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INGUINAL HERNIA REPAIR: A COMPARISON OF LICHTENSTEIN AND DARN TECHNIQUES

Hussain Ahmad, *Aamer Nadeem, *Asad Mahmud Malik

Combined Military Hospital Kohat and *Rawalpindi

ABSTRACT

Objective: To compare the number of postoperative complications and early recurrence between Lichtenstein tension free hernioplasty and Darn repair, for inguinal hernia.

Place and Duration of Study: The study was conducted at Department of Surgery, Combined Military Hospital Rawalpindi from 1st Jan 2001 to 30th Nov 2002 and included 100 patients.

Study Design: The study design was quasi experimental.

Patients and Methods: A total of 100 patients were selected. 50 patients were treated with Lichtenstein tension free hernioplasty (Group A) and 50 with Darn repair (Group B). Cases were followed up for one year.

Results: The male to female ratio was 46.5:1. Total no of postoperative complications were 7(14.58%) in Group A and 21 (44.68%) in Group B. Haematoma was the most common complication followed by urinary retention and wound infection in both the study groups. Complications like haematoma (8.33% versus 14.89%), urinary retention (2.08% versus 12.76%), wound infection (2.08% versus 8.51%), scar pain (2.08% versus 6.38%) and testicular atrophy (0% versus 2.13%) were significantly low in Lichtenstein tension free hernioplasty as compared to Darn repair ($P < 0.05$). The early recurrence rate in this study was significantly low in Group A (0) as compared to Group B (O versus 4) but this is statistically insignificant ($P > 0.05$).

Conclusion: Depending upon the surgeon's skills, Lichtenstein tension free hernioplasty has a definite superiority over Darn repair.

Keywords: Lichtenstein, inguinal hernia, polypropylene mesh, darn repair

INTRODUCTION

Inguinal hernia can be congenital or acquired. Muscle deficiency contributes to herniation. Destruction of connective tissue reduces the strength of the transverse apponeurosis and fascia [1]. Denervation of the shutter mechanism following a low cosmetic appendicectomy incision is a well known but uncommon cause of inguinal hernia [2]. Hernias are common health problem; the incidence is 3-4% in male population. Hernias in inguinal region account for approximately 75% of all forms of hernias and are more common in males than females [3].

It is customary to operate on most inguinal hernias. The reasons not to operate are; trivial direct inguinal hernias in elderly, inactive or terminally ill patients [4]. Bilateral hernias may be repaired separately [3]. The principles of operation consist of excision of

Correspondence: Maj Hussain Ahmad, Department of Surgery, Combined Military Hospital, Kohat Cantt.

the hernial sac, repair of the stretched internal inguinal ring along with transversalis fascia and further reinforcement of the posterior wall of inguinal canal [5]. The repair must be done without tension and various techniques exist to achieve this e.g. Bassini's repair, shouldice operation, fascial flaps, nylon darn and polypropylene mesh implants. High recurrence rates using fascia for inguinal hernia repair or suturing under tension promoted the development of minimal tension nylon darn and the polypropylene mesh to reinforce the posterior wall of the inguinal canal during hernia repair. Nylon darn originally described by Maloney's et al, is a cheap and effective way of repair. The recurrence rate reported from the original series was 0.8%6. More recently the use of polypropylene mesh has become popular, largely because of excellent results reported by Lichtenstein et al. The recurrence rate with this procedure was reported as nil in Lichtenstein's personal series but around 1% in other series [6].

Lichtenstein tension free hernioplasty is reported to be less painful, allows rapid return to normal activity and carries low incidence of recurrence. The bilateral repair of hernias with this technique carries no risk of tissue tension and saves the patient from the hazards of repeated anaesthesia. The morbidity is low and hospital stay is short with this technique [7,8].

This study was carried out to compare the number of pastoperative complications and early recurrence between Lichtenstein tension free hernioplasty and Darn reparit, for inguinal hernia.

MATERIALS AND METHODS

A quasi experimental study was conducted in department of surgery CMH Rawalpindi from 1st Jan 2001 to 30th Nov 2002. The sample size consisted of 100 patients (50 cases were managed by Lichtenstein tension free hernioplasty and 50 by prolene darn repair) of primary inguinal hernia. Patients of 18-90 years of age with ASA (American Society of Anaesthesiologists) grade I or II were included. Patients with recurrent, obstructed and strangulated hernia were excluded. Inguinal hernia management proforma was devised for record keeping. The diagnosis was based on detailed history and thorough physical examination. Baseline and specific investigations for preanaesthesia assessment were carried out. Patients were divided in two groups depending on the type of operation.

- Group-A: In this group posterior wall repair was done by Lichtenstein tension free hernioplasty.
- Group-B: In this group posterior wall repair was done by prolene darn.

Lichtenstein tension free technique was taken as control and patients were selected by convenience sampling. The assessment of outcome was made by observing post-operative complications e.g. haematoma formation, urinary retention, wound infection, scar pain and testicular atrophy. Early recurrence was also compared in both the procedures. An independent assessor did the final assessment. Patients were followed up in out-patient department for 23 months, at 1 week, 6 weeks and 1 year postoperatively, for wound healing, recurr-ence and development of complications i.e. haematoma formation, urinary retention, wound infection, scar pain and testicular atrophy. The results of two surgical techniques were analyzed statistically at the end of study by using SPSS 8.0 for Windows. Independent samples t-test was applied to compare the number of postoperative complications and chi square test was applied to check significant difference in early recurrence.

RESULTS

Forty-eight patients in group A and 47 patients in group B reported back. Therefore 95 out of 100 patients were evaluated. 50 (52.63%) patients presented in 50-70 years age

group. 2nd peak was observed in >70 years age with 38 (40%) patients in this group. Out of 95 patients, 93 (97.89%) were males and 2 (2.11%) were females, with male to female ratio of 46.5:1.

Fifty-two (54.74%) patients had right sided, 31 (32.63%) patients had left sided and 12 (12.63%) patients had bilateral inguinal hernias. 7 (7.37%) patients had bubonocele, 61 (64.21%) patients had funicular while 27 (28.42%) patients had complete inguinal hernia. 63 (66.32%) patients had indirect inguinal hernia, 29 (30.53%) patients direct inguinal hernia while 3 (3.16%) patients had both direct and indirect components. The mean hospital stay was 2.25 days in group A and 2.57 days in group B. The mean operative time was 55.50 minutes in group A and 71 minutes in group B.

The total number of postoperative complications was 28, with 7 complications occurring in group A and 21 in group B (fig. 1). On comparative basis (Independent samples t-test) postoperative complication rate in group B was significantly high as compared to group A ($P < 0.05$). At the end of 23 months of follow up, no (0%) recurrence developed in Lichtenstein tension free hernioplasty group and 4 (8.51%) patients developed recurrence in darn repair group (fig. 2). There is a statistically insignificant difference in both groups ($P > 0.05$) recurrence rate (chi square test).

Following were the main complications:-

Haematoma

This was the most common postoperative complication. It was common in patients with giant long standing hernias. 11 (11.58%) patients, with 4 (8.33%) in group A and 7 (14.89%) patients in group B developed postoperative haematoma. All these cases were treated conservatively.

Urinary Retention

Seven (7.37%) patients developed urinary retention, with 1 (2.08%) from group A and 6 (12.76%) patients from group B. They needed catheterization to empty the bladder for one day.

Wound Infection

Five (5.26%) patients, 1 (2.08%) patient from group A and 4 (8.51%) patients from group B developed superficial infection. Infection was more common in patients who developed haematoma. No patient developed deep wound infection.

Scar Pain

Four (4.21%) patients had scar pain, with 1 (2.08%) patient from group A and 3 (6.38%) patients from group B.

Testicular Atrophy

One (2.13%) patient in group B developed testicular atrophy. No patient in group A had this complication.

DISCUSSION

Operations for hernias constitute approximately 10-15% of all surgical procedures performed in a general surgical unit and about 80% of these operations are performed for inguinal hernias [7]. It is the most common surgical procedure after appendicectomy [9]. Its peak incidence is seen at the two extremes of life. In our study most of the patients were in 6th and 7th decade of their life, which corresponds with other reports [6,9,10].

The male to female ratio in present study was 46.5:1, which is approximately nearer to the studies conducted in Pakistan, with male to female ratio of 49:1, 66:1 and 37:1 reported by Zafar [7], Memon [11] and Khan [12] respectively. These ratios are higher than 18:1 reported by Davies [10], a UK based study. The reason for this difference seems to be due to low female literacy rate, especially in our rural areas and ignorance of health related problems in females. Due to conservative social background, females are reluctant to go

to surgeons who are males in most of our hospitals. Right-sided inguinal hernia has been shown to be the commonest site (54.74%) and indirect inguinal hernia being the commonest type (66.32%).

There are many ways of repairing an inguinal hernia, with over 80 operative techniques described since 1887 when Bassini reported his method. Extensive clinical research has been undertaken to assess outcome following inguinal hernia repair [13]. The basic defect lies in the anterior abdominal wall that allows hernia in relation to a deficiency in fascia transversalis. So repair of hernia must include restoration of this layer, which constitutes the posterior wall repair [8]. Various methods have been described for reconstruction of posterior wall of inguinal canal. It is the type of technique, experience and skill of the surgeon that determine the final outcome. The early recurrence develops with in 2 years of operation is due to tension in the suture line or poor surgical technique. The late recurrence develops many years after initial operation and is due to disorder of collagen metabolism, particularly affecting the fascia trasversalis [8].

Recently the use of polypropylene mesh has become popular, largely because of the excellent results reported by Lichtenstein et al [6]. The polypropylene mesh is strong, monofilament and readily available [7]. Another advantage of mesh repair is that it can be employed for repair of bilateral hernias as a single procedure. Insertion of mesh is relatively easy to learn, can be performed satisfactorily by junior surgeons and is more adaptable to a non-specialized center.

In group A, 48 patients underwent Lichtenstein tension free hernioplasty. The mean operative time was 55.50 minutes and mean hospital stay was 2.25 days which is more than reported by Faisal (1.3 days) [8]. In group B, 47 patients underwent darn repair. The mean operative time was 71 minutes and mean hospital stay was 2.5 days, with 20

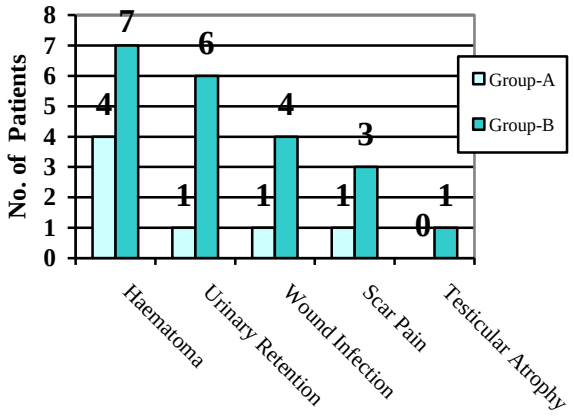

Fig. 1: Post operative complications.

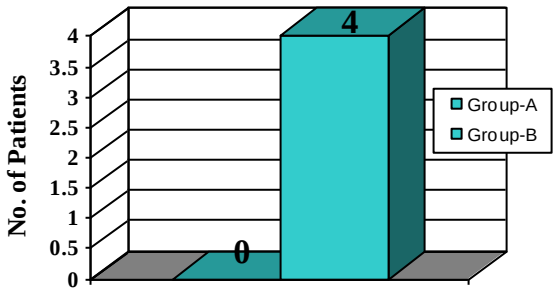

Fig. 2: Recurrence in group-A and B.

patients admitted for more than 3 days. This figure corresponds well to series reported by Asif [9]. In our study average hospital stay was 2-5 days. Most of the patients were discharged on the first postoperative day. This prolonged average hospital stay was because of the fact that all the patients received general anaesthesia. Procedure under local anaesthesia may result in an early discharge from hospital.

In group A, total number of complications was 7 (14.58%) while in group B, it was 21 (44.68%). Postoperative complications like haematoma (8.33% vs. 14.89%), urinary retention (2.08% vs. 12.76%), wound infection (2.08% vs. 8.51%), scar pain (2.08% vs. 6.38%) and testicular atrophy (0% vs. 2.13%) were significantly low in group A as compared to group B. Complications recorded in our study are comparable to other series reported by Asif [9], Koukourou [6], Faisal [8], Zafar [7]. On comparative basis postoperative complication rate in group B

was significantly high as compared to group A ($P < 0.05$). The reason being that darn repair consumes more time and there are more chances of injury to inferior epigastric vessels and ilioinguinal nerve as compared to Lichtenstein repair and thus there are more chances of postoperative complications [14]. Tension on suture line in darn repair causes temporary obstruction of venous and lymphatic flow at deep inguinal ring and obliteration of the inguinal canal in the long run, thus increasing the chances of scrotal edema, stasis, infection, orchitis and testicular atrophy [15]. There is low recurrence rate in group A as compared to group B but this difference is statistically insignificant in our study. A significant difference was reported by Koukourou [6], Faisal [8], Davies [10] and Zafar [7].

CONCLUSION

Lichtenstein tension free Hernioplasty is superior to the Darn repair for primary inguinal hernias. Lichtenstein technique is easy to learn and perform and minimal tissue dissection is required, hence postoperative complications and recurrence rates are low. It can be performed in all centres, particularly in training institutions. But knowledge of anatomy, good training, supervision, meticulous dissection and control of hemostasis has very important role in hernia repair to avoid post operative complications and recurrence.

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