ORIGINAL ARTICLE

Long Term Outcome of Inguinal Hernia Repair by Lichtenstein Technique

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ABSTRACT

Background: Since the time of Bassini's repair (1884) various operation has been described, with the aim to reduce complication rate especially recurrence. Dramatic decrease in recurrence rate was observed with the introduction of synthetic Mesh. Since the introduction of Lichtenstein mesh repair (1980s) it has been the most widely performed operation in the groin hernia repair and soon it becomes the gold standard technique.[1(C)]The aim of this study was to assess short and especially long term outcome of inguinal hernia repair by Lichtenstein technique.

Methods: This prospective study was conducted in two different hospitals between 2010 to 2014. A total number of 158 male patients with inguinal hernia were repaired electively by Lichtenstein technique. A non-absorbable polypropylene mesh was used in all the cases. Patients were scheduled for follow-up visits at six weeks, three months, six months, one year and two year in out-patient department. Maximum follow-up was two years and minimum was 11 months, thus providing sufficient time to assess for recurrence, chronic groin pain and other complications.

Results: out of 158 patients 97 had right, 44 patients had left and 17 patients had bilateral inguinal hernia. The most representative age group was from 61-70 years. In short term follow up 6 patients (3.79%) had an occasional ache or pain following exertion, 8 patients (3.06%) complained of numbness in the groin and none of the patient had testicular atrophy or recurrence. 7 patients were lost in long term follow-up. The long term follow-up did not show any persistent groin pain, testicular atrophy or recurrence.

Conclusion: Lichtenstein tension free mesh hernioplasty has a marked influence on long-term surgical outcome since it significantly decrease recurrence rate. The Lichtenstein tension free mesh repair is relatively easy to learn, simple to perform and has low recurrence & infection rate.

Keywords: Inguinal hernia, Lichtenstein technique, Bassini's repair

INTRODUCTION

Inguinal hernia is one of the most common elective operation performed in general surgery[2,3,4]. For decades, Bassini's method of inguinal hernia repair remained the gold standard technique and was used by generation of surgeons[5]. However, the limitation of this technique became obvious with time, particularly in regarding to the high recurrence rate reported on long term follow-up which ranged from 20-30%[6,7]. To overcome this complication various techniques of hernia repair were designed by other surgeons but none of the technique was effective in reducing the recurrence rate. Significant breakthrough in hernia repair surgery occurred in 1980s, when Lichtenstein introduced his novel technique of tension free mesh hernioplasty[8]. It has significantly reduced recurrence rate on long term follow-up[9]. In this country, mesh repair has not been accepted as a standard technique because of potential risk of infection and availability of very few studies regarding long term results. This study was conducted to assess both short and long term outcome of inguinal hernia repair by Lichtenstein technique.

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MATERIALS AND METHODS

This prospective study was conducted in two different hospitals; Akhtar Saeed Trust Hospital&Farooq West Wood Hospital (affiliated with Akhtar Saeed Medical & Dental College; Lahore, Pakistan). This study was started in Jan 2010 and completed in Dec 2014. A total number of 158 male patients with inguinal hernia were repaired electively by Lichtenstein technique.126 patients (79.74%) under spinal anesthesia, 24 patients (15.18%) were operated under local anesthesia and 8 patients (5.06%) were operated under general anesthesia. Males between the ages of 17 to 85 years were included in the study. All female patients with obstructed & strangulated inguinal hernia with lower urinary tract symptoms were excluded from the study.

All patients were given prophylactic antibiotics. Groin skin crease incision was given. Subcutaneous tissue divided and external oblique aponeurosis as

opened. Ilio-inguinal nerve identified, dissected and safe guarded. Spermatic cord mobilized indirect sac was ligated and excised. Direct sac was plicated with non-absorbable sutures. A tailored patch of standard polypropylene non-absorbable mesh (6 x 11 cm) was laid on the posterior inguinal canal. It was overlapping the pubic tubercle by at least 2 cm and sutured with 3/0 polypropylene interrupted sutures medially and to the inguinal ligament inferiorly. The upper border of the mesh was sutured loosely to the conjoint tendon with 2/0 polyglactin. Two tails were created laterally in the mesh and sutured one over another around the cord to fashion a new internal ring. Care was taken while fixing the mesh that, it is not folding, wrinkling or curling around the cord. External oblique was closed with continuous 2/0 polyglactin. Subcutaneous tissue was closed with 3/0 polyglactin. Skin was closed with interrupted 3/0 polypropylene and antiseptic dressing was applied.

Follow-up visits were scheduled after six weeks, three months, six months, one year and two year in out-patient department to assess early and late complications.

RESULTS

During the study period 158 male patients were treated. Age distribution is given in Table I. The youngest patient was 18 years old and oldest was 85 years old. More than 50% of the patients were above the age of 50 years. Most representative age group was from 61-70 years. Minimum follow-up was 6 months and maximum was two years

Table I: Age distribution

Age	n	%age
17-19	7	4.43
20-29	16	10.13
30-39	13	8.23
40-49	25	15.82
50-59	33	20.89
60-69	41	25.95
70-79	18	11.39
80 – Above	5	3.16
Total	158	100

In 97 male patients (61.39%) the hernia was on the right side, in 44 patients (27.84%) it was on left side and in 17 patients (10.75%) it was bilateral. Indirect hernia was seen in 93 patients (58.86%), direct hernia was seen in 49 patients (31.01%) and pantaloon hernia was seen in 16 patients (10.13%). Commonest postoperative complication (Table II)was seroma noted in 2 patients(1.26%) had followed by scrotal swelling (1.08%). Seroma was aspirated while scrotal swelling managed by scrotal support.

In short term follow up (Table III) 5.06% complained of numbness in the groin and 3.79% had an occasional ache or pain following exertion. None of the patient had testicular atrophy or recurrence.

Seven patients were lost in long term follow-up. Rest of the 151 patients (95.56%) on long term follow-up did not show any persistent groin pain, testicular atrophy or recurrence.

Table II: Early postoperative complications

	n	%age
Surgical site Infection	1	0.63
Deep Surgical Site Infection	0	0
Seroma	2	1.27
Hematoma	0	0
Scrotal swelling	1	0.63
Pain	48	30.38
Epidydimorchitis	1	0.63
Numbness in groin	8	5.06

Table III: Short Term follow-up (complications)

	n	%age
Occasional pain / Pain after exertion	6	3.79
Numbness in groin	8	5.06
Epidydmorchitis	0	0
Testicular atrophy	0	0
Recurrence	0	0

DISCUSSION

The ideal outcome of inguinal hernia surgery is to provide a recurrence free repair with minimum chances of early and late complications. The incidence of early complication has significantly less in this study except scrotal swelling.

Scrotal swelling occurs due to excessive dissection of hernia sac from the spermatic cord structures, dissection beyond pubic tubercle especially in the presence of complete hernial sac. Its incidence is 0.9 to 1.5%[10]. Most of the time it is transient and it resolves with scrotal elevation. Scrotal swelling in our study was 0.63%.

Superficial surgical site infection is the most common early complication. Its average incidence 5.8%[11]. Its incidence has further reduced over the years. Anuradha Anand et al reported 0.02%[12] and Kia Xiong Cheong reported 0.57%[13] infection rate. Infection rate in our study corresponds with recent literature.

Seroma occurs due to an excessive inflammatory response to suture or mesh which cannot be prevented[14]. In most of the cases it resolves spontaneously but may require aspiration[14].

The long term results of hernia repair are of vital importance. It means minimum chances of recurrence and morbidity.

Chronic Groin Pain: Chronic pain is becoming increasingly recognized as an important cause of morbidity after hernia surgery.[15G1]Chronic pain after hernia repair is defined as pain or discomfort that persists for three or more than three months[16,17,18] reported incidence is 4-6% after Lichtenstein mesh hernioplasty.[19F28]Its incidence has gradually reduced. George H reported 1% incidence of chronic inguinal pain in 540 Lichtenstein repair. Several risk factors have been identified which seems to play an important role in the development of chronic pain, such as surgeons experience, day care surgeries, intensity of immediate post-operative pain and degree of specialization[19,20,21,] One of the important causes of chronic pain is entrapment of ilio-inguinal nerve can occur if not identified and secured. Studies have rarely mentioned about identification of ilioinguinal nerve during open dissection[23]. In our study, there was only three patients in which chronic groin pain, persisted for more than three months. This low incidence was probably because ilioinguinal nerve was identified and secured. So we can say that, if the nerve is safeguarded by identifying it, the chance of chronic pain can be minimised significantly.

Testicular damage: Testicular damage (dysfunction/atrophy) is one of the most dreadfulsequele of inguinal hernioplasty. Its incidence is 0-2%[24]. Reid & Devlin reported that, in order to reduce testicular complication overzealous dissection of distal hernia sac, dislocation of the testis from the scrotum into the wound and concomitant scrotal surgery should be avoided[25] . In our study, there was no incidence of ischemic orchitis or testicular atrophy.

Recurrence: Since the introduction of hernia repair by Lichtenstein (1987) who reported recurrence rate of 0.7%[26]. It is consistent in two year follow-up26. However it is reported to increase 3.2% in five year follow-up[27]. It means two year follow-up is not sufficient. In our study, there was no recurrence in two years.

CONCLUSION

Lichtenstein tension free mesh hernioplasty has a marked influence on long-term surgical outcome since it significantly decrease recurrence rate. The Lichtenstein tension free mesh repair is relatively easy to learn, simple to perform and is usually suitable for local anesthesia.

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