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A COMPARATIVE STUDY OF LAPAROSCOPIC VERSUS OPEN INCISIONAL REPAIR OF INGUINAL HERNIAS: A TERTIARY CARE HOSPITAL STUDY IN RAJASTHAN

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Abstract

Background: Abdominal wall hernias are a serious medical issue that frequently provide surgeons with challenges, even before the most experienced ones. Laparoscopic hernia repair is preferred over open repair due to several advantages, including reduced postoperative pain and morbidity, decreased wound problems, less postoperative discomfort, earlier return to exercise and employment, and superior aesthetic outcomes. Additionally, laparoscopic hernia repair eliminates the risks of intraoperative damage through completely extra-peritoneal approach. Materials and Methods: Study design comprised of a matched and randomized research that was carried out in the department of General Surgery in Dr SS Tantia Medical College, Hospital and research center during the period of January 2022 and May 2022. 100 patients were included in the study. Study participants who had uncomplicated, small to medium-sized, direct, unilateral, or bilateral hernias were included in the study. Result: The mean operation time for the laparoscopic group was 68.52 minutes, which was substantially longer than the mean time for the open group. Those who underwent open hernioplasty had a higher mean VAS pain score (4.5). Infection rates were similar (p>0.05). Recovery rate was reported to be better in terms of lesser pain and short duration of post op debilitation. Conclusion: For patients who do not have contraindications for general anesthesia and do not have difficult to repair hernias, laparoscopic repair approach is preferred over the open in terms of shorter hospital stays and lower pain scores.

INTRODUCTION

When an organ or fatty tissue protrudes through a weak area in the fascia or surrounding muscles, it causes a hernia. They can have a variety of origins and frequently develop where the abdominal wall is weaker, such as in the abdomen (belly area) or groin.^[1]

When fatty tissue or a portion of the colon pushes through into the groin near the top of the medial part of thigh, it is known as an inguinal hernia.

This form of hernia is the most prevalent and primarily affects men. It's frequently linked to ageing and consistent abdominal strain. Femoral hernias can also develop near the top of the medial thigh when fatty tissue or a portion of the colon protrudes into the groin. When fatty tissue or a portion of your colon protrudes through the abdomen close to the umbilicus, it is called as an umbilical hernia. Hiatus hernias happen when a portion of stomach pushes through a hole in the diaphragm, the thin muscle sheet that divides the chest from the abdomen. Some other types are also known. Epigastric hernias are instances of fatty tissue poking through the abdomen between the umbilicus and the lower portion of the breastbone. Incisional hernias are instances of tissue poking through surgical wounds that have not fully healed. Spigelian hernias occur when a portion of the colon

pushes through the side of the abdominal muscle, typically below the umbilicus.

Organs in the abdomen protrude into the chest through a hole in the diaphragm; this condition can also afflict infants if their diaphragm fails to grow normally in the womb muscle. Hernias, when a portion of the muscle protrudes through the tissue, are frequently caused by sports injuries and affect the leg muscles.^[2]

Men and women can both suffer from inguinal hernias, but males are significantly more likely to develop; men make up over 90% of patients who have surgery.^[3]

One of the most frequent surgeries performed by surgeons worldwide is the repair of inguinal hernias.



Treatment for this frequent condition has evolved over time, moving from simple tissue repairs through prosthetic repairs and, more recently, to laparoscopic repairs. Lichtenstein's tension-free inguinal hernioplasty, which uses artificial mesh, is the preferred method for open inguinal hernia repair.^[4] In skilled hands, the recurrence rate is less than 1%, as compared to tissue repairs where it might be as high as 15%.^[5]

MATERIALS AND METHODS

The current study was conducted between January 2022 to August 2022. It covered 100 patients who had uncomplicated, small to medium-sized, direct, unilateral, or bilateral hernias who attended the OPD of the department of general surgery during the study period. After their selection for hernioplasty either open or laparoscopic as mode of management, 100 patients were then randomly divided into groups of 38 and 62 patients respectively. Patients across the two groups of open and laparoscopic mode were matched for the confounding factors. They were given same antibiotics and pain relief medications to maintain uniformity across the groups. Patients who did not qualify for general anesthesia after pre anesthetic checkup were also excluded from the study. Statistical analysis was done to check for uniformity of distribution across the groups. Final analysis data entered in MS Excel and analyzed using the same and SPSS (Statistical Package for Social Sciences).

RESULTS

Out of the total of 100 participants, 38 underwent open hernioplasty whereas 62 were managed with laparoscopic approach. Mean age was 49.24 and 51.86 years across the open and laparoscopic groups respectively. Males were in majority (66 % in open and 58% in laparoscopic) among both the groups. The proportion of males could have been even higher if the study did not prefer to match the gender across the two groups of study participants. The difference among both the groups was similar statistically (p>0.05). Site and type of hernia were also uniformly distributed across the groups (p>0.05). [Table 1]

Mean operating time was 68.52 minutes in case of laparoscopic group which was significantly longer when compared to the mean time in case of open group. Pain score as assessed by VAS was more (4.5) for those patients operated via open hernioplasty while the pain was easier to bear in case of laparoscopic with a mean VAS score of 2.8. (p<0.05)

The rates of surgical site infection was more in case of open hernioplasty but were insignificant in difference from the laparoscopic group. (p>0.05) Stay after the operation in hospital was more in open group similar to the time in returning to work after the procedure. The difference was statistically significant 4.21 vs 3.25, 13.59 vs 8.12 respectively, p value <0.05. [Table 2]

Table 1: Distribution of baseline characteristics of the study participants among study groups.							
		Open (Lichtenstein repair)	Laparoscopic repair	Test Value	p value		
Number of patients		38	62	NA	NA		
Mean age (years) \pm SD		49.24 ± 13.76	51.86 ± 10.33	t= -2.62	0.28		
Gender	Male	25	36	X2 = 0.591	0.44204		
	Female	13	26				
Side of Hernia	Bilateral	11	25	X2 = 3.3702	1854		
	Left Side	12	23				
	Right Side	15	14				
Type of Hernia	Direct	6	9	X2 = 0.2364	0.888		
	Indirect	24	42				
	Both	8	11				

Table 1: Distribution of baseline characteristics of the study participants among study groups.

Table 2: Shows the outcome parameters assessed and significance of difference between the two groups.								
Outcome Parameters	Open (n=38) (Lichtenstein repair)	Laparoscopic repair	Test Value	p value				
		(n=62)						
Mean Operating Time (minutes)	49.23 ± 7.6	68.52 ± 9.9	t= -19.29	0.0001				
Pain Score Post Op (VAS)	4.5 ± 1.03	2.8 ± 1.12	t=1.70	0.0001				
Surgical Site Infection	4	3	Z = 1.082	0.28041				
Post op Hospital Stay	4.21 ± 1.3	3.25 ± 1.9	t = 0.96	0.0072				
Return to routine Work	13.59 ± 3.2	8.12 ± 2.5	t = 5.47	0.0001				

DISCUSSION

According to the results of the current study, postoperative discomfort was more after open inguinal hernia repair (Lichtenstein) than after laparoscopic inguinal hernia repair, which was similar with previous studies by Prasad et al,^[6] and Koshariya M et al.^[7]

In a study conducted by Jaykar, the group receiving Lichtenstein meshplasty experienced more postoperative discomfort than the group receiving laparoscopic hernia repair which was also similar to the results of the present research.^[8]

The overall mean operative time was significantly more in laparoscopic hernia repair than open, similar to the findings of another study.^[9]

In prospective research contrasting open Lichtenstein and laparoscopic TEP repairs, Myers et al found that the TEP group experienced considerably longer operations, a greater recurrence rate, but less chronic discomfort and wound infection.^[10]

While marginally increased after open hernioplasty, the incidence of wound infection was not found to be statistically significant (p>0.05). This was consistent with the findings of the Winslow et al and Rathod et al.^[11,12]

CONCLUSION

Laparoscopic repair of hernia was observed to be superior than open hernioplasty in terms of return to work time, postoperative discomfort including pain. On the use of laparoscopy in treating inguinal hernias, further research with large sample sizes and longer follow-up times will be useful in reinforcing the evidence obtained from present study.

REFERENCES

 WebMD Editorial Contributors. (2001, October 1). Understanding Hernias: the Basics. WebMD. https://www.webmd.com/digestive-disorders/understandinghernia-basics

- NHS Choices. (2019). Hernia. NHS. https://www.nhs.uk/conditions/hernia/
- LeBlanc K. Kingsnorth A. Hernias: inguinal and incisional. Lancet. 2003;362(9395):1561-71.
- Amid PK. Lichtenstein's Tension Free Hernioplasty. In: Mastery of Surgery chapter 176. 5th edition. Lippincott Williams and Wilkins's publications; 2007: 1932-1939.
- Liem MS, van Duyn EB, Van der Graaf Y, Van Vroonhoven TJ. Cola Trail Group; Recurrences after conventional anterior and laparoscopic inguinal hernia repair: a randomized comparison. Ann Surg. 2003;237(1):136-41.
- Prasad K. Comparative evaluation of Lichtenstein tension free hernia repair vs laparoscopic tep repair of inguinal hernia Asian Pac J Health Sci. 2016;3(4):300-5.
- Koshariya M, Soni M, Malpani P, Parmar B, Shukla S. A comparative study between open and laparoscopic repair of inguinal hernia. Int Surg J 2019;6:3353-8.
- Jaykar RD. Prospective comparative study of open meshplasty (lichentenstein's method) versus laparoscopic inguinal hernia repair. Int Med J. 2014;1(9).
- McCormack K, Scott NW, Go PM, Ross S, Grant AM. EU Hernia Trialists Collaboration. Laparoscopic techniques versus open techniques for inguinal hernia repair. Cochrane Database Syst Rev. 1 (2003) CD001785
- Myers E, Browne KM, Kavanagh DO, Hurley M. Laparoscopic (TEP) versus Lichtenstein inguinal hernia repair: a comparison of quality-of-life outcomes. World J Surg. 2010 Dec;34(12):3059-64.
- Winslow ER, Quasebarth M, Brunt LM. Perioperative outcomes and complications of open vs. laparoscopic extra peritoneal inguinal hernia repair in a mature surgical practice. Surg Endosc. 2004;18(2):221-7.
- Rathod CM, Karvande R, Jena J, Ahire MD. A comparative study between laparoscopic inguinal hernia repair and open inguinal hernia repair. Int Surg J 2016;3:1861-7.