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Original Research Article

A clinical study of post operative complications of Lichtenstein's hernioplasty for inguinal hernia

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ABSTRACT

Background: Lichtenstein's hernioplasty is the commonly done surgery for inguinal hernias. The study was done with the objective to evaluate the postoperative complications, and the recurrence rate associated with Lichtenstein's hernioplasty.
Methods: This was a prospective clinical study conducted at Sapthagiri Institute of Medical Science and Research Centre, Bangalore during the period from May 2015 to April 2016. A total of 50 patients with inguinal hernia were included in the study. All the patients underwent Lichtenstein's hernioplasty. Outcome of the surgery was evaluated by the incidence of postoperative complications and recurrence rate of hernia after 1 year follow up.
Results: Intraoperative complications were observed in 3 (6%) patients. Immediate postoperative complication was seen in 6 (12%) cases. Stiffness in lower abdomen was noticed in 13 (26%) cases. The average post-operative hospital stay was 4.06±1.43 days and the average post-operative ambulation time was 1.52±0.64 days. The average time taken to return to work post-operatively was 8.68±2.63 days. Long term complications included are foreign body sensation and chronic pain at operated site. After 1 year follow up the prevalence of both the complications was decreased to 4% and 6% respectively. No recurrence of hernia (0%) was noticed after 1 year follow up.
Conclusions: Lichtenstein's hernioplasty was considered as the best surgical procedure for inguinal hernia repair because of low recurrence rate (0%) and postoperative complications.

Keywords: Inguinal hernia, Lichtenstein's hernioplasty, Postoperative complications

INTRODUCTION

Inguinal hernia repair is one of the most common surgical procedures performed in general surgical practice. Although numerous techniques have been described, currently tension free mesh repair is the standard of care in the treatment of inguinal hernia because of the low recurrence rates.[1] However, chronic pain, foreign body sensation, stiff lower abdominal wall have been variably reported in patients. Previous studies described that the inflammatory reaction and scar formation caused by the mesh was responsible for the high prevalence of post-operative pain.[2] Despite the frequency of the surgical procedure, no surgeon had produced ideal results, in terms of rate of complications, such as postoperative pain, nerve injury, infection and recurrence remain.[3,4]

The open methods of inguinal hernia surgery include Bassini's repair, modified Bassini's repair, Shouldice technique, Lichtenstein's tension free hernioplasty, Desarda's repair, Prolene mesh repair and preperitoneal mesh repair.[5] Many studies reported that in open hernia repair, Lichtenstein's tension free hernioplasty was superior in terms of lessened postoperative complications and with low recurrence rate to other surgical methods.[6,7]

The present study was done with the objective to evaluate the postoperative complications, early return to work, and the recurrence rate associated with Lichtenstein's hernioplasty for inguinal hernia.

METHODS

This was a prospective clinical study to evaluate postoperative complications following the surgical repair of inguinal hernia by the procedure Lichtenstein's hernioplasty. The study was conducted at Sapthagiri Institute of Medical Science and Research Centre, Bangalore during the period from May 2015 to April 2016. After getting informed consent from the patients, a total of 50 patients were enrolled in the study. Inclusion criteria were subjects >18 years and <80 years with inguinal hernia. Exclusion criteria were patients in which hernia cannot be detected on physical examination, ASA class IV or V (severe comorbid conditions), cases with complicated hernias, femoral hernias, and recurrent hernias.

All selected cases were studied up to discharge regarding the type of hernia, intraoperative complications and followed up in OPD for 1 year regarding post-operative and long term complications due to Lichtenstein's mesh repair.

Patients were followed up postoperatively at the end of 1 week, 2 weeks, 1 month, 3 months 6 months and 1 year for recurrence, foreign body sensation, pain and return to normal activities. Patients complaining of persistent pain at the operative site during the 3rd month follow up will be considered as having chronic pain. Patients will be taken for ultrasonography on 2nd, 3rd, 4th and 5th follow up visits for determining local tissue reaction/subclinical recurrence, testicular atrophy and mesh shrinkage.

Statistical analysis

The outcome of the study data was statistically analyzed to reach a definitive conclusion. Descriptive and inferential statistical analysis has been carried out. Results on continuous measurements are presented on Mean±SD (Min- Max) and results on categorical measurements are presented in number and percentage (%). Formulation of the data and results has been analyzed using software- Microsoft word and excel 2013.

RESULTS

As shown in Table 1, in this study, the maximum number of patients belonged to age group of 40-60 years, which had 24 patients (48%). Youngest patient being 26 years old and oldest patient being 77 years with the mean age of 49.3±13.7 years. Male preponderance was observed in the study (n=48; 96%). 36 (72%) patients presented with right sided inguinal hernia, 10 (20%) patients had left sided inguinal hernia and 4 patients i.e. 8% had bilateral inguinal hernia. 39 (78%) patients had indirect hernia and 11 (22%) patients had direct hernia. The mean operative time was 52.32±13.14 mins. After surgery, the average post-operative hospital stay was 4.06±1.43 days and the average post-operative ambulation time was 1.52±0.64 days.

Table 1: Characteristics of the patients, surgery and complications during and after surgery (n=50).

Characteristics	Number of patients	Percentage (%)
Sex		
Male	48	96
Female	02	04
Age (in years)		
21-30	7	14
31-40	7	14
41-50	12	24
51-60	12	24
61-70	10	20
>70	2	4
Site of hernia		
Right	36	72
Left	10	20
Bilateral	04	08
Type of hernia		
Indirect	39	78
Direct	11	22
Intraoperative complications	03	06
Immediate postoperative complications		
Seroma/hematoma	3	6
Wound infection	2	4
Orchitis	1	2
Postoperative complications		
Stiffness in lower abdomen	13	26
Immediate postoperative pain as per visual analogue scale (VAS)		
Day 1	3.24	
Day 2	1.58	
At discharge	1.18	
Mean intraoperative time (in mins)	52.32±13.14	
Post-operative hospital stay (days)	4.06±1.43	
Post-operative ambulation time (days)	1.52±0.64	
Return to work post-operatively (days)	8.68±2.63	

The number of intra-op complications recognized on operative table was 3 in number. They include injury to inferior epigastric vein while operating for a large complete indirect hernia, ilioinguinal nerve transection and the other being electro cautery injury to pampiniform plexus of veins and cord structures. Immediate post-

operative complications, included were wound site seroma noted in 3 patients (6%), surgical site infection in 1 patient (2%), and orchitis in 1 patient (2%).

In this study, post-operatively at day 1, the average pain score as per visual analogue score is 3.24, at day 2, the average pain score as per VAS is 1.58 and at the time of discharge, the average pain score as per VAS was 1.18. 13 (26%) of the patients were experienced with stiffness in lower abdomen and in inguinal region post-operatively which has significant impact on the quality of life, return to daily activities and work. The average time taken to return to work postoperatively was 8.68±2.63 days (Table 1).

Long term complications were summarized in Table 2. In this study, foreign body sensation at operated site was experienced by 10 patients (20%) post-operatively at 1 month follow up, 5 patients (10%) at 3 month follow up and only 2 (4%) patients complained of foreign body sensation at the end of 1 year follow up.

Pain at operated site was evaluated at 1 month, 3 months and 1 year follow up. At the end of 1 month follow up, 9 patients (18%) complained of pain at operated site, at 3 month follow up 7 patients (14%) complained of pain at operated site and at the end of 1 year follow up 3 patients (6%) complained of pain at operated site.

Table 2: Long term complications (n=50).

Complications	At 1 month follow up N (%)	At 3 month follow up N (%)	At 1 year follow up N (%)
Foreign body sensation	10 (20)	5 (10)	2 (4)
Chronic pain at operated site	9 (18)	7 (14)	3 (6)

As shown in Figure 1, no recurrence of hernia has been found at the end of our 1 year follow up.

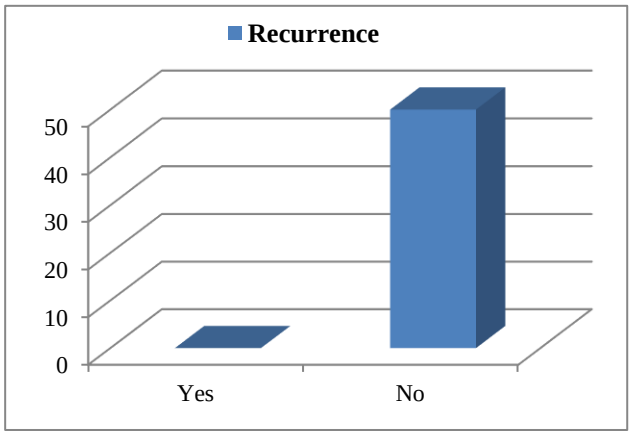

Figure 1: Recurrence rate after 1 year follow up (N=50).

DISCUSSION

The description of the Lichtenstein tension-free mesh repair, about 30 years ago, opened a new era in groin hernia repair.[8] The method is very simple, effective, is associated with a very low recurrence rates (ranging from 0 to 2% in the literature) with minimal postoperative pain and can be performed under local or regional anesthesia. Due to these reasons, it is currently the preferred method for the repair of inguinal hernias for the majority of surgeons around the word.[9-11]

The most popularly used mesh in Lichtenstein tension-free mesh repair was monofilament polypropylene with characteristics of inertness, resistance to infection, molecular permeability, pliability, transparency, mechanical integrity, and biocompatibility. This mesh allows a large surface area for in-growth of connective tissue leading to permanent fixation of the prosthesis within the abdominal wall. It also allows well vascularized, tissue coverage of all aspects of the prosthesis.[11]

In the present study, a total of 50 patients with inguinal hernia were included in the study. All the patients were operated with Lichtenstein tension-free mesh repair procedure. The mean age group of the patients was 49.3±13.7 years. Male dominance was observed in the study. This was similar to the observations of Palermo et al.[12]

Indirect hernias are more common in males compared to direct hernias. This was due to congenital basis.[13] Similar observation was also seen in this study.

In the immediate postoperative period complications noted were seroma/haematoma in 3 patients, wound infection in 2 and orchitis in 1 patient respectively. This was similar to the studies of Timisescu et al.[14] Stiffness in lower abdomen was noticed in 13 patients. This might be due to the difference in the elasticity of mesh to the abdominal wall. This difference creates the feeling of foreign body sensation.[15] But the sensitivity will be over countered by the time postoperatively. In the present study, 10 patients experience the foreign body sensation post-operatively at 1 month follow up, 5 patients at 3 month follow up and only 2 patients at the end of 1 year follow up.

In the present study, pain which persisted at the operated site at the end of 3 months is defined as chronic pain. Chronic pain may be caused by nerve damage during surgery or may be related to the positioning of the mesh in the inguinal canal.[16,17] However, in the present study, pain at operated site was evaluated at 1 month, 3 months and 1 year follow up. Number of patients with improved symptoms of reduced pain was observed during the different periods of follow up. At the end of 1 year follow up only 3 patients (6%) complained of pain at operated site.

Recurrence rate is considered to be the essential factor in assessing the effectiveness of the surgical procedure in hernia repair.[18] In the present study, the recurrence rate was zero even after 1 year follow up. Similar observations were also reported by the Pedroso et al and Patil et al.[19,20] However, 12 months is the shortest time to for estimating recurrence rate which is the limitation in the present study. Long term studies need to be done to know the exact efficacy of Lichtenstein tension-free mesh in inguinal hernia repair.

CONCLUSION

Findings of the study conclude that Lichtenstein's hernioplasty technique promoted less chronic pain with few postoperative complications. Also, zero recurrence rates even after 1 year of follow up suggests that Lichtenstein's hernioplasty was safe and reliable procedure for inguinal hernia repair.

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