E-ISSN: 2616-3470
P-ISSN: 2616-3462

www.surgeryscience.com
2018; 2(2): 23-25
Received: 25-02-2018
Accepted: 27-03-2018

Din Mohammad
Associate Professor, Department of Surgery, Shaheed Suhrawardy Medical College, Dhaka, Bangladesh

Md. Mustafizur Rahman
Professor, Department of Surgery, Shaheed Suhrawardy Medical College, Dhaka, Bangladesh

Md. Abdullah Yusuf
Assistant Professor, department of Microbiology, National Institute of Neurosciences & Hospital, Dhaka, Bangladesh

Correspondence
Din Mohammad
Assistant Professor, Department of Surgery, Shaheed Suhrawardy Medical College, Sher-E-Bangla Nahar, Dhaka, Bangladesh

Transabdominal pre-peritoneal procedure (TAPP) for bilateral and recurrent inguinal hernia among men

Din Mohammad, Md. Mustafizur Rahman and Md. Abdullah Yusuf

Abstract
Background: Transabdominal pre-peritoneal procedure is used for the treatment of bilateral and recurrent inguinal hernias.
Objective: The purpose of the present study was to see the recurrence of a hernia within 12 months after the surgical repair after transabdominal pre-peritoneal procedure for the treatment of bilateral and recurrent inguinal hernias.
Methodology: This clinical trial was conducted Department of Surgery at Shaheed Suhrawardy Medical College, Dhaka and some private hospital in Dhaka city from January 2014 to December 2015 for a period of 2 years. Men who were between 18 to 70 years of age and had been diagnosed as a case of bilateral and recurrent inguinal hernias were eligible for this study. All the patients were randomly assigned to laparoscopic TAPP repair. All repairs involved laparoscopic TAPP procedure by using prolene mesh with tacker or suture fixation. Follow up was done for primary outcome of trial to see the recurrence of a hernia within 12 months after the repair.
Result: A total number of 31 patients were recruited for this study of which 12(38.7%) were bilateral and 19(61.3%) were presented with recurrent inguinal hernias. After TAPP 2(6.4%) patients were developed post-operative haematoma and 2(6.4%) patients were developed seroma. Post-operative pain and numbness were minimum (2.0%) in all cases. There was a recurrence of hernia in 1(3.2%) case after 12 months follow up.
Conclusion: Surgical outcomes of transabdominal pre-peritoneal procedure for the treatment of bilateral and recurrent inguinal hernias have good surgical outcomes with minimum morbidity and recurrence.

Keywords: Transabdominal pre-peritoneal procedure, TAPP, bilateral and recurrent inguinal hernia, men

Introduction
Surgical repair of inguinal hernias is a common procedure in men [1]. However recurrence of hernias has been reported to occur after repair in 15.0% of cases and it is a significant concern [2]. The distorted anatomy after repeated surgery makes it more prone to recurrence; surgery failure rate is as high as 25 to 30%, if again repaired by open surgery [3]. The key to minimizing the recurrence rate is to use an ample-sized piece of mesh. The mesh must be large enough to extend 2 cm medial to the pubic tubercle, 3 to 4 cm above the Hesselbach triangle, and 5 to 6 cm lateral to the internal ring [4].
In bilateral hernias or patients with clinically unilateral hernia who have actual bilateral hernia can easily be visible per abdominally and this may be considered as bilateral hernias. Following the laparoscopic revolution, laparoscopic hernia repair has become one of the commonest laparoscopic operations [2]. Several studies [5] have demonstrated a definite advantage over open repair with respect to reduced postoperative pain and earlier return to work and normal activities. There are two standardized techniques of laparoscopic inguinal hernia repair which is transabdominal preperitoneal (TAPP) repair, described by Arregui *et al*. [6] and total extraperitoneal repair, described by Mckernan and Lawa [7]. TAPP is relatively easy to learn but has the disadvantage in that the peritoneal cavity is breached. Transabdominal Pre-peritoneal Procedure (TAPP) is the complete solution of both these situations. Therefore this present study was undertaken to see the recurrence of a hernia within 12 months after the surgical repair after transabdominal pre-peritoneal procedure for the treatment of bilateral and recurrent inguinal hernias.

Methodology
This clinical trial was conducted Department of Surgery at Shaheed Suhrawardy Medical College, Dhaka and some private hospital in Dhaka city from January 2014 to December 2015

for a period of 2 years. Men who were between 18 to 70 years of age and had been diagnosed as a case of bilateral and recurrent inguinal hernias as well as had given written informed consent were eligible for this study. Patient who had severe systemic disease or contraindication to general anaesthesia, irreducible or obstructed hernia, peritonitis, history of previous laparoscopic hernia repair, other contraindication of pelvic laparoscopy were excluded from this study. All the patients were randomly assigned to laparoscopic TAPP repair. All repairs involved laparoscopic TAPP procedure by using prolene mesh with tacker or suture fixation. All the patients were given standardized postoperative instructions. Follow up was done for primary outcome of trial to see the recurrence of a hernia within 12 months after the repair. Secondary outcomes of the study were also measured to see the per-operative vascular or visceral injury like inferior epigastric vessels, gonadal vessels, vas difference, intestine and urinary bladder. Post-operative complications were also noted like pain, seroma formation, haematoma formation and wound infection.

Results

A total number of 31 patients were recruited for this study. Out of 31 patients, 12(38.7%) were bilateral and 19(61.3%) were presented with recurrent inguinal hernias (Table 1).

Table 1: Distribution of Types of Hernia Patients

Types of Hernia	Frequency	Percentage
Bilateral	12	38.7
Recurrent Inguinal	19	61.3
Total	31	100.0

After TAPP 2(6.4%) patients were developed post-operative haematoma and 2(6.4%) patients were developed seroma. Post-operative pain and numbness were minimum in all cases (Table 2).

Table 2: Post-Operative Complications after TAPP among the Study Population

Complication	Frequency	Percentage
Haematoma	2	6.5
Seroma	2	6.5
Pain	1	3.2
Numbness	1	3.2
No Complication	25	80.6
Total	31	100.0

There was a recurrence of hernia in 1(3.2%) case after 12 months follow up which was a case of recurrent hernia due to mesh migration (Table 3).

Table 3: Follow up after TAPP among the Study Population

Outcomes	Frequency	Percentage
Recurrence	1	3.2
No Recurrence	30	96.8
Total	31	100.0

Discussion

Inguinal hernia repair is one of the most common surgical procedures. In the United Kingdom, >80,000 hernias are repaired annually [8]. In the past decade, laparoscopic and open mesh hernia repairs were introduced. This study was designed to assess the feasibility and safety of TAPP hernia repair regarding the recurrence. The results of this present study have shown a low incidence of postoperative events. The technique of TAPP hernia repair is feasible even for the repair of bilateral and recurrent hernias without any special difficulties [9].

Laparoscopic surgery is now routinely used for inguinal hernia repair. The low recurrence rates associated with repair of hernia have shifted the attention of surgeons from recurrence to chronic pain after surgery [7]. The chronic pain after onlay over the floor of the inguinal canal mesh placement has been attributed to fibrosis around the mesh. The fibrosis induced by the placement of onlay mesh at sites transverse by major inguinal sensory nerves like ilioinguinal, iliohypogastric, and genital branch of genito-femoral nerves causes pain due to strong fixation of the mesh to the region around the inguinal canal [9].

In this study after TAPP only 6.4% patients were developed post-operative haematoma and 6.4% patients were developed seroma. Post-operative pain and numbness were minimum in all cases. Thus hernia repair by TAPP offers several advantages over the use of a conventional open surgery. With regard to postoperative pain, previous studies have reported that about 10.0% of patients experience severe chronic pain related impairment of everyday activities [10]. In a meta-analyses comparing open anterior repair with laparoscopic repair, laparoscopy seemed to be advantageous because it is associated with less postoperative pain, earlier recovery, and less absence from work [5]. These advantages of laparoscopic repair may be explained by the preperitoneal location of the mesh far from the inguinal sensory nerves [11]. Moreover, whether or not the inguinal canal is dissected is a main technical difference between open anterior hernia repair and laparoscopic hernia repair that might contribute to the differences in chronic severe pain rates [12-14].

Severe chronic pain did not occur in any of the patients in this study. To avoid chronic pain limiting the number of tacks are used. In this study, only a few early postoperative complications occurred and they were benign; the two hematomas were superficial and did not require drainage. Hemorrhage did not occur. To evaluate recurrence, the patients were reexamined 12 months after operation. A telephone questionnaire was conducted for follow-up 12 months after operation. There was only 1 case of recurrence. The recurrence rate of 4.3% lies within the range reported in the literature for laparoscopic inguinal hernia repair [15-18].

Conclusion

Surgical outcomes of transabdominal pre-peritoneal procedure for the treatment of bilateral and recurrent inguinal hernias have good surgical outcomes with minimum morbidity and recurrence. Therefore, randomized clinical controlled trail of TAPP hernia repair is needed and planning to confirm the short- and long-term outcomes, including postoperative chronic pain.

References

1. Wellmood J, Sculpher MJ, Stoker D, Nicholls GJ, Geddes C, Whitehead A *et al*. Randomized controlled trial of laparoscopic versus open hernia repair for inguinal hernia: outcome of cost. Br Med J. 1998; 317:103-110.
2. Fitzgibbons RJ, Puri V. Laparoscopic inguinal hernia repair. Am Surg. 2006; 72:197-206.
3. Maillart JF, Vantournhoudt P, Piret-Gerard G, Farghadani H, Mauel E. Transinguinal preperitoneal groin hernia repair using a preperitoneal mesh preformed with a permanent memory ring: a good alternative to Lichtenstein's technique. Hernia. 2011; 15(3):289-295.
4. Moldovanu R, Pavy G. Laparoscopic Transabdominal Pre-Peritoneal (TAPP) procedure step-by-step tips and tricks. Chirurgia. 2014; 109(3):407-415.

5. Memon MA, Cooper NJ, Memon B, Memon MI, Abrams KR. Meta-analysis of randomized clinical trials comparing open and laparoscopic inguinal hernia repair. British Journal of Surgery. 2003; 90(12):1479-1492.
6. Arregui ME, Davis GJ, Yucel O *et al*. Laparoscopic mesh repair of inguinal hernia using a preperitoneal approach: a preliminary report. Surg Laparosc Endosc. 1992; 2:53-58.
7. Mckernan JB, Lawa HL. Laparoscopic repair of inguinal hernias using a totally extraperitoneal prosthetic approach. Surg Endosc. 1993; 7:26-28.
8. Report of a Working Party [Chaired by A. Kingsnorth] convened by the Royal College of Surgeons of England Clinical guidelines on the management of groin hernia in adults. Published by Royal College of Surgeons of England, 1993, 30.
9. Tzovaras G, Symeonidis D, Koukoulis G *et al*. Long-term results after laparoscopic transabdominal preperitoneal (TAPP) inguinal hernia repair under spinal anesthesia. Hernia. 2012; 16(6):641-645.
10. Zacharoulis D, Fafoulakis F, Baloyiannis I *et al*. Laparoscopic transabdominal preperitoneal repair of inguinal hernia under spinal anesthesia: a pilot study. American Journal of Surgery. 2009; 198(3):456-459.
11. Liem MSL, van Duyn EB, van der Graaf Y, van Vroonhoven TJ. Recurrences after conventional anterior and laparoscopic inguinal hernia repair: A randomized comparison. Annals of Surgery. 2003; 237(1):136-141.
12. Cunningham J, Temple WJ, Mitchell P, Nixon JA, Preshaw RM, Hagen NA. Cooperative hernia study: pain in the post-repair patient. Annals of Surgery. 1996; 224(5):598-602.
13. Bittner R, Schwarz J. Inguinal Hernia Repair: Current Surgical Techniques. Langenbeck's Archives of Surgery. 2012; 397(2):271-282.
14. Kiruparan P, Pettit SH. Prospective audit of 200 Patients Undergoing Laparoscopic Inguinal hernia repair with follow up from 1 to 4 years. J R Coll Surg Edinb. 1998; 43:13-16.
15. Eisa A, Gaber A, Harb TT. Laparoscopic transabdominal preperitoneal inguinal hernia repair. The Egyptian Journal of Surgery. 2014; 33(2):86.
16. Hakeem A, Shanmugam V. Current trends in the diagnosis and management of post-herniorraphy Chronic Groin Pain. World Journal of Gastrointestinal Surgery. 2011; 3(6):73-81.
17. Kapiris SA, Brough WA, Royston CM, O'Boyle C, Sedman PC. Laparoscopic transabdominal preperitoneal (TAPP) hernia repair. Surgical Endoscopy. 2001; 15(9):972-5.
18. Sato H, Shimada M, Kurita N *et al*. The safety and usefulness of the single incision, transabdominal pre-peritoneal (TAPP) laparoscopic technique for inguinal hernia. Journal of Medical Investigation. 2012; 59(3-4):235-240.