

The Outcome of Mesh vs Suture Repair for Umbilical Hernia in Adults

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A B S T R A C T

Introduction: The present study was conducted for comparing the outcome of mesh vs suture repair for umbilical hernia in adults.

Material and methods: 50 patients who were scheduled to undergo umbilical hernia repair were enrolled in the present study. Complete demographic and clinical details of all the patients was obtained. As per surgeon's choice, repair procedure of Hernia was carried out. After completion of repair process, patients were grouped as follows: Group 1- 20 patients in which suturing was done, and Group 2- 30 patients in which mesh repair was done. All the patients were subjected to antibiotic prophylaxis. All the procedures were executed under general anaesthesia. The total number of doses required were calculated and the duration of hospital stay was recorded. All the results were recorded in Microsoft excel sheet and were analysed using SPSS software.

Results: Mean duration of hospital stay among the patients of group 1 and group 2 was 7.6 days and 4.8 days respectively. The mean operation time in group 1 was 45 minutes and in group 2 was 60 minutes

Conclusion: Lesser rate of recurrence following mesh repair was found as compared to sutured repair. Hence; mesh repair is the preferred over suture repair.

Keywords: Mesh, Suture Repair, Umbilical Hernia

INTRODUCTION

An umbilical hernia is a ventral hernia located at or near the umbilicus. The European Hernia Society classification for abdominal wall hernias defines the umbilical hernia as a hernia located from 3 cm above to 3 cm below the umbilicus. It is the second most common type of hernia in an adult following inguinal hernia. It accounts for 6%-14% of all abdominal wall hernias in adults.^{1,2}

Umbilical hernia is a rather common surgical problem. Approximately 10% of all primary hernias comprise umbilical and epigastric hernias. In general, umbilical hernias are more common in women than men; however, there are series in which male patients are more frequent (5). Typically, a lump is observed around the umbilicus. Pain is the most common indication to visit a physician and undergo a repair. Recurrence may develop even in cases where a prosthetic mesh is used. Recurrent umbilical hernias often tend to enlarge faster than primary ones and may behave as incisional hernias.^{3,4}

Umbilical hernias are ubiquitous, and surgery is indicated in symptomatic patients. Umbilical hernia defects can range from small (<1 cm) to very large/complex hernias, and treatment options should be tailored to the clinical situation. Open, laparoscopic, and robotic options exist for repair, with each having its advantages and disadvantages. In general, mesh should be used for repair, because it has been

shown to decrease recurrence rates, even in small hernias. Although outcomes are generally favorable after umbilical hernia repairs, some patients have chronic complaints that are mostly related to recurrences.⁵ Hence; the present study was conducted for comparing the outcome of mesh vs suture repair for umbilical hernia in adults.

MATERIAL AND METHODS

The present study was conducted for comparing the outcome of mesh vs suture repair for umbilical hernia in adults. A total of 50 patients who were scheduled to undergo umbilical hernia repair were enrolled in the present study. Complete demographic and clinical details of all the patients was obtained. As per surgeon's choice, repair procedure of Hernia was carried out. After completion of repair process, patients were grouped as follows:

Group 1- 20 patients in which suturing was done, and

Group 2- 30 patients in which mesh repair was done.

All the patients were subjected to antibiotic prophylaxis. All the procedures were executed under general anaesthesia. All the surgical procedures were carried out under the hands of skilled and experienced surgeons. Suction drain was placed in all the patients of group B and in 3 patients of group A in which BMI was higher. The necessity for post-operative analgesia was studied. All patients were given fixed protocol of analgesics. The total number of doses required were

calculated and the duration of hospital stay was recorded. All the results were recorded in Microsoft excel sheet and were analysed using SPSS software.

RESULTS

Mean age of the patients of Group 1 and group 2 was 56.2 years and 54.8 years respectively. Majority proportion of patients of both the study groups were males. Mean BMI of the patients of Group 1 and Group 2 was 30.2 Kg/m² and 31.8 Kg/m² respectively. Mean duration of hospital stay among the patients of group 1 and group 2 was 7.6 days and 4.8 days respectively (Table 1). The Mean Time of hospital stay in group 2 was higher than the group 1 which is showing comparative significant relation (p=0.00) in both group (Table 2). There were 11 patients in group 1 and 18 patients in group 2 with hernia diameter <2 cm and 12 in group 2 and 9 in group 1 which > 2cm diameter.(Table 3). The mean operation time in group 1 was 45 minutes and in group 2 was

| Variable | Group 1 | Group 2 |
|-------------------------------|---------|---------|
| Mean age (years) | 56.2 | 54.8 |
| Males (n) | 12 | 16 |
| Females (n) | 8 | 14 |
| Mean BMI (Kg/m ²) | 30.2 | 31.8 |

Table-1: Demographic data

| Hospital stays (days) | Group 1 | Group 2 |
|-----------------------|--------------------|---------|
| Mean | 4.8 | 7.2 |
| SD | 2.8 | 2.1 |
| p- value | 0.00 (Significant) | |

Table-2: Comparison of hospital stay

| Hernia Diameter | Group 1 | Group 2 |
|-----------------|---------|---------|
| < 2 cm | 11 | 18 |
| >2 cm | 9 | 12 |

Table-3: Hernia Diameter

| | Group 1 | Group 2 |
|---------|---------|---------|
| ASA I | 12 | 24 |
| ASA II | 7 | 5 |
| ASA III | 1 | 1 |

Table-4: ASA Classification

| | Group 1 | Group 2 |
|-------------------------|------------|------------|
| Operation Time(Minutes) | 35-50 | 50-70 |
| Mean | 45 Minutes | 60 Minutes |

Table-5: Operation Time

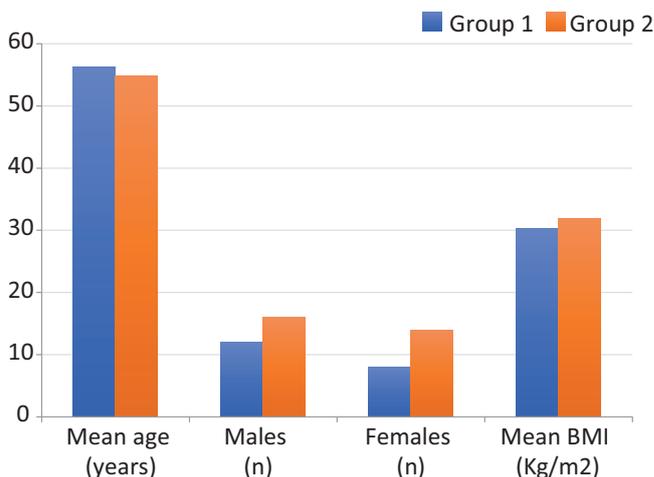
| Complications | Group 1 | Group 2 |
|----------------|---------|---------|
| Recurrence (n) | 1 | 0 |
| Hematoma (n) | 1 | 0 |
| Seroma (n) | 1 | 5 |
| Infection (n) | 9 | 2 |

Table-6: Complications

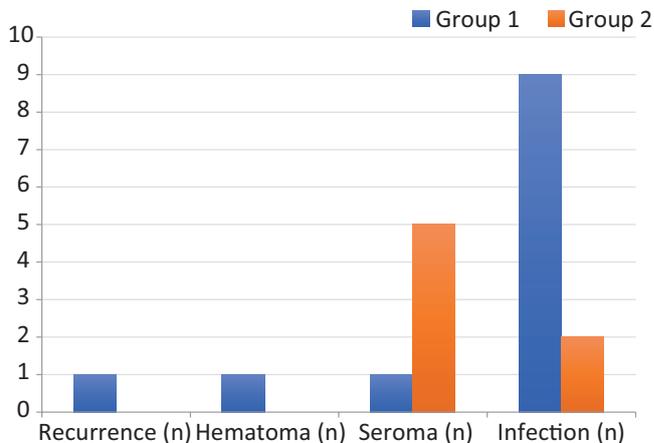
60 minutes (Table 5). In Post Op Complications it was notified that infection occurs in maximum 9 subjects of group 1 and 2 in group 2, seroma found in 5 patients of group 2.(Table 6)

DISCUSSION

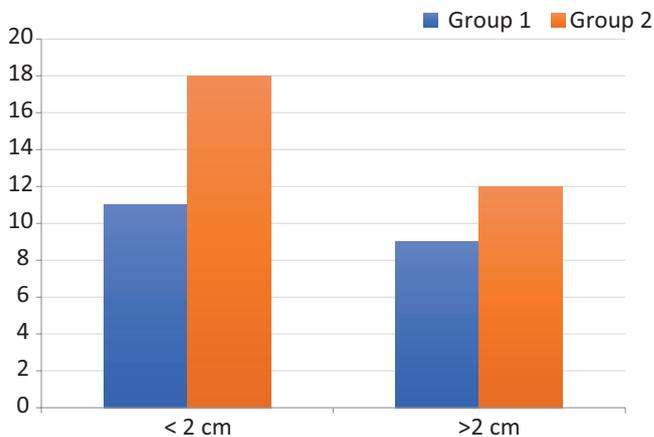
Umbilical hernias in adults are acquired in 90%. Only 10% of adult umbilical hernia report having had hernia in childhood. It is more common in women or individuals with increased intra-abdominal pressure as in pregnancy, obesity, ascites, or chronic abdominal distention. Stretching of the



Graph-1: Demographic data



Graph-2: Complications



Graph-3: Hernia Diameter

abdominal musculature and the presence of adipose tissue acts to separate muscle bundles and layers, weakens aponeuroses and favors the appearance of umbilical hernia.^{6,7} Techniques for the repair of umbilical hernia in adults evolved during the past century but no consensus has been reached regarding the best procedure. The Mayo repair, first described by James Mayo in 1901, is recognized as the classical method for the repair of umbilical hernia. However, suture herniorrhaphy without double breasting of the fascia is a commonly adopted technique by surgeons. With the success of mesh hernioplasty in inguinal hernia surgery, emphasis has been increasingly placed on the principle of tensionfree repair. The number of reports on prosthetic repair of umbilical hernia has been increasing in recent years.⁸⁻¹⁰ Hence; the present study was conducted for comparing the outcome of mesh vs suture repair for umbilical hernia in adults.

In the present study, mean age of the patients of Group 1 and group 2 was 56.2 years and 54.8 years respectively. Majority proportion of patients of both the study groups were males. Mean BMI of the patients of Group 1 and Group 2 was 30.2 Kg/m² and 31.8 Kg/m² respectively. Our results were in concordance with the results obtained by Agarwal S et al who also reported similar findings. In their study, mean age of the patients of suturing group and mesh repair group was 51.2 years and 52.3 years respectively. Majority proportion of patients of both the study groups in their study were males. Mean BMI of the patients of suturing group and mesh repair group was 31.5 Kg/m² and 30.67 Kg/m² respectively.¹¹

In the present study, mean duration of hospital stay among the patients of group 1 and group 2 was 4.8 days and 7.2 days respectively. On comparing, the results were found to be significant statistically. Similar findings were observed in the study conducted by Agarwal S et al, who reported significantly lower hospital stay duration among the patients of mesh repair group.¹¹ In a similar study conducted by Lau H et al, authors compared the outcomes of open and laparoscopic onlay patch repair of umbilical hernia in adults. The operative time of laparoscopic hernioplasty was significantly longer than those for patients who underwent Mayo repair or sutured herniorrhaphy. A significantly shorter hospital stay and a lower wound morbidity rate were also observed in patients who underwent laparoscopic repair.¹²

Incidence of recurrence, hematoma, seroma and infection was significantly higher among patients of group 1. In a similar study conducted by Lau H et al, authors reported that suture herniorrhaphy had a relatively high recurrence rate (8.7%), whereas no recurrence was documented for the other techniques.¹² In another study the long-term effects of intraabdominal mesh in patients with a ventral hernia were assessed. After 49 months, 16 (12%) patients complained of discomfort in the umbilical region, two (2%) patients had an infection of the mesh that resulted in removal of the mesh (Ventralex patch), and two (2%) required adhesiolysis for obstruction.¹³ Madsen LJ et al, in another study, examined the outcomes after elective open mesh and suture repair for umbilical hernia in adults. A literature search was conducted to identify studies presenting original data on elective open mesh and suture repair of umbilical hernia. The primary outcome was hernia recurrence. Secondary outcomes

included surgical-site infection (SSI), seroma, haematoma and chronic pain. Meta-analyses were undertaken. The search resulted in 5353 hits and led to 14 studies being included (6 RCTs and 8 observational studies) describing a total of 2361 patients. Compared with suture, mesh repair was associated with a lower risk of recurrence, with number needed to treat 19. Mesh repair was associated with a higher risk of seroma, with number needed to harm 30. There was no significant difference in the risk of SSI, haematoma or chronic pain. The use of mesh in elective repair of umbilical hernia reduced the risk of recurrence compared with suture closure without altering the risk of chronic pain.¹⁴

CONCLUSION

From the above results, the authors concluded that lesser rate of recurrence following mesh repair was found as compared to sutured repair. Hence; mesh repair is the preferred over suture repair.

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