

Transabdominal Preperitoneal Laparoscopic Inguinal Hernia Repair

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ABSTRACT

Objective To determine the outcome of transabdominal preperitoneal (TAPP) inguinal hernia repair.

Study design Descriptive study.

Place & Duration of study At Surgical C Unit, Khyber Teaching Hospital Peshawar, from April 2010 to June 2011.

Methodology A total of 88 patients, aged between 16-60 year were included in the study and subjected to transabdominal preperitoneal inguinal hernia repair. The outcome measures such as operative time, length of hospital stay and postoperative complications were analyzed.

Results The mean age of patients was 38.64 ± 9.04 year. The mean operative time was 60.13 ± 14.76 minutes. The mean hospital stay was 1.45 ± 0.72 days. The postoperative complications were urinary retention ($n=1 - 1.1\%$), wound hematoma ($n=1 - 1.1\%$), surgical site infection ($n=2 - 2.2\%$) and recurrence of hernia ($n=1 - 1.1\%$).

Conclusion Transabdominal preperitoneal inguinal hernia repair is associated with minimal complications but requires a long learning curve.

Key words Transabdominal, inguinal hernia, Preperitoneal, Laparoscopy.

INTRODUCTION:

Inguinal hernia repair is one of the most commonly performed operations carried out throughout the world. Every year almost 60,000 inguinal hernia repairs, utilizing different techniques, are performed.¹ Since the original description of hernia repair by Bassini in 1889, hernia surgery underwent numerous refinements with the sole idea to reduce recurrence.²

Various open surgical techniques have been described for the surgical management of groin hernias. With the recent increase in the use of laparoscopic techniques for general surgical procedures, application of this technology to the

repair of inguinal hernias was a logical extension. The first laparoscopic hernia repair was performed by Ger in 1982.³

Currently only 15% of hernia operations are being performed by the laparoscopic techniques, presumably because it is an advanced procedure that is substituted for what most general surgeons consider a technically easy operation.⁴ In addition, in the majority of cases, laparoscopic repair is superior to the open counterpart such as less complications and early return to normal activities but it can, however, be related with some problems like chronic postoperative pain and increased recurrence rate, to name a few.^{5,6}

Inguinal hernia repair using laparoscopic technique is not routinely practiced in our set up. This study was carried out to determine the outcome of transabdominal preperitoneal hernia repair with the laparoscopic technique.

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METHODOLOGY:

This descriptive study was conducted at surgical C unit, Department of Surgery, Khyber Teaching Hospital Peshawar, April 2010 to June 2011. The study was approved by the Institutional Medical and Ethics Committee. In this study a total of 88 patients presenting to the outpatient department (OPD) with clinical diagnosis of inguinal hernia were recruited. The sample size was calculated using 95% confidence interval, 16% prevalence of TAPP, respectively and 8% margin of error.

The diagnosis of inguinal hernia was established through history and clinical examination. The patients were selected through non-probability consecutive sampling. The inclusion criteria was patients with primary inguinal hernia (unilateral/bilateral), 16 to 60 year of age, American Society of Anesthesiologists class I (ASA I) and those willing to participate in the study after written informed consent. Patients with irreducible or obstructed hernia, previous lower abdominal surgery, and radiotherapy were excluded.

All patients were admitted a day before surgery. General anesthesia was used for carrying out the procedure. All patients were given a prophylactic dose of third generation cephalosporin at induction as part of the protocol while two doses of the same were repeated postoperatively at 8 hours and 16 hours.

Laparoscopic repair (TAPP) was performed through a 3 port technique with carbon dioxide used for creation of pneumoperitoneum through a 5mm infraumbilical port, up to a pressure of 12 mmHg. The other two ports were placed in the lower abdomen according to individual surgeon's choice. The polypropylene mesh was placed tranperitoneally in the preperitoneal space. Skin incision was closed with subcuticular polypropylene 2/0 suture. The operative times was recorded in minutes and was counted from the incision to the placement of the last suture. Hospital stay was defined as the number of nights spent in hospital postoperatively. Postoperative pain was measured qualitatively (subjectively) using Visual Analogue Scale and was graded into no pain, no discomfort during daily life activities (VAS = 0), mild pain, occasional discomfort but not affecting the quality of life (VAS=1-3), moderate pain, pain hampering patient's quality of life including inability to take part in sports (VAS=4-7), and severe pain, the presence of constant or intermittent pain debilitating the patient or interfering with activities of daily living (VAS=8-10). The patients were followed up in OPD at one and six month intervals.

Data was analyzed using SPSS version 15 for Windows. Mean \pm SD was calculated for continuous variables such as age, operative time and hospital stay. Frequency and percentages were calculated for ordinal data such as chronic pain (none, mild, moderate, severe).

RESULTS:

The mean age of patients was 38.64 ± 9.04 year. There were 85 (96.5%) males and 3 (3.4%) females with male to female ratio of 28:1. Mean hospital stay was 1.45 ± 0.72 days. The mean operative duration was 60.13 ± 14.76 minutes. One (1.1%) patient developed urinary retention, one (1.1%) had wound haematoma in the infraumbilical port. Surgical site infection (SSI) was observed in 2 (2.27%) patients. All the patients who developed SSI related to infraumbilical port site. One (1.1%) patient on follow up at six months interval was found to have recurrence of the hernia. On follow up 57 (64.8%) patients did not experience any pain. In total 31 patients experienced pain at one month follow up of variable severity. Out of these 21 (23.8%) patients experienced mild pain, 8 (9%) had moderate and 2 (2.2%) severe pain.

Follow up of patients at six months interval revealed that 79 (90%) patients did not feel pain at all (pain free). Of the 9 patients who still experienced pain of variable severity 8 (9%) had mild pain and one (1%) complaint of severe pain.

DISCUSSION:

Groin hernia repair is a common surgical procedure and variety of methods of repair exist.⁷ Inguinal hernia can be repaired using traditional open methods or using newer laparoscopic techniques. The most common open technique in use in the UK is that popularised by Lichtenstein and colleagues.^{8,9} Laparoscopic approaches allow hernia repair without the need to open the abdominal wall. As with open mesh techniques, a piece of mesh is generally used. The main variations in laparoscopic approaches depend on whether or not the instruments enter the peritoneal cavity.¹⁰⁻¹²

In the present study post operative pain of variable severity was observed in 35% patients. Same patients when followed up for six months showed that almost 90% were pain free. In corroboration to our findings others reproduced similar results.¹ The incidence of pain after inguinal hernia repair is about 10%. Duration of operation in our study was 60.13 ± 14.07 minutes. Bhandarkar DS and colleagues conducted a study aimed at finding out the current status and controversies of laparoscopic inguinal

hernia repair and found the mean operative duration to be 68 minutes, which corroborates with our findings.¹³

The mean hospital stay in the present study was 1.45 ± 0.72 days. Anadol ZA and colleagues, in a randomized controlled trial comparing the laparoscopic transabdominal repair with its open counterpart observed a shorter hospital stay (1.52 ± 0.51) in the laparoscopic arm which mirrors our results.¹⁴ Less postoperative pain and early recovery can be the clues to shorter hospital stay and early return to work, a finding observed by many in the laparoscopic approach to inguinal hernia repair.

In the present only one (1.1%) patient was found to have recurrence which was detected on a six months follow up period. Our results compare favorably with those observed by others.^{1,3} Long term follow up is also likely to identify more patients with recurrence. Previous experience with laparoscopic inguinal herniorrhaphy, however indicates that most recurrences develop within the first year postoperatively. These are the results of errors in techniques and relate to long learning curve. Many studies claimed to have a reduced rate of recurrence in the laparoscopic arm but these have short follow up of one year. A larger randomized controlled trial showed a statistically higher recurrence rate in the laparoscopic modality compared to the open counterpart.^{7,10,15,16} The one patient who developed recurrence in the present study underwent repair again through the laparoscopic technique with an uneventful recovery. It is prudent to mention the limitations of the present study. The follow up period was limited to 6 months period which may have biased our results in terms of recurrence rate.

CONCLUSION:

Transabdominal preperitoneal laparoscopic inguinal hernia repair is associated with less postoperative pain and shorter hospital stay.

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