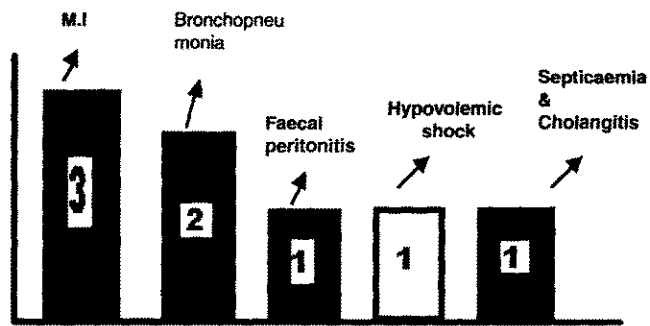


(Fig-1) Minor complications

Through epigastric port we used to retrieve the gall bladder but later on we changed to paraumbilical site and used retrieval bag thus overcoming problem of wound infections.

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Mortality in this series was 0.5% (Fig-II)



(Fig-II) Causes of mortality

DISCUSSION

There have been multiple studies regarding safety and outcome of laparoscopic cholecystectomy, for minimizing morbidity and mortality as compared to conventional open cholecystectomy. Main major complications seen in different studies are C.B.D damage, intestinal perforations, main vascular injuries and bleeding.^{1,2}

C.B.D injury / clipping is night mare for the laparoscopic surgeon which is mainly due to "misidentification of cystic duct" leading to injury / ligation and transection of a segment of C.B.D.³

There are certain factors which may predispose to C.B.D injury, which are acute cholecystitis with multiple adhesions; thick wall gall bladder difficult to grasp with forceps, chronic cholecystitis associated with dense adhesions, impacted stone at the infundibulum, wrong direction of traction at the neck of gall bladder and inability to display Callot's triangle properly. In our opinion the selection of cases is extremely important for laparoscopic work & surgeon should not be reluctant to convert to open endocystectomy. In fact surgeon has to be safe for the patient and for him/her self and should try to minimize morbidity.

In our study it has been shown that the C.B.D injury is still high as compared to open cholecystectomy, so we suggest operative cholangiography which has a protective effects.⁴ In a study by Reddick & associates it has been seen that C.B.D injury is 5-8 time more common as compared to conventional cholecystectomy. Deaths are due to intestinal injuries, vascular injury may be responsible for 0.25% -15% of all deaths in laparoscopic cholecystectomy.⁵

Our results in this series are comparable with other studies and, we hope that with further improvement in technology & with sharing of knowledge in training centers, workshops, the morbidity results can be improved.

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PEUTZ JEGHER'S SYNDROME AND INTUSSUSCEPTION

A CASE REPORT

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ABSTRACT

Peutz Jeghers syndrome (PJS) is one of the rare polypoid lesions of the gastrointestinal tract. Intussusception secondary to PJS is a well known entity. Herein we report our experience of one such patient in whom diagnosis was made at laparotomy. On exploration of family history it was found that many other members of the family were also having tell-tale signs of PJS.

KEY WORDS:- Peutz Jegher's syndrome. Intussusception, Diagnosis

INTRODUCTION

Intussusception in older children usually is secondary in nature in comparison with infants. Many lesions can cause secondary intussusception. Peutz Jeghers syndrome is one such lesion. Usually a good physical examination can make pre operative diagnosis'. In present case this was missed and diagnosis was made only after exploration.

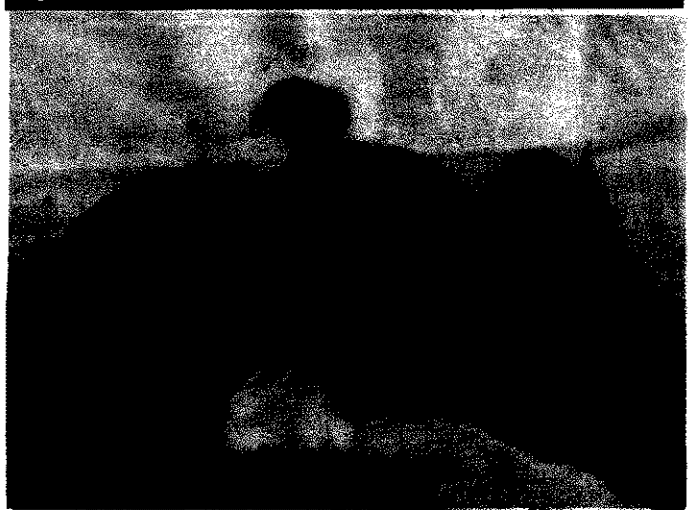
CASE REPORT

A six years old male child presented with one day history of severe abdominal pain and vomiting. There was no previous history of abdominal pain or bleeding per rectum. On examination abdomen was distended, tense and tender. Diagnosis of intestinal obstruction secondary to intussusception / bands was made. X ray abdomen was suggestive of intestinal obstruction.

After initial resuscitation patient was operated. Mid jejuno-jejunal intussusception was found. Gut was dark in color and intussusception could not be reduced so resection was performed. On opening resected specimen a single polyp was found (Fig-1). Rest of the gut was then searched. Two large polyps were found in proximal jejunum and removed. Two very small sessile polyps were present in distal ileum and were left as such. The oral mucosal surface was then examined and pigmentation was revealed. Family members were also called upon and

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Fig. 1 Resected part of jejunum showing polyp



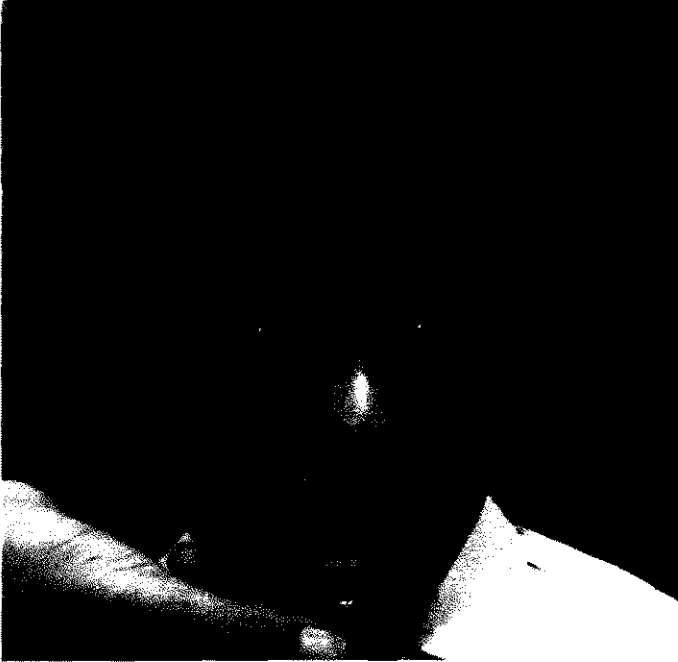
same mucosal and skin lesions were found in father, elder brother and elder sister. His elder brother also had surgery for cleft lip (Fig II A-D). Only father underwent abdominal procedure for pain of which no record was available. Patient made uneventful recovery and was then discharged. Counseling was done as to the nature of the lesion and future consequences in all family members. In follow up period patient was brought twice with abdominal pain and settled on conservative treatment.

DISCUSSION

The Peutz-Jeghers syndrome is an autosomal dominant disorder characterized by hamartomatous polyposis of the gastrointestinal tract, brown to black (melanin) pigmentation of the skin and mucous membranes, and an

Fig. II Patient and family members with classical pigmentation

II A Patient



II B Father



II C Sister



II D Brother



increased risk for cancer in later life². The incidence of surgical complications in these patients is relatively rare, and correlates with the size and location of the polyps. Intestinal complications usually appear in second decade of life³ although no age is immune. A case of Peutz-Jeghers Syndrome presenting in infancy with gastric-outlet obstruction has been reported⁴. It should be suspected when there are obstructive symptoms or gastrointestinal blood loss in a baby with a positive family history.

All children in a family with PJS should be properly

investigated. In case of an intussusception with a polyp in a critical location, a surgical procedure should follow. Laparotomy is usually indicated although recently laparoscopy is also performed for this condition⁵. Following resection / enterotomy removal, total intraoperative enteroscopy should be performed in search of other polyps^{6,7}.

In a busy set up with number of cases being received in emergency one tends to skip few of the examinations which can help in making pre-operative diagnosis. In case presented although diagnosis of intussusception was made but examination of oral mucosa was missed. Neither parents reported such abnormal pigmentation in other family members. These patients usually present with recurrent abdominal pain and melena which were not found in our patient that again mislead the surgical team. In the patient reported the mucosal lesions were not as gross as in other family members who also had skin pigmentation. A high degree of suspicion should be kept in mind while dealing with older children with diagnosis of intestinal obstruction. Gastrointestinal cancer, uterine

cancer, and breast cancer are also seen in patients with PJS. A long-term follow-up is thus required to prevent invagination and ileus in children and cancer in adults⁶.

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HYDATID CYST OF BREAST

A CASE REPORT

NAUSHAD BAIG, FARZANA MEMON

ABSTRACT

A 32 years old lady lactating for 9 months presented with lump in breast for 6 months. Mammography was the only investigation which patient had with her and was not willing for further investigations. Clinical and mammographic assessment was suggestive of cystic lesion of breast probably galactocoele. Lumpectomy was done and biopsy report suggested hydatid cyst.

KEY WORDS:- *Echinococcus, Mammography, Breast Lump.*

INTRODUCTION

Hydatid disease is a larval stage of echinococcus granulosus, which occurs in sheep raising areas and has a world wide distribution. It can thrive in any part of the body but commonly affected organs are liver 70%, lungs 20% other organs 10%. Breast is a rare organ to be affected by hydatid cyst^{1,2} especially in absence of systemic disease. Ultrasonography and mammography are the important diagnostic tools for hydatid disease of breast.

CASE REPORT

A 32 year old woman lactating for 9 months presented to us with lump in left breast for 6 months which was gradually increasing in size. There was aching sensation in affected breast. On examination a lump of about 4cm x 3 cm in size with a smooth wall palpated. It had well defined margins with cystic consistency, non tender, mainly in the central part and inner quadrant of the left breast. Axilla was clear.

Our provisional diagnosis was cystic lesion of breast probably a galactocoele as it was found in lactating mother. Ultrasound and FNAC were advised but refused by patient. Mammography was already done by some physician. Mammography findings revealed a hypodense lesion of about 5cm x 4 cm in the middle part of the left breast especially in the inner quadrant with fibrous septa in the lesion and the lesion appeared cystic. Provisional diagnosis of breast cyst made.

Patient was operated as day case and excision of the cyst was done. Cyst was removed intact without any leakage

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or rupture and submitted for histopathology. Recovery of patient and wound healing were smooth and without any complications. Stitches were removed on 7th day in out patient. Patient visited on the 14th day with histopathology report which revealed a outer portion of the cyst filled with clear fluid. On opening the cyst multiple small cysts were identified separated by fibrous septa. Section revealed features consistent with hydatid cyst along with benign lactation changes. After reviewing histopathological report patient was investigated for systemic disease by doing ultrasound abdomen, which reported echographically normal liver kidneys, spleen and pancreas.

DISCUSSION

Hydatid cyst of breast in a rare condition and accounts for 0.27% of all cases^{3,4} Many cases have been reported in literature from developing countries where disease is endemic^{5,6}. Two cases have been reported from Pakistan⁷. Women of age 20-50 years are said to be at a higher risk. Systemic dissemination is the source of breast involvement^{8,9}. It is usually not yet included in differential diagnosis of breast disease. It presents as a slow growing lump often painless and without affecting regional lymph nodes^{3,8}. When secondarily infected it becomes painful and cannot be differentiated from a breast abscess⁹.

Other differential diagnoses include fibroadenoma, phylloid tumors and well- circumscribed carcinomas. Diagnostic tools include ultrasonography, Mammography and FNA. Sonographic patterns vary from patient to patient and according to the maturation of cyst including simple cyst to multiloculated cysts. Mammography usually reveals a circumscribed lump with septation probably due to differences in density of the wall and contents of daughter cysts inside the fluid filled mother cysts¹⁰. In our case mammography revealed a radiodense lesion. Multiloculated cyst with multiple fluid levels are

representative of hydatid cyst of breast along with cystic lesion in other organs¹⁰.

Fine needle aspiration though hazardous may lead to secondary implantation but to date fifty four cases of hydatid cyst of breast have been reported but only one was diagnosed through aspiration cytology³. Surgery is main treatment of hydatid diseases of the breast.

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