



Study to Compare Bilateral Lichtenstein Repair with Stoppa's (Giant Prosthetic Reinforcement of The Visceral Sac) Repair in Cases of Bilateral Inguinal Hernia

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Abstract

Introduction: Inguinal hernia is most common form of hernia occurring in almost 1-5% of the population of which 6-8% occur bilaterally. The average age of patients with bilateral hernia is usually > 50 years and a male to female ratio is of 6:1.

It has been proven beyond doubt that placement of a mesh is needed in all types of tension free repair. There are numerous options for mesh repair for bilateral inguinal hernia: Lichtenstein's; Stoppa's, TEP/TAPP. Of these, Stoppa's and laparoscopic repairs strengthen the Myopectineal orifice while Lichtenstein's just strengthens the posterior wall.

Another point of contention for a long time has been whether to repair the bilateral inguinal hernias sequentially or simultaneously keeping in mind that majority of patients are males who are > 50 years of age and are at a higher risk for anesthesia and operative time.

Aim: To compare the outcomes of bilateral inguinal hernia repair between patients who underwent Stoppa's repair to those who underwent simultaneous bilateral Lichtenstein's repair.

Materials and Methods: Prospective interventional comparative study conducted in Department of Hindu Rao Hospital, Delhi in which 60 patients with bilateral inguinal hernia who underwent bilateral Lichtenstein repair in a single sitting and Stoppa's repair.

Results: Mean duration of surgery for Lichtenstein is 67.03 min which is significantly more than 53.2 min for Stoppa's repair (pvalue, i.e. <0.0001). Post-op pain on Day 0 & 1 was less in Stoppa's repair as compared to Lichtenstein repair.

Average hospital stay was 3.23 days in Lichtenstein repair and 3.07 days in Stoppa's repair which is not significant.

Average days taken to return to normal activity was 11.4 days for Lichtenstein repair and 8.03 in Stoppa's repair with significant p value of <0.0001 suggesting that patients of Stoppa's repair returned to normal activity and work earlier than patients of Lichtenstein repair. There were no cases of early recurrence, chronic groin pain and recurrence after 3 months of surgery in our study in both the groups.

Conclusion: There was significant difference between the two techniques Bilateral Lichtenstein Repair and Stoppa's (GPRVS) Repair in terms of duration of surgery, post-op pain, days taken to return to normal activity and return to work. So we can conclude on the basis of results of our study that Stoppa's (GPRVS) Repair is better than simultaneous Bilateral Lichtenstein Repair.

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Introduction

A hernia is defined as a protrusion of a viscus or a part of viscus through an abnormal opening in the walls of its containing cavity [1]. The abdominal wall in the groin region is composed of the peritoneum, transversalis fascia, internal and external oblique muscles, and their aponeurotic structures, subcutaneous tissue, and skin. A failure of the transversalis fascia to prevent the intraabdominal contents from protruding through the anatomical area known as the myopectineal orifice of Fruchaud is the final common denominator in the development of all groin hernias. Inguinal hernia is the most common form of primary hernia occurring in about 1-5% of the general population [2]. Initially, all repairs of hernia used some sort of local tissue or suture which resulted in tension along the line of repair and this resulted in a high rate of recurrences. It has been well proven that placement of a mesh is needed in all types of tension-free repair with the mesh being placed either through an open or a laparoscopic route. It is also proven that usage of mesh to cover the Myopectineal orifice results in the prevention of femoral hernia too in the future. Groin hernias occur bilaterally in about 6-8% [3]. The advantage of simultaneous bilateral repair results in better patient satisfaction, and lower cost as the patient is being subjected to single hospital admission, one-time anaesthesia, and only one period of recovery is required [4]. Lichtenstein repair is an open tension-free approach in which the mesh is placed in front of the transversalis fascia through an inguinal approach [5]. Lichtenstein's repair lowered the relapse rate to 0.7% [6]. The procedure was easier to perform and took less time. Hence Lichtenstein's tension-free mesh repair is considered the gold standard for hernia surgery [7]. But its use in bilateral inguinal repair is restricted because of the time taken, the chances of infection affecting the surgical repair, and complications if any associated with it. It does not cover the MPO, hence not an insurance for further hernias to occur as the mesh is placed above the Fascia transversalis (FT) unlike Stoppa's where it is behind the FT resulting in proper support for the abdominal wall. Stoppa's repair also known as Giant Prosthetic Reinforcement of the Visceral Sac (GPRVS) is pre-peritoneal repair of inguinal hernia in which large prosthetic mesh is placed in preperitoneal plane between the peritoneum and transversalis fascia and covers nearly the whole peritoneum of the anterior wall of the lower abdomen as an artificial endoabdominal fascia covering both the hernial orifices and the whole myopectineal orifice bilaterally using a lower midline incision [9]. With the possibility of doing simultaneous bilateral inguinal hernia repair using a single incision, the advantage of putting a mesh behind the FT which is considered more physiological, the

covering up of the Myopectineal orifice of Fruchaud which prevents further chances of any femoral or obturator hernia. Stoppa's repair is now considered a very good option to the gold standard Lichtenstein repair. Also, Stoppa's repair, being a posterior preperitoneal procedure, involves dissection in a plane with no nerves and minimal cord handling, thus avoiding inguinodynia and testicular atrophy. This study was proposed to compare bilateral Lichtenstein's repair with Stoppa's repair in cases of bilateral inguinal hernia. A comparison between the two methods was proposed with respect to duration & ease of surgery, complications, early recurrence, severity of post-operative pain, and duration of hospital stay after surgery.

Aims and Objectives

To study if there are any differences in cases of bilateral inguinal hernia repair by Lichtenstein repair and Stoppa's repair with regard to:

- 1) Duration of surgery
- 2) Ease of performance of surgery
- 3) Patient outcome in various aspects

Materials and Methods

A prospective randomized comparative study was conducted in the Department of Surgery, Hindu Rao Hospital, Delhi from July 2017 to March 2021. 60 patients with bilateral inguinal hernia were randomized using 61 blinded sealed envelope technique and allotted into two groups. Group 1 underwent Bilateral Lichtenstein repair simultaneously and Group 2 underwent Stoppa's repair. Each group had 30 cases. The Mesh size used for Lichtenstein repair was 15x7 cm and for Stoppa's repair mesh size was 30x30 cm. All procedures were performed under spinal anesthesia.

Exclusion criteria:

All patients with complicated hernia (Irreducible, Obstructed, or Strangulated Inguinal Hernia), Congenital Inguinal hernia, Recurrent Inguinal Hernia.

Intra-operative assessment

A note was made for the duration of operation (skin incision to skin suturing), ease of performance in terms of creating preperitoneal space and dissection of sac and for any complication while performing the surgery.

Post-operative follow up

All patients were followed up for 3 months for post-operative postoperative pain by VAS, return to normal activity and duration of postoperative stay at hospital. Recurrence was monitored for 6 months of surgery.

Results

29 patients of group 1 (Lichtenstein) had a smooth surgery while 1 patient was declared difficult due to extreme obesity. In Group 2 (Stoppa's) 28 patients had no problems during surgery while 2 patients were noted as difficult due to difficulty in creating adequate pre-peritoneal space dissecting the sac from the cord.

Mean duration in 30 patients underwent Lichtenstein surgery was 67.03 min and in 30 patients underwent Stoppa's repair was 53.2 min. p value for duration of surgery is <0.0001 which is quiet significant.

p value of day 1 and 2 are significant suggesting less pain on Day 0 and 1 in Stoppa's repair as compared to Lichtenstein repair.

Other post-operative measures:

The average hospital stay was 3.23 days in Lichtenstein repair and 3.07 days in Stoppa's repair which is not significant.

The average days taken to return to normal activity was 11.4 days for Lichtenstein repair and 8.03 in Stoppa's repair with a significant p-value of <0.0001 suggesting that patients

of Stoppa's repair returned to normal activity and work earlier than patients of Lichtenstein repair. There were no cases of early recurrence, chronic groin pain, and recurrence after 3 months of surgery in our study in both the groups.

Discussion

The mean age of patients in our study was 54 years which is comparable with other studies like Beets GL et al [14], Malazgirt Z et al [15]. The mean duration of surgery for Stoppa's repair was 53.2 min which was less compared to Lichtenstein repair which took 67.03 min. This too was comparable with Malazgirt Z et al [15] and Thimmappa D et al. [16]. Mean post-op pain on day 0,1 and 2 as per VAS was 5.2, 2.6 and 0.67 for Lichtenstein repair and 3.4, 1.77 and 0.5 for Stoppa's repair. In a study by Latheef A et al [17] mean VSA of post op pain was 3.74 for Lichtenstein repair and 4.69 for Stoppa's repair. Most other studies have mentioned almost equal pain in both procedures. Minor complications were like seroma, hematoma and post-operative urinary retention were encountered but their incidence was low in both groups. They were managed conservatively and did not require any intervention. These findings were similar as in all other the studies. Mean duration of hospital stay was 3

Table 1: Patient Characteristics

Characteristics		Group 1	Group 2	P value
		(30 patients)	(30 patients)	
Age	Mean ± SD	51.5 ± 13.11	55.97 ± 12.95	0.086
Male /female	Mean ± SD	100.00% - male	100.00% - male	
Smoking		8 (26.67%)	13 (43.33%)	0.176

Table 2: Ease of Performance of surgery in study population

		Operation		Total	P Value
		Group 1 (30 patients)	Group 2 (30 patients)		
Ease of Performance	Comfortable	29 (96.67%)	28 (93.33%)	57 (95.00%)	1
	Difficult	1 (3.33%)	2 (6.67%)	3 (5.00%)	
Total		30 (100.00%)	30 (100.00%)	60 (100.00%)	

Table 3: Duration of surgery in study population

Time Duration (in min)	Operation		P Value
	Group 1 (30 patients)	Group 2 (30 patients)	
Mean ± SD	67.03 ± 7.33	53.2 ± 4.43	<.0001

Table 4: Post operative pain on day 0-2 according to VAS

Post OP Pain		Operation		P Value
		Group 1 (30 patients)	Group 2 (30 patients)	
Post OP Day 0	Mean ± SD	5.2 ± 0.76	3.4 ± 0.67	<.0001
Post OP Day 1		2.6 ± 0.81	1.77 ± 0.68	0.0002
Post OP Day 2		0.67 ± 0.55	0.5 ± 0.57	0.222

Table 5: Other post operative parameters

Variables		Operation		P Value
		Group 1 (30 patients)	Group 2 (30 patients)	
Wound Seroma	YES	1 (3.33%)	2 (6.67%)	1
Wound Haematoma	YES	3 (10.00%)	1 (3.33%)	0.612
Urine Retention	YES	3 (10.00%)	0 (0.00%)	0.237
Duration of Hospital Stay	Mean ± SD	3.23 ± 0.77	3.07 ± 0.25	0.378
Re Ocurrence (After 3 Months)		0%	0%	
Days to Return to Normal Activities	Mean ± SD	11.4 ± 1	8.03 ± 1	<.0001
Days to Return to Work	Mean ± SD	18.4± 1	15.27± 1	<.0001

days and was comparable with other studies like Malazgirt Z et al [15], Thimmappa D et al [16] and Aslam MN et al [19]. Mean number of days taken to return to normal activity was comparable with Koning et al [20]. In our study Stoppa’s repair patients returned to their normal day-to-day activity in 8 days while those who underwent Lichtenstein returned to normal activity in 11 days. In other studies like Malazgirt Z et al [15], Lathief A et al [17] and Gautam PV et al [18] patients of Lichtenstein repair returned to their normal activity earlier. There was no recurrence after 3 months. Asif S et al [8], Beets GL et al [14], Aslam MN et al [19] and Agarwal L et al [21] also observed no recurrences after 3 months in their follow up. However, 3 months follow up is a very short period of follow up to draw.

Conclusion

There was significant difference between the two techniques Bilateral Lichtenstein Repair and Stoppa’s (GPRVS) Repair in terms of duration of surgery, post-op pain, days taken to return to normal activity and return to work. Hence it can be concluded that Stoppa’s (GPRVS) Repair is preferred than simultaneous Bilateral Lichtenstein Repair.

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