Original Research Article

Laparoscopic Transabdominal Pre-Peritoneal (Tapp) Procedure for Inguinal Hernia: Our Experience in a Developing Country

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Abstract

The aim of study was to observe the outcome and limitations of laparoscopic hernia repair in developing country. Hundred patients of inguinal hernia who underwent Laparoscopic Transabdominal Pre-Peritoneal (TAPP) hernioplasty were observed for hospital stay, pain and post operative recovery. Mean operative time was 76.95 minutes. Only 12 patients developed complications in form of seroma formation (8 patients) and wound infection (4 patients). All patients were discharged within 48 hours. Mean time of return to work was 12.2 days. Hence, it is concluded that except for its high cost, the procedure is safe and allows less hospital stay and early return to work.

Keywords: Laparoscopy, inguinal hernia, hernioplasty, pain, surgical

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Introduction

The hernia repair performed by Bassini was the first true anatomical repair of its kind. It decreased the recurrence rates of hernia to less than 2% (1). The method of inguinal hernia repair with preperitoneal technique was developed by Nyhus and Stoppa to reduce the high recurrence rates of the anterior repairs. The preperitoneal tension-free technique developed by Kugel had combined advantage of minimal access procedures (short incision, preperitoneal mesh placement, no neuropathic pain) as well as open operation (2). Ger, Schultz, Corbitt, and Filipi described laparoscopic inguinal hernia for the first time in the early 1990s (1,2,3,4) and just after laparoscopic cholecystectomy it came to scenario as a boom. The earlier laparoscopic techniques were associated with high rates of recurrence and were considered surgically unsound (3).

Later, laparoscopic repair of inguinal hernia gained remarkable popularity in recent years. It provides better exposure to groin anatomy and allows tension free repair with better patient comfort and earlier return to daily activities. Transabdominal preperitoneal (TAPP) method of hernia repair is easy to perform and has less operative time but at the same time high recurrence rates have been seen (4,5,6).

The present study highlights the initial experience with TAPP (transabdominal pre-peritoneal) laparoscopic hernioplasty.

Materials and Methods

The study was conducted in the Department of Surgery, Rajindra Hospital, Patiala, over a span of 3 years, from June 2010 to June 2013. Informed consent was taken.

Patients with unilateral inguinal hernia were included in this study. The exclusion criteria were: patients with incarcerated or strangulated hernia, or previous lower abdominal surgery. Hundred cases underwent laparoscopic TAPP repair.

All patients underwent a classic Trans-Abdominal Pre-Peritoneal (TAPP) Inguinal Hernioplasty using light polypropylene mesh under general anaesthesia.

Patients were asked to empty their bladder prior to surgery and no urethral catheter was used. Pneumoperitoneum was created through infraumbilical incision and 10mm trochar was placed. Two other 10 mm trochars were placed approximately 5-6 cm on both sides of the umbilicus at the level of first one. A short curved incision was made lateral to the inguinal ring forming a preperitoneal flap, until the inferior epigastric vessels were identified. The indirect hernia contents (if any) were pulled back. After the dissection of sac and creation of sufficient space, through one of the lateral ports a rolled piece of polypropylene mesh was introduced into the abdomen. The mesh was fixed at pubic tubercle and Cooper's ligament with staple. Once, the mesh was secured, the peritoneal flap was closed back so that it covered it completely. Any intra-operative complications were recorded. Duration of operation was taken as the time from the incision till the time when the last stitch was given.

All the patients were administered with a single dose of diclofenac potassium 75 mg i.m. during early postoperative period and than analgesia was maintained by oral doses of same analgesic.

A visual analogue scale (VAS) with 10mm scale reading was used to define the level of pain and the system of scoring was explained to patients preoperatively.

The number of nights was recorded as the post operative hospital stay. The overall major determinant for the choice of operation was hospital cost for each patient.

Results

The mean age of patients in our study who underwent TAPP was 54 years with variation from 28-69 years. The male to female ratio was significant i.e. 88:12 (Table 1).

The mean operative time was 76.95 minutes. Peritoneal breach was the only intra-operative complication which occurred in 18 patients (18%). No major vascular, visceral, nerve or bladder injury in any case was observed (Table 2).

All the 100 patients were discharged within 48 hours of surgery. The mean time to return to work was 12.2 days. There were no cases of short-term recurrence in the present study, and patients were followed-up to a period of five months post-operative (Table 3). There was no mortality in the present study.

Table 1: Demographic Profile

Demographic Profile	
Age	54 (28 – 69)
Sex M:F	88: 12
Hernia Lt: Rt	78: 22
Indirect: Direct	72: 28

Table 2: Intra-operative variables

Intra-operative variables	
Mean operative time	76.95 (38 – 165)
Peritoneal breach	12 (12%)
Vascular injury	Nil
Nerve injury	Nil
Umbilical cord injury	Nil
Bladder injury	Nil
Visceral injury	Nil

Table 3: Complications

Complications	
Seroma	8 (8%)
Hematoma	Nil
Wound infection	4 (4%)
Neuralgia	Nil
Urinary retention	Nil
Scrotal complications	Nil
Recurrence	Nil

Discussion

There are various methods that have been developed for laparoscopic hernia repair but it requires an adequate learning curve (7). Almost a decade now, TAPP has been performed routinely in our hospital with promising results.

The mean operative time was recorded to be 79.99 minutes. We believe that this procedure time may be shortened under experienced hands as our first case was about 165 minutes with the last patient requiring only 35 minutes. Our TAPP operating time was comparable with the operative times in a similar study conducted by Kald et al (8) and Heikkinen et al (9). Peritoneal breach was the only intra-operative complication which occurred in 12 patients (12%). There were no major intraoperative complications or

conversion to open surgery required in our study group. However, few other complications such as injury to the inferior epigastric artery, enterotomy or injury to the bladder have been reported in the past (5,6).There was no recurrence during the follow-up period of five months. In TAPP repair, proper fixation of the mesh to the pubic tubercle and peritonization of mesh to prevent its migration are the key points to prevent recurrence. The mean time to return to work was 12.2 days. Champault et al (10) reported similar findings in his prospective study carried out in1997.

The results of hernia repair depends on careful and bloodless dissection of the pre-peritoneal space, meticulous reduction of the hernia sac, appropriate mesh size, its positioning and fixation. The peritoneal flap should be closed completely, leaving no gaps (7). In acute pathology laparoscopic approach for inguinal hernia repair is a safe and feasible technique (11).

The cost of laparosopic hernia repair is comparatively more than open procedure due to which open repair in preferred developing nations. Anandol et al in a study showed that mean hospital cost for the TAPP group was $1100 and only $629 for the open group ($P < 0.05$) (12).

TAPP for inguinal hernia repair is an effective and safe technique when performed by performed by experts. Perioperative intervention related to morbidity is within normal limits. There is also less post-operative discomfort, improved aesthetic results and early return to work which makes this intervention far more superior.

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