

SUTURELESS TENSION FREE LICHTENSTEIN REPAIR: A SAFE OPTION FOR INDIRECT INGUINAL HERNIA

Tariq Ghafoor¹, Tariq Mahmood Rehan¹, Shakeel Amjad¹, Mohammed Waseem¹, Mohammed Shahzad Anwar²

ABSTRACT

Background: Lichtenstein technique is a widely used surgical procedure for inguinal hernia repair. **Objective:** This study aims to evaluate the efficacy of sutureless mesh placement in open, tension-free inguinal repair. **Methods:** This was a prospective and interventional study in which 90 adult male patients with indirect inguinal hernia underwent sutureless mesh repair from April 2007 to April 2008. **Results:** Out of the total 90 repairs, 83 (92.2%) were for primary hernias and 7 (7.8%) were for recurrent hernias. Postoperative complications included; scrotal hematoma 2.2%, seromas 5.5%, neuralgia 3.3% and wound infections 3.3%. There were no recurrences observed. **Conclusion:** Sutureless tension free Lichtenstein repair has proved to be quite satisfactory and provides high patient comfort in primary or recurrent indirect inguinal hernias encountered in surgical practice.

Keywords: Lichtenstein technique, hernia repair, sutureless

INTRODUCTION

Abdominal wall hernias are one of the most commonly encountered surgical conditions. Life time prevalence is 25% in men and 2% in women with a male to female ratio of 10:1.¹ The most frequent abdominal wall hernias are groin hernias, which account for more than 90% of all hernias.² Inguinal hernias are of two types anatomically; indirect (or lateral) and direct (or medial).³

There is a general tendency to treat small indirect hernias differently from large hernias with indirect sacs and direct hernias. In our region inguinal hernia repair, both for primary and recurrent groin hernias, is performed mainly by an open hernioplasty technique. Laparoscopic repair has been used rarely.⁴ The sutureless repair of indirect inguinal hernia not only immediately cures the indirect hernia but also prevents future direct herniation. Both are accomplished without potentially damaging sutures altering the shutter and sling mechanisms of the inguinal canal and suture holes in the musculature providing weak spots for future herniation. Thus, several identifiable causes of recurrent herniation are

eliminated.⁵ The value of a prosthetic support to the posterior wall of the inguinal canal and the internal ring has been appreciated by many authors, who approached the internal ring posteriorly to do a pre-peritoneal repair conventionally or laparoscopically.⁶ The clinical outcome and a low recurrence rate has made the tension free mesh repair a procedure of choice for all inguinal hernia patients, despite the fact that it is a bit expensive.⁷ Improvement in surgical technique, 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

Success of groin hernia repair is measured primarily by its morbidity and recurrence rate.⁹ In this technique, repair of the posterior wall of the inguinal canal and the internal ring is done by a non-absorbable prosthetic mesh, without stitching it with the surrounding tissues. This technique of sutureless repair of indirect inguinal hernia has attracted attention to evaluate its morbidity and recurrence rate. The objective of this study was to demonstrate that the sutureless mesh repair would result in less complications.

PATIENTS AND METHODS

This interventional and prospective study was conducted in Surgical Unit-II, Sheikh Zayed Medical College/Hospital, Rahim Yar Khan from April 2007 to April 2008. All the male patients presenting to out patient department with indirect inguinal hernias were included in the study. All patients suffering from direct inguinal hernias, femoral hernias, sliding hernias, obstructed and strangulated hernias were excluded from the study. A detailed proforma

1. Department of Surgery, Sheikh Zayed Medical College/Hospital, Rahim Yar Khan.

2. Department of Urology, Sheikh Zayed Medical College/Hospital, Rahim Yar Khan.

Correspondence: Dr. Tariq Ghafoor, Senior Registrar
Department of Surgery, Sheikh Zayed Medical College/
Hospital, Rahim Yar Khan.

Cell NO: 0300-6748909
E. Mail: mtariq55@hotmail.com

was filled describing history, physical examination and laboratory investigations. All patients signed an informed consent form.

A piece of 6 X 11 cm polypropylene mesh was placed on the fascia transversalis without any sutures (Picture I). Postoperative recovery and discharge time from the hospital were recorded. After the discharge, patients were followed for one year in four controlled visits (7 days after surgery, 3 months, 6 months and 1 year). All visits were conducted in the hospital outpatient department (OPD). Data was arranged in tabulated form and compared with available national and international data.

The variables noted in our study were pain and recurrence of hernia. Acute pain was defined as the pain reported by a patient in the first 6 months after operation. Pain after 6 months was defined as chronic pain. Recurrence was noted based on a surgeon's examination and expertise. The presence of pain and recurrence was assessed at every visit. The results were tabulated to describe the feasibility of unstitched mesh by determining early postoperative complications in terms of neuralgic pain, scrotal haematoma, wound infection and recurrence.

RESULTS

Ninety male patients were included in this study from 1-04-2007 to 3-3-2008 in whom sutureless mesh repair was performed for inguinal hernias. Patients' ranged between 16 - 85 years (mean age 38.03 ± 17.07 years). Age distribution is shown in Figure (I). Two thirds of patients were under 40 years and only 2 patients were greater than 70. All patients had indirect inguinal hernias according to inclusion criteria, of which 36(40%) were left sided, 52 (57.87%) were right sided and 2 were bilateral. The common presenting symptoms were localized pain in 81 patients(90.0%), generalized abdominal pain in 2(2.3%), irreducible swelling in 7(7.8%) patients and reducible swelling in 83 (92.2) patients. Patients' hospital stay ranged from 2 to 4 days. Hernias associated with undescended testis and hydrocele were seen in 5(5.6%) and 9(10%) patients. A total of ninety hernia repairs were performed, of which 83 (92.2%) were for primary hernias and 7(7.8%) for recurrent hernias. Contents of sac were fluid and intestine in 19(21.1%) patients, omentum and fluid in 17(18.8%) patients, omentum in 24

(26.6%) patients, intestine in 10 (11.11%)patients, omentum, fluid and intestine in 9(10.0%)patients, omentum and intestine in 4(4.4%) patients and only fluid in 7 (7.7%) patients (Table I).

Postoperative complications included 2 (2.2%) scrotal hematomas, 5 (5.5%) seromas, 3 (3.3%) neuralgias and 3 (3.3%) wound infections. There were no recurrences observed (Table II).

Picture I: Polypropylene mesh placed in fascia transversalis.

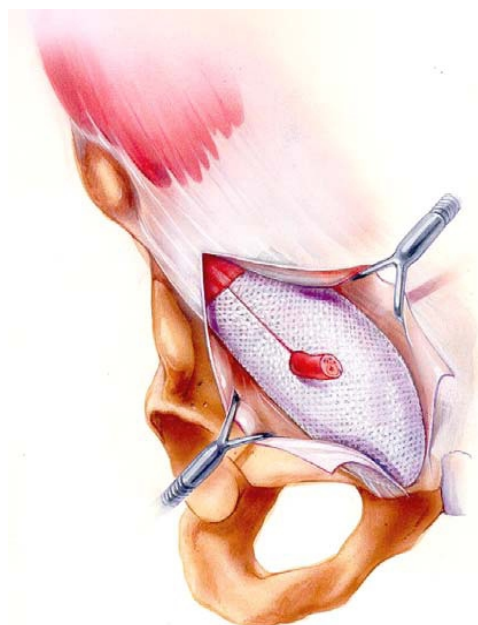


Figure I: Age distribution of patients

Number of Patients =90

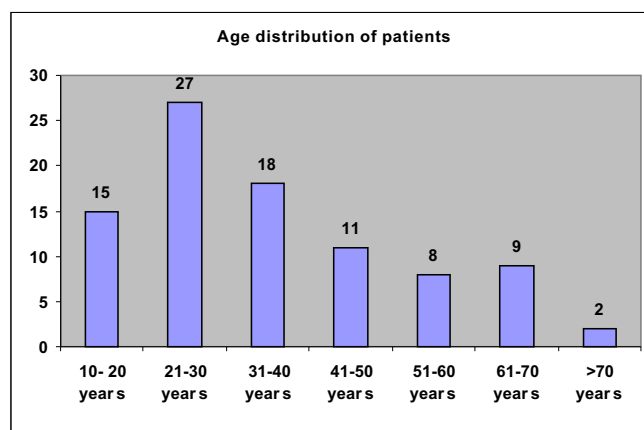


Table I: Contents of sac (No. of Patients = 90)

Stay (days)	No. of patients	% age
Fluid/ Intestine	19	21.1
Omentum / Fluid	17	18.8
Omentum	24	26.6
Intestine	10	11.11
Omentum/Fluid/ Intestine	9	10.0
Omentum/ Intestine	4	4.4
Fluid	7	7.7

Table II: Postoperative complications (No. of Patients = 90)

Complications	No. of patients	% age
Seroma	5	5.5%
Wound infection	3	3.3%
Scrotal haematoma	2	2.2%
Neuralgia	3	3.3%
Recurrence	0	0

DISCUSSION

Since the first hernioplasty performed by Edoardo Bassini in 1884, all the failures in surgical reconstruction techniques were based on one basic principle; tension on the suture line. With the introduction of modern prosthetic materials (meshes and plugs), it became feasible to perform all hernia repairs with minimal alteration in the normal anatomy, as well as tension on suture line.¹⁰ Our observations about the causation of recurrent hernia are essentially the same. The iatrogenic errors of commission are equally important, as are other factors, like the processes of aging and tissue degeneration due to collagen metabolism disorder.⁷ The posterior wall in many patients will weaken, disrupt and eventually herniate, whether left unaltered or reinforced by suture approximation. Therefore, posterior wall tension free repair is desirable whenever hernia surgery is

performed. After the introduction of the Bassini's technique, more than 70 types of pure tissue repairs have been reported in the literature.¹¹ An unacceptable recurrence rate, prolonged postoperative pain and recovery time after tissue repair, along with our understanding of the collagen metabolic disorders, led to the concept of tension-free hernioplasty with mesh. Currently, the main categories of inguinal hernia repair are the open and the laparoscopic repairs. In the open technique, repair of the hernia is achieved either by tissue approximation with non-absorbable synthetic sutures or by mesh repair. In the mesh repair, the mesh is placed in front of the transversalis fascia (Lichtenstein). Randomized controlled trails show that Lichtenstein is not only superior to pure tissue approximation repairs, but is also superior, safer and easier than open or laparoscopic mesh implantation behind the transversalis fascia.¹¹ The Lichtenstein repair is the most frequently performed inguinal hernia operation, with a recurrence rate of less than 1%.¹² In our study, we performed sutureless Lichtenstein repair with no (0%) recurrence rate in one year.

Morbidity in terms of chronic pain varies from 5 % to 10 % in different randomized controlled trails of different surgical techniques and epidemiological data.¹³ In our study, the post operative neuralgia incidence is 3.3%, which is lower than the published data. Post hernioplasty neuralgia can be reduced by use of different materials like fibrin glue instead of sutures.¹⁴

In a study conducted by Canonico S et al¹⁴, sutureless Lichtenstein technique was employed in 16 consecutive soccer players with primary groin hernia. Inguinal nerves were identified and preserved. Human fibrin glue was used for mesh fixation instead of conventional sutures. Results were excellent with no reported intra- or post-operative complications. All patients were discharged 4 - 5 hours after the operation, and all returned to full pre-injury level sporting-activity after an average of 31 days (range 24 - 42 days). Thus, hernia mesh repair with human fibrin glue in soccer players suffering from chronic groin pain due to impalpable groin hernia was effective and without complications.

In another study of open sutureless mesh repair¹, 3.4% patients developed late postoperative complications; 32 seromas, 3 massive inguino-scrotal edemas, 4 hematomas and 10 wound

infections without the necessity to remove the mesh in any case. Six recurrences (0.4%) were noted after primary surgical repair. Mean follow-up time was 4 years (range 17 years).

In our study, postoperative complications include; 2 (2.2%) scrotal hematomas, 5 (5.5%) seromas, 3 (3.3%) neuralgia, 3 (3.3%) wound infections and no (0%) recurrence. The proposed technique is simple, safe and characterized by a rapid performing procedure giving an excellent outcome. Our results are comparable to those reported in the national/international studies.

CONCLUSIONS

A technique of sutureless tension free mesh repair has low morbidity and no recurrence rate. It can be used for primary and recurrent indirect inguinal hernias.

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