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Original Research Article

Laparoscopic repair of primary unilateral inguinal hernia is it to pamper the ego of the surgeon

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ABSTRACT

Background: The study compared the procedure of open Lichtenstein tensionless repair of primary unilateral incomplete uncomplicated inguinal hernia with laparoscopic preperitoneal repair by TEP in a rural secondary level hospital for plantation workers. The aim of the study was to compare both the procedures and if laparoscopic repair had any specific advantage over the conventional open repair with specific relation to time of return to work, recurrence and cost effectiveness of the procedures.
Methods: This was a prospective study involving 200 cases which were detected and operated between 2006 and 2014 at our hospital and subsequently followed up till 2016 which is 2 years. The patients selected were plantation workers.
Results: In all 200 cases got enrolled in the study 100 underwent open tensionless Lichtenstein repair and 100 of them underwent Laparoscopic repair-TEP.
Conclusions: Primary unilateral uncomplicated incomplete inguinal hernia repaired by laparoscopic method has no distinct advantage with reference to return to work recurrence of hernia and the cost involved is more as compared to open Lichtenstein repair.

Keywords: Inguinal hernia, Lichtenstein tensionless hernioplasty, LPPR- TEP

INTRODUCTION

An inguinal hernia is a protrusion of abdominal-cavity contents through the inguinal canal. About 25% of males and 2% of females develop inguinal hernias; this is the most common hernia in males and females. Data from developing countries is limited hence the exact prevalence and incidence is not known.[1,2] Gender and anatomic distribution of Hernias is believed to be similar to developed countries. The hernias occur in the groin in adults. This is the most common type of hernia and it mainly affects men. It is said to be often associated with ageing and repeated strain on the abdomen. Inguinal hernias account for 75% of all abdominal wall hernias with a lifetime risk of 27% in men and 3% in women.[3]

There have been many studies comparing laparoscopic repair of unilateral inguinal hernia with the open Lichtenstein repair and there are conflicting reports about which procedure is more superior.[4] Most of the studies show a marginal increase in the in recurrence following a laparoscopic procedure.[6,7] There is universal consensus in the long learning curve and the procedure needing more time, the need for general anesthesia the exposure to the inherent complications associated with a laparoscopic procedure.

METHODS

Present study was done in a rural secondary level hospital in a closed population of tea estate workers and the cost of the procedure was borne by the parent company as a part of corporate social responsibility. The follow up of cases was very complete and the surgical service was available free of cost to all the workers. All cases in the study were operated in similar circumstances and the groups compared were from similar economic and social strata. This was a prospective study involving 200 cases which were detected and operated between 2006 and 2014 at our hospital and subsequently followed up till 2016 which is 2 years. The patients selected were plantation workers and the youngest patient was 24 years of age and the oldest was 58.

Patients over 20 years old who presented with clinically diagnosed, unilateral inguinal hernia (reducible incomplete uncomplicated) were scheduled to undergo surgical repair under general anesthesia/spinal anesthesia were eligible for the study. Excluded from the study were patients less than 20 years of age and patients over 60 years of age and those who had comorbid conditions of hypertension, diabetes mellitus, and patients with the history of one sided hernia repair and recurrent inguinal hernia and bilateral inguinal hernias.

A standardized history was obtained, and a physical examination performed. Before randomization, the patients were told both orally and in writing that they should resume normal activity after surgery, including work and sports, when they felt able to do so. It was emphasized that this recommendation applied to both surgical techniques. The patients were randomly assigned to either conventional Lichtenstein repair or laparoscopic repair TEP. The patient's selection as to which procedure they were to undergo was random and by consent as the postoperative convalescence period was same in both cases because of the nature of work. The patients were briefed in detail about the procedure and written consent obtained. Case numbers and the type of repair done was as tabulated in Table 1. The surgical team comprised of two general surgeons who had been certified in doing laparoscopic procedures and had done independently over 50 procedures.

Table 1: Total number of inguinal hernioplasty in adult patients 2006-2014.

Years	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
Lichtenstein repair	08	06	12	12	20	14	06	10	12	100
Laparoscopic mesh repair	04	08	10	12	12	18	10	10	16	100
Total	12	14	22	24	32	32	16	20	28	200

The open repair consisted of a reduction of the hernia, ligation of the hernial sac with reinforcement of the floor with a monofilament polypropylene undyed nonabsorbable mesh measuring 6cm x 11cm sutured in the standard fashion and enclosing the cord under spinal anesthesia. The average operating time was around 45 minutes. None of the patients were catheterized. The operating time ranged from 30 to 45 minutes. The laparoscopic technique in all the cases were done as TEP and all of them under general anesthesia. Balloon dissection was used to develop the preperitoneal space without entering the abdominal cavity. Extensive lateral dissection was performed, with isolation and manipulation of the structures of the spermatic cord. A polypropylene mesh (10cm by 15cm) was placed over the myopectineal orifice. The mesh was not split and was not fixed in place. All patients were catheterized preoperatively and the catheter removed within 12 hours following the operative procedure. The operative time ranged from 60 minutes to 90 minutes. Baseline characteristics of both the groups and operative details with early postoperative complications is tabulated as is in Table 2 and Table 3. Prophylactic antibiotic therapy comprising of single dose of a second-generation cephalosporin was given in both the groups in all cases after confirming that the individual had no history of known allergy to the drug.

Table 2: Baseline characteristics of 200 unilateral primary inguinal hernia patients operated by open or laparoscopic method.

Characteristics	Open Lichtenstein repair N= 100	Laparoscopic TEP repair N= 100
Age in years	24 -53	24-58
Average weight (kgs)	64	64
Hernia side		
Left	46	42
Right	64	54
Indirect	74	64
Direct	26	32
Presentation		
-groin lump	84	84
-pain groin	16	12
Hospital stay	±03 days	±03 days

There were no intraoperative complications in the group of open repairs. In the second group of laparoscopic

repairs in 05 cases there was accidental puncture into peritoneal cavity needing a Veress needle decompression to improve visualization and 02 cases there was accidental bleeding from inferior epigastric vessels however they were controlled laproscopically. Follow up revealed recurrence in 02 cases detected at 03 months and 06 months.

RESULTS

The study involved male plantation workers referred from the estates for surgical intervention. The aim of the study was to compare both the procedures and if laparoscopic repair had any specific advantage over the conventional open repair with specific relation to time of return to work, recurrence and cost effectiveness of the procedures.

In all 200 cases got enrolled in the study 100 underwent open tensionless Lichtenstein repair and 100 of them underwent Laparoscopic repair-TEP. The baseline characteristics of the patients is tabulated in Table 2 and the surgical details including the postoperative complications have been tabulated in Table 3. All cases which were done laproscopically were operated under general anesthesia and the group which underwent open repair 96 were done under spinal anesthesia and 04 cases were done under general anesthesia with LMA as the patients refused spinal anesthesia. Average operating time was 45 minutes for open repair and 90 minutes for laparoscopic cases. All laparoscopic cases were done by TEP procedure and the mesh was not fixed. There was recurrence in 02 cases both were from the laparoscopic group.

Table 3: Characteristics of surgery and postoperative complications.

Characteristic	Lichtenstein repair	Laparoscopic repair-TEP
Spinal anesthesia	96	None
General anesthesia	04	100
Operating time (minutes)	Average 45 minutes	Average 90 minutes
Mesh fixation	Fixed using Prolene suture	No fixation used
Prophylactic antibiotics	30	100
Operative complications needing conversion	None	None
Arterial bleeding needing clips/ligature	None	02
Pneumoscrotum	None	03
Seroma at 06 weeks	None	04
Groin pain at 03 months	None	None
Wound induration	04	None
Accidental puncture into peritoneal cavity	None	05
Recurrence	None at end of 02 years	02 at end of 02 years

DISCUSSION

The description of the Lichtenstein tension-free mesh repair, about 16 years ago, opened a new era in groin hernia repair.[7] Postoperative pain is minimal, as a result of the tension-free technique. The method is very simple, effective, is associated with a very low recurrence rates (ranging from 0 to 2% in the literature) and can be performed under local or regional anesthesia.[9-11] This study demonstrated that open tensionless Lichtenstein's mesh hernioplasty for a unilateral uncomplicated incomplete inguinal hernia is associated with shorter operative time, there was no difference in the hospital stay or no difference in resuming work and the cost incurred was about 25% less as compared with LPPR-TEP.

Various studies have always agreed to that the learning curve for the LPPR-TEP is a steep one and the patient is also exposed to a certain degree of risks inherent to a minimally invasive procedure which reduces with experience. This study was done to establish that open mesh procedures are equally effective means of repair especially when dealing with a population of workers where medical and surgical facilities are being extended as a free facility. Apart from the advantage of open mesh repair the study this also shows that basic laparoscopic procedures and LPPR-TEP and TAP may be attempted with relative safety in a rural area without any additional risk to the patient. The purpose of this study was not to direct surgeons away from the laparoscopic procedure but to highlight the fact that the conventional approach has not lost its place in the ever promising and rapidly advancing field of minimally invasive and robotic surgical procedures.

CONCLUSION

The study reaffirms that for a primary one sided inguinal hernia without any complication the standard open repair

is as good as the laparoscopic procedure, the time taken is less there is no need for general anesthesia and the cost of the procedure is almost 25% less than the laparoscopic procedure and there is no increase in the requirement of analgesia and no increased financial burden of being away from work.

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Ethical approval: The study was approved by the institutional ethics committee

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