INCIDENCE OF DELEYED RECURRENCE IN INGUINAL HERNIA REPAIR WITH POLYPROPYLENE DARN.

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ABSTRACT

BACKGROUND: Inguinal Hernia is a global issue, adults with developed posterior wall of inguinal canal needs an effective, safe, and cost effective tension free repair.

OBJECTIVE: To know about the effectiveness of poly propylene darn in inguinal hernia, in terms of delayed recurrence.

METHODS: It is a descriptive study which was conducted in Saidu Group of Teaching Hospitals; Saidu Sharif Swat From January 1999 to May 2013. Total of 386 patients collected by non probability convenient sampling technique, and 390 repairs (4-patient with bilateral inguinal hernia repair) were included in the study. 180 were indirect, out of these 15 were strangulated, while 210 were of direct verity. 90 repairs were made under local anesthetic block, 300 were operated under general anesthesia. Our last case of the series was operated in May 2004. All the patients were discharged on either 1st or 2nd postoperative day. 3 patients (0.76%) were readmitted for wound infection and were discharged on 8th postoperative day. Patients were subsequently examined on day 7th and 14th post operative day for early complications and then on 6th month and yearly for 9 years, for delayed recurrence. Data were collected on structured proforma and were analyzed on SPSS.

RESULTS: Ages ranged in our study were from 20-80 years (mean of 50 years). 180 patients had indirect hernia (46.15%), while 210 were of direct verity. Among 390 repairs 15 patients (3.8%) developed superficial wound infection, 5 patients (0.8%) established deep wound infection. 3 patients (0.76%) developed scrotal hematoma, only one case (0.25%) was re explored. 20 patients (5.18%) went into urinary retention and were catheterized for 24 hours. 2 patients (0.5%) developed early recurrence with in the first year. 1 patient (0.25%) presented with hydrocele. 2 patients (0.51%) complained of neuralgia at groin.

During the long follow up for delayed recurrence we lost 58 patients (died, went abroad and some were not willing for this follow up) among the remaining 328 patients 7 patients developed delayed recurrence 2 were bilateral (2.4%). They were re operated and this time meshplasty with poly propylene mesh carried out.

CONCLUSION: We concluded that Darn repair with polypropylene is safe and cost-effective, even in terms of delayed recurrence of inguinal hernia, and recommend it for primary hernia repair.

Key Words: Inguinal hernia, Polypropylene Darn, Delayed Recurrence.

INTRODUCTION:

Hernia is a common health problem, mainly affects the male population. Incidence ranges from 3-4% among the males^{1,2}. Right inguinal hernia leads in number than left³. Since the introduction of Bassini method in 1887, more than 70 types of tissue repair have been reported in the literature⁴. An unacceptable recurrence rate and prolonged postoperative pain led to the concept of tension free repair. Surgery for

inguinal hernia has undergone numerous advances in the last two decades, the use of prosthetic mesh, the concept of tension free technique, and the postoperative rate of recurrence after Bassini or shouldice operations have completely changed the surgical approach towards the hernia repair^{5,6,7}. The recognition that excessive suture line tension was primarily responsible for high recurrence rate and significant postoperative pain, led to the

introduction of The concept of tension free repair of hernia⁸. Despite all these advances, the best method for inguinal hernia repair has not yet been established⁹. Lichtenstein et al, used to put mesh, reported in their series less than 1% recurrence rate, but mesh repair is an expensive procedure and if mesh gets infected may require mesh removal¹⁰. Darn repair originally described by Moneley et al is cheap and easily performed alternative to mesh the recurrence rate reported is similar to that described by the Lichtenstein et al, less than 1% regarding the early recurrence^{6,11,12}. Open inguinal repair with a non absorbable darn is equivalent to polypropylene mesh in respect to early measures of postoperative outcome and recurrence at one year¹³. Darn makes a tension free lattice on which is laid a buttress of fibrous tissue reinforcing the posterior wall, and carrying minimal risk of infective complications¹⁴. The newer technique, which is gaining popularity now is the laparoscopic mesh repair, the recent studies conducted show that this technique is only superior in case of recurrent and bilateral hernias¹⁵. Conventional open surgery, which can even be performed under local anesthesia, is safe and is recommended in unilateral uncomplicated primary hernias¹⁶. The low operative cost, minimal early complications and decrease rate of delayed recurrence of hernia, makes it the ideal method of repair.

MATERIALS AND METHODS

Total of three hundred and eighty six patients collected by non probability convenient sampling technique were included in the study and 390 repairs (4 patients with bilateral inguinal hernias repair) were included in the study. 180 herniae were indirect, Out of these 15 were strangulated, while 210 were of direct verity. 90 repairs were made under local anesthetic block, 300 were operated upon under general anesthesia. All the patients were discharged either on 1st or 2nd postoperative day. 3 patients were readmitted for wound infection and were discharged on 8th postoperative day. Patients were examined on day 7th and 14th postoperative day, for early complications and then subsequently on 6th months and yearly upon request for 9 years for

delayed recurrence. Last case of the series was operated upon in May 2004. The data was collected on a structured proforma and was analyzed.

RESULTS

Total of 386 patients and 390 repairs were included in the study with mean age of 50 Years (20 - 80 years). 180 (46.15%) patients were having indirect inguinal hernia while 210 (53.84%) were of direct verity. 15 patients (3.8%) were having complicated (strangulated) hernias. Right sided hernias, {224 patients (58%)} were more in number, while 158 patients (41%) had left sided hernia, only 4 patients (1%) presented with bilateral hernia. 99 patients (25.3%) presented with complete hernia, the remaining 291 (74.61%) were of incomplete type.

Among the complicated cases two patients (0.51%) had gangrenous small bowel loop, in whom resection and end to end anastomosis were carried out, followed by darn repair for hernia. These 2 patients were retained in the ward for 7 days. All the patients recovered very smoothly; there was no case of thrombotic complication.

Regarding the early complications, 48 patients (12.3%) developed some sort of complication after the surgery that has been shown in table no1,

Table no:1 Showing early complication of prolene darn herniorraphy

NO Of patients	Complication	Percentage
15	Superficial wound infection	3.8%
05	Deep wound infection	1.28%
03	Scrotal haematoma	0.76%
20	Acute urinary retention	5.12%
02	Recurrence	0.5%
01	Hydrocele	0.25%
02	Residual Neuralgia	0.5%

while in long term follow up for delayed complication (recurrence), 58 patients were lost from the study either died, went abroad or became reluctant to prolong follow up during the course. Out of the remaining 328 patients, 7 patients developed recurrence and one patient developed recurrence on both sides. All recurrences were of direct type. Total recurrence

was 8 (one patient with bilateral recurrence) out of 330 repair (2.4%). Shown in table no:2.

Table no:2 Showing delayed recurrence rate in darn herniorraphy.

Number of patients left for follow up	Years of F/up	Total no. of patients developed recurrence	Percentage
328	9 years	7 patients 8 Recurrence (1- B/L)	2.4%

The last case of the series was operated upon in May 2004, and was followed upon till May 2013.

The patients who developed complication were treated according to the severity and the type of complication. 15 patients (3.8%) developed superficial wound infection, and were treated with hot fomentation and antiseptic dressing in the OPD. 5 patients (1.28%) had established wound infection and were treated by wound drainage, antiseptic dressing and change of antibiotics to oral Cefixime (Cephalosporine) 400mg once a day for 10 days, in 3 patients. 3 patients (0.76%) developed scrotal hematoma, one was treated conservatively and the second by needle aspiration and the 3rd one re-explored. 20 patients went into urinary retention, these were all old age patients and were among those who were operated under general Anesthesia. They were catheterized for 24 hours, 2 patients (0.51%) developed recurrence, during the initial follow up of first year, and were re-operated, but this time mesh plasty using prolene mesh carried out. Both the recurrences were of direct variety. One patient (0.25%) presented with hydrocele after 20 months of follow up, that was small enough in amount and aspirated. 2 patients (0.5%) were complaining of residual neuralgia, responded well to local steroid injection.

Those patients who developed delayed recurrence during the period of follow up were counseled for re operation and this time polypropylene meshplasty with prolene mesh (6 x 11cm) carried out. All patients were given Moxifloxacin infusion 400mg once a day for two

days and then continued with oral Moxifloxacin 400mg once a day for 5-10 days.

DISCUSSION

Inguinal hernia surgery has undergone numerous advances in the past few years. It is since 1884, when Bassini started the modern surgical operation for inguinal hernia repair. Hernia surgery is one of the most common surgical procedures performed by the general surgeons today, yet the best method for inguinal hernia repair has not been established^(9,10). In the new millennium, the surgeons have clear alternatives: tension repair and tension free repair which may be open, or laparoscopic⁽¹⁵⁾. The laparoscopic inguinal hernia repair, and its technique is still in infancy in our setup and is matter of great controversy^(16, 18). Studies from the improved centers show good results as compared to the open conventional methods of repair, regarding the early recurrence and residual neuralgia^(19,20). However various studies still recommend laparoscopic repair for bilateral and recurrent herniae^(5,10, 18). Laparoscopic repair gain popularity, for less postoperative pain, early recovery, good cosmesis and for other diagnostic purposes, however it is more demanding in sense of learning and very much expensive^(10,18,20). The ideal operation for hernia repair must be able to deal with small as well as large defects, complicated as well as uncomplicated hernia. The technique must be simple, easily performed and cheap⁽²¹⁾. One can say that darn repair is simple, cheap and can be easily performed. The results it yield in expert hands is either equivalent or superior to other method of repair. In our study the infection rate was 1.28% comparable to other studies^(20,22,23,24,26). Management in case of darn is also very simple as compared to mesh repair as minimal amount of foreign material is incorporated⁽²⁴⁾. Simple stitch removal and antiseptic dressing was sufficient in our study.

We in our study found only 5.18% patients, who went into urinary retention. They were all old people and were operated under general

anesthesia .Similar result are also demonstrated by other studies^(10,25,26,28)

Average time for the completion of the procedure in our study was 45+10 min, less than the time mentioned in other studies for the standard bassini repair and mesh plug methods⁽²⁸⁾.

We experienced very low rate of early recurrence 0.5%; similar results are show by other studies^(10,11,22,26,27,28). Our less recurrence rate may be due to our small sample size. The level of recurrence is comparable to the Lichtenstein mesh repair, and more improved from the result of the shouldice repair, more than 1.1% described in the various studies^(23,24,25).

Mesh hernioplasty requires prosthetic mesh, which is very much expensive, and technically more demanding as compared to simple prolene darn and carries more risk of residual neuralgia^(10,29,30), and if gets infected may need removal.

In the second phase of our study, we followed our patients for long period of about 9 years for delayed recurrence, we lost 58 patients reasons already been discussed while 328 patients showed very good compliance for follow up visits, among them we found delayed recurrence in 7 patients (8 recurrence, one patient with bilateral recurrence) about 2.4% recurrence rate,all were direct verity and all the patients were labrourer by occupation, four patients also had symptoms of prostatism. Recurrence rate in our long follow up patients is high compared with the study conducted by Mumtaz et al at LRH which shows only 1.5% recurrence^(22,23). Our high recurrence may be explained for heavy work and straining at micturation because of enlarge prostate in our patients.

Conclusion: We conclude from our study that inguinal hernia repair by polypropylene (prolene) darn is safe and cost-effective in terms of early post operative morbidity and delayed recurrence of groin hernia.

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