



RESEARCH ARTICLE

LAPAROSCOPIC TAPP HERNIA REPAIR FOR RECURRENT UNILATERAL INGUINAL HERNIAS IN MALE PATIENTS: AN EXPERIENCE OF SINGLE SURGICAL UNIT

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ABSTRACT

Inguinal hernia recurrence after surgical repair is major concern. As minimal access surgery is gaining wide spread acceptance in surgical field, laparoscopic hernia repair is becoming popular. In this manuscript we validate the claim of laparoscopic repair which is associated with faster recovery, less pain, better cosmesis, and less post-operative complications. Here we report our experience of laparoscopic TAPP repair for recurrent inguinal hernia.

Key words:

Recurrent inguinal hernia, laparoscopic hernia repair, TAPP.

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INTRODUCTION

Inguinal hernia repair is commonly performed operation In united states. Approximately Seventy five per cent of abdominal wall hernia occurs in groin and lifetime risk of inguinal hernia is 27% in men and 3% in women (Gould, 2008). Incidence of inguinal hernia in male has bimodal distribution with peak before first year of age and after the age 40 (Bramson et al., 1978). The success of hernia repair is measured in terms of recurrence. Although other procedure related complications are also important and have been shown to effect health related quality of life parameters, recurrence is most challenging for the patients and the surgeon (Neumayer et al., 2004). Incidence of recurrence rate of primary inguinal hernia repair vary between <1% and 17% (Bisgaard et al., 2008; Bay-Nielsen et al., 2001; Haapaniemi et al., 2001; Nilsson et al., 1998). In a large observational study from Denmark, reoperation rate after a primary Lichtenstein repair was 2.4%, 6.2% after primary non-mesh repair and 3.6% after primary mesh (non-Lichtenstein) and 3.3% after primary laparoscopic repair.

They reported rate of reoperation after repair of recurrence was as high as 8.8% (Neumayer et al., 2004). Two most common of laparoscopic repair are transabdominal preperitoneal (TAPP) repair and the totally extraperitoneal (TEP) repair. These techniques have dissection of preperitoneal space in common, to identify inguinal anatomy; reduce the hernia sac; and place a mesh to cover the hernia defect. The TAPP repair starts with a standard intra peritoneal laparoscopy followed by incising the peritoneum to gain entry into preperitoneal space. The TEP repair establishes the preperitoneal space without intentionally entering into the abdominal cavity (Itani Kamal et al., 2009).

The surgical prospective on pelvic anatomy from the intra peritoneal view as been elegantly described by Skandalakis and co-workers (Skandalakis et al., 1989) and has been elegantly demonstrated in cadaver dissections by Spaw and colleagues<sup>10</sup>. During TAPP repair four landmarks should be seen at initial laparoscopic inspection of inguinal region: spermatic vessels, the obliterated umbilical artery (also referred to as median umbilical ligament of the bladderligament), inferior epigastric vessels (also referred to as lateral umbilical ligament) and the external iliac vessels (Web, c2005).

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## MATERIALS AND METHODS

This was a prospective observational study carried for a period of two years in which 21 patients with recurrent inguinal hernia previously operated as open or laparoscopic methods were studied. Patients who presented with complications of inguinal hernia like obstruction, strangulation, irreducibility; and patients with age below 16 years of age were excluded from study. Moreover patients with bilateral hernias and female patients were not included in the study. Patient characteristics like age, sex, BMI, hernia type (unilateral or bilateral) previous procedure done (primary or mesh repair) were recorded. All patients undergoing TAPP repair were operated under general anaesthesia. The outcomes of TAPP repair were studied in terms of duration of the procedure, conversion rate from TAPP to open, post-operative analgesia requirement, post-operative complications, duration of hospital stay and re-recurrence rate at 6months follow –up.

## RESULTS

TAPP was performed for 21 male patients with unilateral recurrent inguinal hernia. Mean age was 60 years (range 36-80). The mean BMI was 26.2. Among the 21 treated patients 15 had previous history of open suture repair and 6 had previous history of mesh repair. Among the 6 patients with the history of mesh repair 5 had open mesh repair and 1 patient had laparoscopic TEP repair. Short term surgical outcomes were studied in terms of duration of surgery, post-operative requirement of analgesia, post-operative complications, duration of hospital stay and re-recurrence at 6 months follow up (Table 1). Out of 21 patients, 15 had previous suture repair, 5 had previous open mesh repair and one patient had previous laparoscopic repair. The mean duration of procedure was 108min. The mean number of times the postoperative analgesic drugs were administered was 2 (range 1-3). Mean postoperative hospital stay was 2 days.

Endohernia Society (IEHS) laparoscopic procedures are recommended procedures for recurrent hernias (Köckerling *et al.*, 2017; Rahr *et al.*, 2006; Dedemadi *et al.*, 2006; Eklund *et al.*, 2007). The advantages of laparoscopic repair include benefits of lesser pain, reduced discomfort, short hospital stay, and early resumption of normal daily activities. The laparoscopic repair was a revolutionary concept in the hernia surgery and was introduced by Arregui (Mckernan, 1992) and Dion (Frauchaud, 1956) in the early 1990s. Laparoscopic groin hernia repair can be done by TEP approach and also by TAPP approach. The decision to use one or the other technique should be based solely on surgeon expertise (Köckerling *et al.*, 2017). Both the techniques (TEP and TAPP) are safe, effective and have same advantages. However better view of inguinal anatomy is attained with TAPP and short learning curve (Chowbey *et al.*, 2006).

It also allows evaluation of opposite side as well and in case of patients with irreducible hernia contents it is possible to reduce the contents under vision making the procedure simple and easier (www.nice.org.uk). Takahiro (Sasaki *et al.*, 2016) in their study reported significantly longer operation time in TAPP group at 102.8 minutes (with 67.7 minutes in open repair group); less postoperative analgesia requirement (0.5 in TAPP group and 1.0 in open repair group). They concluded that although TAPP procedure lengthened the repair time, the absence of significant differences in postoperative complications confirms that TAPP repair compares favourably with open anterior repair. (Filipi *et al.*, 1996) reported 109 minutes of operative time in laparoscopic group (TAPP) and 56 minutes in open mesh repair group; with complication rate of 13% in TAPP group and 10% in open mesh repair group. They also reported that pain in perioperative period is significantly less after laparoscopic inguinal hernia repair, with no re-recurrence seen in laparoscopic group at 11 months follow-up (as compared with 7% re-recurrence rate seen in open mesh repair group).

**Table 1. Patients distribution according to previous operation**

Previous operation	No. of patients	Percentage
Suture repair	15	71.4%
Open mesh repair	5	23.8%
Laparoscopic mesh repair	1	4.8%
total	21	100%

**Table 2. Outcomes of laparoscopic repair**

Duration of surgery	108 min. (range 70-150 min.)
Postoperative analgesia requirement (in terms of no. of times the analgesic drug administered)	2 (range 1-3)
Complications Intraoperative Postoperative	0
Length of hospital stay	3 days (range 2-5 days)
Recurrence on follow-up(6months)	0

There were no intra operative complications noted, but 2 patients developed post-operative seroma which was managed conservatively. One out of 21 patients developed superficial wound infection which was managed by daily dressings. Conversion from TAPP to open was not needed in any patient. There were no procedure related mortality and no re-recurrence was seen at 6 months follow up (Table 2).

## DISCUSSION

As per the guidelines of international Hernia Societies, European Hernia Society (EHS) and the International

(Köckerling *et al.*, 2017) in their study performed TAPP on 66.5% patients with previous suture repair and 33.5% with previous mesh repair; and compared it with TEP repair group. They reported no difference in intraoperative complication rate between TEP and TAPP group but reported lower values in postoperative complications in TEP group (1.7% vs. 4.6%) which was mainly due to the difference in the seroma rate (0.5% vs. 3.2%). They also reported no difference in the re-recurrence rate in the two groups. Presence of prosthetic material in the pre peritoneal space from a previous hernia repair results in a technical challenge if a laparoscopic repair is

considered. It results in scarring in the pre peritoneal space, making dissection more difficult. They also create an obstacle to placing a new mesh and make the peritoneal closure in a TAPP repair more difficult. Kamal MF Itaniet *al.*<sup>8</sup> mentioned that in cases where a laparoscopic approach is undertaken for a previous flat mesh placed through a posterior open or laparoscopic repair, it is best to leave it in place to avoid risk of injury to the iliac vein or bladder. The new mesh can be laid on top of the old, correcting any technical failure from a slipped or misplaced prior mesh. But this scenario should be reserved for surgeons with advanced laparoscopic expertise in this field. As per our experience, we conclude that laparoscopic hernia repair is a safe procedure when performed under experienced hands and is associated with low morbidity and mortality.

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## REFERENCES

- Abramson, JH., Gofin, J., Hopp, C., et al., 1978. The epidemiology of inguinal hernia. A survey in western Jerusalem. *J Epidemiol Community Health*, 32:59.
- Bay-Nielsen, M., Kehlet, H., Strand, L., et al., 2001. Quality assessment of 26,304 herniorrhaphies in Denmark: a prospective nationwide study. *Lancet*, 358:1124–1128.
- Bisgaard, T., Bay-Nielsen, M., Kehlet, H., et al., 2008. Recurrence after operation for recurrent inguinal hernia. A nationwide 8-year follow-up study on the role of type of repair. *Ann Surg*, 247:707–711.
- Chowbey, PK., Pithwala, M., Khullar, R., et al., 2006. Complications in groin surgery and the way out. *J Min Acess Surg*, 3:174-7.
- Dedemadi, G., Sgourakis, G., Karaliotas, C., Christofides, T., Kouraklis, G. and Karaliotas, C. 2006. Comparison of laparoscopic and open tension-free repair of recurrent inguinal hernias: a prospective randomized study. *Surg Endosc*, 20(7):1099–1104
- Eklund, A., Rudberg, C., Leijonmarck, CE., Rasmussen, I., Spangen, L., Wickborn, G. and Wingren, U. 2007. Montgomery A Recurrent inguinal hernia: randomized multicenter trial comparing laparoscopic and Lichtenstein repair. *Surg Endosc*, 21(4):634–640.
- Filipi, CJ., Gaston-Johansson, F., McBride, PJ., et al., 1996. An assessment of pain and return to normal activity: laparoscopic herniorrhaphy vs open tension-free Lichtenstein repair. *Surg endosc*, 10:983-6.
- Frauchaud, H. 1956. Anatomie Chirurgicale des hernies de l'abdomen. Paris, Doin, 1956, quoted by Stoppa RE, Warlaumont CR; The preperitoneal approach and prosthetic repair of groin hernia 3<sup>rd</sup> edition chapter 10 page 199-225 JB Lippincott Co. USA.
- Gould, J. 2008. Laparoscopic versus open inguinal hernia repair. *Surg Clin N. Am.* 88:1073-1081.
- Haapaniemi, S., Gunnarsson, U., Nordin, P. and Nilsson, E. 2001. Reoperation after recurrent groin hernia repair. *Ann Surg*, 234: 122–126.
- Itani Kamal, MF., et al., 2009. Management of Recurrent Inguinal Hernias. *J Am Coll Surg*, Vol. 209, No. 5.
- Köckerling, F et al., 2017. TEP or TAPP for recurrent inguinal hernia repair—registerbased comparison of the outcome. *Surg Endosc*, 31:3872–3882.
- Mckernan, B. 1992. Laparoscopic preperitoneal prosthetic repair of inguinal hernias. *Surgical Rounds*, 7:579-610.
- Neumayer, L., Giobbie-Hurder, A., Jonasson, O., et al., 2004. Open mesh versus laparoscopic mesh repair of inguinal hernia. *N Engl J Med*, 350:1819–1827.
- Nilsson, E., Haapaniemi, S., Gruber, G. and Sandblom, G. 1998. Methods of repair and risk for reoperation in Swedish hernia surgery from 1992 to 1996. *Br J Surg*, 85:1686–1691.
- Rahr, HB., Bendix, J., Ahlburg, P., Gjedsted, J., Funch-Jensen, P. and Tønnesen, E. 2006. Coagulation, inflammatory and stress responses in a randomized comparison of open and laparoscopic repair of recurrent inguinal hernia. *Surg Endosc*, 20(3):468–472
- Sasaki, T., et al., 2016. Laparoscopic Inguinal Hernia Repair at Toyoko Hospital. *J. St. Marianna Univ. Vol. 7; pp.1–6.*
- Skandalakis, JE., Gray, SW., Skandalakis, LJ., et al., 1989. surgical anatomy of the inguinal area. *World J Surg*, 13:490.
- Spaw, AT., Ennis, BW. and Spaw, LP. 1991. Laparoscopic hernia repair: the anatomic basis. *J Laparoendosc Surg* 1:296.
- Technology Appraisal Guidance No. 83 for laparoscopic Surgery for Inguinal Hernia Repair, Sept 2004 at [www.nice.org.uk](http://www.nice.org.uk). Website of National institute for clinical excellence, NHS, England.
- Web MD. c2005. ACS Surgery: 5 Gastrointestinal Tract and Abdomen; Liane S. Feldman et al. 28 Laparoscopic Hernia Repair. Inc.

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