

Comparison of Laparoscopic Hernia Repair (TEP) with Lichtenstein Repair for Inguinal Hernias

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Introduction: The surgical treatment of inguinal hernia varies widely from Lichtenstein hernioplasty to Laparoscopic mesh repair (IPOM, TAPP, TEP). **Aims and objectives:** To compare the per-op difficulties like operating time, difficulties in dissection between open mesh repair and TEP. To compare the post-op results and complications between the two groups. **Patient and methods:** This is a prospective randomized study conducted at Services Hospital Lahore from 1st May 2005 to 31st May 2006. Total no of patients in the study were 63. Patients were prospectively randomized in two groups. 34 patients underwent open mesh repair whereas 29 patients underwent TEP repair. **Results:** The post-op morbidity scores were significantly lower in the TEP group as compared with the open mesh repair group. However the recurrence rates were nil in either case. **Conclusion:** We conclude that for hernias the laparoscopic mesh hernioplasty is comparable to open mesh repair in terms of patient safety and recurrence rates but due to a long learning curve the mean operating time is double. This can be minimized by dedication, perseverance and devotion of the budding laparoscopic surgeon.

Key words: TEP, IPOM, TAPP

In 1887 Bassini published his original description of inguinal hernia repair. Since then many modern modifications such as Shouldice repair and the tension free LICHTENSTEIN repair have originated from it¹.

The surgical treatment of inguinal hernia has been one of the vastly analyzed and debated topics in surgery. Presently the most commonly used technique in the treatment of inguinal hernias is Lichtenstein hernioplasty with poly propylene mesh^{2,3,4}.

Within less than a decade in 1990 laparoscopic enthusiasts have described 3 forms of repair namely Intra-peritoneal onlay mesh repair (IPOM) Trans-abdominal pre-peritoneal repair (TAPP) Total extra peritoneal repair (TEP)⁵. But TAP and TEP are universally accepted and practiced modalities these days.

Laparoscopic hernia surgery has been gaining popularity in the recent years. In a recent Cochrane review it was concluded that laparoscopic repair of inguinal hernias associated with less post-op pain, chronic pain, shorter convalescence, earlier return to work and recurrence rates similar to those of open mesh repair⁶. However Laparoscopic hernia repair is more complex and difficult to learn and for these reasons it has not gained popularity. In this study we compared the per-op difficulties and the post-op results between TEP and open mesh repair.

Aims and objectives

1. To compare the per-op difficulties like operating time, difficulties in dissection, size of the mesh, anchorage of the mesh with clips prolene tuckers between open mesh repair and TEP.
2. To assess the post op outcome and complications between the 2 groups. In terms of Seroma formation, Post-op pain, Recovery (oral feed, mobilization,

discharge), early return to work, recurrence, cost effectiveness

Patients and methods

This prospective study was conducted in the Department of Surgery, Services Hospital Lahore from May 1st 2005 to 31st May 2006.

Inclusion criteria

All patients with primary unilateral inguinal hernia admitted through surgical Outpatient department were included in the study.

Exclusion criteria

Patients with bilateral inguinal hernia

Patients with obstructed, irreducible inguinal hernias were excluded.

Patients were randomized in 2 groups

- A) Open repair
- B) Laparoscopic TEP repair

Patients admitted for hernia repair were counseled regarding the operative procedure, its outcome and informed consent was obtained. A suction drain was placed in the wounds of the patients with complete hernia who underwent open mesh repair. Patients were followed up in the surgical outpatient department on the 7th post op day for stitch removal and examination.

Results

A total number of 63 patients with unilateral inguinal hernias were randomized prospectively to undergo Lichtenstein or TEP repair. 34 patients (53.9%) were randomly allocated to open mesh hernioplasty while 29 patients (46.03%) underwent TEP repair.

Out of 63 patients 21 patients(33.33%) had direct hernia while 42 patients(66.66%) had indirect hernia. Out of 42 patients with indirect hernia 18 patients (42.8%)had complete hernia whereas 24 patients(57.14%) had incomplete hernia.

Mean age was 38 years (ranging from 18-62 years). Mean operating time for open mesh was 55 minutes as compared with 68 minutes for TEP . 2 patients had to be converted from lap to open. 41 patients had right sided hernia while 22 patients had left sided hernia

Criteria	TEP	lichtenstein
Total no op patients	29	34
Follow up(months)	6m	6m
Operating time(mins)	68	55
Morbidity		
a) pain(subjective)	Mild	Moderate to severe
b)analgesia requirement	Oral with I/M occasionally	Often I/V and I/M analgesia
c)seroma formation		4patients
d)wound infection		2
Hospital stay(hrs)	54	48
Time off work(days)	11.5	18
Recurrence	0	0

Discussion:

The surgical treatment of inguinal hernias has been one the most analyzed and debated topics in medicine. Both the Lichtenstein and Laparoscopic hernia repairs are relatively new to surgical practice. Of these two the Laparoscopic technique is more complex and requires a new set of skills. Laparoscopic inguinal hernia repair could represent an alternative attractive option to conventional inguinal herniorrhaphy if it can prove to cause less peri-operative morbidity and low recurrence rate. The variations in Laparoscopic approach that is access to pre peritoneal space, difference in dissection and fixation techniques reflect the fact that this procedure is still evolving and there is not yet a consensus on the best Laparoscopic hernioplasty⁷.

The posterior approach to hernia fixation was well described in 1800. Although generally underused this technique offered an excellent option for repairing all inguinal hernias. By combining all the perspective of pre-peritoneal repair with laparoscopic technique a truly novel option for hernia repair was created.

With a growing understanding of abdominal wall mechanics and improving surgical technology, weak fibrofascial strength of the orifices inguinal herniorrhaphy has undergone significant advancement in the last 100 years. With the introduction of Lichtenstein repair in the later part of twentieth century recurrence rates fell dramatically. With the fall in recurrence rates other post operative factors became the measure of herniorrhaphy technique quality. The reduction in post operative pain and

recovery time have become the basis of comparison between different techniques⁸.

Laparoscopic inguinal hernia repair is not the gold standard for repair although mesh placement is equivocally accepted as an integral part of any groin hernia repair. The laparoscopic tension free repair is cost effective, and efficacious⁹.

Frequent analysis of the controversial procedures such as Laparoscopic herniorrhaphy is especially important because endoscopic operative techniques remain in their development stages and thus continue to evolve¹⁰.

The aim of this study was to compare the results of Lichtenstein repair with TEP repair for inguinal hernia. In our study we noted that the morbidity score (pain, seroma, wound infection) was more in the open than in the TEP group which is comparable with the study done by WK Cheah in Singapore 2004¹¹.

The main argument against Laparoscopic hernia repair is that it turns a simple day case surgical case into a complex, expensive and time consuming operation. The mean operating time in our study was 68 minutes in the TEP group which is again comparable to the operating time of 77 minutes in a study by Macintyre et al in 1999¹².

In a series of overview of Laparoscopic hernia surgery time off work for the laparoscopic group versus the open mesh repair was 17.4 days and 27.8 days respectively which is in comparison to our study in which the time off work was 11.5 days in the TEP and 18 days in the open mesh repair group¹³.

In our study no recurrence was noted in the either group which stands out comparison to a recurrence rate of 3.8% in a study by Beatti GC 2000. However their sample size was large(142) and they reported recurrence in the initial part of the series only¹⁴.

Laparoscopic hernia repair is rapidly gaining popularity despite early criticism. Most surgeons agree that Laparoscopic cholecystectomy is the gold standard for treating gallstones but for hernias they still have their reservations¹⁵.

New surgical procedures in the aftermath of their benefits beget new complications. Migration of the mesh may occur following Laparoscopic inguinal hernia repair¹⁶.

According to recent randomized control trials and meta-analysis open mesh repair demonstrates several advantages as compared with laparoscopic procedures. Laparoscopic procedures require more time, cost, show a potential for more serious complications like pnemomediastinum,pneumothorax, gas extravasation, trocar injuries, intra abdominal adhesions, bowel obstruction and increased recurrence rates which are rare and never seen in open mesh repair¹⁷.

The level of surgeons frustration during performance of inguinal herniorrhaphy is a better predictor of outcome of the operation than was satisfaction with the procedure¹⁸. The endoscopic techniques of groin hernia repair have developed tremendously over the past 10 years. There are

numerous prospective randomized clinical trials comparing conventional techniques with endoscopic method. On currently available data it is clear that laparoscopic hernia repair has an advantage as compared with open mesh repair technique in terms of short hospital stay, early post-op recovery, rapid return to normal activity and work, less chances of wound infection and haematoma formation. Rate of recurrence is comparable in both. Endoscopic techniques are far more superior to conventional operation without the use of mesh prosthesis¹⁹. We recommend endoscopic hernia repair in patients with both direct and indirect inguinal hernias whether primary or recurrent. However no significant difference in the rate of recurrence was noted²⁰.

To reduce the cost of operation in indirect hernias larger size of mesh (10x15cm) should be used and mesh tucker or clips are not really required as migration of the mesh is negligible. For direct hernias as the defect is close to the medial end and slight migration of the mesh may lead to recurrence so we recommend fixation of the mesh only in direct variety.

There are several disadvantages associated with Laparoscopic TAP repair like visceral injuries e.g., bladder perforation and high cost than open mesh repair²¹.

We conclude that for hernias the laparoscopic mesh hernioplasty is comparable to open repair in terms of patient safety and recurrence rates but due to a long learning curve the mean operating time is double. This can be minimized by dedication, perseverance and devotion of the budding laparoscopic surgeon.

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