ORIGINAL ARTICLE

Early Experience with Laparoscopic Inguinal Hernia Repair

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ABSTRACT

Objective: To evaluate our experience with Laparoscopic hernia repair with regards to, complications,time to full recovery, return to work, and recurrence.

Methodology: This was a descriptive prospective study, performed in the Surgical B Unit of Lady Reading Hospital, Peshawar from 1st January, 2011 to 1st November 2011. Patients were admitted from the out-patient department. Exclusion criteria included-obstructed/strangulated hernia, patients with previous pelvic surgery, patients not fit for general anaesthesia and children. After written informed consent, either a TEP or TAPP repair was done under general anaesthesia. The course of the procedure was noted for any intraoperative complications, total operating time and conversion to open procedure. Any complications in the post-operative period were also noted. Follow-up was done at 1 week, one month, 4 month and 6 month intervals and any long term complications noted.

Results: A total of 44 patients were included in the study. Male to female ratio was 10:1. Mean age was 37.5 years. Thirty six patients presented with primary hernia while 8 patients had recurrent hernia.In 20 patients, hernia was on the right side while in 16 patients it was on the left side. Eight patients had bilateral hernia. Indirect hernia was seen in 25 patients and direct hernia was present in 14 cases. TEP procedure was done in 8 patients while TAPP procedure was carried out in 36 patients. Major complications encountered were: conversion to open procedure in 4 patients, excessive bleeding in 2 patients, surgical emphysema in 3 patients, significant post-operative pain in 6 patients and port site infection in 2 cases. No recurrence was seen at the end of study.

Conclusion: Laparoscopic inguinal hernia repair can be a routine procedure with results comparable to those of open procedures.It is well suited for recurrences. The visualization of structures is clear and leads to a defect-specific closure.

Keywords: Laparoscopic, Hernia, Inguinal, Mesh, Repair.

INTRODUCTION

The surgical history of inguinal hernias dates back to ancient Egypt. From Bassini's heralding of the modern era to today's mesh-based open and laparoscopic repairs, this history parallels closely the evolution in anatomical understanding and development of the techniques of general surgery.[1, 2]

Accounting for 75% of all abdominal wall hernias, and with a lifetime risk of 27% in men and 3% in women, inguinal hernia repair is one of the most commonly performed surgeries in the world.[3]Advances in modern day surgical care has made management of this condition simple and highly effective as hernia surgery is mostly carried out as daycare surgery under local anesthesia. Laparoscopic surgery has made great strides in the last decade to the extent that many of the surgical procedures previously thought of as only reserved for open surgery, have become routine laparoscopic procedures. Open mesh hernioplasty being simple and highly effective has gained worldwide popularity. But this hasn't stopped surgeons from including this procedure in laparoscopic domain as well. However, Laparoscopic herniorraphy hasn't gained widespread popularity and its feasibility as a routine procedure has been questioned.Several studies have demonstrated a definite advantage over open repair with regard to reduced post-operative pain[4-6] and earlier return to work and normal activities.[7,8]. The objective of the current study is to evaluate the experience of adopting laparoscopic herniorraphy as a routine procedure in a busy tertiary care hospital and assess its outcome in terms of benefits to both the surgeons and the patients.

MATERIAL AND METHODS

This was a descriptiveinterventional prospective study, conducted in Surgical B unit of Postgraduate Medical institute, Lady Reading hospital, Peshawar. Study duration was from 1st January 2011 to 1st November 2011. Forty four consecutive cases of unilateral or bilateral inguinal hernia were included in the study. Inclusion criteria included age above 18years, both males and females, primary or recurrent inguinal hernia and unilateral or bilateral inguinal hernia. Exclusion criteria were, patients with obstructed or strangulated hernia, patients in paediatric age group, patients with previous pelvic surgery, patients unfit for general aneasthesia, and those not willing for this procedure. All patients were admitted through outpatient department. A pre-operative workup included detail history, taking, a thorough general and systemic examination, and laboratory investigations like FBC, blood urea and glucose, chest X-ray and ECG for patients above 40 years of age. Patients with comorbid conditions were further evaluated with regards to fitness for general anesthesia. A written informed consent was taken after explaining the procedure to the patients. General anesthesia was given to all the patients.All patients received Ceftriaxone in a dose of 1 Gm at the induction of anesthesia.

Laparoscopic approach was either through TAPP or TEP procedure.

The TAPP procedure was initiated by inserting a 10mm port at the infra-umbilical position followed by inspection of the peritoneal cavity and inguinal anatomy. A 5-mm trocar on the left and a 10mm trocar on rightwere placed one fingerbreadth below the level of the umbilicus just lateral to the rectus muscle.A transverse peritoneal incision was madefrom the medial umbilical ligament extending laterally to just above the internal ring. The peritoneum and preperitoneal contents were bluntlydissected from the anterior abdominal wall, exposing the myopectinealorifice. The hernia sac was identified and dissected clear of the contents of spermatic cord. Dissection was carried wide enough to accommodate a 15x15 polypropylene mesh covering the hernia orifice and the post wall of inguinal canal and medially into the space of Ritzius. After the introduction of mesh, it was placed and anchored to Cooper's ligament, superomedially and superolaterally to abdominal wall using tackers. Dissected peritoneal flap was repositioned covering the mesh using a few tackers. The procedure ended by closing the incisions with deep layers closed with vicryl and skin with fine prolene sutures.

In the TEP approach, an infra-umbilical incision was made slightly lateral to the umbilicus and posterior rectus sheath reached by blunt dissection. A 10 mm trocar was placed and laparoscope introduced. Gas was introduced into the space and dissection was carried out expra-peritoneallyupto the pubic symphysis. In some cases a glove finger was used act as a balloon during dissection of the space. A 5-mm trocar was placed 2 finger breadths above the pubis and another 10mm trocar was placed midway between the umbilical port and the lower 5mm trocar. The inguinal anatomy was identified, hernia sac dissected away from cord contents and a preperitoneal space prepared for placement of mesh. A polypropylene mesh of 15x15 size was placed and fixed using tackers.

All patients were monitored for any intra operative anesthetic and surgical complications. Similarly patients were observed for any complications during their stay in the ward. All patients were followed up at intervals of 1 week, 1 month, 2 month, 4 month and 6 month after their discharge from the unit and any long term complications were recorded on their subsequent follow up visits. All the relevant details of patients including complications were recorded on a specifically designed proforma. Results were analysed at the end of the study using SPSS version 17.

RESULTS

A total of 44 patients were studied. Males were 40 and females 4 with a male to female ratio of 10:1. Minimum age was 20 years and maximum 68 with a mean age of 37.5 years. Different age groups affected are shown in Figure No. 1.

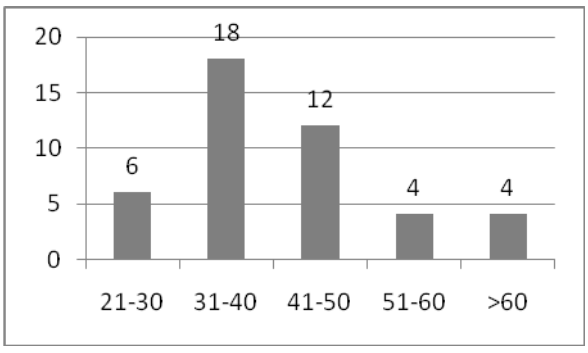


Figure No.1

Inguinal hernia as a primary condition was seen in 36(81.8%) cases while 8(18.2%) patients presented with recurrent inguinal hernia. Right sided inguinal hernia was seen in 20(45.45%) patients while it was on the left side in 16(36.36%) cases. it was found bilateral in 8(18.2%) patients.

Types of hernia encountered are given in figure No.2.

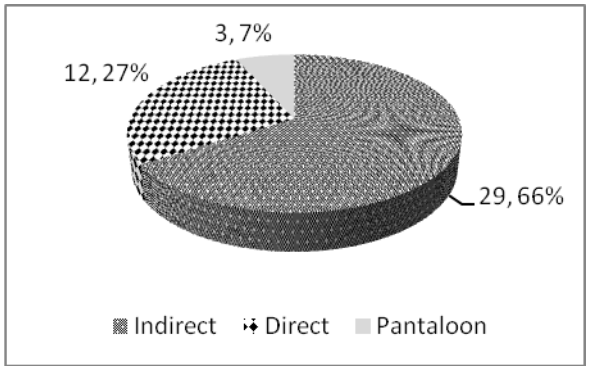


Figure No.2 Types of hernia

Table No.1 Complications

Complication	TEP	TAPP	Total	%age
Port site bleeding	1	1	2	4.54%
Surgical Emphysema	1	2	3	6.81%
Neuralgia/pain	4	2	6	13.63%
Conversion to open procedure	1	3	4	9.09%
Port site infection	2	0	2	4.54%
Scrotal edema	2	0	2	4.54%
Urinary Retension	0	1	1	2.27%
Recurrence	0	0	0	0.0%

Hernia was of indirect type in 29(65.90%) patients with undescended testes in 2 of these cases. It was of direct type in 12(27.27%) patients while in 3(6.81%) cases it was of pantaloon type. All patients were operated electively by a single surgeon and given general anaesthesia. A Transperitonealpreperitoneal (TAPP) procedure was done in 36(81.8%) cases while Totally extra peritoneal(TEP) repair was done in 8(18.2%) patients. The mean operating time for unilateral inguinal hernia repair was 40 minutes (range 30 to 50) and for bilateral repair, it was 63 minutes (range 50 to 70). Complications observed during the procedure and in the post-operative period are given in table 1.

A mean duration of follow-up of 16 weeks was obtained for 40 patients (>90%). Follow-up data was not available for 4 patients.Work or normal physical activity was resumed at a median of 10 days (range 8 to 12 days) after unilateral repair.After discharge six patients sought treatment elsewhere for minor complaints.

DISCUSSION

Inguinal herniorraphy is one of the commonest surgical procedure performed worldwide. In the United States, inguinal herniorrhaphy accounts for approximately 800,000 cases annually.[9]

Laparoscopic inguinal herniorraphy was first described in the early 90s by GerandShultz.[10,11]It gained popularity after the success of laparoscopic cholecystectomy. Much work has been done to establish the role of laparoscopic approach in the management of inguinal hernia and to determine whether open or laparoscopic approach is better. The most recent data available on the percentage of laparoscopic herniorraphies among all hernia repairs ranges from 30% in Germany, 14% in USA to only 4% in England and Denmark.[12]As trend in adopting laparoscopic techniques for different procedures grows steadily, controversies still exist regarding the feasibility of laparoscopic herniorraphy as the procedure of choice. The2004 VA study recruited almost1700 patients and demonstratedlower recurrence rates for the traditional approach.[13]

The Italian multicenter randomisedcontrolled trial on 108patients in 1998 showed more expensivelaparoscopy which also requiresgeneral anaesthesia is not justifiedon a routine basis.[14]

The current study, was to evaluate our experience and determine if it can be adopted well in our set of circumstances, where cost of treatment, prevention of complications and early return to work is as important as anywhere else.

This study included patients with different types of hernia. Mostauthorities believe laparoscopy isindicated only in cases of bilateralrepair, recurrent hernia, or selectedpatients, i.e. patients who undergoother laparoscopic procedures,patients who require

thefastest possible recovery (athletes),and patients not amenableto loco-regional anaesthesia.[15,16] In particular recurrent hernias are effectively approachedfrom behind, workingon unaffected issues, allowingless traumatic and non-lengthydissection.

The TEP may have some advantages over the TAPP in terms of postoperative pain and reduced potential for intraperitoneal complications but does require a high level of technical skill associated with a considerable learning curve.[17,18]

All patients received prophylactic antibiotic at induction of anaesthesia.Current data remain controversial, but the most recent meta-analysis supports the use of antibiotic prophylaxis when performing a mesh-based repair.[19]

A TAPP procedure was the predominant approach as compared to TEP approach in this study. The reason being the surgeon realizing after initial experience, TAPP being easier to perform without the need for additional expensive instruments and had a shorter learning curve.

Laparoscopic herniorrhaphy shares some complications with the opentechnique but also has its own set of complications. Some of these problemswere encountered early on and were corrected as surgeons became moreexperienced with the technique. Thus, the incidence of complications hasdecreased with time.[20]The overall complication rate in this study was 20.45% taking in to account minor complications as well like scrotal oedema and minor wound infection which were adequately managed.

Felix et al found a 2.7% complication rate over a 6-year period. 90% of the complications occurred in the first 50% of patients.[21]

The main intraoperative complications encountered in this study was port site bleeding in 2 patients. However this did not lead to abandonment of the procedure as bleeding was adequately controlled.Tetik et aland others found a high incidence of hematomas and suggested that it wasdue to the more extensive dissection performed with the TAPP and TEPrepairs.[22]In four patients, the procedure was converted to open repair. In one patient undergoing TEP repair, there was massive development of emphysema while in 2 patients there was inadvertent breach in the peritoneum leading to conversion to open procedure. In one patient pelvic adhesions prevented the surgeon from doing a safe dissection.Complications related to the laparoscopictechnique itself, or to the hernia repair, include vascular injuries or injuriesto bowel. A number of early studies showed a higher rate of these injuries. However, no such complication was seen in this study.

The majority of complications are postoperative. Urinary retention,a complication of open repair as well, is reported to be the most common of the patientrelatedproblems, with an incidence of 1.3% to 5.8% [20,22,23]. Only one patient in current study had urinary retention which was adequately managed without long term need for any intervention.

Orchitis has been an infrequent complication found in a small number of by different researchers.[20,22,23] None of patient in this study showed this complication.

Six patients complained of intractable pain in the immediate post-operative period. It was attributed to transient neuralgia and got settled with analgesia without going in to late phase. Fitzgibbons et al looked at postoperativeneuralgia and found that leg pain decreased significantly (from 7% to 1.8%)after surgeons performed 30 cases. Postoperative groin pain remainedsteady at about 8% and testicular pain at 2% .[20]

Two patients developed port site infection which got settled with conservative treatment. None of patient had deep seated mesh infection. There are reports of mesh getting rejected years after the laparoscopic procedure.[24,25]

No recurrence of hernia was observed till the end of study period in this study.

The laparoscopic repair can be donewith low recurrence rates (0%–1.1%).[26,27]Other authors, however, havereported higher recurrence rates of 5% to 20%.[28,29]

CONCLUSIONS

Laparoscopic inguinal hernia repair can be a routine procedure with results comparable to those of open procedures.It is well suited for recurrences and patients presenting with bilateral herniae. The visualization of structures is clear and leads to a defect-specific closure.The advantages of the laparoscopic approach include

1. The type of hernia is obvious,
2. Trocar placement is identical for any side or hernia type,
3. There is clear visualization of the anatomy.
4. Routine video documentation renders the diagnostic accuracy objective and absolute.

However a considerable amount of skill and infrastructure is required in order to make it a routine procedure.

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