

# Laparoscopic Mesh Hernioplasty in Inguinal Hernia: An Experience in A Teaching Hospital

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## ABSTRACT

**Aim:** To evaluate the influence of laparoscopic mesh hernioplasty regarding hospital stay, postoperative pain, return to normal activity and postoperative complications including recurrence.

**Methods:** This case series study was conducted in the department of surgery, Lahore General Hospital, Lahore. This study included thirty five (35) patients who underwent laparoscopic mesh hernioplasty through totally extra peritoneal approach (TEPA) after fulfilling the inclusion criteria and having given the informed consent. This study was conducted from 15<sup>th</sup> August 2003 to 14<sup>th</sup> February 2004. Patients of either age range between 18 and 75 years and with primary or recurrent inguinal hernia and unilateral or bilateral were included in this study. The patients emergency presented including irreducibility, strangulation or obstruction. Patients unfit for general anesthesia, previous lower abdominal surgery were excluded from this study.

**Results:** In our study the mean age of the patients was 38.7±8.2 years. In all patients laparoscopic mesh hernioplasty (TEP), five patients (14.29%) had complications. There was one recurrence and the common most was scrotal hematoma. One of the patient (2.86%) developed seroma at the inguinal region. One patient (2.86%) developed cellulitis at the umbilical port site. There was one recurrence in the study period. Postoperative pain was minimal and required minimal analgesia with diclofinac sodium. All patients were pain free for first six hours and demanded analgesia when the effect of local anesthesia was off. Average hospital stay was 2 days. Most of the patients return to normal activity within one week.

**Conclusion:** This study demonstrated that laparoscopic mesh hernioplasty TEPA technique is safe to perform with less postoperative pain, hospital stay and early return to normal activity, being a good alternative to open repair.

**Keywords:** Inguinal hernia, mesh, laparoscopy, totally extra-peritoneal.

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## INTRODUCTION

A hernia is a protrusion of a viscous or a part of viscous through an abnormal opening in the walls of its containing cavity.<sup>1</sup> Abdominal wall hernias in their various guises form a commonly encountered group of surgical conditions 73%, which range in presentation from asymptomatic to life threatening emergencies<sup>3</sup>.

It is more common in males than females<sup>2</sup>. The cause of primary groin hernia is multifactorial with evolutionary hereditary, congenital, environmental aspects and the general state of health. All play their part<sup>4</sup>. Surgery is the only successful form of treatment. The ideal repair should allow a patient a rapid return to normal work, leisure and recreation at a reasonable cost to the patient and the wider community<sup>5</sup>.

Various methods of open repair using either tissue suture or reinforcement with a prosthesis have been advocated for years. More recently the use of

polypropylene mesh has become popular, largely because of excellent results reported by Lichtenstein et al<sup>6</sup>.

Laparoscopic inguinal hernia repair (LHIR) was introduced following the success of laparoscopic cholecystectomy on the premise that there would be less postoperative discomfort and pain, recovery time would be reduced, repair of recurrent hernia would be easier because the repair is performed in virgin tissue, concurrent treatment of bilateral hernias, simultaneous diagnostic laparoscopy and high ligation of hernia sac would be feasible and cosmesis would be improved<sup>7</sup>. Further more, because LIHR places the prosthesis in the preperitoneal space in a tension free manner, the recurrence rate may be lower than that after conventional open inguinal hernia repair (OIH).

The current data suggest that laparoscopic hernia repair is associated with a more rapid rehabilitation than conventional open herniorrhaphy<sup>8</sup>. Most authors agree on the suitability of laparoscopic hernia repair for bilateral and recurrent hernias but there is no agreement whether laparoscopic repair should be universally adopted for a primary unilateral hernia<sup>9</sup>. Recent studies have shown debatable results about

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the different aspect of outcome of the laparoscopic mesh hernioplasty, therefore laparoscopic mesh hernioplasty for inguinal hernia needs further evaluation.

## METHOD

This case series study was conducted in the department of surgery, Lahore General Hospital, Lahore. This study included thirty five (35) patients who underwent laparoscopic mesh hernioplasty through totally extra peritoneal approach (TEPA) after fulfilling the inclusion criteria and having given the informed consent. This study was conducted from 15<sup>th</sup> August 2009 to 14<sup>th</sup> February 2010. Patients of either sex, age range between 18 and 75 years and with primary or recurrent inguinal hernia and unilateral or bilateral were included in this study. The patient's emergency presentation including irreducibility, strangulation or obstruction. Patients unfit for general anesthesia, previous lower abdominal surgery were excluded from this study. Patients were examined for 4<sup>th</sup> day for complications of wound infection, hematoma and seroma and followed for 7<sup>th</sup> day for return to normal activity and followed for one month for recurrence. All the collected data was entered into SPSS versions 11 and analyzed. Mean and standard deviation was calculated for age and hospital stay. Frequency and percentages was calculated for sex, postoperative pain by verbal rating score, return to daily activity and complications. Chi Square test was applied on complications for significance of outcome. P <0.05 was considered as significant.

## RESULTS

Right sided hernia was more common (73.9%) as compared to left sided (26.1%). Most of patients were discharged on first postoperative day and mean hospital stay is 2.3 days. Most of our patients were discharged at verbal rating score of one i.e. with mild pain. Majority of the patients returned to normal activity within one week. During the whole study period only one recurrence was noticed, which was evident just after the operation. No other recurrence was noticed in six months follow up. Immediate post operative complications cellulites of the wound were found in one patient. That only required oral antibiotics for 4 days. No deep seated infection or abscess developed in any patient. No mesh was needed to be removed. Two patient developed urinary retention. Hematoma was observed in 2 patients and was treated conservatively. No patient developed ischemic orchitis penile edema, chest infection or any other complication. 5.7% patients

developed seroma. Post operative pain was minimal and required minimal analgesia with diclofenac sodium.

Table 1: Distribution of patients by complications (n=35)

Complications	n	%age
Wound infection	1	2.9
Urinary retention	2	5.7
Hematoma	2	5.7
Seroma	2	5.7

## DISCUSSION

Inguinal hernia is common surgical problem, whose definitive treatment lies in surgical repair<sup>10</sup>. Recurrence has always accompanied hernia repair. Since Bassini's time various modifications of hernia repair have been presented but the recurrence rate has been far from being acceptable, 5-10%<sup>11</sup>.

By 1960s, it was recognized that tension on suture-line creates an area of ischemic pressure necrosis where the suture meets the tissue.<sup>12</sup> This process of necrosis progresses until there is no tension, which usually occurs when the structures have returned to their previous unsutured position and the hernia recurs through the resultant gap. By then, prosthetic mesh had been invented and available in various forms. Lichtenstein came up with the brilliant idea of reinforcing the weak posterior inguinal wall with prosthesis without disturbing the local anatomy and total absence of any suture-line tension<sup>13</sup>. After performing thousands of tension-free hernioplasties at Lichtenstein Institute, and with a recurrence and infection rates of less than 1%<sup>14</sup>, this technique has gained universal acceptance. This has been also confirmed by hundreds of other studies in thousands of repairs, with a follow up of many years<sup>15</sup>.

With the introduction of laparoscopic surgery a new technique was introduced which is attractive being acquired but could not become as popular as laparoscopic approach for cholecystectomy which is the gold standard now. A Royal College of Surgeons review of groin surgery suggests that laparoscopic repair gives less post-operative pain, a faster recovery and similar recurrence and complication rates to open repair<sup>16</sup>. LIHR has stirred a tremendous amount of controversy since its introduction. Endoscopic hernia repair has been compared with a number of open repair methods but these studies have produced confusing results. Schrenk et al, failed to demonstrate any significant benefit from either the laparoscopic or endoscopic approach<sup>17</sup>. Further more long term results are unknown. The published results for various outcome measures have been contradictory further intensifying the debate<sup>7</sup>. This

made us to conduct a study on laparoscopic repair for inguinal hernia.

We at Surgical unit-II, Lahore General Hospital, Lahore performed laparoscopic mesh hernioplasties on 35 patients, for inguinal hernia. We got encouraging results which may be compared to the international series.

Age of the patients in this study ranged from 25-70 years, our mean age is less than other studies because most of our population is young. All the patients included in this study were male.

Right sided hernia was common. The ratio of bilateral hernia was similar in my study as trend in international literature. Direct, indirect, complete and incomplete were found in study. The most common variety was indirect complete inguinal hernia. In all patients totally extraperitoneal laparoscopic herniorrhaphy was done except one, in which due to peritoneal breach during the process made us to do transabdominal preperitoneal mesh hernioplasty.

Most of patients were discharged on first postoperative day. and our hospital stay was similar as mentioned in literature. We also encouraged day care surgery. Most of our patients returned to normal activity within one week, our results of earlier return to activity were due to the fact that we encouraged the patients for early mobilization and kept pain free with oral analgesics.

Most of our patients were discharged at VRS of one i.e., with mild pain. Patients with moderate pain were also discharged but patients with post operative pain score three were kept in ward until pain score decrease to one. So the day care surgery is good reflection of less postoperative pain.

Only few of our patients suffered complications. No major morbidity was noticed. Two patients developed urinary retention which was dealt by insertion of Nelton catheter. Early neuralgia, either in the inguinoscrotal region or in lateral cutaneous nerve distribution has been reported in two patients who resolved spontaneously. Surgeons encountered difficulty in patients with previous surgery like appendicectomy makes dissection difficult for right sided inguinal hernia. We did not include the patients with previous history of lower abdominal surgery. One patient (2.86%) developed seroma, which is generally reported around 10%. We tried to limit our dissection to the hernial sac and avoid the lymphatic and iliac vessels. Our complications rate 14.29% was somewhat higher and is most probably due to learning curve. All the complications were found in initial 15 cases of the study.

The true test of any hernia repair is the recurrence rate. Most recurrences after laparoscopic repair are

probably due to individual technical errors and occur early. During the whole study period only one recurrence was noticed, which was found after 2 months of operation. No other recurrence was noticed in six months follow up.

## CONCLUSION

Laparoscopic mesh hernioplasty TEPA technique is safe to perform with less postoperative pain, hospital stay and early return to normal activity, being a good alternative to open repair.

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