

# Evaluation of Lichtenstein's Tension-free Hernioplasty in Inguinal Hernia

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## Abstract

**Background:** Hernia is a Greek word meaning offshoot, budding or bulge. A hernia is protrusion of a viscous or a part of viscous through abdominal opening in the wall of containing cavity. Hernia commonly develops in the area of weakness and groin is one of the natural weak areas in abdominal wall.

**Aims and Objectives:** Since the hernia is a very common surgical problem and there are various methods of repair available. It will be the endeavor of this study to evaluate the results of one of the simple technique "Lichtenstein tension-free hernioplasty."

**Materials and Methods:** This study was conducted on 50 patients admitted in the Postgraduate Department of Surgery in Government Medical College, Jammu, for inguinal hernia surgery during the period of January 2004-September 2005.

**Inclusion Criteria:** All patients with groin hernia.

**Exclusion Hernia:** Patient with serious cardiovascular or renal complications.

**Result and Conclusion:** Open surgery for inguinal hernia repair is safe. The recurrence rate (hernias that require two or more repairs) is low when open hernia repair is done by experienced surgeons using mesh patches. Synthetic patches are now widely used for hernia repair in both open and laparoscopic surgery. The chance of a hernia coming back after open surgery ranges from 1 to 10 out of every 100 open surgeries done.

**Key words:** Abdominal, Bulging, Hernia, Lichtenstein's

## INTRODUCTION

Hernia is a Greek word meaning offshoot, budding or bulge. A hernia is protrusion of a viscous or a part of viscous through abdominal opening in the wall of containing cavity. Hernia commonly develops in the area of weakness and groin is one of the natural weak areas in abdominal wall.

Inguinal hernia is among the most common problems encountered by the surgeon affecting people in all age

group. Inguinal hernia usually present as a swelling accompanied by pain or dragging sensation in the groin. Most hernia can be diagnosed based on the history and clinical examination. Inguinal hernia is broadly classified as direct or indirect type depending on herniation in relation to the inferior epigastric vessels in the abdominal wall and the Hesselbach's triangle.

An indirect hernia passes lateral to inferior epigastric and is just outside the Hesselbach's triangle while a direct hernia is medial to inferior epigastric vessels and therefore within the confines of Hesselbach's triangle. Inguinal canal, following the descent of the testis into the scrotum, remains as a triangular cleft between two main musculoaponeurotic layers of the abdominal wall, i.e., superficial external oblique layer and the deep transverses abdominis layer. The inguinal canal begins at the lateral margin of deep inguinal ring and ends at the medial margin of superficial inguinal ring, averaging in an adult about 4 cm in length. Through

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the canal spermatic cord travels from a preperitoneal to a subcutaneous position.

The anterior wall at inguinal canal is mainly formed by aponeurosis of the external oblique muscle and at the lateral end by the internal oblique muscle. Inferior wall of the canal is formed by the inguinal ligament (Poupart's) ligament and the lacunar (Gimbernat's) ligament. Posterior wall of the inguinal canal is formed by the aponeurosis of transverses abdominis muscle and fascia transversalis and medially by the internal oblique aponeurosis. Roof of the canal is formed by the arched fibers of lower edge of the internal oblique muscle and transverses aponeurosis.

This vulnerable inguinal canal in the man is protected by two guards first described by Cooper in 1807. It consists inferiorly by the inguinal ligament (Poupart ligament) and superiorly by combined internal oblique and transverse abdominal muscle. When relaxed there is an interval between the muscle and the inguinal ligament, which is supported by thin fascia transversalis. This is the only weak area in the abdominal wall not supported by any musculoaponeurotic layer. During exertion these muscles approximate to the inguinal ligament thus closing the gap. This is the shutter mechanism which normally reinforces this weak anatomic area.

Much controversy surrounds the question of the causation of inguinal hernia. It is assumed that three factors are involved:

- A. The presence of preformed sac
- B. Repeated elevation of intra-abdominal pressure
- C. Weakening of body muscles and tissues with time.

### Aims and Objectives

Since the hernia is a very common surgical problem and there are various methods of repair available. It will be the endeavor of this study to evaluate the results of one of the simple technique "Lichtenstein tension-free hernioplasty." Since the method is quite appealing as regard to its safety and success rate it was contemplated to analyze the result of this method in 50 patients suffering from inguinal hernia, who were admitted in the Postgraduate Department of Surgery in Government Medical College Hospital, Jammu, during the period January 2004-September 2005.

## MATERIALS AND METHODS

This study was conducted on 50 patients admitted in the Postgraduate Department of Surgery in Government Medical College, Jammu, for inguinal hernia surgery during the period of January 2004-September 2005. The diagnosis of inguinal hernia was solely made on the basis of history

and clinical examination. The patients were worked up preoperatively as per pro forma. Surgery was performed under local, spinal, epidural, or general anesthesia.

Infiltration technique was used for local anesthesia. Local anesthesia consists of 0.5% lignocaine and 0.25% bupivacaine. Subcutaneous infiltration of local anesthetic was done along the length of proposed skin incision. Skin incision was deepened down to the external oblique aponeurosis. Before incising this layer, the infiltration needle tip is inserted and 5-10 ml of local anesthetic solution was injected and allowed to flood the space below the external oblique.

## OBSERVATION

The age of patients varied from 18 to 70 years. The youngest age group was 18.5-year-old patients, and the oldest was 80-year-old male patient. Majority of patients were in the age group of 40-50 years (Tables 1-12).

## DISCUSSION

The treatment of hernia started early with the use of trusses and bandages to control the herniation later Paul of aegina (700), described a method consisting of a mass

**Table 1: Distribution of patients according to age**

Age (years)	Number of patients (%)
10-20	4 (8)
20-30	7 (14)
30-40	8 (16)
40-50	14 (28)
50-60	9 (18)
60-70	6 (12)
70-80	2 (4)

**Table 2: The distribution of patients according to occupation**

Occupation	Number of patients (%)
Manual worker	24 (48)
Sedentary worker	10 (20)
Retired from service	16 (32)

**Table 3: The patient with associated comorbid condition**

Comorbid condition	Number of patients
Hypertension	2
Ischemic heart disease	2
DM	1
COPD	2

DM: Diabetes mellitus, COPD: Chronic obstructive pulmonary disease

**Table 4: Distribution of patients according to the side of hernia**

Side of hernia	Number of patients (%)
Right side	30 (60)
Left side	13 (26)
Both sides	7 (14)

**Table 5: The percentage of direct and indirect inguinal hernia**

Type of hernia	Number of patients (%)
Indirect	36 (72)
Direct	12 (24)
Direct/indirect	2 (4)

**Table 6: Type of indirect hernia**

Types of indirect hernia	Number of patients (%)
Incomplete	30 (60)
Complete	6 (12)

**Table 7: Type of anesthesia given for surgery**

Anesthesia given	Number of patients (%)
General	1 (2)
Spinal	35 (70)
Epidural	10 (20)
Local	4 (8)

**Table 8: The cases done by various grades of surgeons**

Grades of surgeons	Number of patients (%)
Registrar and PG	36 (72)
Consultant	14 (28)

ligature of the sac and cord at the external ring with excision of the sac, cord and testis distal to ligature. The history of hernia repair is replete with the instances of the surgeon in search of better and better techniques which could be patient friendly, easy to learn and practice. This in turn required better understanding of the anatomy and etiology of hernia.

This started practically with Bassini (1887) and continues till date. Although the concept of inguinal herniorrhaphy, described by Albert Edoardo Bassini has stood the test of time but recurrence was 8-10%<sup>4,6</sup> many techniques of inguinal herniorrhaphy were known till date. It was Lichtenstein (1989) that challenged the concept of both the darn technique and should ice operation. Inguinal hernia is more common in males. Amid *et al.*,<sup>1</sup> in his study

**Table 9: The time consumed for surgery**

Time in minutes	Number of patients
25-35	12
35-45	25
45-55	9
55-65	4

**Table 10: Ambulation of patients after surgery**

Ambulation after surgery	Number of patients (%)
Immediately	4 (8)
1 <sup>st</sup> POD	46 (92)

POD: Post-operative day

**Table 11: Distribution of cases according to the pain score**

VAS of pain	Number of patients (%)
Mid (1-3)	42 (84)
Moderate (4-6)	8 (16)
Severe (7-10)	0 (0)

VAS: Visual analog score

**Table 12: The postgraduate complication**

Complications	Number of patients (%)
Ecchymosis	1 (2)
Seroma	3 (6)
Wound infection	2 (4)
Scrotal swelling	1 (2)
Preputial edema	0 (0)
Hydrocoele	0 (0)
Numbness or anesthesia in groin	2 (4)
Injury to bowel/bladder/VAS	0 (0)

VAS: Visual analog score

of 4000 patients with inguinal hernia reported that all his patients were males.

Plumbo *et al.* reported an incidence of 64% of indirect inguinal hernia, 19.2% direct hernia, and 16.3% combined inguinal hernia. Massino and Mauro<sup>3</sup> also reported similar figures in this study. Kruzer and Kark<sup>7</sup> reported the occupation of 3175 patient with inguinal hernia; 31% were office workers, 37% were manual worker, and 32% were retired. While our study showed 48% were manual workers. Nordin and Barteimess<sup>9</sup> reported that mean duration of 54 min for Lichtenstein repair. Leibi and Schmedt,<sup>8</sup> Bittner and Schmedt<sup>2</sup> reported 5% complication in trans abdominal pre-peritoneal (TAPP). Nordin and Barteimess,<sup>9</sup> Wright *et al.* no significant difference in pain between Lichtenstein and TAPP.

Although there has been an increased incidence of complications reported in endoscopic repair in the earlier

series, this can be explained partly by the fact that it was in the early part of the learning curve of most endoscopic surgeons. As the experience grew and the techniques were standardized, the incidences of complications have also reduced and have come to be on par with open hernia surgery.

Eight controlled randomized studies were identified suitable for the analysis. The mean duration of the operation was shorter in Lichtenstein repair (SMD = 6.79 min, 95% confidence interval [CI], -0.68-14.25), without significant difference. Comparing both techniques, patients of the laparoscopic group showed postoperatively significantly less chronic inguinal pain (odds ratio = 0.42; 95% CI, 0.23–0.78). Analyses of the remaining outcome measures did not show any significant differences between the two techniques.<sup>10,11</sup>

The results of laparoscopic TAPP repair are comparable with Lichtenstein repair in terms of intraoperative and post-operative complications, success and short-term recurrence rates. Although operative time was significantly higher than Lichtenstein group, laparoscopic TAPP enable the patients to return to work earlier. More practice is essential to make operative time comparable to Lichtenstein repair.

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