ORIGINAL ARTICLE

Laparoscopic Total Extra-peritoneal Inguinal Hernia Repair: Our Experience at FMH

AASIM MALIK, GHULAM MUSTAFA, JUNAID KHAN LODHI, *ASIF IQBAL.*

ABSTRACT

Aim: The purpose of this study is To present our experience of Laparoscopic Hernia repair.
Methods: We included 50 patients in our study between January 2006 and December 2010. Total 67 Hernia repairs were done, 33 had unilateral hernia and 17 bilateral hernias. Mean age of patients was 45 years ranging from 20 to 73 years.
Results: The operating time for bilateral hernia was 30% longer than unilateral, average time 67 minutes. As we got experience the operating time gradually reduced as it was evident from last 22(44%) patients, which had 35 minutes. Two (4%) of our patients had to be converted into open due to unavoidable complications. Minor complications like anterior wall cellulitis and seroma were managed conservatively with rest and antibiotics. There was no hernia recurrence in last part of our learning curve that is in last 30(60%) patients. Overall there were 2 (4%) Recurrences occurred where the mesh was not anchored by tacs rather was fixed with polypropylene.
Conclusion ; Laparoscopic total extra peritoneal hernia repair offers the appropriate patient a viable alternative to open hernia surgery in terms of post operative pain, recurrence and rehabilitation, to achieve good results, adequate cases should be performed to overcome the learning curve, and the mesh should be anchored to the inguinal floor to prevent recurrences.
Keywords: Laparoscopic herniorrhaphy, total extra peritoneal inguinal hernia repair, inguinal hernia, laparoscopic surgery

INTRODUCTION

The history of Hernia repair is very old and has evolved with time. Many Great Surgeons in the past played their role for the development of methods for hernia repair; Bassini, Shouldice, and Lichenstein are among those who got the maximum popularity[1]. For long time the Hernia was repaired by open method and there was no effective method to prevent recurrence, then Lichenstein Tension free Mesh hernioplasty revolutionized the field of hernia surgery[2], but with mesh hernioplasty, the infection remained the propelling factor for many not to use meth. In early 90s the development of Laparoscopic Surgery attracted the Surgeons to overcome this concern. Three forms of Laparoscopic hernia repair developed, namely Totally Extra peritoneal repair (TEP), Transabdominal preperitoneal repair (TAPP), and intraperitoneal onlay mesh repair (IPOM)[1-3]. Gradually the Laparoscopic mesh hernia repair is gaining popularity especially for recurrent and bilateral hernias. There are many benefits of laparoscopic surgery over open surgery, e.g., earlier return to work, less pain, less rate of recurrence, less chances of recurrence and less post operative paresthesia[4].

Among all forms of laparoscopic repair, TEP is the technique where we do not enter into peritoneal cavity and there is no gut handling so there are less chances of complications related to pnemoperitoneam and post operative ileus, also there are less chances of visceral injury and adhesion formation[5]. Due to these benefits it is a preferred form of inguinal hernia repair. There are no randomized control trials of laparoscopic hernia in our set up. We present here our experience at Fatima Memorial Hospital Lahore.

MATERIALS AND METHODS

This prospective observational study was conducted at department of Surgery Fatima Memorial Hospital Lahore between January 2006 and December 2010. We included 50 patients in our study. Total 67 Hernia repairs were done, 33 had unilateral hernia and 17 bilateral hernias. All the patients were selected from OPD of Fatima Memorial Hospital. After taking the informed consent, they were included in the study. Routine pre-operative investigations were done for Anesthesia fitness. All the patients were explained about the type of Surgery and expected outcome. All repairs were done under General Anesthesia.

Department of General Surgery, FMH College of Medicine and Dentistry Lahore Pakistan
Correspondence to Dr. Ghulam Mustafa, Assist Professor Surgery, Div. of Vascular and Minimal Access Surgery, FMH College of Medicine Lahore Pakistan Email: drgmsial@yahoo.com, drgmsial@gmail.com. Cell 0092321 4125121

Procedure: A 10-mm longitudinal infraumbilical skin incision was made, and then deepened to separate the subcutaneous fat and exposed the anterior rectus sheath. Then a longitudinal incision was made in the anterior rectus sheath slightly off the midline over the body of the rectus abdominis muscle. A dissecting balloon was introduced into the preperitoneal space, down to the pubic symphysis, for creation of dissecting space. The patient was then placed in the reverse Trendelenburg position, and the preperitoneal space insufflated with carbon dioxide (CO2) to a pressure of 12 mm Hg. Two additional ports were placed in the midline between the umbilicus and pubis: a 5-mm trocar placed 2 fingerbreadths cephalad to the pubic symphysis, and a 5-mm trocar, placed at the midway point between the lower port and the camera port. Dissection in the preperitoneal space done under direct vision by blunt and sharp method, after identifying the Cooper ligament, obturator and inferior epigastric. The type of Hernia confirmed, the contents reduced by applying cephalad traction.

After complete and meticulous dissection, the operative site assessed. The deep ring visualized with only the cord structures traversing its opening into the inguinal canal. Any holes that were made in the peritoneum was closed before placement of the mesh, the mesh was folded and introduced under direct vision, then dragged as far laterally as possible toward the Anterior Superior Iliac Spine. Next, the mesh flattened out across the myopectineal orifice and draped over the cord structures. A single tack placed at the pubic tubercle. Then mesh spread in the whole preperitoneal space covering the Direct, Indirect and Femoral Hernia sites. CO2 turned off and ports removed under direct vision and port site incision closed by absorbable suture.

RESULTS

We included 50 patients in our study between January 2006 and December 2010. Total 67 Hernia repairs were done, 33 were unilateral hernias and 17 bilateral hernias. Mean age of patients was 45 years ranging from 20 to 73 years, 46(92%) were male and 4 (8%) female. Mean hospital stay was 1.2±0.6 days. Among all 50 patients, 42 (84%) had primary inguinal hernias and 8 (16%) had previous hernia surgery and presented as recurrent hernia. Hernias were more on right side 32(64%). Overall 35(70%) patients had indirect inguinal hernias, 12(24%) had direct and 3 (6%) had both direct and indirect.

The operating time for bilateral hernia was 30% longer than unilateral, average time 67 minutes. As we got experience the operating time gradually reduced as it was evident from last 22 (44%) patients, which had 35 minutes. Two (4%) of our patients had to be converted into open due to unavoidable circumstances. Minor complications like anterior wall cellulitis and seroma were managed conservatively with rest and antibiotics. There was no hernia recurrence in last part of our learning curve that is in last 30 (60%) patients. Recurrence occur in those cases where the mesh was not anchored by tacs rather was fixed with polypropylene.

Table 1: Distribution of patients according to type of hernia

	Unilateral Hernia	**Bilateral Hernia**	**Total**
	33	17	50
Primary Hernia	27	15	42
Recurrent Hernia	6	2	8

Table 2: Distribution of patients according to gender and site of hernia

	Male	**Female**	**Total**
	46	4	50
Right Inguinal Hernia	29	3	32
Left Inguinal Hernia	17	1	18

DISCISSION

The Hernia surgery has become more complex over the past many years due to the introduction of new Laparoscopic techniques. Although these techniques are new but they are gaining rapid popularity, as these are alternative to open and feasible techniques especially where patient have recurrent and bilateral hernias[3]. The major problem in the laparoscopic hernia repair is the learning curve that is relatively longer than for open hernia techniques, but it is gradually decreasing due to more interest of younger surgeons and development of modern laparoscopic equipments. The morbidity related to hernia surgery has markedly reduced as it is evident from various studies[5]. Our results of laparoscopic hernia repair are fairly comparable to the results reported in literature[7,8]. Some trials on primary unilateral hernias shows operation time from 30 to 70 minutes and recurrence rates from 1.9% to 6 %[7,8,9].

The advantages of laparoscopic surgery are less wound complications, less postoperative pain, reduced analgesic requirements, faster resumption of normal activities. It seems that laparoscopic surgery is costly but if we consider the economic productivity of a person and overall hospital cost of hospital stay, bed occupancy and human resource utilization, then laparoscopic surgery is much cost effective, even though equipment costs are higher[(8)]. The cost of laparoscopic surgery is a bit high if we use all disposable equipments but this cost can be reduces very much if we use re-useable equipments, making it feasible for our patients. The laparoscopic hernia

repair can be performed under General Anesthesia and Epidural Anesthesia depending on the condition of patient and Anesthetist choice[16].

The laparoscopic Surgery can be performed for unilateral, bilateral and recurrent inguinal hernias. The advantage for bilateral hernias is that it can be performed from the same incision and for recurrent hernias we enter through normal plan, so there are fewer chances of complications related to recurrent surgery[13]. However, patients with primary, unilateral hernia who require rapid recovery from surgery to resume normal activities and work can also benefit from laparoscopic repair. The very low recurrence rate of 1.34% shows that, in experienced hands, the total extra peritoneal hernia repair is the procedure of choice with additional advantages for recurrent and bilateral hernias[15]. In TAPP we enter the peritoneal cavity to secure the mesh over the inguinal floor, so intestinal obstruction may result from bowel that inadvertently becomes adherent to the mesh. This is clearly an undesirable complication. TEP has the advantage of being extra peritoneal, thus minimizing the risk of visceral injury and adhesion formation, the laparoscopic approach also significantly reduces long-term morbidity of permanent paresthesia or groin pain, compared to open surgery (5% vs. 33%) in a trial of 400 patients[10].

CONCLUSION

In conclusion, laparoscopic extra peritoneal hernia repair when performed by an experienced surgeon, offers the appropriate patient a viable alternative to open surgery. We recommend that initial cases should be performed under the guidance of a skilled surgeon to overcome the learning curve, and that the mesh should be anchored to the inguinal floor to prevent hernia recurrence. Reverse polyprolene stitch can be used to anchor the mesh instead of tacking device to reduce the cost of operation and prevent the occasional impingement of nerve by the tackers.

REFERENCES

1. Legutko J, Pach R, Solecki R, Matyja A, Kulig J. The history of treatment of groin hernia. Folia Med Cracov. 2008; 49: 57-74.
2. Filipi CJ, Fitzgibbons RJ, Salerno GM, Hart RO. Laparoscopic herniorrhaphy. Surg Clin North Am 1992; 72:1109-24.
3. Leigh N, Anita GH, Olga J, Robert F, Dorothy D, James G, Domenic R, William H. Open Mesh versus Laparoscopic Mesh Repair of Inguinal Hernia. *New England Journal of Medicine* 350 : 1819–27.
4. The EU Trialists Collaboration. Repair of groin hernia with synthetic mesh: meta analysis of randomized controlled trials. Ann Surg 2002; 235:322-32.
5. The MRC Laparoscopic Groin Hernia Trial Group. Laparoscopic versus open repair of groin hernia: a randomized comparison. Lancet 1999; 354:185-90.
6. Liem MS, Halsema JA, van der Graaf Y, Schrijvers AJ, van Vroonhoven TJ.
7. Cost-effectiveness of extraperitoneal inguinal hernia repair: randomized comparison with conventional herniorrhaphy. Coala trial group. Ann Surg 1997; 226: 668-76.
8. Heikkinen TJ, Haukipuro K, Koivukangas P, Hulkko A. A prospective randomized outcome and cost comparison of totally extraperitoneal endoscopic hernioplasty versus Lichtenstein hernia operation among employed patients. Surg Laparosc Endosc 1998; 8:338-44.
9. Douek M, Smith G. Oshowo A, Stoker DL, Wellwood JM. Prospective randomized versus open inguinal hernia mesh repair: five year follow up. Br Med J 2003; 326; 1012-3
10. Wright D, Paterson C, Scott N, Hair A. O'Dwyer PJ. Five-year follow up of patients undergoing laparoscopic or open groin hernia repair: a randomized controlled trial. Ann Surg 2002; 235:333-7.
11. Felix GS, Michas CA, Gonzalez MH. Laparoscopic hernioplastv TAPP versus TEP Surg Endosc 1995:9:984-9.
12. 11.National Institute for Clinical Excellence. Guidance on the use of laparoscopic surgery for inguinal hernia. London: NICE, 2001.
13. 12.Messenger DE, Aroori S, Vipond MN. Five-year prospective follow-up of 430 laparoscopic totally extraperitoneal inguinal hernia repairs in 275 patients. Ann R Coll Surg Engl. 2010; 92:201-5
14. 13.Richard SK, Vipond MN, Earnshaw JJ. Review of management of recurrent inguinal hernia. Hernia 2004;8: 144-148.
15. 16. Lal P, Philips P, Saxena KN, Kajla RK, Chander J, Ramteke VK. Laparoscopic total extraperitoneal (TEP) inguinal hernia repair under epidural anesthesia: a detailed evaluation. Surg Endosc. 2007; 21:595-601