

Early Morbidity of Open Tension Free Mesh Repair of Inguinal Hernia

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ABSTRACT

Objective To determine the early morbidity of open tension free mesh repair of inguinal hernia.

Study design Descriptive case series.

Place & Duration of study Department of Surgery Abbasi Shaheed hospital Karachi, from September 2007 to July 2009.

Methodology Patients with inguinal hernia were selected for the study. Open tension free repair was done using polypropylene mesh. After surgery, wound infection, seroma, hematoma, testicular atrophy and early recurrence were noted.

Results This study included 180 patients diagnosed with inguinal hernia. All the study subjects were males. Their mean age was 48.38 ± 15.59 year (range 22 - 76 year). Superficial wound infection occurred in 6 (3.3%) patients and numbness in 3 (1.7%) patients.

Conclusion The open tension-free repair of inguinal hernias using propylene mesh was a safe approach with overall early morbidity of only 5%.

Key words Inguinal hernia, Mesh repair – inguinal hernia, Morbidity.

INTRODUCTION:

Open tension free hernioplasty using prosthetic mesh is a common operation for inguinal hernia.¹ This was described by Lichtenstein et al in 1989. Open tension free mesh repair is simple, safe and effective method which is now the standard operation for inguinal hernia.^{2,3} The use of polypropylene mesh has several advantages such as less postoperative pain, rapid recovery and low recurrence rate. Open tension free repair may result in various postoperative complications like wound infection, hematoma, seroma etc. The frequency of these problems is less as compared to other techniques of hernia repair.²

The purpose of this study was to analyze the early complications of use of polypropylene mesh following open tension free mesh repair of hernia.

METHODOLOGY:

This descriptive case series was conducted at the Department of General Surgery, Abbasi Shaheed Hospital Karachi, from September 2007 to July 2009. Patients were selected by non-probability purposive sampling. Patients above the age of 20 year with grade IIIA and IIIB of Nyhus classification, having direct inguinal hernia and indirect hernia with weak inguinal floor, and sliding hernia were included. Patients with congenital inguinal hernia, strangulated /obstructed hernia, those with previous lower abdominal surgery / radiotherapy, co-morbidities and recurrent inguinal hernia, were excluded.

A detailed history was taken and clinical examination done. Spinal anesthesia was the procedure of choice.

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Data was collected and included information like age, sex, site of hernia, Nyhus classification grade, mode of anesthesia, visual pain analogue score and postoperative complications. Postoperative morbidity like pain, wound infection, paresthesia, anesthesia, hematoma, seroma, testicular swelling, atrophy and early recurrence were recorded during 1st three days at hospital stay, then at week 1, months 2 and 3 at follow up.

Wound infection was documented on the basis of redness, swelling, pus discharge, and ultrasound in cases of deep seated abscess. Pain was recorded on the basis of visual analog pain scale during hospital stay and after discharge in outpatients clinic. All patients received preoperative antibiotic cephadrine, injected at the time of induction of anesthesia. All patients were operated under spinal anesthesia except for two cases. One patient was operated under general anesthesia due to spinal failure and another was under local anesthesia. Standard operative technique was followed. Hernia was classified according to Nyhus classification. In case of IIIA plication of the fascia transversalis was done and polypropylene mesh of 6 × 11 cm placed in the posterior wall of inguinal canal and fixed with interrupted sutures. In cases of III B, herniotomy was done in addition to placcation, lateralization of cord and placement of mesh.

Data was analyzed on SPSS version 17.0. Frequency and percentages were computed to present all variables including sex, age and post operative complications. Mean and standard deviation obtained for age and pain scale.

RESULTS:

This study included 180 patients. All the participants were males. Their mean age was 48.38 ± 15.59 year (range 22 – 76 year). In 126 (70%) patients hernia was on right side while in 48 (26.7%) it was on left side. Six (3.3%) patients had bilateral inguinal hernia. One hundred eleven (61.7%) patients had indirect type of inguinal hernia while direct inguinal hernia was noted in 69 (38.3%) patients. Spinal anesthesia was used in 178 (98.3%)

patients.

Relation of site of hernia with age group is shown in table I. Mild pain was noted in 147 (81.7%) patients while 33 (18.3%) had moderate pain. Post operative complications like superficial wound infection occurred in 6 (3.3%) patients and numbness in 3 (1.7%) cases.

DISCUSSION:

Inguinal hernia repair using Lichtenstein technique has become the most frequently performed tension free mesh repair. This technique is easy to learn. It can be performed under local anesthesia with low recurrence rate. The most commonly used material in this technique is polypropylene, although published results on multifilament polyester mesh demonstrated safe and efficient results.⁴

Open tension free inguinal hernia repair by using polypropylene mesh is also effective in recurrent inguinal hernia and can be done safely in high risk patients.^{5,6} In a study conducted by Dalenkack et al regarding the comparison between the Prolene hernia system, Lichenstein repair and plug-and-patch for primary inguinal hernia repair no significant differences between the outcome and morbidity noted. In to our study six patients had wound infection and only three developed numbness.⁷

The Lichenstein repair (open tension free mesh repair) can be done under local anesthesia specially in high risk old patients. In a study conducted by Shaikh AR et al 31 patients developed wound pain. Hematoma was noted in four patients, two had vomiting, one developed postoperative urinary retention and in three wound infection occurred.⁸ In our study overall morbidity was 5 %.

Spier et al operated upon 1235 patients with average age of 63 year under local anesthesia. There was no mortality and complications noted were superficial hematoma in five cases, seromas in five, questionable neuralgia, dysejaculation, ischemic orchitis, flare-up of gout in one patient each with overall complication rate of 1.46%.⁹

Table I: Age Group and Site of Hernia (n=180)

Age groups (Year)	Right n (%)	Left n (%)	Bilateral n (%)
22 – 36	48 (84.2)	9 (15.8)	0 (0)
37 – 51	24 (88.9)	3 (11.1)	0 (0)
52 – 71	48 (55.2)	33 (37.9)	6 (6.9)
> 71	6 (66.7)	3 (33.3)	0 (0)

Koukourou et al conducted a study to evaluate the outcome in patients undergoing open inguinal hernia repair with either polypropylene mesh or nylon darn. This was a randomized prospective trial of one hundred men who underwent 105 repairs. There were no differences in early or late complications. Return to normal activity in each group was also similar, with a mean time of 5 weeks.¹⁰

In a study by Bringman on 86 patients with 103 hernias to compare laparoscopic hernioplasty with two open tension-free hernia repairs, 8 (7.8%) hematomas, 4 (3.9%) superficial infection, 3 (2.9%) wound secretion, 2 (1.9%) sensory loss and testicular swelling were reported. Overall complication rate was 20.4%.¹¹ While our study showed overall complication rate of 5%. The results of previous studies have reiterated the fact on safety of using polypropylene mesh for open tension-free repair of inguinal hernias. Our study also showed the same outcome.

CONCLUSIONS:

Open tension-free repair of inguinal hernias using polypropylene mesh is a safe approach with overall early morbidity of only 5%. The main complications were wound infection and numbness.

REFERENCES:

1. Wilms MC, Hellmold P. Avoiding scrotal haematoma after repair of hernias by postoperative scrotal compression through scrotal-abdominal skin suture. *Trop Doct.* 2012;42:86-7.
2. Weyhe D, Schmitz I, Belyaev O, Grabs R, Muller KM, Uhl W, et al. Experimental comparison of monofile light and heavy polypropylene meshes: less weight does not mean less biological response. *World J Surg.* 2006;30:1586-91.
3. Pessaux P, Lermite E, Blezel E, Msika S, Hay JM, Flamant Y, et al. Predictive risk score for infection after inguinal hernia repair *Am J Surg.* 2006;192:165-71.
4. Chastan P. Tension free open inguinal hernia using an innovative self-gripping semi-resorbable mesh. *J Minimal Access Surg.* 2006;2:139-43.
5. Gianetta E, Cuneo S, Vitale B, Camerini G, Marini P, Stella M. Anterior tension-free repair of recurrent inguinal hernia under local

- anesthesia: a 7-year experience in a teaching hospital. *Ann Surg.* 2000;231:132-6.
6. Amato B, Compagna R, Della Corte GA, Martino G, Bianco T, Coretti G, et al. Feasibility of inguinal hernioplasty under local anesthesia in elderly patients. *BMC Surg.* 2012;12 S2.
7. Dalenback J, Andersson C, Anesten B, Björck S, Eklund S, Magnusson O, et al. Prolene hernia system, Lichtenstein Mesh and plug-and-patch for primary hernia repair: 3 years outcome of prospective randomized controlled trial. *Hernia.* 2009;13:121-9.
8. Sheikh AR, Rao AM, Muneer A. Inguinal mesh hernioplasty under local anesthesia of Liaquat University of Medical and Health Sciences. *J Pak Med Assoc.* 2012;62: 566-9.
9. Spier N, Berliner SD. The open tension-free mesh repair of inguinal hernia: Analysis of 1,235 cases. *;*2:81-3.
10. Koukourou A, Lyon W, Rice J, Wattchow A. Prospective randomized trial of propylene mesh compared with nylon darn in inguinal hernia repair. *Br J Surg.* 2002;88:931-4.
11. Bringman S, Ramel S, Heikkinen TJ, Englund T, Westman B, Anderberg Bo. Tension-free inguinal hernia repair: TEP versus Mesh-Plug versus Lichtenstein - A prospective randomized controlled trial. *Ann Surg.* 2003;237:142-7.