

Darn Repair of Primary Inguinal Hernia- A Safe and Effective Method: Experience of 110 Cases with One-Year Follow Up

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ABSTRACT

OBJECTIVE: To evaluate the efficacy and safety of darn method with polypropylene in primary inguinal hernia repair in terms of postoperative complications and early recurrence rate.

STUDY DESIGN: Descriptive case series study.

PLACE AND DURATION OF STUDY: This study was conducted in surgical Unit II Sandeman Provincial Hospital Quetta, from January 2008 to March 2010.

PATIENTS AND METHODS: One hundred ten patients of primary inguinal hernias were included in the study. After examination/investigations, patients were operated for hernia repair by darn procedure, under spinal or general anesthesia. All the patients were discharged on 2nd to 4th postoperative day. These patients were followed up after one week, three weeks for early complications and after three months, six months and one year for early recurrence.

RESULTS: Out of 110 patients, 18 (16.4%) patients presented as direct hernias, 89 (80.9%) indirect hernias, 3 (2.7%) were with dual oblique; in (55.5%) of the patients hernia was right sided, (38.2%) had left sided and (6.4%) had bilateral inguinal hernias respectively. Mean age of the patients was 42.06 years. Fifty-one patients were operated under spinal and 59 under general anaesthesia. Overall, postoperative complications were seen in 9.9% patients. Complications developed were 2.7% wound infection, 1.8% scrotal hematoma and 3.6% urinary retention. Post-operative neuralgia was 0.9%. Only one patient (0.9%) developed recurrence of hernia.

CONCLUSION: We concluded that in primary inguinal hernias darn repair with polypropylene is safe, effective, and economical method with low recurrence rate.

KEY WORDS: Inguinal hernia, darn repair, polypropylene, post operative complications, recurrence.

INTRODUCTION

Groin hernias contribute about 75% of external abdominal wall hernias. Approximately 65% of inguinal hernias are indirect and 35% are direct.¹ Surgery is the treatment of choice for inguinal hernias to prevent complications.² Inguinal hernia repair is the most common operation undertaken in routine surgical practice with an annual incidence of 13 per 1000 population of all age groups.³ There have been many developments in groin herniorrhaphy by surgeons such as Halsted, McVay, Maloney, Shouldice and Bassini's pioneer work.⁴ Several methods have been developed over the years to improve the traditional methods of hernia repair, the most important recent innovations being the Lichtenstein mesh repair.⁵ Due to the low complication rate (<1%) it has got popularity in inguinal hernia repair.⁶ However Lichtenstein procedure is expensive and if the mesh becomes infected, then it requires removal.⁷ Recently laparoscopic mesh repair has become popular.⁸ It as well requires learning curve and is expensive.⁹ The Shouldice method is a recognizably excellent procedure but is time consuming and requires a higher level of surgical expertise.¹⁰

Since the introduction of darn method by Maloney et al, many surgeons employ darn as sole technique for inguinal hernia repair.¹¹⁻¹³ Due to its low complication rate darn method has proved to be good alternative to Lichtenstein mesh repair.

In our region most of the patients are unaffordable, because of poor socioeconomical status. Due to cost, availability of mesh, prolong learning technique and availability of laparoscopic facilities, these techniques are impracticable in our setup. Darn repair almost has same outcome as other techniques but it is cost effective, easy to learn and perform. The aim of study was to evaluate the safety and efficacy of primary inguinal hernia repair with polypropylene Maloney's darn technique in terms of early complications and early recurrence.

PATIENTS AND METHODS

One hundred and ten patients with primary inguinal hernia operated with darn technique between January 2008 and March 2009 were included in this study. All patients were males with the age ranging from 20 to 75 years (mean 42.06 years). Patients with irreducible, strangulated, obstructed and recurrent inguinal

hernias were excluded from the study. Inguinal hernia was diagnosed by clinical examination. Mode of presentation of hernia was usually the appearance of reducible lump in groin or inguinoscrotal region. Preoperative investigations were performed that included complete blood count, urine D/R, HbsAg, anti HCV, serum urea, creatinine, blood sugar, ECG (only patients >50 or have co morbidity) and chest X-ray.

After informed consent, all patients were operated for primary inguinal hernia repair by Maloney's darn procedure using No.1 non-absorbable polypropylene sutures. The method was started with the same steps as in other hernia repairs. After dealing with the sac, darning was made between the conjoint tendon and inguinal ligament. For making darn, the first stitch was taken from periosteum of the pubic tubercle then passed through the medial end of the inguinal ligament as well as good bites of the rectus muscle with its sheath were taken to ensure a good darn in the critical medial angle of the repair. Along the upper edge, the sutures were taken from the rectus sheath in continuation with the conjoined tendon. To avoid splitting of inguinal ligament the lower stitches were taken in a spread out way, some were taken from front while others further behind. These sutures were continued even beyond the internal ring by displacing the spermatic cord laterally. The second layer of darn was completed in same manner but the direction of stitches was opposite to first layer. At the medial end the darning was completed by a stitch through periosteum of pubic tubercle and lower rectus sheath. After ensuring, that the fashioned darn was without tension the cord was then laid down on its newly constructed bed. The external oblique aponeurosis, subcutaneous tissue and the skin were sutured in layers. All Patients were operated under, spinal or general anaesthesia. Three doses of injectable broad-spectrum antibiotic for prophylaxis given; first dose of injection was injected at the time of induction of anesthesia and then repeated 08 hour interval and followed by oral antibiotic for three days. Post operatively pain scores were recorded at 24 hours interval using verbal rating score. According to pain scoring analgesics were given. Patients were discharged on 2nd to 4th postoperative days. The patients were examined on 7-8 days after discharge for early complications and removal of skin stitches. The patients were strictly advised to avoid physical exertion and heavy weight lifting for at least twelve weeks. All patients evaluated for early complications up to three weeks and followed for early recurrence for a mean period of one year.

RESULTS

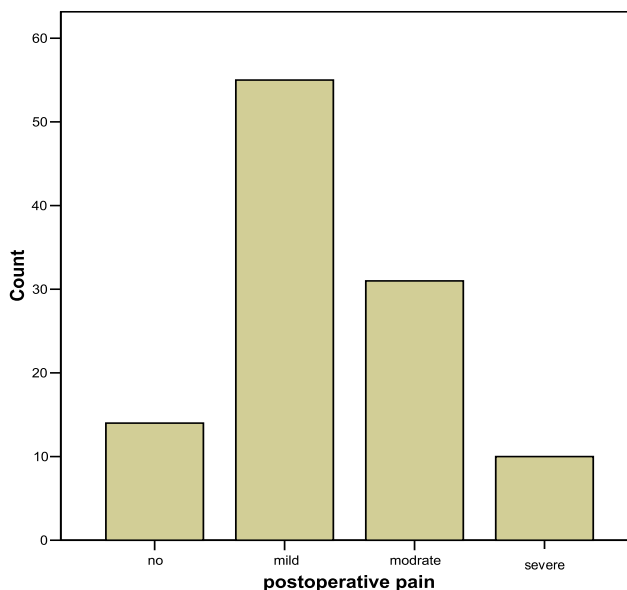
Out of 110 patients 11 (10%) developed complications

(Table I). Early complications included three (2.7%) cases of wound infection treated by removal of stitches with antiseptic dressing and broad-spectrum antibiotic, two (1.8%) cases developed scrotal hematoma, managed conservatively, our four (3.7%) patients developed urinary retention, catheterization for 12 hours resolved the problem, none of these patients had any difficulty in urination after removal of catheter. One (0.9%) patient had neuralgia at the operation site, which resolved in due course of time. In our study we observed postoperative pain within first 24 hours in 78.2% patients out of them 55 (50%) mild, (31) 28.2% moderate, (10) 9.1% experienced severe pain respectively while 14(12.7%) patients did not complain of any pain. (Figure I) All patients who had pain were given analgesics according to verbal scoring. They were managed by diclofenic sodium 50-mg 8 hourly. None of them required narcotic analgesics. Hospital stay ranged from two to four days, mean 2.91 days. Only one patient in this study developed recurrence of hernia. We did not observe testicular atrophy in any patients.

TABLE I: POSTOPERATIVE COMPLICATIONS

Complications	Number of Pts	Percentage
Wound infection	3	2.7%
Scrotal hematoma	2	1.8%
Neuralgia	1	0.9%
Urinary retention	4	3.6%
Recurrence	1	0.9%

FIGURE I: POSTOPERATIVE PAIN DURING FIRST 24 HOURS



DISCUSSION

The groin is one of the weakest points of abdominal wall and is common site for hernia formation.⁴ In our study incidence of hernia found in third and fourth decade of life and more common type is indirect right sided. Inguinal hernia repair is commonly performed by general surgeons by different techniques. Selection of technique for inguinal hernia repair are influenced by some factors such as rate of recurrence, shorter hospital stay, low complications, lower pain perception, low cost and easy to learn. These reflect the rate of success in hernia repair. Maloney darn repair is the method that almost fulfills the above criteria. A survey regarding the technique of inguinal hernia repair in UK demonstrated that darn repair was being the sole method used by 35% of consultants.⁷

There are some technical factors attribute to recurrence, such as poor tissue dissection, repair of tissues in excess of tension and lack of familiarity of surgeons with the procedure. We performed tension free darn repair and ensured a good darn in the critical medial angle of the repair. We experienced very low recurrence rate, which is quite comparable to other studies.^{7,10,13,14} We select the Maloney's darn method because it is cost effective and safe method in our setup as shown in other studies.^{12,13,15,16}

Shouldice repair technique is more difficult to perform which involves extensive dissection and associated with significant postoperative pain and discomfort.

In contrast, Maloney's darn repair no attempt is made to approximate the conjoint tendon to the inguinal ligament, consequently that is tension free repair with minimal dissection, decreased operative time, less pain and early ambulation. For that reason, darn repair is the most common repair method employed by the surgeons.¹⁷

Laparoscopic inguinal hernia repair introduced almost a decade ago; however, the laparoscopic approach in hernia surgery remains controversial. This method has been criticized because of its technical complexity; in addition to associated complications at the early phase of the learning curve.⁹ National Institute for Clinical Excellence in UK has recommended the use of laparoscopic surgery for recurrent and bilateral hernias.¹⁰

As compared to Letenctine, laproscopic and Shouldice technique, darn repair with proline is cost effective and easy to learn.

In our study the infection rate was 2.7% which is similar to other studies.^{7,13} In Lichtenstein repair if mesh becomes infected then it requires removal, whereas the darn has better chance to heal without removal.⁶ We observed less number of complications such as scrotal hematoma 1.8%, urinary retention 3.7%, neuralgia 0.9% and there was no testicular atrophy. How-

ever, postoperative pain was observed during first 24 hours, which responded to analgesics.

CONCLUSION

In primary inguinal hernia repair by using polypropylene darn method is simple, easy to learn and it can be performed consistently. In terms of early low recurrence rate and fewer postoperative complications, it is concluded that Maloney darn repair is safe, effective and economical method for primary inguinal hernias repair.

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