ISSN Print: 2394-7500
ISSN Online: 2394-5869
Impact Factor: 8.4
IJAR 2023; 9(6): 423-425
www.allresearchjournal.com
Received: 11-04-2023
Accepted: 20-06-2023

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Comparison between the outcomes of bilateral inguinal hernia repair between patients underwent the Stoppa's repair and Lichtenstein tension free mesh hernioplasty repair: A Prospective study

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Abstract
Background: Long-standing debates have surrounded the surgical treatment of bilateral inguinal hernias, notably over whether to repair them sequentially or concurrently, especially after tension-free procedures. The goal of the current study was to compare the results of bilateral inguinal hernia repairs performed using the Stoppa's method and the Lichtenstein tension-free mesh hernioplasty method on patients.
Materials and Methods: All individuals with bilateral inguinal hernias and a minimum age of 18 were included in the study. The following conditions were all grounds for exclusion from the study: complex inguinal hernias, obstructed or strangulated inguinal hernias, recurring inguinal hernias, prior abdominal surgery, and local skin infections. Based on simple randomization, patients were divided into two groups: group 1 received Lichtenstein tension-free mesh hernioplasty, while group 2 got Stoppa's repair.
Results: In comparison to patients in group B, the operation took much less time in group A. There were no intraoperative problems in either group. There was no statistically significant difference between the two groups for chronic groin discomfort, postoperative hospital admissions, or return to regular daily activities.
Conclusion: The current study was unable to establish which approach was better for treating bilateral inguinal hernias. While comparing Stoppa's method has less operative time in our study.

Keywords: Inguinal hernia, Lichtenstein tension-free mesh hernioplasty, Stoppa's repair

Introduction
Hernias can occur unilaterally or bilaterally in both groins at the same time, and they can come back after surgical repair (recurrent hernia). The hernia sac either bulges through the inguinal canal's posterior wall directly (direct hernia) or travels along the inguinal canal's path while passing through the internal inguinal ring and the spermatic cord (indirect hernia) [1-3]. Surgery is the only available treatment and cure for inguinal hernia. Adults have never been seen to spontaneously recover. Inguinal hernias might reoccur despite the fact that numerous surgical techniques have been explored to treat them throughout time. It was feasible to make a logical decision on the sort of surgery to perform by carefully reviewing the anatomy of the inguinal region [4-6].
Bilateral hernia, among inguinal hernias, is a unique entity. Inguinal hernias on both sides should be repaired during the same operation and anaesthesia, with the mesh being positioned on the transverse or pre-peritoneal fascia [7, 8]. In the Stoppa's procedure, a sizable pre-peritoneal prosthesis is implanted via an infraumbilical midline incision [9]. Laparoscopic hernia repair was made possible [9-11] once the fundamentals of the procedures described by Stoppa *et al*., Nyhus *et al*., and McVay and Anson were combined. The Stoppa's repair is a tension-free hernia repair that entails using a Pfannenstiel incision to wrap prosthetic mesh around the bottom portion of the parietal peritoneum and place it at a preperitoneal level.
The Lichtenstein procedure, which is a tension-free repair, has lately gained popularity for repairing prosthetics made of polyethylene mesh. The mesh does offer a mechanical barrier, but neither mobility nor a physiologically active posterior wall is provided.

Additionally, this operation is connected to a higher risk of infections, recurrence, chronic pain, testicular atrophy, and infertility, as well as foreign body sensations and persistent groin sepsis, which in some circumstances may call for mesh removal [12, 13].

In contrast, tension repairs that are prone to recurrence include the modified Bassini, iliotibial tract repair, shouldice, Nylon-Darn, Halsted Tanner, and McVay, among many others. Recurrence rates vary from surgeon to surgeon and from centre to centre due to the complexity of the operations [14]. Our research's objective was to determine whether the Stoppa repair was more effective than the more common bilateral inguinal mesh repair.

Materials and Methods

This was the prospective randomized comparative study conducted in 50 patients, in Department of Surgery, Sree Mookambika Institute of Medical Sciences. 50 patients divided into two groups, Group A: Patient undergone Stoppa's procedure and Group B: Patient undergone Lichtenstein conventional hernia repairs. Patient included in this study was all bilateral inguinal hernias without any complications and recurrent inguinal hernias without complications. Congenital Hernia, Complicated Hernia, Irreducible Hernia, Obstructed Hernia and Strangulated Hernia patients were excluded from study.

Fifty patients, of ASA I or II, attending the Sree Mookambika Institute of Medical Sciences in our surgical unit large bilateral inguinal hernias or recurrent hernias are prospectively studied over a period 2 years. Twenty five patients, mostly with recurrence and large bilateral hernias undergo Stoppa's procedure. The other twenty five with mostly bilateral hernias and that associated with hydrocele undergo bilateral conventional hernia repairs. A monofilament poly propelene mesh is used on each side for a conventional hernia repair, based on the availability of big size mesh. The same are fashioned in to a single mesh according to the pelvic measurements of the patient and thus are individualized for Stoppa's procedure.

The patients are followed up in the 6th month and 1 year post operatively for any event of recurrence. The patients who are discharged early are advised to report immediately in case of wound infection or seroma collection.

Parameters observed were Duration of Surgery, Intraoperative and Post-operative complications, wound infection, Seroma collection, Duration of stay and Local recurrence. Statistical Analysis Used was IBM SPSS Statistics for Windows, Version 20.0. (Armonk, NY, USA).

Results

The present study has included 50 patients' bilateral inguinal hernia and recurrent inguinal hernia meeting the selection criteria. Patients were randomly assigned to two groups.

Table 1: Mean value of parameters between groups

Parameters	Group A	Group B	P Value
Mean Age (years)	45.25± 10.93	43.04± 11.02	0.242
Operation time (min)	52.08±6.1	66.4±8.84	0.00001
Duration of stay (Days)	9.64± 1.57	9.12± 1.69	0.133
Complications Wound infection Seroma collection	 1 4	 1 2	0.612

Table 2: Diagnosis of the patients among the group

Diagnosis	Group A	Group B
B/L direct inguinal hernia	8	9
B/L indirect inguinal hernia	7	6
Rt recurrenct inguinal hernia with Lt pantaloon hernia	1	1
Rt recurrent hernia with Lt bubonocele	2	1
Rt direct hernia with Lt bubonocele	1	3
Rt indirectt hernia with Lt bubonocele	3	1
Lt indirect with Rt direct inguinal hernia	1	1
Lt recurrence with Rt direct inguinal hernia	1	0
Rt direct inguinal hernia with Lt pantaloon hernia	1	1
Lt direct with Rt direct inguinal hernia	0	1
Rt indirect inguinal hernia with Lt pantaloon hernia	0	1
P value	0.521	

The mean age of the group A patient of 45.25±43.04 years and group B patients of 43.04±11.02 years were observed. In group A, 2 patients in the age group of 20-30 years, 7 patients in 31-40 years; 8 patients in 41-50 years and remaining 8 patients in > 50 years were observed. In group B, 3 patients in the age group of 20-30 years, 8 patients in 31-40 years; 7 patients in 41-50 years and remaining 7 patients in > 50 years were observed.

On diagnosing the patients, in both groups, the higher no. of the patients was observed in B/L direct inguinal hernia & B/L indirect inguinal hernia. Similarly, in both groups the very lower no. of the patients was observed in Lt direct with Right direct inguinal hernia & Right indirect inguinal hernia with Lt Pantaloon hernia. The mean operative time of group A is 52.08±6.1 minutes and group B of 66.4±8.84 minutes were observed; the higher mean value were observed in group B.

In group A, 1 Wound infection patient and 4 Seroma collection patients were observed. In group B, 1 Wound infection patient and 2 Seroma collection patients were observed; the higher no. of Seroma collection patients was observed in group A. The mean duration of the stay in group A is 9.64±1.57 days and in group B is 9.12±1.69 days were observed.

Discussion

Inguinal hernia surgery on both sides is traditionally done in two stages; simultaneous repair is discouraged. Stoppa reported his midline preperitoneal technique for the treatment of bilateral hernias. Research suggests that simultaneous surgery of bilateral hernias is preferable to sequential repair. Later, Amid *et al*. encouraged simultaneous treatment of bilateral hernias under local anaesthetic using the Lichtenstein procedure. The feasibility and acceptability of simultaneously fixing bilateral inguinal hernias were very well documented by Fischer *et al*. In this study, we aimed to examine the advantages and disadvantages of two open, tension-free mesh repair procedures for bilateral inguinal hernias.

In a study of 45 patients with bilateral inguinal hernias, Malazgirt *et al*. discovered that bilateral Stoppa procedures took much less time than bilateral Lichtenstein procedures - 22 patients underwent bilateral Stoppa procedures and 23 patients got bilateral Lichtenstein procedures.

Our findings were equivalent to those of Malazgirt *et al*. in terms of operation time because the bilateral repair required more time than the Stoppa treatment did.

In this study, the mean age was 45.25 10.93 years for group A (Stoppa repair) and 43.04 11.02 years for group B (Lichtenstein tension-free hernioplasty). Similar to our study, Patel *et al*.'s study found that the mean age in Group A was 45.89 10.20 years and in Group B was 48.45 11.78 years.

The majority of the patients in Group A were between the ages of 41 and 50, whereas those in Group B were between the ages of 31 and 40.

B/L direct inguinal hernia (Group A=8, Group B=9) and B/L indirect inguinal hernia (Group A=7, Group B=6) accounted for the majority of the cases in this study.

Group A's mean operating time (52.08 6.10 mins) was less than Group B's (66.4 8.84 mins). In the study by Patel *et al*., group 2 patients had considerably lower operating times (43.337.23 min) than group A patients (78.548.51 min).

Complications Seroma collection (N=4) in Group A wound infection (N=1) and (N=1) in Group B wound infection (N=2).

The average length of stay in the hospital was 9.64 days for Group A and 9.12 days for Group B. In line with the findings of Malazgirt *et al*., there was no significant difference in postoperative hospital stay between the two groups in our investigation. According to Maciel *et al*., the average postoperative hospital stay for bilateral Lichtenstein repairs was 1.550.83 days (the majority of their patients were admitted for 1 day). Miller *et al*. reported a mean hospital stay of 6.4 days after bilateral Lichtenstein repair, and Serpell *et al*. reported a hospital stay ranging from 2 to 12 days. This was comparable to our research. Both groups did not experience a recurrence.

Conclusion

In conclusion, the current study was unable to establish whether method was best for treating bilateral inguinal hernias. But for Stoppa's repair we noted less operation time. On the other hand, while both treatments had some issues, they were both capable of producing positive post-operative results. The majority of the patients responded favourably to both strategies.

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