

LAPAROSCOPIC INGUINAL HERNIORRHAPHY: ANALYSIS OF INITIAL EXPERIENCE

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ABSTRACT:

Objective: To evaluate our experience with laparoscopic inguinal herniorrhaphy regarding time to full recovery, return to work, complications and recurrence rate.

Patients and Methods: We retrospectively studied a consecutive series of patients who underwent laparoscopic repair of inguinal hernia at our institution. The study cohort consisted of forty patients operated by a single surgeon between 1st January 2000 to 1st January 2003. For all operations a TEPA (total extra-peritoneal approach) was used.

Setting: Department of General Surgery, Lahore General Hospital Lahore.

Main Outcome Measures: Outcome of laparoscopic inguinal herniorrhaphy

Results: The study group consisted of 38 male and 2 female patients with a mean age of 45 years (range 30 to 60 years) at the time of operation. During the study period, 50 laparoscopic inguinal hernia repairs were performed in 40 patients. Bilateral hernia repair was done in 10 patients (20%). Of the 50 procedures; one repair (2%) was done for recurrent hernias. In 20% of the patients the procedure was completed as a day case surgery. A mean follow up of 12 weeks was obtained for 36 patients (>90%). Minor complications occurred in 28% of patients, whereas major complication occurred in one patient who developed recurrence in the immediate post operative period. The median time to return to work or normal physical activity was 8-12 days for unilateral and 10-14 days for bilateral hernia repair.

Conclusion: Laparoscopic herniorrhaphy is a feasible alternative to open hernia repair.

KEYWORDS: Laparoscopy, Inguinal hernia, herniorrhaphy, complications.

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INTRODUCTION

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 inguinal herniorrhaphy was performed by Ger in 1982.¹ Since then, three laparoscopic techniques for repair of inguinal hernias have evolved, all of which incorporate the principle of tension free repair with prosthetic mesh. Specifically, these techniques are based on different anatomic approaches and include the transabdominal preperitoneal, intraperitoneal onlay and totally extraperitoneal methods of repair.²

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.³ The aim of the study was to evaluate our experience with laparoscopic inguinal herniorrhaphy since we initiated use of this technique in 2000.

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PATIENTS AND METHODS

The study group consisted of forty consecutive patients who were referred for inguinal herniorrhaphy between 2000 and 2003. At the time of diagnosis, 30 patients (75%) were mild to moderately symptomatic. The exclusion criteria included large inguinal hernia, obstructed or strangulated inguinal hernia, patients with previous pelvic surgery like appendectomy and those with co-morbidities who were unfit for general anaesthesia. The mean interval between diagnosis and operation was one week (range 4 to 9 days). Written informed consent was taken from all patients undergoing operation. Preanaesthetic evaluation was done before operation. Two patients (5%) had history of an open operation for the repair of inguinal hernia. Of the 40 patients 4(10%) had a history of benign prostatic hyperplasia and two (5%) were receiving medical treatment for chronic obstructive disease. All operations were performed by a single surgeon, who used the totally extraperitoneal Approach (TEPA). Bilateral repair was done in all patients with bilateral inguinal hernia. All operations were done under general anaesthesia. Initial access to the preperitoneal space was gained via a small 10mm infraumbilical incision through skin and linea alba, thereafter the preperitoneal space was enlarged using laparoscopically assisted blunt dissection. The preperitoneal space was maintained by insufflations of carbon dioxide at 10mmHg. Two additional working ports were introduced in infraumbilical region. One midway between pubis and umbilicus and other laterally on the side of hernia. Using a combination of sharp and blunt dissection the hernia sac and cord structures were identified. In case of indirect inguinal hernia sac was divided at the level of deep inguinal ring and proximal end was occluded with clip or ligated with Vicryl 2/0. The sac in direct hernia was pushed back. An 11x6cm piece of polypropylene mesh was then positioned to cover the entire myopectineal orifice and secured in position. Carbon dioxide was removed and mesh was not anchored. Linea Alba was stitched with Prolene No1 at the umbilical port and only

skin was stitched at other ports.

Patients were routinely examined 6 weeks postoperatively and the presence of any complication was noted. At this time the following information was specifically elicited (a) time of return to work or normal physical activity, (b) occurrence of any medical or surgical complications after dismissal that necessitated treatment elsewhere and (c) patient satisfaction about surgical outcome and particularly any evidence of recurrent hernia (defined as a clinically detectable swelling).

FOLLOW UP AND RESULTS

Forty patients underwent laparoscopic herniorrhaphy during the three-year period (n=40). Which included 38 male (95%) and 2 female (5%). Bilateral hernias were seen in 10 (20%) patients so a total of 50 repairs were done (N=50). As regards site of hernias, right sided hernias were more common seen in 22 (44%) as compared to left sided hernias seen in 18 (36%). Indirect inguinal hernia was seen in 28 (56%) and direct in 22 patients (44%). Among the intra-operative complications port side bleeding, conversion to open repair and accidental entry into peritoneum leading to trans-abdominal pre-peritoneal mesh hernioplasty was seen in 2% of cases. (Table-I)

Table-I: Intra-operative complications:
(n=50)

<i>Complications</i>	<i>Number</i>	<i>Percentage</i>
Port site bleeding	1	2
Conversion to open repair	1	2
Conversion of TEPA to TAPP mesh hernioplasty	1	2

* TAPP = Trans Abdominal Pre Peritoneal mesh hernioplasty

The mean operating time for unilateral inguinal hernia repair was 40 minutes (range 30 to 50) and for bilateral repair was 63 minutes (range 50 to 70). A reduction in operating time for both unilateral and bilateral repairs was noted over time, consisting with increased operator experience. The complications that oc-

curred within the first 6 weeks postoperatively are summarized in (Table-II). Minor complications were noted in 28% of cases and were managed conservatively in most patients except two patients having stitch sinus. Major complication was noted in one patient who developed recurrence in recovery just after operation. The suspected cause was diffuse laxity of the abdominal wall which was not corrected laparoscopically.

Table-II: Post operative complications:
(n=50)

Complications	Number	Percentage
Scrotal Haematoma	02	4
Pain	06	12
Cellulitis	02	4
Stitch Sinus	01	2
Urinary Retention	02	4
Recurrence	01	2
Neuralgia	0	0

A mean duration of follow-up of 6 weeks was obtained on 36 patients (>90%). Follow-up data was not available for four patients. Work or normal physical activity was resumed at a median of 10 days (range 8 to 12 days) after unilateral repair. After discharge six patients (16.66%) sought treatment elsewhere for minor complications. Three patients (8.3%) were not fully satisfied with the surgical outcome. Patient with recurrent hernia and those with persistent groin pain were included in this group.

DISCUSSION

We have presented our initial experience with TEPA laparoscopic inguinal hernia repair. Our preliminary results are encouraging and are consistent with trends in the literature.² Important short-term outcome measures include a recurrence rate of 2% and an overall current patient satisfaction rate of 80%. Of the 50 repairs, two (4%) were performed for recurrent hernias. As expected, patients returned to work or normal physical activity within a short period of the surgical procedure- a median of 10 days for laparoscopic repair. There is a definite economic benefit of early return to work.⁴

The recurrence rate associated with herniorrhaphy has traditionally been the single most important outcome measure. Our recurrence rate of 2% during a mean follow up of 6 weeks for the laparoscopic approach compares favourably with other reported series of similar size and duration of follow up after use of the open technique. Long term follow up is also likely to identify more patients with recurrence. Previous experience with laparoscopic inguinal herniorrhaphy, however indicates that most recurrences¹ develop within the 1st year post operatively² These are the results of errors in techniques³ are related to long learning curve.⁵⁻⁶ Apart from recurrent hernia in one patient, other procedure related complications were noted in this series.

There were few complications, early neuralgia either in the inguinoscrotal region or lateral cutaneous nerve has been noted and usually resolved spontaneously. Like previous authors we also encountered difficulty in patients with previous surgery.⁷ We no longer advocate laparoscopic dissection in patients who have had a previous appendectomy for fear of tearing the peritoneum and obliterating the operative space. We also recognize that our two patients who developed seroma have been described by other authors as well.^{8,9} The true test of any hernia repair is the recurrence rate. Most recurrences after laparoscopic repair are probably due to technical error and occur early. We had recurrence in the recovery room during postoperative recovery. Several direct recurrences have developed in other series needing re-operation demonstrating mesh migration in an interior direction in each case. We know that some other surgeons in our region who have documented similar recurrences but still continue not to fix the mesh.

Despite legitimate concerns about the invasive nature of laparoscopic inguinal herniorrhaphy and the absence of long term follow up; this procedure will most likely continue to be performed selectively by experienced laparoscopic surgeons. One consequence of the introduction of laparoscopic tension-free repair

has been an emphasis on patient centred outcomes, such as degree of pain, time off from work, quality of life, functional status, long term consequences and patient satisfaction.

Limitations of the study: Because of the retrospective nature of our study, we have not been able to address these issues fully. In addition, we have not evaluated the cost of laparoscopic repair or compared it with conventional open surgical treatment of inguinal hernia at our institution. Nevertheless, an objective assessment of the current published literature would support the continued selective use of laparoscopic inguinal herniorrhaphy.

CONCLUSIONS

In conclusion, the results of the current study indicate that laparoscopic inguinal herniorrhaphy is a feasible alternative to open inguinal hernia repair.

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