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Research article

A Study on retrospective analysis of inguinal hernia repair by various methods in a teaching institute

B Mallaya*, G Someshwara Rao

Department of Surgery, GEMS Hospital, Srikakulam, A.P., India.

Abstract

Background : Inguinal hernia is a very common problem. Surgical repair is the current approach. The present study is to show various methods of inguinal hernia repair over a span of 1 year in a teaching hospital. **Methods**: All the patients operated electively for uncomplicated inguinal hernia over a period of one year were selected for the study. They were operated by various methods and followed. **Results:** There were total 130 cases of inguinal hernia repair during study period. 160 cases were operated by Lichtenstein method of hernioplasty, 17 by Preperitoneal meshplasty and 13 by TEP. **Conclusion:** Lichtenstein repair and endoscopic/laparoscopic techniques have similar efficacy. It is found that Lichtenstein's tension free repair is standard and cost effective.

Key words: Inguinal hernia, Meshplasty, Lichtenstein.

***Corresponding Author: B Mallaya,** Department of Surgery, GEMS Hospital, Srikakulam, A.P., India.

1. Introduction

Approximately 75% of all abdominal wall hernias are seen in the groin [1]. Inguinal hernia is much more common in men than women. Inguinal hernia repair is one of the most commonly performed surgeries today. Irrespective of country, race or socio-economic status hernia constitutes a major health-care drain.

The aim of this study was to compare the effectiveness and safety of various methods of inguinal hernia repair. Our study is to evaluate all different methods of hernia repair by observing operative technique, operating time, postoperative pain & complications, long term pain and recurrence.

2. Materials and Methods

Patients operated electively for uncomplicated inguinal hernia over a year were retrospectively studied using a standard form to obtain requisite information.

There were total 160 cases of inguinal hernia repair during the said time period and they were followed.

All these patients were admitted for planned surgery, they were investigated and preoperative anaesthetic fitness was taken.

They were operated as per indication by various methods. Out of all 160 cases were

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operated by Lichtenstein's repair, 17 by open Preperitoneal meshplasty and 13 by Laparoscopic totally extraperitoneal repair (TEP).

Method of patient selection

Lichtenstein's tension free prosthetic repair was standard for us in all unilateral inguinal hernias. Patients with bilateral inguinal hernia were operated by Preperitoneal meshplasty. Those patients who were fit for general anaesthesia and affordable were subjected to laparoscopic totally extraperitoneal repair (TEP). The laparoscopic hernia repair is more difficult in patients who have had previous laparotomy so such patients were operated by Lichtenstein's technique.
Relative contraindications for laparoscopic approach: Obesity with BMI >30, Significant chest disease, Patient on anticoagulants, Massive hernias.

3. Results

All patients were male with age ranging from 24 to78 years with a median of 48.6 years.

Table 1. Type of procedure carried out

Type of procedure	Number of patients
Lichtenstein method of hernioplasty	130/160 (80.76%)
Preperitoneal meshplasty	17/160 (10.38%)
TEP	13/160 (8.8%)

Table 2. Average time taken for procedure

Procedure	Time taken in minutes
Lichtenstein method of hernioplasty	42 minutes
Preperitoneal meshplasty	50 minutes
TEP	75 minutes

As per table it is clear that for TEP average time taken was more than other methods. It may be because of more expertise requiring for this procedure (Table 1 & 2).

Table 3. Early complications in different procedures

Complications	Lichtenstein method(130)	Preperitoneal meshplasty(17)	TEP(13)
Seroma/Hematoma	11(5.2)	0	1(4.3)
Wound infection	8(3.8)	2(7.4)	0
Post operative pain (7days or more)	72(34.2)	3(11.1)	0
Testicular atrophy	0	0	0
Mesh infection	0	0	0

Table 4. Late complications in different procedures

Late complications	Lichtenstein method(160)	Preperitoneal meshplasty(17)	TEP(13)
Chronic pain (6 months or more)	42(20)	2(7.4)	2(8.6)
Recurrence	2(0.9)	0	0
Sinus formation	0	0	0

On comparison of early complication post operative pain was most common (34.2 %) in Lichtenstein method. Similarly hematoma formation was most common with same technique (Table 3).

Chronic pain was present as late complication in around 20% of patients with Lichtenstein method. In other techniques chronic pain and other late complication were rare (Table 4).

All the patients were observed postoperatively. Average length of stay in case of each procedure was recorded. In Lichenstein method it was 4.2 days, preperitoneal method 4.6 days and in TEP 2.8 days.

4. Discussion

In our study we included 160 cases of uncomplicated inguinal hernia that presented in our surgical department over the period of three years. All of them were male with median of 48.6 years. Age is a factor for incidence and type of inguinal hernia; incidence increases by age [2]. Inguinal hernia repair is one of the most commonly performed surgery today. All the patients had uncomplicated inguinal hernia. 112 patients had unilateral while 48 had bilateral inguinal hernia.

Numerous repair methods have been described till date. There are three important landmarks in the history of repair of inguinal hernia.

1. Tissue repair (Bassini, Shouldice etc)
2. Tension-free repair (anterior method_ Lichtenstein, open posterior method)
3. Laparoscopic hernia repair

Tissue repair methods have now become obsolete and replaced by tension free prosthesis repair. This can be done by anterior approach or posterior approach. Mesh repairs are superior to "nonmesh" tissue-suture repairs. In laparoscopic repair mesh placement is in preperitoneal plane. The approach may be TAPP (transabdominal preperitoneal) or TEP (totally extraperitoneal). It is associated with longer learning curve and is costlier than open repair.

Patient selection is very important. This needs to take into account patient's fitness for anaesthesia, affordability, history of any previous surgery etc. Locoregional anesthesia is a suitable and economic option for open repairs, and should be popularized in day-care setting. Patients with respiratory and/ cardiovascular diseases are not good candidates for general anaesthesia. Also those patients who had been operated for lower abdominal surgery couldn't be subjected to preperitoneal repair or TEP. Laparoscopic procedure increases cost by use of general anaesthesia

and placement of tackers for fixation of mesh.

We at our centre practice Lichtenstein method for unilateral inguinal hernia and Preperitoneal meshplasty for bilateral or recurrent inguinal hernia. We offer TEP laparoscopic procedure to those patients who are fit for general anaesthesia and affordable.

Laparoscopic hernia repair need general anaesthesia, operative time is longer and the risk of serious complications is greater [3].

In our study the mean operation time for TEP (75 minutes) was slightly longer than Lichtenstein(45 minutes) and preperitoneal method(50 minutes).

Compared to other study like Lau H et al [4] where mean time for TEP is 50+/-13.2 min, our time was slightly longer probably due to learning curve.

Among early complications, in Lichtenstein method postoperative pain though mild and easily controlled by single analgesics persisted in 72/160 (34.2%) patients at the end of 7 days. In the immediate postoperative period we had complications in 19 patients; hematoma and seroma formation requiring drainage, were observed in eight and three patients, respectively. Superficial surgical site infection occurred in 8 patients. It should be emphasized that we have not observed abscess formation or acute infection related to the presence of the foreign body (mesh). Testicular atrophy is an uncommon but well recognised complication of inguinal hernia repair and one that frequently results in litigation [5-8]. None of the patients had testicular atrophy.

While in preperitoneal meshplasty there was no incidence of seroma/hematoma formation. Two patients had superficial wound infections, postoperatively mild pain persisted at the end of 7 days in 3 patients. Postoperative recovery is short and postoperative pain is minimal [9].

In TEP, there was hematoma formation in 1 patient which was conservatively managed, but there was no case of wound infection. Pain was minimal in postoperative period and none complained of pain at the end of 7 days. Fewer hematoma/seroma formations were observed in the laparoscopic group in comparison with the Lichtenstein group as in study by Kulacoglu et al [10].

Average length of stay was 2.8 days for TEP which was significantly less than Preperitoneal method (4.6 days) and Lichtenstein method (4.2 days). The reduction in hospital stay after laparoscopic repair is likely to lead to savings in both direct hospital costs and societal costs.

For those surgeons preferring an open approach, the Preperitoneal procedure is a feasible alternative for the standard Lichtenstein procedure and is associated with less chronic pain at six months. Most likely the neuropathic pain and numbness with the Lichtenstein technique are results of more nerves at risk with the anterior approach [11].

The TEP technique took slightly longer to perform. However it results in very low postoperative pain, fewer wound infection, and quick return to daily activity and working [12] than patients with Lichenstein method or Preperitoneal method.

Chronic pain has been reported to occur in up to 25–30% of patients after open inguinal hernia repair [13-15]. In present study chronic pain at the end of 6 months or more was noted in 42/210 (20%) patients with Lichtenstein method and two patients each in TEP and Preperitoneal method. There was no case of delayed mesh infection or sinus formation.

Recurrence rate in our series for Lichtenstein method was comparable with other studies ranging from 0 - 0.7% [16, 17]. We did not encounter any recurrence in TEP and Preperitoneal meshplasty probably due to limited number of cases.

On the basis of these early experiences, laparoscopic extraperitoneal hernia repair seems to be as good as, if not superior to, the existing open Lichtenstein repair in terms of postoperative pain, hospital stay, return to work, and cosmesis [18] provided the long-term recurrence rates are also comparable.

However laparoscopic procedure has its own limitations in terms of requirement of general anaesthesia, cost of tackers and learning curve.

Open and laparoscopic/endoscopic techniques have been compared in a number of studies. All laparoscopic repairs are more expensive than open repairs as reported by Hynes et al. in North America [19], McCormack et al. in the UK [20], and Eklund et al in Swedish study [21]. While Lichtenstein method is easy to learn [22], safe even for beginners and cost effective.

At present, the laparoscopic repair of hernias finds its clinical niche in patients with bilateral or recurrent hernias or in patients with unilateral hernia who desire a minimal period of postoperative disability [23].

Conclusion

Lichtenstein tension-free mesh inguinal hernia repair is a simple, safe, easy to learn, effective method with low early and late morbidity and remarkably low recurrence rate. Laparoscopic hernia repair is safe and provide less post-operative morbidity and definitely has many advantages over open repair. For bilateral and recurrent inguinal hernias laparoscopic approach is recommended.

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