

Article

# Preperitoneal meshplasty versus lichtenstein's hernioplasty in patients with inguinal hernia

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**Abstract:** **Aim:** To compare preperitoneal meshplasty and Lichtenstein's hernioplasty in patients with inguinal hernia.

**Methodology:** A total of one hundred six cases of inguinal hernia were included in the study. Patients were divided into two groups of 53 each. Group I patients underwent preperitoneal meshplasty, and group II patients underwent Lichtenstein's hernioplasty technique of inguinal hernia repair. Parameters such as time taken for surgery early complications were recorded.

**Results:** Group I had 22 males and 18 females, and group II had 25 males and 15 females. The mean time of surgery in group I was 46.2 minutes, and in group II was 55.2 minutes. An early complication was seroma two each in group I and 1 in group II, wound infection 3 cases in group I and 2 in group II, pain 2 in group I, mesh infection 3 in group I and 1 in group II and testicular atrophy 1 in group I. The difference was significant ( $P < 0.05$ ).

**Conclusion:** Both techniques such as preperitoneal meshplasty and Lichtenstein's hernioplasty were effective in management of inguinal hernia.

**Keywords:** Hernia; Inguinal; Preperitoneal meshplasty; Lichtenstein method.

## 1. Introduction

**T**he hernia is mainly defined as a protrusion, bulge, or projection of an organ or a part of an organ through the body wall that normally contains it [1]. Inguinal hernias account for 75% of abdominal wall hernias, with a prevalence of 1.7% for all ages and 4% for those aged over 45 years [2]. To date, the mechanism of the testicular descent is speculative, with various hypotheses being put forth, the most recent one being that of "WATER-TRAP," which was made by Heyns and Deklerk. The abnormalities in the descent result in ectopic or undescended testes [3]. The undescended testis, which is found in more than 90% of the cases, is associated with congenital inguinal hernias. Congenital inguinal hernias are common in infants and children, for which surgery constitutes the most frequent method of treatment in the pediatric age-group [4,5]. Risk factors for developing a primary inguinal hernia are male gender and old age, a patent processus vaginalis, systemic connective tissue disorders, and a low body mass index [6].

There have been a number of erudite reviews on the history of hernia and its treatment. The final word on surgery for hernia is yet to be heard. Today new techniques are being explored and introduced frequently in inguinal hernia surgery [7]. In a study of 36 patients with occult hernias, magnetic resonance imaging was found to be superior to both ultrasonography and computerized tomography. Improvement in surgical techniques, together with the development of new prosthetic materials and a better understanding of how to use them, have significantly improved the outcome for many patients [8]. Lichtenstein's method of hernioplasty and preperitoneal meshplasty are commonly used methods for the management of hernia [9]. This study was selected with the aim to compare preperitoneal meshplasty and Lichtenstein's hernioplasty in patients with inguinal hernia.

## 2. Methodology

A total of one hundred six cases of inguinal hernia were included in the study. It comprised 68 males and 38 females. The study was approved by form institutional ethical clearance committee with the written consent

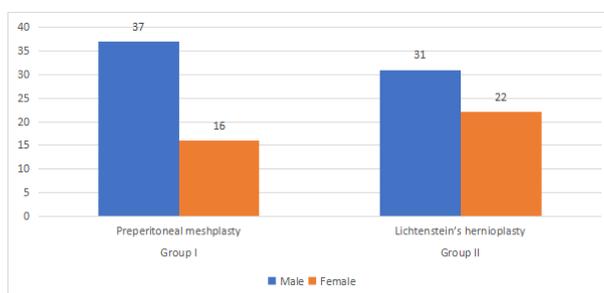
of all enrolled patients. Data related to patients, such as name, age, gender, etc., were recorded. Patients were divided into two groups of 53 each. Group I patients underwent preperitoneal meshplasty, and group II patients underwent Lichtenstein's hernioplasty technique of inguinal hernia repair. Parameters such as time taken for surgery early complications were recorded. Results of the study were compiled and further subjected for statistical inference where the level of significance was set below 0.05.

### 3. Results

Group I had 37 males and 16 females and group II had 31 males and 22 females (Table 1, Figure 1).

**Table 1.** Distribution of patients

Groups	Group I	Group II
Method	Preperitoneal meshplasty	Lichtenstein's hernioplasty
Male	37	31
Female	16	22



**Figure 1.** Graphically distribution of patients

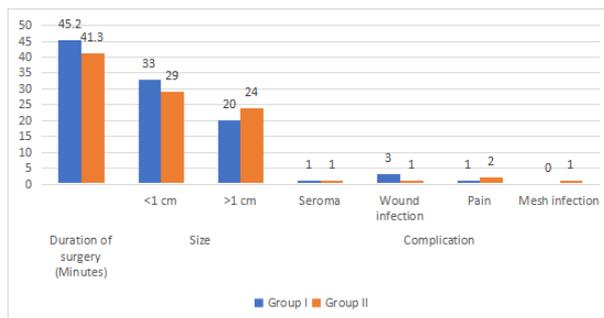
The mean time of surgery in group I was 45.2 minutes, and in group II was 41.3 minutes. The size was <1 cm seen in 33 in group I and 29 in group II and >1cm seen in 20 in group I and 24 in group II. Early complications were seroma 1 in group I and 1 in group II, wound infection 3 in group I and 1 in group II, pain 1 in group I and 2 in group II, mesh infection 1 in group II and testicular atrophy 1 in group I. A non-significant difference was observed (Table 2, Figure 2).

**Table 2.** Assessment of parameters

Parameters	Variables	Group I	Group II	P value
<b>Duration of surgery (Minutes)</b>		45.2	41.3	>0.05
<b>Size</b>	<1 cm	33	29	>0.05
	>1 cm	20	24	
<b>Complication</b>	Seroma	1	1	>0.05
	Wound infection	3	1	
	Pain	1	2	
	Mesh infection	0	1	
	Testicular atrophy	1	0	

### 4. Discussion

An inguinal hernia is a protrusion of the abdominal cavity and its contents through the inguinal canal. It is very common in men with a lifetime risk of 27% and 3% for women [10,11]. Inguinal hernias account for 75% of all abdominal wall hernias with a lifetime risk of 27% in men and 3% in women. Inguinal hernias present with a lump in the groin that goes away with minimal pressure or when the patient is lying down [12]. Most cause mild to moderate discomfort that increases with activity. A third of patients scheduled for surgery have no pain, and severe pain is uncommon (1.5% at rest and 10.2% on movement). A reducible protrusion in the inguinal region is definitive evidence of an inguinal hernia and needs no further diagnostic



**Figure 2.** Graphically assessment of parameters

evaluation beyond physical examination [13,14]. This consists of inspection followed by palpation of the patient's groin in the standing and the supine positions, including digital exploration of the inguinal canal. An inguinal hernia can be distinguished from a scrotal hernia with an accompanying hydrocele by palpation, with the aid of diaphanoscopy if necessary, before further studies such as ultrasonography are performed [15]. In contrast, non-reducible inguinal masses always need further diagnostic evaluation, even if they are asymptomatic. A meta-analysis confirmed the utility of ultrasonography for this purpose, with 96.6% sensitivity, 84.8% specificity, and a positive predictive value of 92.6% [16,17]. This study was selected with the aim to compare preperitoneal meshplasty and Lichtenstein's hernioplasty in patients with inguinal hernia.

In this study, the group I had 37 males and 16 females, and group II had 31 males and 22 females. In the 2009 guidelines, the extraperitoneal approach (TEP) was preferred to the transabdominal approach (TAPP) because of a supposedly lower complication rate, but this has been clearly refuted since. According to the guidelines of the International Endohernia Society (IEHS), the two approaches have similar rates of severe complications and recurrences (evidence level 1) and can thus be considered clinically equivalent (recommendation grade A). There is no need for further debate over which of these two techniques to use, but the surgeon must have the requisite expertise in whichever one he or she mainly uses. The learning curve for laparoscopic/endoscopic hernia repair is longer than that for open repair by the Lichtenstein technique (evidence level 3–4) [18].

Our study showed that the meantime of surgery in group I was 45.2 minutes, and in group, II was 41.3 minutes. The size was <1 cm seen in 33 in group I and 29 in group II and >1cm seen in 20 in group I and 24 in group II. Fenoglio ME *et al.*, [19] found all the patients operated electively for uncomplicated inguinal hernia over a period of one year. They were operated by various methods and followed. There was a total of 130 cases of inguinal hernia repair during the study period. One hundred sixty cases were operated by the Lichtenstein method of hernioplasty, 17 by Preperitoneal meshplasty, and 13 by TEP. Lichtenstein repair and endoscopic/laparoscopic techniques have similar efficacy. It is found that Lichtenstein's tension-free repair is standard and cost-effective. A further retrospective study of 234 patients with incarcerated inguinal hernia, nearly all of whom underwent mesh-based repair, was published very recently. Bowel resection was needed in 13.7% of cases. Fourteen patients (6%) had wound infections. The recurrence rate was only 0.9% on clinical follow-up, with a median observation time of 62.5 months. The authors concluded that mesh-based repair of incarcerated inguinal hernia is reasonable and safe even if bowel resection is needed [20].

## 5. Conclusion

Authors found that both techniques such as preperitoneal meshplasty and Lichtenstein's hernioplasty were effective in management of inguinal hernia.

**Author Contributions:** All authors contributed equally to the writing of this paper. All authors read and approved the final manuscript.

**Conflicts of Interest:** "The authors declare no conflict of interest."

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