

# RECURRENCE AFTER PRIMARY INGUINAL HERNIA REPAIR: MESH VERSUS DARN

NISAR ALI, MUHAMMAD ISRAR, MUHAMMAD USMAN

Department of Surgery Saidu Teaching Hospital/Swat Medical Complex, Saidu Sharif Swat

## ABSTRACT

*Objectives:* To evaluate outcome in patients under going inguinal hernia repair with either polypropylene mesh or polypropylene darn.

*Design:* Case control study.

*Setting & Duration:* Department of Surgery, Saidu Teaching Hospital & Swat Medical Complex Saidu Sharif, Swat from September 2005 to February 2008.

*Methodology:* It was carried out on 260 male patients between the ages of 18-80 years. Exclusion criteria was recurrent, bilateral, irreducible and stragulated hernias. Randomization was done in two groups i.e. repair carried out with polypropylene mesh or polypropylene darn. Repair was done under general, spinal or local anaesthesia.

*Results:* Total number of patients operated was 260. Surgery was performed by registrars or consultant Surgeons. In 165 patients hernia repair was done by using polypropylene mesh, while in 95 patients darning was done with 2/0 polypropylene. Other complications and return to normal activity was almost equal in both groups, while recurrence was 1.81% in mesh group much lower than darn group which was 3.15% on review after one year.

*Conclusions:* Mesh repair is superior to darning in respect of recurrence at one year.

**KEY WORDS:** Inguinal Hernia, Mesh Repair, Darning

## INTRODUCTION

Hernia is a protrusion of a viscous or part of a viscous through an abnormal opening in the walls of its contacting cavity.<sup>1</sup> It can occur both in males and females at any age. 80% of hernias are inguinal and 92% are in men, 18% of which occurs below 15 years of age.<sup>2</sup>

It is one of the common operation occupying 10 to 15% of all surgical procedures. Approximately 800000 repairs are performed each year in USA.<sup>3</sup>

There are many ways of repairing an inguinal hernia, with over 80 operative techniques described since 1887.

Darning is claimed to be cheap and effective way of repairing hernia as originally described by Moloney et al with a recurrence rate of 0.8%.<sup>4,5</sup> While polypropylene mesh introduced by Lichtenstiein with recurrence rate as nil in his personal series.<sup>6</sup> Extensive research has been undertaken to assess outcome of inguinal hernia repair.<sup>7</sup> Recurrence rate after non mesh repair of inguinal hernia vary between 0.2 and 33%, depending on operative methods, surgical experience, type of hospital and length of followup.<sup>8,9</sup> Some studies have shown that short term results of mesh repair is superior to non mesh repair<sup>10</sup>, but long term results of mesh repair cannot be assessed due to limited available data.<sup>11</sup>

The aim of our study was to compare polypropylene mesh with polypropylene darn which are commonly employed for inguinal hernia repair in men, assessing recurrence at one year.

## METHODOLOGY

This was a prospective case control study carried out in Department of Surgery, Saidu Teaching Hospital and Swat Medical Complex Saidu Sharif Swat from September 2005 to February 2008. All men with primary inguinal hernia between age of 18 to 80 years were

## Correspondence:

Dr. Nisar Ali, Department of Surgery,  
Saidu Teaching Hospital/Swat Medical Complex,  
Saidu Sharif Swat.

Phones: 0333-9489578.

E-mail: smcwat@brain.net.pk

included in the study. Patient admitted were thoroughly examined and investigated. Patients having bilateral, irreducible, strangulated or recurrent hernia were not included in the study. Hernia repair was done under general, spinal or local anesthesia as decided by the Anesthetist.

Patients agreed to be in the trail were randomised to one of the two groups, to have the repair with either polypropylene mesh or polypropylene darn. Operations were performed by registrars or consultant surgeons. In 190 patients surgery was performed under general, in 54 under spinal and in 16 under local anesthesia.

Mesh repair was done in 165 patients according to strict protocol<sup>6</sup>, using polypropylene prosthetic mesh of 7.5x 15cm. Mesh was anchored to the posterior wall of inguinal canal by taking few circumferential stitches with 2/0 polypropylene. The spermatic cord was then placed between the two tails of the mesh for creation of new deep inguinal ring. In 95 patients repair was done by darning using 2/0 polypropylene, which is a monofilamentous, non absorbable and relatively inert. The first stitch was taken from pubic tubercle and a darn was made locking each stitch between conjoint tendon and inguinal ligament, with out tension in an interwoven fashion.<sup>2</sup> The procedure was tension free. An excellent description of both techniques has been given by Mad-dern et al.<sup>12</sup> All patients got IV antibiotics and some form of analgesia according to severity of pain.

18 patients were retained due to urinary retention and the rest were discharged on 1st post op day. Patients reviewed in out patient at 10 days, one month and one year after operation for recurrence and other complications.

**RESULTS**

A total of 260 patients operated 163(62.69%) had indirect inguinal hernia, 84(32.30%) had direct inguinal hernia, while 13(5.00%) had pantaloon hernia. 165 patient had repair done with polypropylene mesh, while in 95 patients darning was done using 2/0 polypropylene, irrespective of the type of inguinal hernia. Mean age in mesh group was 54 while in darn group it was 52 years. Right sided hernia predominated: 93 of 165 in mesh group and 61 of 95 in darn group.

There was no significant difference between the two groups in the rate of complications other than recurrence. Recurrence was high in darn group compared to mesh group.

3(1.81%) hernia recurred after mesh repair. All 3 were

medial to the deep inguinal ring due to detachment of mesh in this area. The recurrence rate in darn group was 3.15% and the number of hernias recurred was 3 in which 2 were lateral to the deep inguinal ring due to inadequate tightening of the ring, while 1 was medial to the deep inguinal ring due to loosening of stitch from the pubic tubercle. The number of recurrence and other complications are shown in Table I.

Complications	Mesh Group (n=165)	Darn Group (n=95)
Haematoma	7(4.24%)	5(5.26%)
Seroma	6(3.63%)	3(3.15%)
Wound Infection	4(2.42%)	3(3.15%)
Neuralgia	3(1.81%)	2(2.10%)
Urinary Retention	11(6.66%)	7(7.36%)
Recurrence	3(1.81%)	3(3.15%)

**Table I. Complications**

**DISCUSSION**

After one year follow up in this study 3(1.81%) recurrences occurred in mesh group while 3(3.15%) recurrences occurred in darn group contrary to equal recurrence rate in both groups in study carried out by Koukourou et al.<sup>13</sup> Moreover the recurrence rate for the Shouldice method was high in general surgical practice than 1.1% reported from Shouldice clinic.<sup>14</sup> Short term follow up may not show actual recurrence rate after hernia repair. It has been suggested that a minimum of 10 years follow up is needed as 20% of recurrences will not be apparent for 15 years<sup>15</sup>, so it is more likely that recurrence rates are under estimated due to lack of long turn follow up.<sup>16,17</sup>

Short term as well as what ever data available on long term follow up mesh repair has been recommended for primary inguinal hernia repair in all centres particularly in training institutions.<sup>18</sup>

**CONCLUSION**

It was found from this study that the best method of primary inguinal hernia repair is polypropylene mesh with low recurrence rate much lower than any form of open inguinal hernia repair.

**REFERENCES**

1. Russell R C G, Norman S, Williams, Christopher

- J K, Bulstrode. Short practice of surgery 23rd Ed. 2000; 1143.
2. Ali M, Habiba U, Hussain A, Hadi G. The outcome of darnning method of inguinal hernia repair using polypropylene in a district general hospital JPMI 2003; 17(1): 42-45.
  3. Rutkow I M. Demographic and socioeconomic aspects of hernia repair in the United States in 2003. Surg Clin North Am 2003; 83: 1045-51.
  4. Moloney G E, Gill W G, Barelay R C. Operations for hernia: technique of nylon darn. Lancet 1948; 2: 45-48.
  5. Moloney G E. Results of nylon-darn repairs of herniae Lancet 1958; 1: 273-8.
  6. Lichtenstein I L, Shulman A G, Amid P K, Montllor M. The tension-free hernioplasty. Am J Surg 1989; 157(2): 188-193.
  7. Bendavid R. New techniques in hernia repair. World J Surg 1989; 13: 522-31.
  8. Simons M P, Kleijnen, Van G D, Hoitsma H F, Obertop H. Role of the Shouldice technique in inguinal hernia repair: a systemic review of controlled trials and a meta-analysis. Br J Surg 1996; 83(6): 734-38.
  9. Paul A, Troidl H, Williams J I, Rixen D, langen R. Randomized trial of modified Bassini versus Shouldice inguinal hernia repair. The Cologne Hernia Study Group. Br J Surg 1994; 81(10): 1531-34.
  10. Virgland W W, Vanden T M P, Luijendijk R W, Hop WC, Busschbach J J, de Lange D C et al. Randomized clinical trial of non-mesh versus mesh repair of primary inguinal hernia. Br J Surg 2002; 89(3): 293-97.
  11. Scot N W, Mc Cormack K, Grahaur P, Go P M, Ross S J, Grant A M. Open mesh versus non-mesh repair for femoral and inguinal hernia. Cochrane Database of systemic Reviews 2002; 18(4): 726-30.
  12. Maddern G J, Hiatt J R, Phillips E H. Hernia Repair: Open vs Laparoscopic Approaches. New York: Churchill Livingstone, 1997; 12: 1502-6.
  13. Koukourou A, Lyon W, Rice J, Wattchow D A. Prospective randomized trial of polypropylene mesh compared with nylon darn in inguinal hernia repair. Br J Surg 2001; 88(7): 931-34.
  14. Glassow F. The Shouldice hospital technique: Int Surg 1986; 71(3): 148-53.
  15. Ravitch M M. Repair of Hernia. Chicago, Illinois: Year Book Medical 1969; 705-9.
  16. Vos P M, Simons M P, Luitse J S, Van G D, Koelem-aij M J, Obertop I I. Follow-Up after inguinal hernia repair. Questionnaire compared with physical examination: a prospective Study in 299 patients. Eur J Surg 1998; 164(7): 533-36.
  17. Haapaniemi S, Nilsson E. Recurrence and pain three years after groin hernia repair. Validation of postal Questionnaire Selective physical examination as a method of follow-Up. Eur J Surg 2002; 168: 22-28.
  18. Report of working party convened by Royal College of Surgeons of England. Guidelines on Management of Groin Hernia in Adults London: Royal College of Surgeons, 1992; 65: 103-8.

Hernia recurrence was considered as the primary outcome measure. The secondary outcome measures included surgical site infection (SSI), haematoma, seroma, neuralgia, urinary retention, length of hospital stay, time to return to normal activities or work, testicular atrophy, operative time and chronic pain.Â Our results suggest that open darn repair is comparable with open mesh repair for inguinal hernias. Considering that consequences of mesh complications in inguinal hernia repair, albeit rare, can be significant, open darn repair provides an equally credible alternative to open mesh repair for inguinal hernias. Further studies are required to investigate patient-reported outcomes and to elicit a superior non-mesh technique.