

Original research article

A Comparative Study Of Lichtenstein Tension Free Mesh Repair Vs Transinguinal Pre-Peritoneal Mesh Repair For Inguinal Hernias

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Abstract

Introduction:

Inguinal hernia surgery is among the most common surgical procedures performed globally. The Lichtenstein tension-free hernioplasty is presently regarded as the standard procedure globally. Which method is the best, though, is still up for debate. When compared to nonmesh repair, the Lichtenstein tension free hernioplasty considerably reduced the rate of recurrence in inguinal hernia, which ranged from 2 to 5%. However, it has been reported that 15–40% of patients experience chronic groyne discomfort, which is currently the most common consequence following LTF hernioplasty. The International Association for the Study of Pain (IASP) defines chronic pain as "any VAS score above zero that lasts for more than three months." Although the underlying causes of the complex incidence of persistent groyne pain are poorly understood, Following surgery, chronic groyne pain can develop for a variety of reasons, including nerve entrapment by sutures or mesh, inflammatory response to the mesh, foreign body reaction, and biocompatibility of the mesh. Pre-peritoneal sutureless mesh placement with transinguinal pre-peritoneal hernioplasty has been hailed as a safe anterior access. This method is also less expensive and has a lower learning curve. When compared to Lichtenstein's tension-free technique, the TIPP technique is supposedly associated with less persistent groyne discomfort after surgery since the mesh is placed in the pre-peritoneal plane, preventing nerve damage.

Keywords: Comparative, lichtenstein tension free mesh repair, transinguinal pre-peritoneal mesh repair, inguinal, hernias

Introduction

The term "hernia" comes from a Greek word that literally means "rupture," which is where the word originated. An abnormal protrusion of tissue or a part of it through the wall of its enclosing cavity is what's known as a hernia. [Case in point:] [Case in point:] [Case in point:] In spite of the fact that a hernia can form in a number of different locations, the anterior abdominal wall, more typically the groyne region, is the most prevalent location for these defects to take place. Hernias in the abdominal wall are most likely to form in areas where the fascia and aponeurosis are not surrounded by striated muscle. The inguinal region (which accounts for approximately 75% of all hernias), the Linea Alba, the sites of a previous incision, the femoral and umbilical regions, and the lower portion of the semilunar line are the most often involved areas. Inguinal hernia repair is among the most commonly performed surgical interventions worldwide. The morbidity and recurrence rates of inguinal

hernia repair have significantly decreased over the past two decades thanks to the introduction of tension-free hernia repair with mesh and laparoscopic inguinal hernia repair. Inguinal hernia repair is among the most commonly performed surgical interventions worldwide. Since Bassini revealed his monumental approach of anatomical tissue repair (1,2) of inguinal hernia in 1887, several modifications have been suggested. Bassini is credited with pioneering the field. After Usher (3) first the additional use of prosthetic material in 1958, there has been an evolution in the surgical treatments that are performed all over the world for the repair of hernias. Pre-peritoneal mesh repair (Open), which was developed by Stoppa (4), was discovered to significantly reduce the recurrence rate among patients who had experienced recurrent groin hernias. In 1989, Lichtenstein was the first person to present the idea of tension-free meshplasty as a treatment option for inguinal hernia (5). Inguinal hernias can be broken down into two categories: indirect (up to 75%) and direct (up to 25%). In the case of an indirect inguinal hernia, the sac moves obliquely through the deep inguinal ring, then moves through the superficial inguinal ring, and then enters the scrotum. Direct inguinal hernias, on the other hand, bulge forward and outward and are located medial to the inferior epigastric artery. Even while it is possible that a direct inguinal hernia and an indirect inguinal hernia can be difficult to distinguish at times, the difference between the two types of hernia is not significant because the surgical method for either type of hernia is the same. An individual is said to have a pantaloon hernia if they have both an indirect and a direct component to their hernia (6).

Aims and Objectives

In this study, our objective is to determine whether or not transinguinal pre-peritoneal mesh repair has a role in the reduction of the incidence of chronic groin pain without having an effect on the rate of post-operative complications such as the recurrence of hernias. In addition, to evaluate: operative time, recovery time in the hospital, and time before returning to routine activities. Complications (include recurrence, infection of the mesh or wound, and creation of seroma or hematoma)

Materials and Methods

According to the proforma, a detailed history was taken for each of the 60 patients who were admitted, and pertinent clinical examinations were performed on each patient. All of the patients were given the option of having their inguinal hernias repaired using either the LTF or the TIPP method, and they were informed of the benefits, drawbacks, and potential risks associated with each approach. After it was determined that the patients were healthy enough to undergo surgical treatment, the patients were categorised into groups according to the type of surgical procedure that each individual patient desired. This interventional study included a total of sixty patients, and those patients were divided into two groups of thirty patients each. Of those patients, one group (group A) underwent surgical treatment in the form of LTF mesh repair, and the other group (group B) underwent surgical treatment in the form of TIPP mesh repair (group B). In accordance with the antibiotic policy of the hospital, an injection of prophylactic antibiotic (Inj.Cefuroxime) was administered prior to the incision. After the surgery, the patients were not allowed to have anything to eat or drink and were instructed to remain in bed completely until the effects of the spinal anaesthetic wore off. They also received IV fluid maintenance. Patients were urged to get up and move around as soon as possible and to get back to their regular activities as soon as they could. Cefuroxime, a prophylactic oral antibiotic, was ordered to be taken orally for the next five days, and intravenous antibiotics were administered for the first twenty-four hours. Analgesics were administered twice daily for a length of time spanning from three to five days, and then they were changed into an oral form as soon as it was possible to do so. At two weeks and six months following surgery, the visual analogue scale was utilised to conduct an analysis of both groups' post-operative pain levels. A Visual Analogue Scale

(VAS) was used to determine the level of pain experienced by the subject [ranging from 0 (no pain) to 10 (agonising pain)]. The Visual Analogue Scale, sometimes known as the VAS, is a subjective measurement tool used to assess pain. Patients are asked to rate their level of pain according to the intensity of the discomfort they are experiencing at the moment. This VAS score can be used as a baseline amount for the measurement of pain, and follow-up scores can indicate whether or not the level of pain is decreasing. (No pain) - 010cm (Worst pain).

Visual Analogue Scale

The incidence of post-operative complications such as recurrence of hernia and wound infections will also be studied during the same period.

Statistical methods

The collected data will be analysed by the following statistical methods: Descriptive Statistics –Mean, Standard deviation, Frequency, Percentage Inferential Statistics – Chi-square test, ‘t’test (independent samples), ‘t’test (paired samples), repeated measure ANOVA.

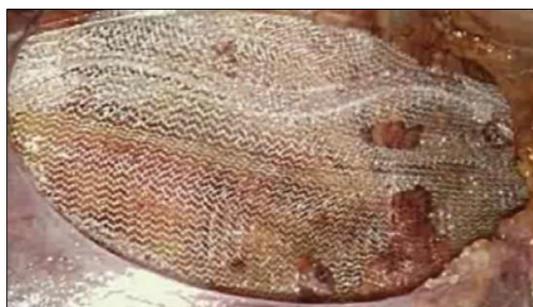


Image 1: Operative Image

Results

60 patients were split into two groups
 Group A – Lichtenstein tension free mesh repair (LTF) Group B – Transinguinal pre-peritoneal mesh repair (TIPP)

Table 1: Comparison of VAS score between LTF and TIPP group

Variables		Group	
		LTF mesh repair (n=30) in %	TIPP mesh repair (n=30) in %
VAS 2 weeks	0	3.3	53.3
	1 to 3	96.7	46.7
VAS 6 months	0	63.3	90.0
	1 to 2	36.7	10.0

Table 2: Comparison of VAS score 6 months between LTF and TIPP group

	Initial Percent	After 6 months Percent
LTF Mesh repair	63	36
TIPP Mesh repair	90	10

Table 3: Comparison of recurrences between LTF and TIPP group

Recurrences	Group	
	LTF mesh repair (n=30)	TIPP mesh repair (n=30)
No	30(100.0)	30(100.0)
Yes	0(0.0)	0(0.0)

Table 4: Comparison of duration of surgery and hospital stay between LTF and TIPP group

Variables	Group		P-value
	LTF mesh repair (Mean ± SD)	Tipp mesh repair (Mean ±SD)	
Duration of surgery	69.17±14.45	47.03±8.26	<0.001
Hospital stay	3.60±1.13	2.83±0.59	0.002

Table 5: Comparison of complications between LTF and TIPP group

Variables	Group	
	LTF mesh repair	Tipp mesh repair
Complications	3.33 percent	3.33 percent

In both the complications were the seroma.

Discussion

When compared to LTF hernia repair, the current study investigated the efficacy of TIPP hernia repair in reducing the occurrence of persistent groyne pain. This was done in comparison to the LTF hernia repair.

It's likely that a combination of factors is to blame for hernias (7,8). It is considered that there are three primary causes at play here. The presence of a swollen sac, consistent increases in intra-abdominal pressure, and a gradual weakening of the body's muscles and tissue over the course of time are all indicators of this condition.

1. According to this study's findings, the following are the chronic groyne pain scores: At the end of 6 months, 19 patients (63.3% of the total) in the LTF mesh repair group had a VAS score of 0, while 11 patients (36.7% of the total) had a VAS score of 1 to 2. At the end of the first six months of the tipp mesh repair group In the group of patients undergoing TIPP mesh repair, 27 patients (or 90%) had a VAS score of 0, whereas 3 patients (10%) had a score between 1 and 2. According to the findings of Koning and colleagues' research, 20 patients in the LTF group and 5 patients in the TIPP group experienced incidence of chronic groyne pain. This

difference has a p value of 0.004, which indicates that the difference is statistically significant (10)

2. According to our research, the mean time of surgery was 69.17 (14.45) minutes in the LTF mesh repair group, whereas in the TIPP mesh repair group, it was 47.03 (8.26) minutes. With a p value of 0.001, this indicates that there is a statistically significant difference between the two groups. In the group that received TIPP, the average length of the operation was much shorter. However, it should be stressed that this varies from surgeon to surgeon and is based on them individually.

According to the research done by Koning *et al.*, the average amount of time spent in surgery for the LTF group was 39.9 minutes, while the average amount of time spent in surgery for the TIPP group was 34.1 minutes. This difference is statistically significant (1).

3. The current study found that the average length of stay in the hospital for patients who had LTF mesh repair was 3.60 (1.13) days, whereas the average length of stay for patients who had TIPP mesh repair was only 2.83 (0.59) days, with a p value of 0.004, which is statistically significant.

Incidence rates of complications in the form of seroma were comparable between the two groups of patients (1 in each group)

Hernias were reported to have returned in neither of the two groups.

Conclusion

Because it incorporates all of the benefits of an open approach as well as the sutureless preperitoneal deployment of polypropylene mesh, we can reach the conclusion that the TIPP technique is superior to the Lichtenstein procedure in terms of the number and significance of its advantages. Better outcomes can be achieved in terms of chronic groin pain, operating time, and length of stay in the hospital when suture fixation of polypropylene mesh is not performed, and when restricted dissection is performed around regional nerves. As a result, the TIPP method can be regarded as an effective substitute for the Lichtenstein approach.

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