

Comparative Study of Vertical Double Breasting of Abdominal wall, Rectus Sheath Everting Procedure and Mesh Repair in the Management of incisional abdominal hernias

N A SYED S N MALIK ZAFAR ALI CHOUDRY W AHMAD

Department of Surgery, K.E. Medical College, Lahore

Correspondence to Dr. Sohail Noor Malik, Senior Registrar Surgery

Incisional hernia is an iatrogenic problem. Several techniques have been used to repair it. In this prospective study comparison has been made between results of repair by rectus everting, double breasting of anterior abdominal wall and mesh implantation. A total of 30 patients were included in this study divided into three groups 10 patients in each. A one year follow up was arranged, and results were compared with each other and with various international studies available. Among the various complications i.e., wound infection, haematoma, seroma, stitch sinus formation were almost comparable except recurrence rate which was nil in this study (all three groups), as compared to significant number in international studies.

Key words: Double breasting, rectus everting, mesh repair, incisional abdominal hernia

Incisional hernia is an iatrogenic condition. It causes great distress to the patient. It causes embarrassment and reflects directly on the surgeons operative technique. During recent years we have developed a better understanding of patient related risk factors. Several techniques have been used to repair incisional hernia such as double breasting of abdominal wall, keel's repair, rectus sheath everting procedure and mesh implantation.

William Mayo first used an overlapping technique to repair umbilical hernia in 1895¹².

The original concept of the use of prosthesis for hernia repair is ascribed to McGavir (1909) who described principles of this mode of repair he used a coarse wire mesh.

Kirschner in 1910 employed autograft of fascia lata. Gallic and Mesunier in 1923 used autologous fascial strips, tendons, cutis and whole skin graft^{13,14}. Sandora and Toslyn 1993 recommended vitallium plates as an alternative to fascia. Metal meshes have been around since Boatlett 1903 described the construction of a silver wire mesh for repair of large defects.

Material and Methods

This study was carried out in East Surgical Ward, Mayo Hospital, Lahore over a period of 18 months (Jan 1999-June 2000). Thirty patients were included in this study. All the patients were over 12 years (12yrs-60yrs), mean age was 41 years (Table 1). Twenty four patients out of thirty were female and six were male (Table 2). We included only those patients in this study who developed the hernia first time after abdominal operation.

Table 1. Age incidence

Age group in years	No. of Pts.	%age
12-20	1	3.33
21-30	5	16.5
31-40	12	40
41-50	8	26.4
51-60	4	13.2
Above 60	Nil	Nil

Table 2. Sex ratio in incisional hernia.

Sex	No. of Pts.	%age
Male	6	20
Female	24	80

Fig. 1 Sex ratio in incisional hernia.

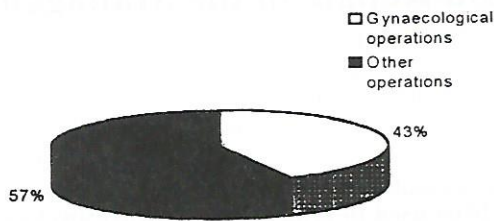


Forty two percent of patients were operated previously for some gynaecological reasons. Highest incidence of hernia was recorded in those patients who were operated in emergency operation theatre (Table 3 & Fig.2,3).

Table 3. Type of operation/incisional hernia

Initial disease	No. of Pts
Caesarian section	04
Myomectomy	02
Pyelolithotomy	01
Tubal ligation	01
Cholecystectomy	01
Exploratory laparotomy in emergency for unknown reason	02
Hysterectomy	04
Paraumbilical hernia	02
FAI abdomen	02
Uberculous peritonitid	03
Bullet injury colon	01
Ruptured ectopic pregnancy	01
Appendectomy	02
Ruptured ovarian cyst	01
Duodenal ulcer perforation	01

Fig. 2 Prevalence of incisional hernia in primary operation.



The patients with other concomitant diseases or recurrent cases were excluded from this study. Three types of repair was done. So these patients were divided into three groups i.e. A,B and C.

Fig.3 Prevalence of incisional hernia in emergency/elective operation.

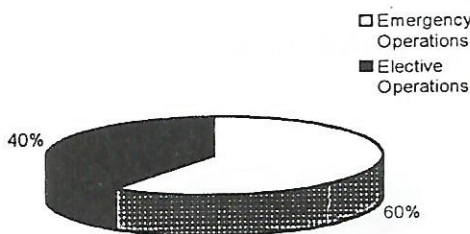


Table 4 Groups and type of repair

Group	No. of Pts.	Repair
A	10	Double breasting of abdominal wall
B	10	Rectus sheath everting procedure
C	10	Mesh repair

Those patients who had defect less than 5cm in diameter, fall into Group A and B, those with defect >5cm had mesh repair and included in Group C.

Preoperatively second generation cephalosporin was given as prophylaxis.

Polypropylene No.1 was used for repair of parietal defect, vicryl No.1 was used for suturing of mesh over the rectus sheath. Mesh was made up of synthetic polypropylene. Prolene 2/0 was used for skin closure. A one year follow up was arranged i.e. 7 days, one month, 3 months, 6 months and one year.

Results

In Group A patients where double breasting of the abdominal wall was done. Only one patient developed a stitch sinus. No other complication was noted.

Table 5. Complications of double breasting of abdominal wall

Complication	No. of Pts.	%age
Wound infection	0	00
Haematoma	0	00
Seroma	0	00
Stitch sinus	1	10
Recurrence	0	00

In Group B patients where rectus sheath everting procedure was carried out. One patient developed wound infection while in another patient seroma was drained and one patient had stitch sinus.

Table 6. Complications of rectus sheath everting procedure

Complication	No. of Pts.	%age
Wound infection	01	10
Haematoma	00	00
Seroma	01	10
Stitch sinus	01	10
Recurrence	Ni.l	00

In group C patients where a mesh was used for repair, one patient had wound infection. The patient developed haematoma and in one patient we had to remove mesh to cure infection. In this patient diabetes discovered at later stage.

Table 7. Postoperative complications after mesh repair

Complication	No. of Pts.	%age
Wound infection	01	10
Haematoma	01	10
Seroma	00	00
Stitch sinus	00	00
Recurrence	00	00
Procedure failure mesh extrusion	01	10

Discussion

In this prospective study different methods of incisional hernia repair were used. Three methods were used in repair is double breasting, rectus everting and mesh repair. Patients were followed up and complications were noticed and compared.

A female preponderance in this study (male to female ratio 1:4) was observed which was similar to previous studies. Obstetrics and gynaecological procedures showed highest incidence.

In this study the most common site in incisional hernia was midline incision (73%) most among these were lower midline.

The incidence of wound infection was highest in mesh repair.

No recurrence was noticed in this study as compared to a study by Schumachek V Conge J M 1996. Noted a recurrence of 32.6% in Mayo's repair and 8.3% in mesh repair in a retrospective study of 245 patients. A 0% recurrence has been reported by Usher in 48 patients.

Usher 1962, Lewis 1989, Champetier et al 1990; Molloy et al 1991; Walakes et al 1994; showed similar wound infection rates (5-10%).

Prolene mesh has been most widely used prosthetic material since its introduction. It is knitted monofilament mesh which does not disintegrate with age, is pliable and easy to use, has a two way stretch that allows for more even load distribution and in experimental studies provided fewer adhesions than other plastic mesh. One study has focussed on adhesion formation and has shown that all biomaterials caused adhesions except polypropylene meshes¹⁵ while the other study that focused on porosity, effect on infection, host tissue incorporation and seroma formation, results favour polypropylene mesh¹⁵.

In clinical practice variety of complication has been described, previously reported complication of mesh extrusion, erosion into viscera and bowel fistula were not experienced in this study. Rectus sheath everting procedure is simple and economical, rate of infection is significantly reduced and no recurrence is noticed in this study. This procedure is suitable for small defects.

Vertical double breasting of rectus sheath has high recurrence rate in most of international series. Luijendijk RW in 1997 in United States studied retrospectively the results of Mayo's repair. The 1,3,5 and 10 years follow up showed recurrence rates 35,46, 48 and 54% respectively. In our study no recurrence was found in double breasting technique.

Conclusion

Incisional hernias are common complications following abdominal surgery. Vertical double breasting and mesh repair appear to be effective in the management of primary hernia closure. There is evidence which shows that with correct preparations of patient and with correct anatomical reconstruction better results can be achieved. The use of prosthetic mesh should be considered for repair of large or recurrent hernia. High cost of mesh repair restricts its use

in poor population. Wound complications are also more common in mesh repair.

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