



Comparative study of totally extra peritoneal groin hernia repair with open Lichtenstein repair

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ABSTRACT

Objective: Inguinal hernia at times is the first surgery performed by surgical resident and is the most common surgery^{3,4}. However, no consensus on the technique of repair of hernia has been concluded. We compared totally extraperitoneal (TEP) groin hernia repair with Lichtenstein repair for inguinal hernia with regards to intraoperative and postop parameters including recurrence.

Results: The mean duration for open hernia repair in open category (Lichtenstein repair) was 58 min and for TEP category was 78.5 min, with significant $P < 0.001$. There was no statistically significant difference in total intraoperative complications between the two types of procedures studied. Among the post operative variables, pain score (VAS) and wound infection was statistically significant in Lichtenstein repair. The mean duration of time taken for return to work was 9.27 days in TEP and 14.24 days in Lichtenstein repair ($P < 0.001$ which is statistically significant).

Conclusion: We concluded that TEP is superior to Lichtenstein and should be preferred procedure for unilateral hernia repair in men as it has the advantages of: Less postoperative pain, lesser chances of wound infection, early resumption of routine activities after the procedure and better cosmesis.

Keywords: Extra peritoneal, inguinal hernia, Lichtenstein repair, wound infection

INTRODUCTION

To the serious and dedicated surgeon, it would be unthinkable to expect a career without being competent enough in the performance of repair for inguinal hernias. It would be unrealistic if not careless¹. Accounting for 75% of all abdominal wall hernias, and with a lifetime risk of 27% in men and 3% in women, inguinal hernia repair is one of the most commonly performed surgery in the world. European Hernia Society (EHS) issued Grade A

recommendation for both laparoscopic as well as Lichtenstein repair for primary hernias in 2009. In 2012, an updated EHS meta-analysis of 27 RCT's reported significantly higher recurrence rate for TEP as compared to Lichtenstein². An updated version in 2014 excluded one RCT (Recurrence rate for TEP reported 33%) from the 2012 meta-analysis and found no difference in recurrence rates². Inguinal hernia at times is the first surgery performed by

surgical resident and is the most common surgery^{3,4}. However, still, no consensus on the technique of repair of hernia has been concluded, so we did a comparative study of TEP with Lichtenstein repair for inguinal hernia with regards to intraoperative and postop parameters including recurrence.

MATERIALS AND METHODS

This Prospective Randomized Controlled Trial was spanned over a period of 3 year study period from Mar 2012 to Mar 2015. We included men aged 16 years or more with a primary unilateral hernia. Patients aged below 16 years, female Sex and /or bilateral or recurrent hernia were excluded. Moreover,

Results:

Patient characteristics in both the groups are depicted in table-1. The mean duration for open hernia repair in open category (Lichtenstein repair) was 58 min and for TEP category was 78.5 min, with significant $P < 0.001$. Table 2 depicts comparison of intraoperative variables among the two modalities of hernia repair. Among the recorded intraoperative complications only peritoneal breach was significant in TEP. Moreover, there was no statistically significant difference in total intraoperative complications between the two types of procedures studied. Among the post operative variables, pain score (VAS) was statistically significant in Lichtenstein repair (table-3)(figure-1). However, there was no difference in total number of complications between the two procedures in post-operative period (table-4).

Patients not consenting/not willing for follow-up and an American Society of Anesthesiologists grade higher than III were not included in the study. Randomizations done by coin toss, heads were subjected to TEP and tails to Lichtenstein. Single surgeon performed all the surgeries. We followed the patients for a minimum period of 1 year. Written/informed consent obtained from the patients. Institutional ethical committee approval obtained for the study. Consort diagram of the study is depicted in Flowchart 1.

Statistical Analysis done by SPSS ver 22 for Mac (IBM Inc., California)

Table-1: baseline parameters

PARAMETER		TEP	LICHTENSTEIN	P Value
Mean Age (Years)		52.34	56.72	0.7821
Mean BMI (Kg/m ²)		23.45	23.12	0.9665
EHS Type (N)	Medial	11 (18.34%)	13 (21.67%)	0.3132
	Lateral	40 (66.67%)	39 (65%)	0.7954
	Combined	9 (15%)	8 (13.34%)	0.8348
Defect Size (N)	I (< 1.5 cm)	10 (16.67%)	11 (18.34%)	0.9231
	II (1.5 – 3 cm)	42 (70%)	43 (71.67%)	0.8986
	III (> 3 cm)	8 (13.34%)	6 (10%)	0.5324

Total Comorbidities (N)*	12 (20%)	13 (21.67%)	0.5731
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* DM, HTN, Hypothyroid, COAD

Table-2: intraoperative variables

PARAMETER		TEP	LICHTENSTEIN	P Value
Mean Operative Time (Min)		78.50	58.00	< 0.001
Complications (N)	Bleeding	2 (3.34%)	2 (3.34%)	0.8821
	Peritoneal Breach	2 (3.34%)	0	< 0.0001
	Other Injuries*	0	0	-
Total Intraop Complications (N)		4 (6.67%)	2 (3.34%)	0.0612

Table-3: postoperative variables.

PARAMETER		TEP	LICHTENSTEIN	P Value
Mean Pain Scores (VAS)		4.63	6.71	< 0.001
Mean Postop Stay (Days)		1.42	1.512	0.7125
Complications (N)	Seroma	2 (3.34%)	1 (1.67%)	0.5254
	Wound Infection	0	2 (3.34%)	< 0.0001
	Testicular Swelling	0	2 (3.34%)	< 0.0001
	Surgical Emphysema	3 (5%)	0	< 0.0001
	Urinary Retention	0	1 (1.67%)	< 0.001
Total Complications (N)		5 (8.34%)	6 (10%)	0.8380

Return to normal Activity (Days)	9.27	14.24	< 0.0001
Mean Total Scar Size (mm)	22.12	63.64	< 0.0001

RESULTS – POSTOP PAIN SCORES

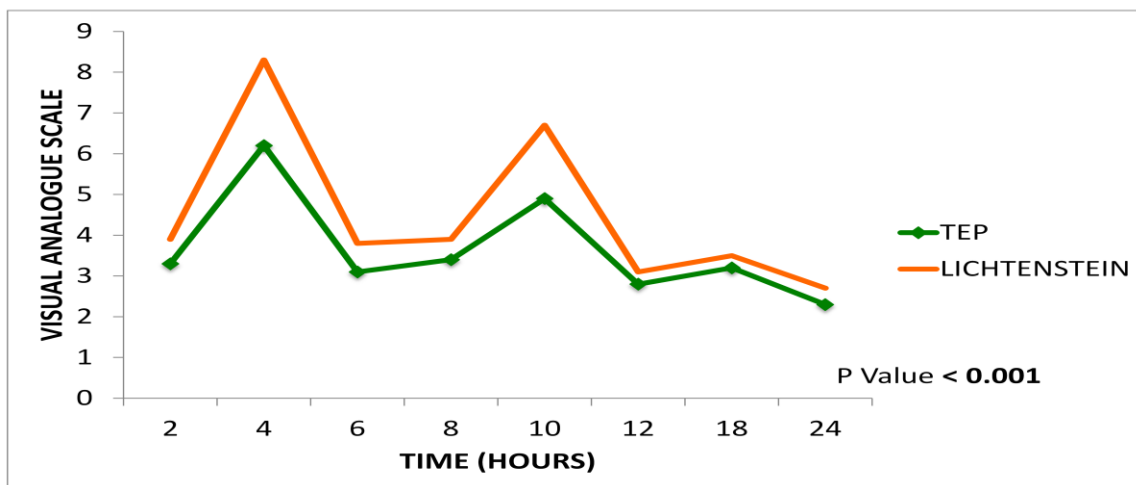


Figure-1: Post-operative pain score

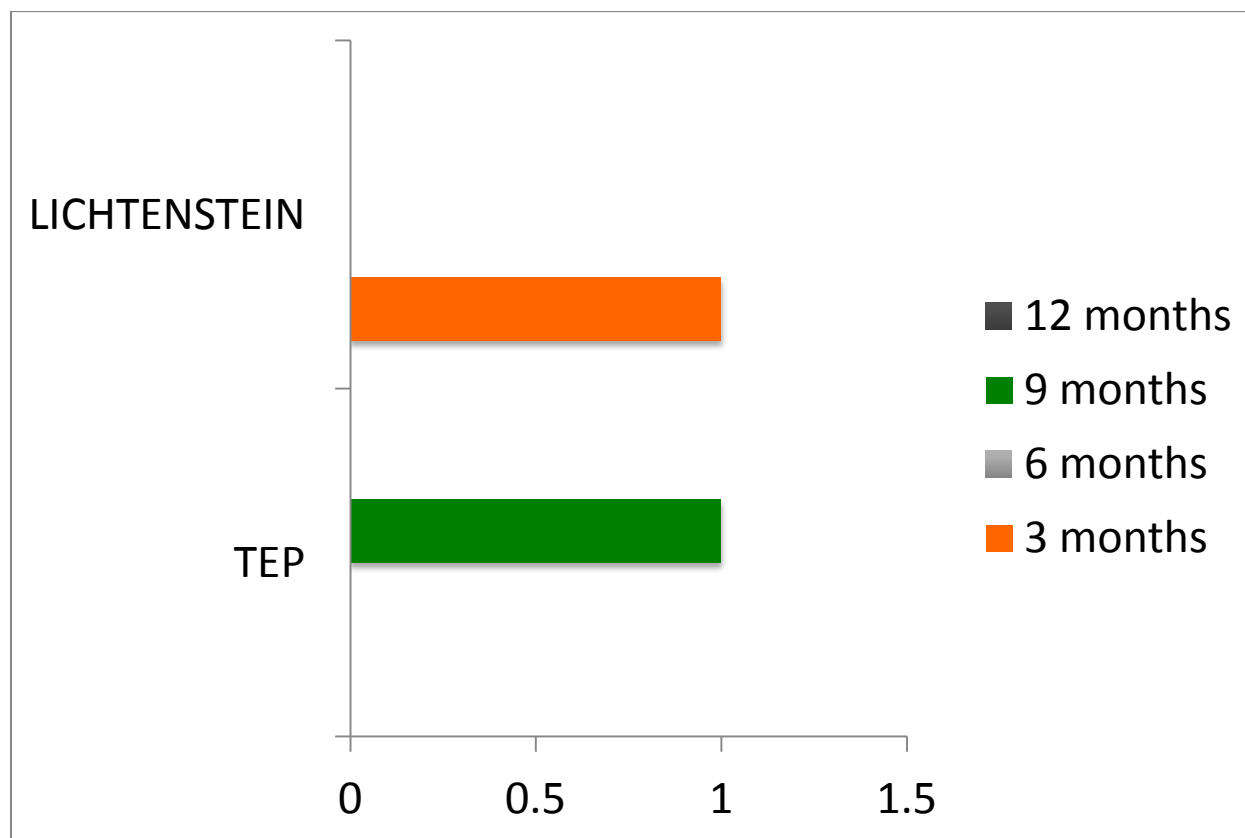


Figure-1: recurrence rates at 1 year follow-up

DISCUSSION

Inguinal hernia surgery is one of the oldest and one of the most frequently performed general surgical intervention. Lichtenstein technique of inguinal hernia repair is regarded as a gold standard and laparoscopic technique of hernia surgery attempting similar claims underwent controversies with conflicting results⁵⁻⁷. This was primarily because of the fact that the society and the surgeons perspective varied widely from not only country to country but also among the regions within the same country. Hence, “the battle for the bulge still continues.” This paper reports on the comparison of TEP vs Lichtenstein in a homogenous population over a 3 year period with a minimum follow-up of 1 year.

In our study we observed the surgical technique did not have any significant influence on the intraoperative complication rate or recurrence rate. Despite the fact that TEP was a new procedure for the surgeon and the study was conducted during the learning phase, the results were comparable to the established open Lichtenstein hernia technique as reported by other studies worldwide⁸. Initially, the time taken by the surgeon was more owing to unfamiliarity of preperitoneal anatomy and extra carefulness for newly introduced surgery for better result. TEP provided all the benefits of minimal access surgery⁹⁻¹¹. The maximum duration of time taken to return to work was 30 days in laparoscopic surgery as compared to 35 days in open surgery. The mean duration of time taken for return to work was 9.27 days in TEP and 14.24 days in Lichtenstein repair ($P < 0.001$ which is statistically significant). This translates into a significant economic savings to the society because of fewer working days lost. This was clearly seen in the manual working laborer undergoing TEP procedure. When we compared return to work with working conditions, we found that those who work as a heavy manual laborers return to work late due to sole fear of recurrence as compared to those who engaged in light manual or desk work in spite they would tell by us to return to work when they feel comfortable as early as possible. It is the mindset which decides return to work more than the physical fitness and capability of an individual to return to work. Moreover, TEP had an added benefit of reduced incidence of wound infections (p value < 0.001) and a smaller scar size compared to Lichtenstein procedure (63.6mm versus

22.1mm)(statistically significant with p value < 0.001), which has aesthetic implications in immediate and late post operative period. The findings of this study confirmed the validity of the decision taken by the Guidelines Group of the European Hernia Society to continue to recommend open Lichtenstein and endoscopic techniques for repair of unilateral primary inguinal hernias in men.

Our study had many limitations like cost Analysis not done, this was a single center study, with a small sample size and the design was not double blinded.

CONCLUSION

We concluded that TEP is superior to Lichtenstein and should be preferred procedure for unilateral hernia repair in men as it has the advantages of: Less postoperative pain, lesser chances of wound infection, early resumption of routine activities after the procedure and better cosmesis. Whilst, the operative time is more in TEP, it can be decreased once more experience is gained.

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