

# The Outcome Comparison of two Groups of total Extraperitoneal and Mesh Repair of Inguinal Hernia

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## ABSTRACT

**Aim:** The outcome comparison of total extraperitoneal versus mesh repair for inguinal hernia.

**Study design:** Quasi experimental study.

**Place and duration of study:** Department of Surgery, M. Islam Teaching Hospital, Gujranwala from March 2018 to March 2019.

**Methodology:** After the approval of hospital ethical committee, a total of 50 patients were included and randomly divided into two groups equally. Group A (Total extraperitoneal), Group B (Mesh repair). An informed consent was taken from every patient about operative procedure and the outcome. A detailed history of the patient i.e. clinical examination, routine investigations (CBC, Urine R/E, urea, creatinine) and some specific investigations (chest X-ray, ECG and ultrasound abdomen and prostate) was done for surgery. All data of patients was collected on proforma and was analyzed with the help of a computer SPSS programme 20.

**Results:** The mean age of patients was 34.22±11.54 years in group A and 35.63±11.25 years in group B. All male and female patients included in this study in both groups. Twelve (48%) of patients were direct inguinal hernia in group A 13(22%) were in group B and 14(56%) patients were in group A and 11(44%) patients were in group B. The mean±SD postoperative hospital stay was 24.48±4.62 in group A and 34.65±12.26 hours in group B (p 0.001). The mean±SD postoperative recovery time in weeks was 2.18±0.43 in group A and 2.90±0.46 weeks in group B (p 0.001). Only 2 (4%) patient had postoperative infection on first week and 4 (8%) patients had infection respectively. No recurrence was seen in group A and only 3% recurrence was in group B.

**Conclusion:** It is concluded that group A had shorter hospital stay, recovery time, postoperative time and less infection rate as compared to group B. In group A 13% patients had severe pain and in group B 25% patients.

**Keywords:** Inguinal Hernia, Total extraperitoneal, Mesh repair.

## INTRODUCTION

The inguinal hernia repair is one of the most common procedure in general surgery field and accounting about 75% of all abdominal wall hernias.<sup>1,2</sup> Its present as bulges in the groin area that can become more prominent when coughing, straining, or standing up. They are often painful and the bulge commonly disappears on lying down. The inability to reduce or place the bulge back into the abdomen usually means the hernia is obstructed often necessitating emergency surgery. Indirect inguinal hernia is the most common form of inguinal hernia and is believed to be congenital in origin as the hernial sac is the remnant of the processus vaginalis. It occurs when abdominal contents protrude through the deep inguinal ring lateral to the inferior epigastric vessels. If the blood supply of the portion of the intestine present in the hernia is compromised, the hernia is deemed strangulated and gut ischemia and gangrene can result, with potentially fatal consequences. Surgery has been recommended for all inguinal hernias to avoid complications.<sup>3</sup>

In the United Kingdom the prevalence rate of inguinal hernia repair is about 10% 100 000 of population and in the United States the prevalence rate about 28% 100 000. It has been observed that over 20 million procedures of inguinal hernia are carried out all over the world each year and approximately 27% in males and 3% in females is lifetime risk.<sup>4</sup> There were different methods of surgery for the repair of inguinal hernia, but tension-free repair is the procedure of choice due to its low rate of recurrence.<sup>5</sup> The procedure of totally tension-free repair of inguinal hernia can be categorized like transabdominal preperitoneal (TAPP) repair, intra-peritoneal onlay mesh (IPOM) repair. In between totally tension-free is accepted as the most ideal method because it can avoid entry into the peritoneal cavity.<sup>5</sup> The extraperitoneal technique is favoured over the transperitoneal technique for laparoscopic inguinal hernioplasty.<sup>6</sup> Extraperitoneal space can be created without the use of balloon but it is helpful to use balloon in the learning curve and has been shown to reduce the conversion rate.<sup>7</sup>

After open surgery approximately 1 to 10 out of 100 surgeries chance of hernia recurrence.<sup>8</sup> Upto 10% of hernias repaired with laparoscopic surgery may recur.<sup>9</sup> Recurrence rates of hernia in some studies have found as low as 0.25%-2% for laparoscopic surgery.<sup>10</sup> Using mesh to repair the weak muscle in abdominal wall makes it up to half as likely that the hernia will come back.<sup>11</sup>

## RESULTS

Mean age was 34.22±11.54 years in group A and 35.63±11.25 years in group B and age range of 20-60 years. Most of the patients in both groups from 40-60 groups (Table 1). Table 2 showed the type of hernia i.e. direct inguinal hernia in group A 10 (40%) and 15 (60%) were indirect hernia and in group B direct inguinal hernia was 8 (32%) and indirect hernia was 17 (68%). Table 3 showed the postoperative comparison of hospital stay in both groups. In group A 20 (80%) patients had hospital stay from 1-30 hours and 3 (12%) had 31-40 hours and only 2 (8%) had stay in hospital after surgery from >40 hours. In group B 3 (12%) patient had hospital stay from 1-30 hours, 4 (16%) from 31-40 hours and 18 (72%) patients stay in the hospital which is statistically significant (p 0.001).

The mean postoperative recovery time was 2.14±0.34 in group A and 2.78±0.46 weeks in group B (p 0.001). Twenty one (84%) patients whose postoperative recovery time from 1-2 weeks and 4 (16%) patients from 3-4 weeks in group A. In group B 5 (20%) patients recovered from 1-2 weeks and 20(80%) had recovered from 3-4 days (Table 4). There were postoperative complications in group A 4(16%) patients had severe pain, 10(40%) patient had moderate pain and 8 (32%) developed in mild pain, hematoma in 1(4%), infection 1(4%) and also 1 (4%) developed in recurrence while in group B 10 (40%) patients had severe pain, 8(32%) patients who developed moderate pain, 2 (8%) patients had mild pain, 2 (4%) developed in hematoma,

infection in 1 (4%) and recurrence in 2 (8%) patients respectively (Table 5).

Table 1: Frequency of age (n=50)

Age (years)	Group A (n=25)		Group B (n=25)	
	No.	%	No.	%
20 – 30	8	32.0	9	40.0
31 – 40	4	18.0	6	24.0
41 – 50	7	22.0	6	18.0
>50	6	28.0	4	18.0
Mean±SD	34.22±11.54		35.63±11.25	

Table 2: Type of inguinal hernia (n=50)

Type of hernia	Group A (n=50)		Group B (n=50)	
	No.	%	No.	%
Direct	10	40.0	7	28.0
Indirect	15	60.0	18	72.0

Table 3: Postoperative hospital stay (hours)

Hospital stay (hrs)	Group A (n=25)	Group B (n=25)
1-30	20(92%)	4(12%)
31-40	3(2%)	3(16%)
>40	2(6%)	18(72%)
Mean±SD	24.48±4.62	43.65±11.24

P value 0.001

Table 4: Comparison of postoperative recovery time

Recovery time (weeks)	Group A (n=25)	Group B (n=25)
1-2	21(84%)	5(20%)
3-4	4(16%)	20(80%)
Mean±SD	2.14±0.34	2.18±0.46

P value 0.001

Table 6: Complications between two groups

Complications	Group A (n=25)	Group B (n=25)
<b>Pain</b>		
Severe	4(16%)	10(32%)
Moderate	10(40%)	8(32%)
Mild	8(32%)	2(8%)
Hematoma	1(4%)	2(8%)
Infection	1(4%)	1(4%)
Recurrence	1(4%)	2(8%)

## DISCUSSION

In surgical field one of the most common elective surgical procedure is inguinal hernia repair. The surgical procedures like herniorrhaphy or hernioplasty were performed for inguinal hernia but recent advances has shown laparoscopic repair.

In our study the mean age was 34.22±11.54 in group A and 35.63±11.25 years in group B with age range from 20-60 years. In a study reported by Waris the mean age of the patients was 33.89±13.45 years which is comparable with our study<sup>12</sup>. In another study done by Mohameed, the mean age was 40.10±12.39 years in group A and was 41.60±15.26 years in group B which is comparable with our study.<sup>13</sup>

In this study the direct inguinal hernias were 10 (40%) and 8 (32%) respectively while indirect hernias were 15(60%) and 17(68%) respectively. A similar study reported by the in group A, direct hernias were found in 3 (15%) patients and in group B were 4 (20%) while in group A indirect hernias were found in 17 (85%) and 16 (80%) were found in group B which is comparable with our study.<sup>13</sup>

In this study postoperative complications were presented such as pain, hematoma, infection and recurrence rate. The postoperative pain of patients in group A had less as compared to group B and the dose of analgesia required in group A patients was less as compared to group B. A similar study reported by Tam et al, there was no significant difference was found in both groups of postoperative pain.<sup>14</sup> In another study presented by Raghu et al, 30 patients who were divided into two groups of postoperative pain was significantly less in the non-fixation group as compared to mesh fixation group.<sup>15</sup> Buyukasik et al done a study, where pain

was significantly higher in the mesh fixation group which is comparable with our study.<sup>16</sup> In this study the recurrence rate was 1(4%) in group A and 2(8%) in group B. In a same study of Heikkinen, 2(4%) patients group A and in group B 2% patients had true recurrence at 6 months while the 2% patients had false recurrence at 1 month<sup>17</sup>. In a same study done by Sunamak showed that 3(2.7%) recurrence in TEP group and 3(3.1%) in mesh repair group<sup>18</sup>.

In a study done by Schwab, the scrotal hematoma and other sites formation were include wound, retroperitoneum and rectus sheath hematomas. Hematoma at two sites is more commonly seen, laparoscopic repair; however, injury to iliac vessels regardless of approach may present as a progressively expanding hematoma. Expansion of blood within the peritoneum or preperitoneal space is not tamponaded and may lead to a significant blood loss that is not readily apparent on physical examination. A large hematomas in abdomen will present with pain and possibly ileus. Wound management of hematomas is expectant, and may rarely need to be opened for decompression.<sup>19</sup> In comparison with our study there was haematoma seen in 2 (4%) patients 1(2%) patient had haematoma on 1<sup>st</sup> week after operation and also 1(2%) patient on 2<sup>nd</sup> day of operation in group A and there was no patient in group B.

In this study the postoperative infection rate was 1(2%) patient in group A and 2(4%) patients in group B. A same study done by Schwab, wound infection rate of 4%.<sup>19</sup> Another study presented by Sunamak et al, the wound infection rate was 4 (3.6%) in TEP group and 8 (6.9%) in mesh repair which is comparable with our study<sup>18</sup>.

In our study the mean hospital stay was 24.48±4.61 hours and 43.65±13.35 hours respectively. A same study presented by Waris, the mean hospital stay of TEP group was 1.95±0.75 which is comparable with our study<sup>12</sup>. A similar study reported by Mohamed et al, the mean hospital stay was 1.35±0.67 in group A and in 1.30±0.66 in group B which is statistically not significant (p 0.74) which is comparable with our study<sup>13</sup>.

Totally extraperitoneal repair group should early recovery period. A study done by Lau postoperative recovery was significantly better in TEP group, with less pain postoperatively which is comparable with our study.<sup>20</sup> While patients of mesh repair were give intravenous antibiotics and analgesics for 48-72 hours postoperative recovery was longer in group B than group A.<sup>2</sup>

## CONCLUSION

It is concluded that the full recovery time of patients was 2.18±0.43 weeks in group A while 2.90±0.46 weeks in group B which is significantly shorter in group A as compared to group B. There was severe pain in 12% of patients in group A and 32% severe pain in group B. In the totally extraperitoneal group 4% recurrences rate was found on 1<sup>st</sup> and 6<sup>th</sup> month. There was 2% infection rate in totally extraperitoneal group and 4% in tension free mesh repair group. Totally extraperitoneal group had shorter hospital stay as compare to tension free mesh repair group.

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