



A Case Series on Laparoscopic TEP vs. Lichtenstein's Hernioplasty

Dr Vishal B Modh¹

¹Department of General surgery, B J Medical college, Civil Hospital, Asarwa, Ahmedabad

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ABSTRACT; Approximately 75% of all abdominal wall hernias are seen in the groin. Inguinal hernia is much more common in men than women. Inguinal hernia repair is one of the most commonly performed surgeries today. This study involves 50 patients who have undergone laparoscopic TEP and Lichtenstein's Hernioplasty. Irrespective of country, race or socio-economic status hernia constitutes a major healthcare drain. In my study outcome was suggestive of that average operative time in patients undergoing Lap. TEP repair was high compared to Lichtenstein's hernioplasty group. There were no major intra or postoperative complications.

I. INTRODUCTION

Inguinal hernia was repaired laparoscopically soon after the establishment of laparoscopic cholecystectomy. However unlike laparoscopic cholecystectomy, which was very quickly accepted by the surgical community, laparoscopic hernia repair has remained a contentious issue since its inception.

Our study is to evaluate outcomes of totally extra peritoneal (TEP) repair by observing operating time, postoperative pain & complications, long term pain and recurrence, average length of stay in hospital and average duration required to return to the daily activities.

II. MATERIALS AND METHODOLOGY

This is a prospective randomised study of 50 patients operated by laproscopic total extra peritoneal repair and lichtenstein's tension free hernioplasty in B.J. Medical College, Civil Hospital, Ahmedabad during the study period of July 2015 to December 2017.

Study Design:

A Prospective Comparative study to study the efficacy based on postoperative pain, duration of operation, postoperative complication and resumption to normal work and also to study the efficacy of mesh repair of inguinal hernia.

Descriptive statistical analysis has been carried out in the present study.

Inclusion criteria:

1. Bilateral inguinal hernia

Exclusion criteria:

1. Unilateral inguinal hernia
2. Complicated inguinal hernia
3. Recurrent inguinal hernia
4. Patient not fit for general anaesthesia
5. Patient operated previously for lower abdominal surgeries
6. Intra operative conversion to open repair

III. OBSERVATIONS & RESULTS

This prospective study consisted of 50 patients with diagnosis of inguinal hernia who were admitted in surgical ward in Civil Hospital, Ahmedabad. They are divided in two groups:

Group A - No. Of Laparoscopic (TEP) hernioplasty	:	2 5
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Group B - No. Of Lichtenstein's Hernioplasty	:	25
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All cases underwent detailed preoperative assessment; their preoperative findings and postoperative complications were meticulously recorded as per protocol. The findings were tabulated and the following observations were made.

IV. DISCUSSION & COMPARISON

Present study is undertaken in an effort to compare between laparoscopic TEP repair and Lichtenstein's hernioplasty for inguinal hernia. This is also done to identify the subset of patients who would benefit more, from a particular type of repair. Many studies have highlighted the merits and risks of laparoscopic approach for the repair of inguinal hernia, the final sentence still remains to



be written as majority of trials are too small to show clear benefits of one technique over another.

➤ A prospective comparative study with regard to following parameters was made:

- 1) Duration of Operation.
- 2) Intra operative & Post operative Complications.
- 3) Post-operative pain.
- 4) Duration of hospital stay.
- 5) Recurrence rates.

➤ **GENDER & AGE DISTRIBUTION :**

- All the patients in our study were males.
- This represents the low incidence of inguinal hernia in female in general population.
- Overall mean age was 54.04 years.
- The mean age of patients in Group A: TEP group was 52.68 years (Range from 34 -74 years) and Group B: Lichtenstein's hernioplasty group was 55.40 years (Range from 24-78 years).
- 18 patients (72%) in Lap TEP group(n=25) are aged between 41 years to 60 years while 17 patients (68%) in Lichtenstein's hernioplasty group(n=25) are aged between 41 years to 70 years, thus suggests that inguinal hernia is more common in middle and old age group.

➤ **OPERATIVE TIME :**

- In our study, the mean operative time was **168 minutes** for laparoscopic TEP hernia repair and **156 minutes** for Lichtenstein's hernia repair.

Hence the difference between mean operative time was 12 minutes

- The operative time in various studies for laparoscopic Total Extra-Peritoneal and Lichtenstein's hernioplasty repair is as follows:

Table : 1 Operative time (minutes) of Different Studies:

Study	Group A (Lap. TEP)	Group B (Lichtenstein's Hernioplasty)
A. Eklund	55(n=665)	55(n=706)
Hester R. Langeveld	69(n=336)	72(n=324)
H. Pokorny	78(n=36)	54(n=74)
Our Study	168 (n=25)	156(n=25)

- In our study, Lap. TEP group 21 patients (n=25) have operative time between 131 minutes to 210 minutes and In Lichtenstein's hernioplasty group 22 patients (n=25) have operative time between 111 minutes to 190 minutes.
- As compared to different study, mean operative time of our study is more.
- It could be explained by following reasons-
 - The sample size in this study is very small(n=50).
 - All patients have bilateral inguinal hernias.
 - Some patients are having large to giant hernia.
 - Lichtenstein's hernioplasty which were performed by resident doctors had longer operative time as compared to surgeries performed by consultants.
 - The learning curve for performing a laparoscopic hernia repair, especially TEP, is longer than that for open Lichtenstein's repair, and ranges between 50 and 100 procedures, with the first 30 to 50 being most critical.

➤ **COMPARISON OF INTROPERATIVE & POSTOPERATIVE COMPLICATIONS:**

Table 2 : Complication Rate:

Complication	Group A (Lap. TEP)		Group B (Lichtenstein's Hernioplasty)	
	N	%	N	%
Major	-	-	-	-
Minor	05	20	07	28
Inference	Incidence of minor complication are more in Group A but statistically not significant p=0.7470			

- There were NO MAJOR intraoperative or postoperative complications have been recorded in our study(n=50), but we had 12 patients with MINOR complications in our study.



Table 3 : Complication Rates in other Studies:

Study	Group A (Lap. TEP)		Group B (Lichtenstein's Hernioplasty)	
	Major Complication	Minor Complication	Major Complication	Minor Complication
H.Pokorny	00% (n=35)	17% (n=35)	00% (n=86)	19% (n=86)
A.Eklund	0.4% (n=665)	17.3% (n=665)	0.2% (n=706)	17.5% (n=706)
Leigh Neumayer	0.1% (n=994)	19% (n=994)	1.1% (n=989)	24% (n=989)
Our Study	00% (n=25)	20% (n=25)	00% (n=25)	28% (n=25)

- There were 5 patients (2 patients - postoperative urinary retention, 1 patient - seroma, 1 patient - surgical site infection, 1 patient - scrotal oedema) with minor complications in **Laparoscopic TEP** group - **20%**.
- There were 7 patients (1 patients - postoperative urinary retention, 2 patients - seroma, 2 patients - surgical site infection, 2 patients - scrotal oedema) with minor complications in **Lichtenstein repair** group - **28%**.
- In our study Minor complication rate is High in Lichtenstein's hernioplasty group compared to Lap. TEP group.
- These complications were managed conservatively.
- There were no perioperative or postoperative deaths have been recorded.
- The results of minor complication rate of our study are comparable with different study.

➤ **POST OPERATIVE PAIN :**

Comparison of postoperative pain between laparoscopic TEP and Lichtenstein hernioplasty repair :

In our study, pain score in **laparoscopic TEP** group was as follows;

- On 1st day, 18 patients had moderate pain and 7 had severe pain, it is common in post-operative period.

- On 2nd day, 17 patients with mild pain were discharged and remaining 8 patients were discharged between 3 to 6 post-operative day.

In our study, pain score in **Lichtenstein's hernioplasty** group was as follows;

- On 1st day, 18 patients had moderate pain and 7 patients had severe pain.
- 18 Patients with Mild pain were discharged on the 2nd Day and remaining 7 patients were discharged between 3 to 6 post-operative day.

Post-operative pain is statistically similar between two groups of patients on day 2, (p=0.8415) and on DOD (p=0.6440) i.e. Difference being statistically non significant.

- Pain is a difficult parameter to assess. Individual variation, personal expectations and social implications all affect pain perception and expression.
- There is, however, significant evidence to support that laparoscopic approaches causes less postoperative pain, at least in the immediate postoperative period.
- **Eklund & Leigh Neumayer** studied between totally extraperitoneal and lichtenstein's hernioplasty techniques.

Our study findings are consistence with other studies findings done previously (Table 4).



Table 4: Comparison of Early postoperative pain assessment of included trials using Visual Analogue Scale (VAS):

Study	Group A (Lap. TEP)		Group B (Lichtenstein's Hernioplasty)	
	POD 1	POD 2	POD 1	POD 2
A. Eklund (n=1371)	Moderate pain	Mild pain	Moderate pain	Mild pain
Leigh Neumayer (n=1983)	Moderate pain	Mild pain	Moderate pain	Mild pain

➤ **DURATION OF HOSPITAL STAY :**

Table 5: Duration of Post-Operative Hospital Stay(Days):

STUDY	Group A (Lap. TEP)	Group B (Lichtenstein's Hernioplasty)
Hester R. Langeveld (n=660)	1.6	1.6
A.Eklund (n=1371)	1	1
Our study (n=50)	2.44	1.96

- **In our study:** The mean post-operative hospital stay was **2.44** for Laparoscopic TEP repair hernia repair and **1.96** for **Lichtenstein** hernia repair. The post-operative hospital stay is statistically similar between two groups with $p= 0.9227$.
- Our hospital is a tertiary care referral centre, it covers whole state and many districts of the neighbouring state and due to hospital's admission and discharge protocol, work load of the patient's, we were not able to discharge the patients on post-operative DAY 1.

➤ **AVERAGE DAYS TO RETURN ROUTINE ACTIVITIES :**

Table 6. : Comparison Of Average Days to Return Routine Activities:

Study	Group A (Lap. TEP)	Group B (Lichtenstein's Hernioplasty)
Hester R. Langeveld (n=660)	07 days	09 days
A.Eklund (n=1371)	07 days	12 days
Our study (n=50)	10 days	11 Ays

- Average days to return daily routine activities is more in lichtenstein's group.
- Though our study results are comparable with different studies, average days to return daily routine activities were not adequately assessed as most of the patients in our study were either ill-literate, unemployed or retired.



➤ **EARLY RECURRENCE:**

Table 7: Recurrence Rates:

- Comparison of early recurrence rates between laparoscopic TEP and Lichtenstein's hernioplasty:

Recurrence Rate		
Study	Group A (Lap. TEP)	Group B (Lichtenstein's Hernioplasty)
Hester R. Langeveld (n=660)	8%	1.9%
Leigh Neumayer (n=1983)	10.1%	4.9%
Our study (n=50)	00%	00%

- There was no early recurrence in either Laparoscopic TEP Repair or Lichtenstein's hernioplasty group in our study, most probably due to small duration of my study and small sample size.
- Recurrence in literature is almost always attributed to less experience and occurs early in the learning curve.

V. SUMMARY

- Inguinal hernia is more common in middle and elderly male.
- There were no Intraoperative or postoperative major complication in any group, but post operative minor complication were high in Lichtenstein's hernioplasty group.
- The average operative time in patients undergoing Lap.TEP repair was high compared to Lichtenstein's hernioplasty group.
- There was no statistically significant difference in early post operative pain between two groups of patients on day 2, ($p=0.8415$) and on DOD ($p=0.6440$).
- Though Lap.TEP repair was associated with reduced post-operative pain score and less minor complications, the post operative hospital stay was higher in Lap.TEP group Compared to Lichtenstein's hernioplasty group.
- Mean Average days to return daily routine activities is more in Lichtenstein's group.
- There was no difference in early recurrence in either Laparoscopic TEP Repair or Lichtenstein's hernioplasty group.

VI. CONCLUSION

- At the end of our study, It can be concluded safely that Laparoscopic TEP repair and Lichtenstein hernioplasty does not show statistically significant difference in outcomes.
- In both groups, operative time, intraoperative & post operative complication rate, post operative pain score, hospital stay and average days to return daily routine activities are almost similar.
- In the early recurrence rate no difference found in both the groups.

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