

Outcome of totally extra-peritoneal laparoscopic hernioplasty at a tertiary care hospital Larkana

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Abstract

Objective: To evaluate the outcome of totally extra-peritoneal laparoscopic hernioplasty in terms of hospital stay, operative time and complications.

Methods: The prospective descriptive study was carried out at the Department of Surgery, Unit-I, Chandka Medical College Teaching Hospital, Larkana, Pakistan, from September 2008 to June 2010. A total of 141 male patients above 12 years of age with reducible primary and secondary, unilateral and bilateral, direct and indirect inguinal hernia underwent total extra-peritoneal hernia repair. All the relevant details of each patient were noted and subsequently analysed statistically.

Results: Overall, 100 (71%) patients had unilateral inguinal hernia and 41 (29%) had bilateral inguinal hernia. The mean age of the patients was 51 ± 14 years. The mean operation duration was 70 ± 19 minutes. Bilateral repairs took 20 minutes more than unilateral repairs (80 versus 59 minutes). However, the mean operative time for the last 55 (30%) cases decreased to 55 ± 10 minutes. One (0.7%) patient had conversion to open surgery and 10 (7.1%) had minor complications; mostly scrotum seroma, that were resolved. Recurrences occurred in 2 (1.4%) cases; 1 in recurrent hernia, and 1 in bilateral direct hernia. However, no hernia recurrence was present in the last 81 (59%) patients. The mean hospital stay was 1.4 ± 0.6 days.

Conclusion: Laparoscopic hernia repair is difficult to learn and perform, but has advantages of less post-operative pain, early recovery with minimal hospital stay, low post-operative complications and recurrence.

Keywords: Laparoscopic, Total extra-peritoneal, Inguinal hernia repair. (JPMA 63: 850; 2013)

Introduction

Inguinal hernia repair is one of the most common surgical procedures performed by general surgeons. Fortunately, most inguinal hernias are repaired electively to prevent complications.¹ Many procedures have been developed with the passage of time in order to improve the outcome of hernia repair and prevent recurrence. In the United States, 800,000 inguinal hernias were surgically corrected in 2003; mostly by Lichtenstein and plug hernioplasties. Of these operations, 90% involved the use of mesh prostheses and were performed on an outpatient basis.² The revolutionary success of laparoscopic cholecystectomy has resulted in the application of minimally invasive surgery to other operative procedures like inguinal hernia. The laparoscopic hernia surgery was initially a controversial topic with various studies publishing contradictory results. Unfortunately, the initial enthusiasm in laparoscopic herniorrhaphy was met with a disappointing early recurrence rate, which was as high as 25% in some series.³ But now with a decade of experience in lap hernia surgery, the dust seems to be settling down

more towards accepting the superiority of the laparoscopic repairs over conventional repairs. This is mainly due to proper understanding of endoscopic inguinal anatomy, technique, refinement of the techniques, introduction of the peritoneal placement of mesh etc.

Laparoscopic hernioplasty has several advantages over its 'open' counterparts. First and foremost aspect from the patients' point of view is the reduced post-operative pain and short recovery period.⁴ Second, the entire myopectineal orifice can be inspected, allowing for repair of any unexpected hernias, thereby reducing the chance of recurrence. Third, laparoscopic hernioplasty avoids the previous operative scar site in patients with recurrent hernias.⁵ The trans-abdominal peritoneal repair (TAPP), and the total extra-peritoneal (TEP) repair clinically applied are two major laparoscopic techniques of tension-free hernia repair.⁶

Laparoscopic hernia surgery has been gaining popularity. Several randomised controlled trials and systematic reviews have been done which have compared laparoscopic repair with open repairs. All these studies concluded that laparoscopy was better than open repair in terms of (a) less post-operative pain,

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less analgesic consumption, earlier return to normal activities and work in the early post-operative period; (b) less long-term complications of groin pain and permanent paraesthesia.⁷ Laparoscopic hernioplasty has become the standard method for bilateral inguinal hernias and recurrent hernias, but it has been criticised for technical difficulties and a long learning curve.⁸ Most studies criticise the use of TAPP technique, which penetrates the abdominal cavity leading to an increased possibility of injury to the intraperitoneal contents. In TEP inguinal hernia repair, as the peritoneal cavity is not entered, there is reduced risk of visceral injury, adhesion formation and the development of port site hernias.⁹ However, laparoscopic approach is a safe and effective procedure for the repair of inguinal hernias. Moreover, TEP is the best option for the repair of recurrent inguinal hernia.

The current study was planned to evaluate TEP hernioplasty in terms of hospital stay, operating time and complications in patients at a tertiary care hospital in rural Pakistan.

Patients and Methods

The prospective descriptive study was conducted at the Department of Surgery Unit-I, Chandka Medical College Teaching Hospital, Larkana, Pakistan, from September 2008 to June 2010. A total of 141 patients who underwent laparoscopic TEP hernioplasty during the study period were reviewed prospectively. Data regarding patient demographics, types of hernia, operative aspects, post-operative recovery, complications, and results were collected on a study-specific proforma after a written informed consent was furnished by the patients. Patients above 12 years of age, unilateral or bilateral reducible inguinal hernia, whether primary or recurrent, were included in the study. Patients below age 12, irreducible or obstructed hernia, previous lower abdominal surgery and not fit for general anaesthesia were excluded.

General anaesthetics with muscle relaxation were administered. A transverse 1cm incision lateral to umbilicus on the affected site was made. In case of bilateral inguinal hernia, transverse incision lateral to any side left or right of umbilicus was made. Two working ports were made lateral to the rectus muscle on both sides. The anterior rectus sheath incised and the rectus muscle was retracted to expose the posterior rectus sheath. A 10mm Hassan trocar (trocar with cone used to avoid the CO₂ leak from the port site) was introduced. CO₂ was insufflated at 12mmHg, while 10mm zero-degree telescope was passed through the

trocar over the posterior rectus sheath upto the pubic symphysis. Dissection was made by passing the telescope to and fro and also laterally. The first working port was introduced under vision 4-6cm infra-umbilical, little away from the midline on the opposite side of hernia. Inferior epigastric vessels were lifted up. Space was created to pass the second working trocar by rail road method with scissors pointed towards skin at the mid-clavicular line in level with the umbilicus on the affected side. The assistant held the camera, while the surgeon dissected with both hands. The first step was to identify the pubic bone, Cooper's ligaments, inferior epigastric vessels, spermatic cord and the type of hernia. The next step was to reduce the hernia sac from the inguinal wall. The direct hernia sac was reduced and separated from the spermatic cord. When a long direct sac was encountered that could not be completely reduced from the deep inguinal ring, the sac was divided and the peritoneal side was ligated with 2/0 chromic cat gut tie around the sac and the sac was transected. In the final step, a rolled polypropylene mesh 12x15 cm side was inserted through the 10mm port and, with the use of graspers, the mesh was placed horizontally, covering the inguinal wall from the midline of the pubis and lateral to the deep inguinal ring. The mesh was fixed to Cooper's ligaments by a stitch with prolene 2/0. We did not use tackers or endo-anchor because of the cost. At the conclusion of surgery, the gas was released and the three wounds were closed. Camera port (anterior rectus sheath) was closed with vicryl zero, skin of camera port and other two working ports were closed subcutically with vicryl 3/0 rapide.

Results

Of the 141 patients, 100 (71%) had unilateral hernia while 41 (29%) had bilateral hernia; 127 (90%) presented with primary hernia, and 14 (10%) had recurrences from previous open repairs. Among cases of unilateral hernia, 62 (62%) had it on the right side; and 73 (73%) were indirect hernias. Of the 41 bilateral hernias, 12 (29%) were indirect hernias, 10 (24%) were direct, and 19 (46%) were a combination of both types. The overall mean age was 51 ± 14 years of the patients who were all males. The mean operative time was 70 ± 19 minutes (range: 30 to 90 minutes); a mean of 50 ± 7 minutes for unilateral hernias, and 80 ± 12 minutes for bilateral hernias. However, the mean operative duration for the last 55 (30%) cases came down to 55 ± 10 minutes. One (0.7%) patient required conversion to open surgery because of adhesions and bleeding which were creating difficulties for further laparoscopic dissection. The patient was allowed to take liquids after recovery from general anaesthesia and was encouraged to move

around in the ward by evening. Adequate analgesia was given through rectal (diclofenac) suppositories. All patients were allowed to take normal diet on the first post-operative day. Besides, 10 (7.1%) patients developed minor complications: 1 (0.7%) with acute urinary retention, 1 (0.7%) with transient lateral cutaneous nerve paraesthesia, and 8 (5.7%) patients with scrotal seroma (two of whom were aspirated). All patients recovered well and the mortality rate was zero. The average follow-up period for patients was 6 ± 2 months. There were 2 (1.4%) recurrences, which occurred in the initial part of the series. The recurrences occurred in 1 (0.7%) recurrent hernia repair, and 1 (0.7%) bilateral direct hernia repair. Of the two recurrences, one was due to the migration of the mesh, and the second due to infection. Both were managed by conventional Lichtenstein repair. Overall, 104 (74%) patients were discharged from hospital on the first post-operative day, while 37 (26%) stayed more than one day. The mean hospital stay was 1.4 ± 0.6 day. All patients were advised to carry on with their normal routine work as per their level of comfort.

Discussion

Laparoscopic inguinal hernia repair is a relatively new technique. However, it has been proven to be an alternative method to open hernia repair.¹⁰ Large trials on laparoscopic hernia repair with primary and unilateral inguinal hernia have reported operative duration from 30 to 70 minutes, and recurrence rates from 1.9% to 6%,¹¹ which was initially as high as 25%.³ At specialised centres, recurrence rate $<2\%$ has also been reported, but at non-specialised units recurrence rates vary between 5% and 19% three to five years post-operatively.¹² In our study, the recurrence rate was 1.4%.

Compared to open hernia repair, laparoscopic repair resulted in less wound complications, less post-operative pain, reduced analgesic requirements, faster resumption of normal activities, and lowered overall cost, even though equipment costs were higher. The disadvantages of laparoscopic repair include the need for general anaesthesia, and the breach of peritoneum in TAPP repairs. The most vital factor to be kept in mind before a general surgeon opts to treat his patients through laparoscopy is the difficult and prolonged learning curve in order to perform the procedure in a safe and efficient manner.¹³ The laparoscopic approach can be offered to patients with recurrent and bilateral hernias, where repairs on both sides can be accomplished through the same incision.

In open surgery, bilateral hernia repairs are usually avoided because by performing surgery in bilateral hernias, two separate big incisions have to be made which may produce more pain, chances of more wound infection, and longer operative time. In recurrent hernia from previous open repair, if we again perform open repair, one finds a lot of adhesions. Hence, TEP hernioplasty has clear advantages over the open repair because no adhesions are encountered in the extra-peritoneal space. Laparoscopic TEP hernia repair has clear advantages for both of these (bilateral and recurrent inguinal hernias) situations, as recommended by the National Institute for Clinical Excellence.¹⁴

In one prospective series over a 22-month period, it was observed that hernia repair can be achieved with minimum morbidity, and majority of cases can indeed be performed in the day care setting, provided that the learning curve has been overcome, and the repair accomplished with acceptable recurrence rates. The results from this series are comparable to other reports of laparoscopic hernia repair.¹¹ However, patients with primary, unilateral hernia, who require rapid recovery from surgery to resume normal activities and work can also benefit from laparoscopic repair. In early forms of laparoscopic repairs, such as TAPP, peritoneal cavity is entered to secure the mesh over the inguinal floor; subsequent intestinal obstruction may result from bowel that inadvertently adheres to the exposed mesh.⁹ This is clearly an undesirable complication. TEP has the advantage of being extra-peritoneal, thus minimising the risk of visceral injury and adhesion formation. Though laparoscopic hernia repair may not be more expensive than open repair in terms of direct hospital costs or where a difference exists, this is relatively small. In our study, all patients were pain-free after receiving adequate analgesia.

We had acute urinary retention in one patient who needed catheterisation in the post-operative period. The incidence of scrotal seroma/haematoma was less than 7%, and most of them resolved on conservative measures and needle aspiration as an out-patient procedure once. Only in one patient multiple aspirations of 2-3 times were performed. Mesh infection (abscess) occurred in one patient following TEP hernia repair that needed open drainage and developed recurrence hernia and in one patient mesh displacement also resulted in recurrent hernia. Both of those were managed by open conventional repair. All patients recovered well and mortality was zero.

At present, laparoscopic repair of hernias finds its clinical niche in patients with bilateral or recurrent hernias or in patients with unilateral hernia who wish to have a minimal period of post-operative disability. Now a day's laparoscopic hernia repair has become a popular option for inguinal hernia and ideal for recurrent inguinal hernias, provided it is performed by experienced laparoscopic surgeons.

Conclusion

Laparoscopic hernia repair is a safe, reliable and cost-effective method for cases of inguinal hernia. It has clear advantage of decreased operative time, post-operative hospital stay, disability and low rate of recurrence, particularly in cases of bilateral inguinal hernia and recurrent hernias. Although this procedure takes more operative time in the initial learning curve, but has limited rate of post-operative complications and recurrence.

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