

# A comparative study of repair of hernia with darn versus mesh

R Swaminathan<sup>1</sup>, Sunil Patel<sup>2\*</sup>

<sup>1,2</sup>Associate Professor, Department of General Surgery, Teerthanker Mahaveer Medical College & Research Center, Moradabad-244001

Email: [sunilpatel6575@yahoo.in](mailto:sunilpatel6575@yahoo.in)

## Abstract

**Introduction:** The history of hernia is the history of surgery (FalixPatino). The trial for optimal operation is still going on regarding cost effectiveness, low recurrence rate and acceptable postoperative pain and no or less wound infection. Inguinal hernia repair is the most frequently performed operation in general surgery. The repair has over the years been revolutionized and still the optimum method has not yet been determined in terms of cost effectiveness, low recurrence rate and acceptable postoperative pain and no or less wound infection., Post-operative pain is a significant problem after open inguinal hernia repair caused by stimulation of free nerve endings that transmit impulses from periphery to CNS via nerve fibers (widely distributed in the skin, deeper tissues such as arterial wall, periosteum, peritoneum and viscera). They are either large or myelinated (A-O fibers) or small and unmyelinated (Cfibers). **Aims and Objective:** To study effectiveness of Mesh over Darn in the hernial repair operation. **Methodology:** After approval from institutional ethical committee this, prospective case-control study carried out in all the patients Diagnosed with hernia at tertiary care hospital during the one year period from Jan 2013 to 2014, except having the serious illness, those who not consented. Total 60 patients during one year period were randomly allocated to the two groups Mesh and Darn by Lottery system. Statistical analyses done by Chi-square test, unpaired t-test calculated by Graph Pad Prism software. **Result:** Mean duration of operation for mesh was  $50 \pm 0.89$  and for Darn was  $59 \pm 0.92$  min. and this difference was highly significant ( $P < 0.0001$ ,  $t = 38.5106$   $df = 58$ ). Mean Hospital Stay (day)  $\pm$ S.D was  $2.5 \pm 1.5$  and for Darn was  $3.9 \pm 1.2$  and this difference was highly significant ( $P < 0.0002$ ,  $t = 38.5106$   $df = 58$ ). The post-operative pain perceived by the patients in the Mesh group and Darn Group was comparable to each other as  $p > 0.05$ ,  $X^2 = 3.71$ ,  $df = 3$ . **Conclusion:** The Mesh was found superior to Darn in terms of Mean Operative time required, Mean days Hospital Stay but post-operative pain found similar in both the group.


**Key words:** Hernia, Hernial Repair by Darn, Hernial Repair by Mesh.

## \*Address for Correspondence:

Dr. Sunil Patel, Staff Quarters, Mahaveer Medical College & Research Center. Moradabad-244001, Uttar Pradesh, INDIA.

Email: [sunilpatel6575@yahoo.in](mailto:sunilpatel6575@yahoo.in)

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## INTRODUCTION

The history of hernia is the history of surgery (Falix Patino). The trial for optimal operation is still going on regarding cost effectiveness, low recurrence rate and acceptable postoperative pain and no or less wound infection.<sup>1</sup> Inguinal hernia repair is the most frequently performed operation in general surgery.<sup>2</sup> The repair has over the years been revolutionized and still the optimum

method has not yet been determined in terms of cost effectiveness, low recurrence rate and acceptable postoperative pain and no or less wound infection.<sup>3,4</sup> Post-operative pain is a significant problem after open inguinal hernia repair.<sup>5,6</sup> caused by stimulation of free nerve endings that transmit impulses from periphery to CNS via nerve fibers (widely distributed in the skin, deeper tissues such as arterial wall, periosteum, peritoneum and viscera). They are either large or myelinated (A-O fibers) or small and unmyelinated (Cfibers).<sup>7</sup> Hernias are common health problem; the incidence is 3-4% in male population. Hernia in inguinal region account for approximately 75% of all forms of hernias and are more common in males than females.<sup>8</sup> The indirect inguinal hernia are more common than direct type accounting for (2/3 of inguinal hernias are indirect)<sup>9</sup> The principles of operation consist of excision of hernial sac, repair of stretched internal inguinal ring, along with transversalis fascia and further reinforcement of the posterior wall of inguinal canal<sup>5</sup>, which is mandatory in adult patient<sup>9</sup>.

The repair must be done without tension and various techniques exist to achieve this, e.g. Maloney nylon darn and polypropylene mesh implant. High recurrence rate due to suturing under tension promoted the development of minimally tension nylon darn and polypropylene mesh to reinforce the posterior wall of inguinal canal during hernia repair<sup>10</sup> is a cheap and effective way of repair. The recurrence rate reported from original series was 0.8%.<sup>11</sup> 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 personal series but about 1% in other series.<sup>11</sup>

**AIMS AND OBJECTIVES**

To study effectiveness of Mesh over Darn.

**MATERIAL AND METHODS**

After approval from institutional ethical committee this, prospective case-control study carried out in all the patients above the age of 14 yrs. Diagnosed with hernia at tertiary care hospital during the one year period from Jan 2013 to 2014, except having the serious illness, those who not consented. Patients were randomly allocated to the two groups Mesh and Darn by Lottery system. Statistical analyses done by Chi-square test, unpaired t-test calculated by Graph Pad Prism software.

**RESULT**

**Table 1:** Distribution of the Patients as per the Mean Operative timerequired

	Mean operative time (min) ±SD	P- value
Mesh	50 ± 0.89	P<0.0001, t = 38.5106 df = 58
Darn	59± 0.92	

From Table 1: It Is Clear That Mean duration of operation for mesh was 50 ± 0.89 and for Darn was 59± 0.92 and this difference was highly significant (P<0.0001, t= 38.5106 df= 58)

**Table 2:** Distribution of the patients as per the Mean Hospital Stay

	Mean Hospital Stay (day) ±SD	P- value
Mesh	2.5± 1.5	0.0002, t = 3.9919 df = 58
Darn	3.9±1.2	

It Is Clear From Table 2: Mean Hospital Stay (day) ±S.D was 2.5± 1.5 and for Darn was 3.9±1.2 and this difference was highly significant (P<0.0002, t = 38.5106 df = 58)

**Table 3:** Distribution of the patients as per the Post-operative pain

	Mesh	Darn	Total
Mild	6 (66.67%)	3 (33.33%)	9(100%)
Moderate	19(44.18%)	24 (55.81%)	43 (100%)
Severe	4(80%)	1(20%)	5(100%)
No	1(33%)	2 (66.67%)	3(100%)
<b>Total</b>	<b>30</b>	<b>30</b>	<b>60 (100%)</b>

$\chi^2 = 3.71, df=3, p>0.05$

From the Table 3: It is clear from the table that the post-operative pain perceived by the patients in the Mesh group and Darn Group was comparable to each other as  $p>0.05, \chi^2= 3.71, df=3$ .

**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<sup>12</sup>. It is the most common surgical procedure after appendicectomy.<sup>13</sup> Its peak incidence is seen at the two extremes of life<sup>14</sup>: Koukourou (2001)<sup>15</sup>, Asif (2002)<sup>13</sup>, Davies(1994).<sup>14</sup> Recently the use of polypropylene mesh has become popular, largely because of the excellent results reported by Lichtenstein *et al.*<sup>15</sup> The polypropylene mesh is strong, monofilament and readily available<sup>12</sup>. 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.<sup>14</sup> In group A, 51 patients underwent Lichtenstein tension free hernioplasty. The mean operative time was 44.7 minutes and mean hospital stay was 37.18 hours, which is more than reported by Faisal (1998)(1.3 days).<sup>16</sup> In group B, 53 patients underwent darn repair. The mean operative time was 50.9 minutes and mean hospital stay was 47.17 hours, with 20 patients admitted for 3 days. This figure corresponds well to series reported by Asif (2002)<sup>8</sup> and Burak k. *et al* (2007).<sup>17</sup> In our Study we found that Mean duration of operation for mesh was 50 ± 0.89 and for Darn was 59± 0.92 and this difference was highly significant (P<0.0001, t = 38.5106 df = 58). Mean Hospital Stay (day) ±S.D was 2.5± 1.5 and for Darn was 3.9±1.2 and this difference was highly significant (P<0.0002, t = 38.5106df = 58). Post-operative pain perceived by the patients in the Mesh group and Darn Group was comparable to each other as  $p>0.05, \chi^2= 3.71, df=3$ . post-operative pain perceived by the patients in the Mesh group and Darn Group was comparable to each other as  $p>0.05, \chi^2 = 3.71, df=3$ .

**CONCLUSION**

The Mesh was found superior to Darn in terms of Mean Operative time required, Mean days Hospital Stay but post-operative pain found similar in both the group.

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