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A COMPARATIVE STUDY BETWEEN LICHTENSTEIN'S MESH REPAIR AND BASSINI TISSUE REPAIR TECHNIQUE FOR OBSTRUCTED INGUINAL HERNIA.

General Surgery

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ABSTRACT

Introduction: Lichtenstein mesh hernia repair is the established procedure of choice in managing uncomplicated inguinal hernias. In cases of obstructed inguinal hernias placement of prosthetic material has been presumed to further increase the risk of infection.

Objective : The objective was to compare the outcome of Lichtenstein's mesh repair and Bassini's tissue repair in obstructed inguinal hernia.

Methods : The study was undertaken in the Department of Surgery, GMCH Jammu. 50 patients with obstructed inguinal hernia were operated in emergency operation theatre. 25 were assigned group A where Lichtenstein mesh repair was done and rest 25 in group B where Bassini's tissue repair was done.

Results: Mean operating time and post operative hospital stay in group A was significantly lower than group B. (57.96±7.283 vs 73.28±5.504 minutes, p=0.000 and 3.92±1.038 vs 4.96±0.889 days, p=0.000). Post operative pain according to VAS scale was almost similar in both groups. Differences in patients developing seroma, wound infection, hematoma, neuralgia were non-significant in both the groups. None developed recurrence within 6 months.

Conclusion : The use of Lichtenstein mesh repair technique in obstructed inguinal hernia is safe, simple, less time consuming, associated with less post operative hospital stay, acceptably low complication rate and without recurrence.

KEYWORDS

Lichtenstein, Inguinal hernia, Bassini, Obstructed.

INTRODUCTION

A hernia is defined as an abnormal protrusion of an organ or tissue through a defect in its surrounding walls. Most common type is the inguinal hernia[1] Inguinal hernias are more common in men[2]. The lifetime risk of developing an inguinal hernia is 27% for men and 3% for women.[3] One of the commonly performed surgeries is the hernia repair wordwide.[4]

Inguinal hernias can be subdivided into indirect and direct hernias. Inguinal hernias are almost exclusively indirect in children,[5] whereas adults have both types.[6] Indirect hernias are more common, but post surgery recurrence is more in direct hernias.[7]

Obstructed inguinal hernia is one of the most common surgical emergencies. Approximately 10% of inguinal hernia present as obstructed hernia, and its probability of getting strangulated is estimated between 0.29% to 2.9%.[8]

It is seen that the use of mesh is superior to the tissue repairs in inguinal hernia surgery. The main concern for mesh use in obstructed hernia repair is contamination. Tension free repair has been established as the method of choice for management of uncomplicated inguinal hernias.[9,10] However the use of mesh in case of strangulated or incarcerated hernias remains controversial due to potential risk of infection from the prosthetic material. Very few studies have shown the use of prosthetic materials in emergency hernia repair.[11,12,13,14] However the recent data shows that use of prosthetic material is safe and does not increase contamination risk in obstructed hernias.[15]

MATERIALS AND METHODS:

The study was conducted prospectively on patients of obstructed inguinal hernia admitted in general surgery emergency that fitted into our inclusion criteria and were subjected to complete history and physical examination. All baseline investigations were done.

STUDY DESIGN:

A prospective simple random study was conducted in the department of general surgery, GMCH Jammu. Duration of study was one year from 1st November 2018 to 31st October 2019. Data was collected from patients with obstructed inguinal hernia admitted in the department of general surgery. Patients were randomised into two groups. 25 patients were assigned group A in which Lichtenstein mesh repair was done and other 25 patients were assigned group B in which Bassini tissue repair was done. Lichtenstein's mesh repair was done with Monofilament Polypropylene Mesh and Bassini tissue repair was done with number 1-0 polypropylene suture.

INCLUSION CRITERIA

Male patients between the age group of 20 to 65 years with obstructed inguinal hernia were included in the study.

EXCLUSION CRITERIA

- Patients with preoperative peritonitis
- Age group <20 and >65years
- Perforation of gut or resection / anastomosis done.
- Patients with severe comorbidities.

PARAMETERS FOR STUDY

- Operative time
- Post operative pain score
- Post operative complications
  - Early complications- hematoma, wound infection, seroma formation, mesh rejection.
  - Delayed complications- neuralgia, scar tenderness, wound dehiscence and testicular atrophy.
- Post operative hospital stay
- Recurrence

MATERIAL USED

The suture material used was monofilament polypropylene number 1-0 and Mesh used was polypropylene mesh of normal pore size and usually about 7 cm x 15cm in size sufficient to cover the weak posterior wall of the inguinal canal. An antibiotic (Injection Ceftriaxone 1gm twice daily) for three doses was given and further antibiotics was given if required and were continued with the same till culture and sensitivity results were available.

Two types of operation were done, 50% of patients underwent Lichtenstein Mesh Repair and 50% of patients underwent Bassini's tissue repair.

Patients were followed up for 6 months in outpatient department.

The Bassini tissue repair was performed by suturing superiorly, the triple layer, consisting of the internal oblique muscle, the transverse abdominal muscle, and the transversalis fascia and below the inguinal ligament and the iliopubic tract.

The Lichtenstein mesh repair begins with the incision of the external oblique aponeurosis and isolation of cord structures. Any indirect hernia sac is mobilized off the cord to the level of the internal ring. At this point a large polypropylene mesh tailored to fit along the inguinal canal floor is placed so that the curved end lies directly on top of the pubic tubercle. The mesh patch extends underneath the cord until the spermatic cord and the tails of the mesh patch meet laterally. Here, an incision is made in the mesh at the lateral end creating two tails: a wide one (two third) above and a narrower one (one third) below and the cord is inserted between the tails of the mesh, thereby creating a new, tighter, and more medial internal ring. The tails are sutured together with polypropylene 1 No. stitch just proximal to the attachment of the cord. The mesh is then sutured in an interrupted fashion to the pubic tubercle inferiorly, the conjoint tendon medially, and the inguinal ligament laterally.

RESULTS

In our study on 50 patients presenting with obstructed inguinal hernia, all were males, the age ranged between 20 to 65 years. The mean age in group A was 42.40±16.023 years while the mean age in group B was 47.24±15.314 years (p value 0.280, the difference is not significant).

There was no statistical difference between number of patients with right and left sided hernias as well as direct and indirect hernias in both the groups.

Table 1:

Procedure	Operative time (in minutes)		
	Minimum	Maximum	Mean±SD
Mesh repair	45	75	57.96±7.283
Bassini repair	60	80	73.28±5.504

The difference was statistically significant in two groups being less operative time in Mesh repair group, as the p value came out to be 0.000.

Table 2:

Post operative pain	Mean post operative pain±Standard deviation (VAS score)	
	Mesh repair	Bassini repair
At 3 days	2.56±0.917	2.32±0.748
At 3 weeks	0.56±0.917	0.16±0.554
At 3 months	0.40±0.816	0.08±0.400

There was no significant difference between VAS pain scores in both the groups at 3 days, 3 weeks and 3 months, with p value of 0.316, 0.068 and 0.085 respectively.

There was no statistical difference in view of wound infection, hematoma or seroma formation with a p value of 0.312, 0.312 and 0.384 respectively.

4(16%) patients had neuralgia in group A while in group B 1(4%) patient had neuralgia, difference was not significant, p value was 0.157.

In our study on 50 patients with obstructed inguinal hernia it was found that no patient had Mesh rejection, wound dehiscence, testicular atrophy, scar tenderness or growth of pathogenic micro organism after 48 hours of incubation.

Table 3:

Procedure	Mean post operative hospital stay ± Standard deviation	No. of cases
Mesh repair	3.92±1.038 days	25
Bassini repair	4.96±0.889 days	25

There was a significant statistical difference between mean post operative hospital stay, group A having lesser stay with a p value 0.000. No recurrence was seen during a follow up period of 6 months.

DISCUSSION

The advantages of using mesh repair technique include lesser operative time, as compared to Bassini repair. Few quotable studies with similar results include Papaziogas B et al (2004),16 who found that mean operative time in group A was 75.7±10.5 minutes while in group B was 91.5±9.3 minutes with a p value <0.05. The difference was also significant in studies by Elsebae MMA et al (2008),15 Panda N et al (2012),17 Dai W et al (2019).18

The difference in hematoma and seroma formation, mesh infection was not significant which is comparable to Tatar et al (2016).19

The difference in post operative neuralgia was also not significant, which is comparable to Panda N, et al (2012). The study of Panda N, et al (2012) can also be used to compare for no mesh rejection as seen in our study. None of the patients developed wound dehiscence, testicular atrophy or scar tenderness.

The patients of group A had a significantly lesser hospital stay with a p value of 0.000, which is comparable to Papaziogas B, et al (2004),16 Elsebae MMA et al (2008),15 Panda N et al (2012)17 and Darwish M et al (2018).20

No hernia recurrence was seen for over 6 months, which is similar to study of Panda N et al (2012)17 who did not find any recurrence upto 2 years.

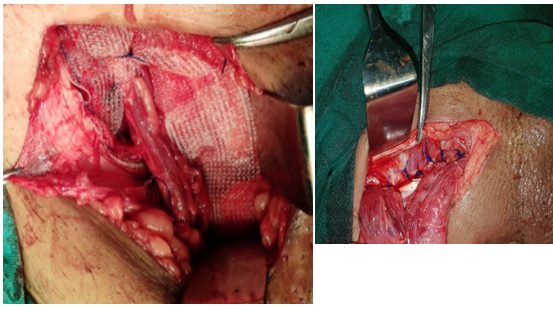

Fig.1: Lichtenstein's Mesh Hernia repair of obstructed inguinal hernia.

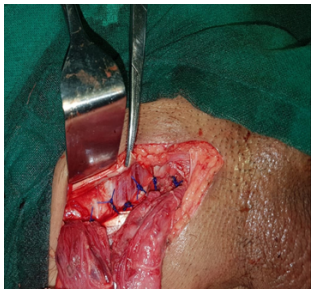

Fig 2: Bassini's tissue repair.

CONCLUSION

The study concluded that the use of Lichtenstein tension free mesh repair in obstructed inguinal hernia is safe, simple, and less time consuming and is associated with less post operative hospital stay. Although the time for follow up of the patients to look for recurrence was less (6 months) as the study duration was only of one year, it is advised to continue the study forwards to look for better recurrence follow-up.

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