



RESEARCH ARTICLE

MESH REPAIR VERSUS NON-MESH ANATOMICAL REPAIR OF PRIMARY
MIDLINE VENTRAL HERNIAS

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ABSTRACT

Introduction: While mesh hernioplasty is increasingly getting popular, anatomical repair of ventral hernia is still commonly done by surgeons. In this study we have compared the effectiveness of mesh hernioplasty versus anatomical repair in the treatment of primary midline ventral hernias. **Material and Methods:** 30 patients of primary midline ventral hernia were treated by mesh hernioplasty while 30 patients were treated by anatomical repair. Results were compared in terms of duration of surgery, local complications and recurrence. **Result:** Average duration of surgery is longer for mesh hernioplasty compared to anatomical repair. Local complications (hematoma, seroma and surgical site infection) are more common in mesh hernioplasty cases compared to anatomical repair. In our study no recurrence was seen after mesh hernioplasty but 2 (6.6%) cases of anatomical repair recurred during 6 months follow-up period. **Discussion and Conclusion:** While mesh hernioplasty takes longer duration to perform and has high local complication rate; it has lower recurrence rate compared to anatomical repair.

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INTRODUCTION

Ventral hernias can be defined as a breach in the fascia of anterior abdominal wall through which a part or whole of any abdominal viscera or omentum bulges out (Korenkov et al., 2009). European Hernia Society (EHS) divides ventral hernias into primary and incisional (secondary) and then further subdivides them by anatomical location and size (Eker et al., 2013). Primary ventral hernias in midline are of two types- epigastric hernia and umbilical hernia. lateral primary ventral hernias are of two types- spigelian hernia and lumbar hernia. This study deals with management of epigastric and umbilical hernias (primary midline ventral hernias). Treatment of primary midline ventral hernias may be done by open or laparoscopic method. Open repair may be done using a mesh or by non-mesh anatomical method (Forbes et al., 2009; Jenkins, 1980). While mesh repair of primary ventral hernia is increasingly being used now a days; anatomical suture repair of these hernias is still a commonly done surgery. In this study we have compared the effectiveness of mesh hernia repair with anatomical non-mesh repair in the treatment of primary midline ventral hernia.

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MATERIALS AND METHODS

This prospective comparative study was done in MGM medical college, Jamshedpur, Jharkhand over a period of 1 ½ year (December 2016 to may 2018) in the department of general surgery. The study population consisted of 60 cases of primary midline ventral hernia (epigastric hernia + umbilical hernia) coming to surgical OPD for treatment.

Exclusion criteria

- Pediatric age group
- Hernia defect size more than 5 cm
- Patients with comorbidities that can adversely affect the outcome
- Recurrent hernia
- All subjects were explained about the study and their written consent was taken for their participation in the study.
- Preoperative baseline routine investigations and ultrasonography of abdomen (to assess intra-abdominal condition as well as size of the hernial defect) were carried out in all subjects.
- Patients were randomly divided in two groups (A and B) of 30 subjects each. In patients of group A, polypropylene

mesh was used for hernia repair. In patients of group B anatomical repair using polypropylene suture was done.

- Patients were followed up at 1 and 2 week postoperatively and then at monthly interval for 6 months after discharge.
- Patient particulars, hernia defect size, type of repair, operative time, intra-operative and post-operative complications in each case were recorded in a data collection sheet.
- Statistical analysis was done using *IBM SPSS Statistics 23* software.

Operative technique: after pre-anaesthetic checkup patients were put for surgery. After the skin incision, the hernia sac was identified and dissected free. In cases of simple anatomical repair, the fascial defect was closed by double breasting using number 1 polypropylene suture, in a tension free manner. In cases of mesh repair, sac was identified and reduced; polypropylene mesh of adequate size was placed in pre-peritoneal layer and the fascial defect was closed with number 1 polypropylene suture. Suction drain was placed in all cases and was removed postoperatively when drain output was minimal. Standard postoperative care was provided in all cases. Patients were discharged when they were stable and started taking oral feed. Stitches were removed when wound was dry and healed.

RESULTS

In our study total 60 patients of primary anterior ventral hernia were included. In mesh hernioplasty group 22 were female and 8 were male while in anatomical repair group 20 were female and 10 were male. Incidence of primary anterior ventral hernia is more commonly seen in females in (total of 42 patients were female while 18 were male) our study

Table 1. Sex distribution of study population

Sex	Female	Male	
Mesh Hernioplasty Group	22 (36.6%)	8 (13.3%)	30
Anatomical repair Group	20 (33.3%)	10 (16.6%)	30
Total	42 (69.9%)	18 (29.9%)	60

*Mean age of patients was 38.68 years with standard deviation of 8.5 years.

Table 2: age distribution of study population

Age Groups	Number of Patients
<20 years	1 (1.6%)
20-30 years	7 (11.6%)
30-40 years	19(31.6%)
40-50 years	28 (46.6%)
>50 years	5 (8.3%)

Cases were divided in 5 age groups. Only 1 patient was there in <20 years age group, 7 patients were in 20-30 years age group, 19 patients were in 30-40 years age group, 28 patients were in 40-50 years age group and 5 patients were there in >50 years age group.

Table 3. Type of hernia and their percentage

Type of hernia	Number of patients
Epigastric hernia	24(40%)
Umbilical hernia	36(60%)

In our study population umbilical hernia is more common than epigastric hernia. Out of 60 patients, 24(40%) were patients of epigastric hernia while 36 (60%) were cases of umbilical hernia.

Table 4. Size of hernia defect

Size	Number of Patients
Upto 2 cms	18 (30%)
2-5 cms	42(70%)
total	60

In study population 18 patients had hernia defect up to 2 cm in diameter while rest 42 patients had hernia defect of 2-5 cm

Table 5. Surgery performed- mesh or non-mesh repair

Surgery Erformed	
Mesh hernioplasty	30
Anatomical repair	30

Participants of this study were randomly allocated one of the two groups of 30 patients each. In group A 30 patients underwent mesh hernioplasty while in group B 30 patients underwent anatomical repair

*In this study it was seen that average duration of performing mesh hernioplasty was longer (48.6 minutes, SD 11.3 minutes) than average duration for anatomical repair (41.8 minutes, SD 9.7 minutes).

Table 6. Average duration of surgery

Group	Average Duration of surgery
Mesh hernioplasty	48.6 MINUTES
Anatomical repair	41.8 MINUTES

In mesh hernioplasty group, 2 patients developed stitch site hematoma postoperatively which was managed conservatively, 4 patients developed seroma which was treated with repeated aseptic aspirations and 1 patient developed superficial surgical site infection which was controlled with antibiotic and dressing. Mesh rejection and recurrence was not seen in any case.

Table 7. Postoperative complications

complication	Mesh hernioplasty	Anatomical repair
Hematoma	2(6.6%)	0
Seroma	4(13.3%)	2(6.6%)
Surgical site infection	1(3.3%)	0
Recurrence at follow-up	0	2 (6.6%)

In anatomical repair group only 2 patients developed seroma of operative area postoperatively which was managed as described before. 2 patients also developed recurrence which was discovered on follow-up visit.

DISCUSSION

Ventral hernia is one of the most common general surgical pathologies. An epigastric hernia occurs when there is a defect in the linea alba anywhere from the xiphisternum to the umbilicus. An umbilical hernia occurs at the umbilicus when a loop of intestine pushes through the umbilical ring. similar to the findings in study done by Priti Prasad et al, in our study

also hernia incidence was more common in middle aged people in 40-50 years age group.⁷ incidence was higher in female gender (6.999%). This compares favorably with other studies (Malik et al., 2008; Murtaza et al., 2009). Primary anterior ventral hernias can be treated by laparoscopic or open methods. Many techniques are there for open repair which may or may not use mesh. Although mesh repair is considered better option for hernia repair many surgeons still use simple anatomical repair without mesh (Langer, 1985; Shukla, ?; Priti PraSad et al., 2016). In this study mesh hernioplasty took longer time to perform compared to anatomical repair. In our study although local complications like hematoma, seroma and superficial surgical site infection were more common in case of mesh hernioplasty; recurrence rate was higher in anatomical repair group. similar results are also seen in study done by malik am et al where seroma developed in 8.8% cases, hematoma in 1.4% cases and ssi in 8.1% cases of mesh hernioplasty patient while no seroma formed in anatomical repair cases and only 5.1% developed ssi after anatomical repair (Malik et al., 2008). Recurrence rate of hernias in our study was 6.6% for anatomical repair at 6 months followup while no recurrence was seen in mesh hernioplasty group. Munir K et al in their study found recurrence rate of 2.27% after anatomical repair versus 10.72% after mesh hernioplasty (Munir et al., 2014).

Conclusion

Primary midline ventral hernias with defect of up to 5 cm in size can be repaired by anatomical repair or mesh hernioplasty. With mesh repair recurrence is less but rates of local complications are higher; opposite is true for anatomical repair.

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