

ORIGINAL ARTICLE**Laparoscopic Transabdominal Preperitoneal Hernia Repair versus Open Mesh Repair**

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ABSTRACT:

Background: One of the most frequent surgical operations carried out globally is the treatment of an inguinal hernia. The present study was conducted to compare laparoscopic Transabdominal Preperitoneal Hernia Repair versus Open Mesh Repair. **Materials & Methods:** 80 patients of uncomplicated inguinal hernia of both genders were divided into 2 groups of 40 each. Group I patients underwent TAPP and group II open mesh repair. Parameters such as time taken to resume daily activities, post-operative pain score, operating time (minutes), postoperative stay (days), and complications etc. were recorded. **Results:** Out of 80 patients, 50 were males and 30 were females. Duration of hospital stay (days) was 4.9 and 7.2, time taken to resume daily activities (days) was 4.3 and 8.0 and post-operative pain score was 1.6 and 3.5 in group I and II respectively. Duration of surgery in group I was 63.1 minutes and in group II was 47.3 minutes in group I and II respectively. The difference was significant ($P < 0.05$). Type of hernia was unilateral seen 15 in group I and 17 in group II and, bilateral seen 25 in group I and 23 in group II. Duration of surgery in unilateral in group I was 60.2 minutes and in group II was 46.2 minutes. In bilateral was 121.5 minutes in group I and 84.5 minutes in group II. Complications were seroma formation seen 1 in group I and 3 in group II, urinary retention seen 0 in group I and 2 in group II and wound infection seen in 2 in group I and 4 in group II respectively. The difference was significant ($P < 0.05$). **Conclusion:** Both Transabdominal Preperitoneal Hernia Repair (TAPP) and open mesh repair are considered as safe and feasible surgical procedures.

Keywords: laparoscopic, intestinal hernia, Transabdominal Preperitoneal Hernia Repair

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This article may be cited as: V Pankaj. Laparoscopic Transabdominal Preperitoneal Hernia Repair versus Open Mesh Repair. *J Adv Med Dent Sci Res* 2015;3(1):484-487.

INTRODUCTION

One of the most frequent surgical operations carried out globally is the treatment of an inguinal hernia.¹ Because it is relatively simple to perform and has shown a significant reduction in recurrence and postoperative complications when compared to the tension repair technique, tension-free anterior open mesh repair is a commonly used technique for inguinal hernia repair.² Conversely, laparoscopic intestinal hernia repair has gained widespread acceptance because of a number of benefits, including improved esthetic outcomes, a shorter recovery time, an earlier return to everyday activities and employment, and less postoperative pain.³ When compared to open surgery, laparoscopic cholecystectomy, gastrectomy, or colectomy is unquestionably less intrusive.⁴

A technique that is less invasive or stressful is indicated by low levels of the systemic inflammatory markers WBC and CRP, which improves patient recovery. However, due to the increased risk of perioperative problems and recurrence, some surgeons feel that laparoscopic herniorrhaphy is more intrusive

than open surgery.⁵ To be able to carry out this process, one needs sufficient experience. Additionally, laparoscopic surgery requires general anesthesia and cannot be done under local anesthesia, in contrast to anterior open repair.⁶ The present study was conducted to compare laparoscopic Transabdominal Preperitoneal Hernia Repair (TAPP) with open mesh repair.

Materials & Methods

The study was carried out on 80 patients of uncomplicated inguinal hernia of both genders. All gave their written consent to participate in the study. Data such as name, age, gender, was recorded. They were divided into 2 groups of 40 each. Group I patients underwent TAPP and group II open mesh repair. Parameters such as time taken to resume daily activities, post-operative pain score, anaesthesia (general/lumbar/local), operating time (minutes), postoperative stay (days), and complications etc. were recorded. Results thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 80		
Gender	Male	Female
Number	50	30

Table I shows that out of 80 patients, 50 were males and 30 were females.

Table II Assessment of parameters

Variables	Group I	Group II	P value
duration of hospital stay (days)	4.9	7.2	0.01
Time taken to resume daily activities(days)	4.3	8.0	0.01
Post-operative pain score	1.6	3.5	0.04
duration of surgery (minutes)	63.1	47.3	0.05

Table II shows that duration of hospital stay (days) was 4.9 and 7.2, time taken to resume daily activities (days) was 4.3 and 8.0 and post-operative pain score was 1.6 and 3.5 in group I and II respectively. Duration of surgery in group I was 63.1 minutes and in group II was 47.3 minutes in group I and II respectively. The difference was significant (P< 0.05).

Graph I Assessment of parameters

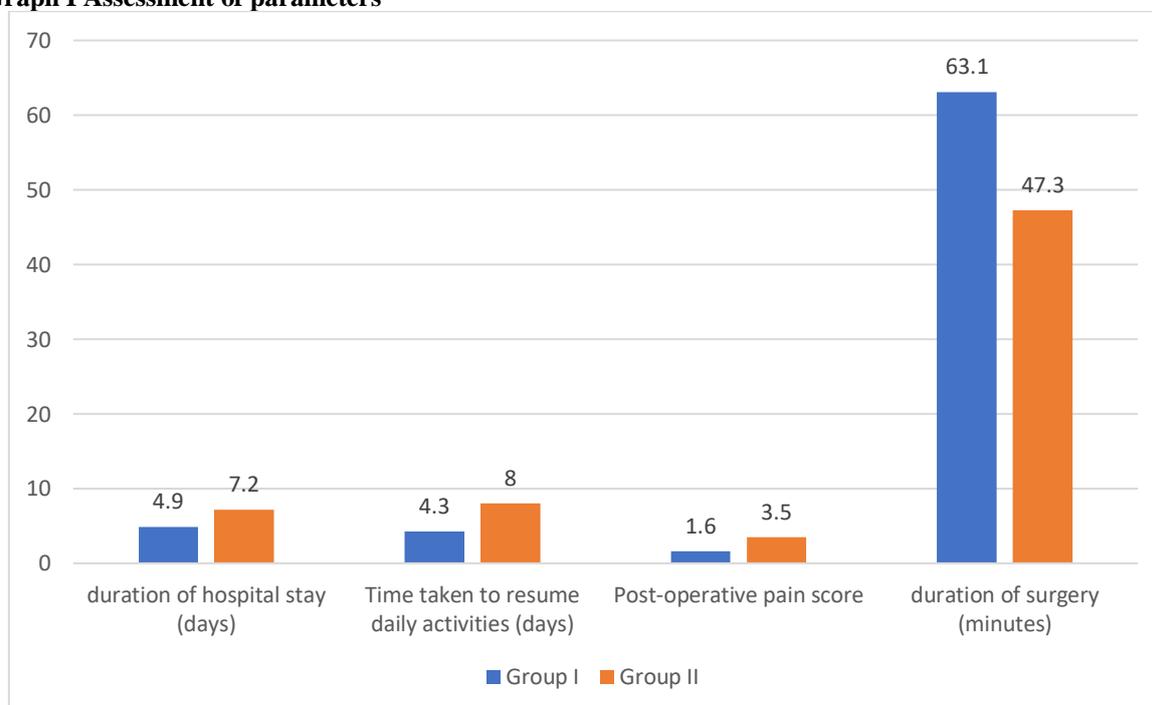


Table III Type of hernia, duration of surgery and complications

Parameters	Variables	Group I	Group II	P value
Type of hernia	Unilateral	15	17	0.83
	Bilateral	25	23	
duration of surgery (minutes)	Unilateral	60.2	46.2	0.05
	Bilateral	121.5	84.5	0.01
Complications	Seroma formation	1	3	0.05
	Urinary retention	0	2	
	Wound infection	2	4	

Table III shows that type of hernia was unilateral seen 15 in group I and 17 in group II and, bilateral seen 25 in group I and 23 in group II. Duration of surgery in unilateral in group I was 60.2 minutes and in group II was 46.2 minutes. In bilateral was 121.5 minutes in group I and 84.5 minutes in group II. Complications were seroma formation seen 1 in group I and 3 in group II, urinary retention seen 0 in group I and 2 in group II and wound infection seen in 2 in group I and 4 in group II respectively. The difference was significant (P< 0.05).

DISCUSSION

Under general anesthesia, the laparoscopic procedure was carried out via the transabdominal peritoneal route without the need for a urine catheter or nasogastric tube.⁷ Higher rim of the umbilicus was where the 5mm optical trocar was positioned. One 5-mm and one 12-mm working trocar were positioned at navel level to the right and left of the rectus abdominis boundary, respectively.⁸ The entire pelvic floor was dissected anatomically after a largely blunt dissection that was conducted rigorously along the anatomical landmarks (rectus muscle, epigastric arteries, symphysis and Cooper's ligament, and transverse fascia). Hemostasis should always be carried out thoroughly.⁹ The present study was conducted to compare laparoscopic Transabdominal Preperitoneal Hernia Repair (TAPP) with open mesh repair.

We found that out of 80 patients, 50 were males and 30 were females. Schrenk et al¹⁰ in their study postoperative pain, analgesic consumption, return to physical activity and work, cosmetic result and experience with the type of operation were assessed in 86 patients undergoing inguinal hernia repair by means of either the Shouldice technique (n = 34), the laparoscopic transabdominal preperitoneal (TAPP) (n = 28) or total preperitoneal (TPP) (n = 24) repair. Patients having TAPP repair had decreased visual analogue scale scores for pain on the day of operation compared with those undergoing TPP and Shouldice repair (4.8 versus 6.5 and 6.2 respectively, P = 0.02) and on the first postoperative day compared with TPP (4.0 versus 6.0, P = 0.01). There was no difference between the three groups for days 2, 3, 4, 5 and 30 after operation. Patient satisfaction with the operation, analgesic consumption, return to physical activity such as walking, driving, climbing stairs, running, bicycling and sexual intercourse, as well as return to work, was comparable in the three groups. There was a better cosmetic result after TAPP and TPP repair. This study failed to demonstrate significant benefits from laparoscopic hernia repair over the Shouldice technique.

We found that duration of hospital stay (days) was 4.9 and 7.2, time taken to resume daily activities (days) was 4.3 and 8.0 and post-operative pain score was 1.6 and 3.5 in group I and II respectively. Duration of surgery in group I was 63.1 minutes and in group II was 47.3 minutes in group I and II respectively. Berndsen et al¹¹ compared short-term results in patients treated by the laparoscopic transabdominal preperitoneal patch technique (TAPP; n = 518) and the Shouldice technique (n = 524). They evaluated demographics, operative data, complications, hospital stay, postoperative pain, use of cs, functional status, sick leave, and complaints up to 3 months postoperatively. The median operating time was shorter in the Shouldice group (55 vs. 65 min), but there were no significant differences in complication rates, and major complications were rare. The hospital

stay was 1 day or less in over 98% of cases in both groups, but more operations were performed on outpatient basis in the Shouldice group. In the TAPP group postoperative pain and analgesic consumption were less, postoperative functional status was better, and sick leave was shorter (10 vs. 14 days). These results show that the two methods are equally safe and have few major complications. The TAPP operation is associated with less postoperative pain, better postoperative functional status, and shorter sick leave, but at the price of a longer operating time.

We found that type of hernia was unilateral seen 15 in group I and 17 in group II and, bilateral seen 25 in group I and 23 in group II. Duration of surgery in unilateral in group I was 60.2 minutes and in group II was 46.2 minutes. In bilateral was 121.5 minutes in group I and 84.5 minutes in group II. Complications were seroma formation seen 1 in group I and 3 in group II, urinary retention seen 0 in group I and 2 in group II and wound infection seen in 2 in group I and 4 in group II respectively. Arvidsson et al¹² compared 5-year recurrence rates after Shouldice and laparoscopic transabdominal preperitoneal patch (TAPP) repair for primary inguinal hernia. Nine hundred and twenty patients were followed for 5 years, 454 in the TAPP group and 466 in the Shouldice group. Recurrences were evenly distributed between groups throughout the follow-up period. The cumulative recurrence rate after 5 years was 6.6 per cent in the TAPP group and 6.7 per cent in the Shouldice group. Postoperative pain was a risk factor for recurrence after Shouldice operation but not after TAPP repair. There was a correlation between a low surgeon's performance score and recurrence.

The shortcoming of the study is small sample size.

CONCLUSION

Authors found that both transabdominal preperitoneal hernia repair (TAPP) and open mesh repair are considered as safe and feasible surgical procedures.

REFERENCES

1. Jenkins JT, O'Dwyer PJ. Inguinal hernias. *BMJ*. 2008;(7638)336:269-72.
2. Neumayer L, Giobbie-Hurder A, Jonasson O, Fitzgibbons R Jr, Dunlop D, Gibbs J, et al. Open mesh versus laparoscopic mesh repair of inguinal hernia. *N Engl J Med*. 2004;350(18):1819-27.
3. Takahara T, Uyama I, Ogiwara H, Furuta T, Iida S. Inflammatory responses in open versus laparoscopic herniorrhaphy. *J Laparoendosc Surg*. 1995;5(5):317-26.
4. Bender O, Balci FL, Yüney E, Sağlam F, Ozdenkaya Y, Sari YS. Systemic inflammatory response after Kugel versus laparoscopic groin hernia repair: a prospective randomized trial. *SurgEndosc*. 2009;23(12):2657-61.
5. Lichtenstein IL, Shulman AG, Amid PK, Montllor MM. The tension-free hernioplasty. *Am J Surg*. 1989;157(2):188-93.
6. Arregui ME, Davis CJ, Yucel O, Nagan RF. Laparoscopic mesh repair of inguinal hernia using a

- preperitoneal approach: a preliminary report. *SurgLaparosc Endosc.* 1992;2(1):53-58.
7. Fitzgibbons RJ Jr, Camps J, Cornet DA, Nguyen NX, Litke BS, Annibali R, et al. Laparoscopic inguinal herniorrhaphy. Results of a multicenter trial. *Ann Surg.* 1995;221(1):3-13.
 8. Nienhuijs SW, van Oort I, Keemers-Gels ME, Strobbe LJ, Rosman C. Randomized trial comparing the Prolene Hernia System, mesh plug repair and Lichtenstein method for open inguinal hernia repair. *Br J Surg.* 2005;92(1):33-38.
 9. Hallen M, Bergenfelz A, Westerdahl J. Laparoscopic extraperitoneal inguinal hernia repair versus open mesh repair: long-term follow-up of a randomized controlled trial. *Surgery.* 2008;143:313-7.
 10. Schrenk P, Woisetschlager R, Rieger R, Wayand W. Prospective randomized trial comparing postoperative pain and return to physical activity after transabdominal preperitoneal, total preperitoneal or Shouldice technique for inguinal hernia repair. *Br J Surg.* 1996;83:1563-6.
 11. Berndsen F, Arvidsson D, Enander LK, Leijonmarck CE, Wingren U, Rudberg C, Smedberg S, Wickbom G, Montgomery A. Postoperative convalescence after inguinal hernia surgery: prospective randomized multicenter study of laparoscopic versus Shouldice inguinal hernia repair in 1042 patients. *Hernia.* 2002 Jan;6(2):56-61.
 12. Arvidsson D, Berndsen FH, Larsson LG, Leijonmarck CE, Rimbäck G, Rudberg C, Smedberg S, Spangen L, Montgomery A. Randomized clinical trial comparing 5-year recurrence rate after laparoscopic versus Shouldice repair of primary inguinal hernia. *Journal of British Surgery.* 2005 Sep;92(9):1085-91.