

Mesh Repair In Adult Para Umbilical Hernias - A Comparative Study between Open Mayo's Repair and Tension Free Onlay Prosthetic.

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ABSTRACT

Background: Hernia is an abnormal protrusion of a peritoneal lined sac through the musculo aponeurotic covering of the abdomen. The study is conducted to compare the post-operative complications in Adult Para umbilical hernia with Open Mayo's repair and Tension free Onlay prosthetic Mesh repair. **Methods:** A comparative 3 year study was conducted in Department of Surgery. There were 08 male and 50 female patients. They were divided into two groups-1 and 2 .Group 1 constituted 29 patients who underwent Open Mayo's repair and Group-2 constituted 29 patients who had Tension free Onlay prosthetic Mesh repair. The median follow up was 36 months. The study was conducted with special reference to the pre disposing factors, age, sex, type of operation and complications associated with it. **Results:** Open Mayo's repair is safe and cost effective but tension free mesh repair is also proved cost effective in terms of short hospital stay, lesser use of drugs, patient comfort and satisfaction as well as early return to normal routine work. **Conclusion:** Mesh repair should be considered as a first line surgical option for adult para umbilical hernias.

Keywords: Paraumbilical Hernia, Mayo's repair, Mesh repair.

INTRODUCTION

Hernia is derived from the Latin word hernia means to tear or to rupture and Greek word hernios means a bulge or off shoot .It is an abnormal protrusion of a peritoneal lined sac through the musculo aponeurotic covering of the abdomen. A Para umbilical hernia is a defect adjacent to the umbilicus between two recti just above or below the umbilicus. Mostly it is seen in women with multi parity,[1] obesity and other pre disposing factors. In obesity the underlying fat leads to weakness of the para umbilical area. It is the second most common type of ventral hernias, Overall 0.3% of all hernias operations performed in U.K.[2] In these type of hernias, surgical operation is the main treatment option.[3] Para umbilical hernia is amongst the commonly occurring abdominal wall defect .They have a greater incidence than the true acquired umbilical hernia.This type of hernias are difficult to cure.

In open Mayo's repair an elliptical incision was given enclosing the umbilicus and the skin over it with 5 cms margin on either side .Approximation of the fibro aponeurotic linea alba is done on the anterior rectus sheath to obliterate the defect . The overlapping is then completed by suturing the free edge of the superficial flap. Non absorbable suture, Prolene was used. Recurrence occurs in the first few months. It was presumed that the wide area of contact between upper and lower flaps gives strong adhesion and ensures a good repair.[4]

Mesh hernioplasty is a tension free repair. The hernia defect was closed with a 2-0 prolene followed by an onlay poly propylene mesh. It is done without enlarging the defect and closing the aponeurotic defect with prosthetic mesh without causing tension. Romovac drain No-16 was used in both open and Mesh repairs. In long term follow up Mesh repair shows good results compared to Open Mayo's repair but few patients complained of post-operative abdominal pain, pain at wound site during breathing, scar at the wound site and disfigurement at surgical site.[5]

The choice of a type of open operative repair is controversial; the technique of hernia repair is often based on tradition rather than evidence. According to

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databases and reviews there is a good evidence that open mesh repair is superior to suture repair in terms of recurrences and an insufficient evidence as to which type of mesh or which mesh position (on- or sublay) should be used.^[1,6]

The aim of present study is to compare the post-operative complications in Adult Para umbilical hernia with Open Mayo's repair and Tension free Onlay prosthetic Mesh repair.

MATERIALS AND METHODS

A comparative 3 year study was conducted in Department of Surgery, S. C. B. Medical College and Hospital, Cuttack, Odisha between April 2013 to March 2016. Fifty eight patients were included in this study. The mean duration of this study was 36 months. There were 08 male and 50 female patients. They were divided into two groups-1 and 2. Group 1 constituted 29 patients who underwent Open Mayo's repair and Group-2 constituted 29 patients who had Tension free Onlay prosthetic Mesh repair. All patients of Para umbilical hernia were examined and admitted to the indoor of Surgery Department. They were thoroughly investigated. Patients with Diabetes, hypertension and recurrent hernias were not included in this study.

Para umbilical hernias below 12 years and patients with Acute Intestinal obstruction were excluded from the study. The median follow up was 36 months. The study was conducted with special reference to the pre disposing factors, age, sex, type of operation and complications associated with it.

RESULTS

58 patients with para umbilical hernia, range 20-60 years were examined having a mean age of 47 years were considered for this study.

Table 1: Comparison of predisposing factors in two groups.

Predisposing factors	Group 1 n=31	Group 2 n=27
Multiple pregnancies	18	16
Obesity	6	5
Chronic Bronchitis, COPD Asthmatics and smokers	7	6

In this study of 58 patients, the age ranged from 20-60 years. In this study multiple pregnancies and obesity was the leading cause of para umbilical hernia (77.58 %) and the rest 13 cases were due to chronic bronchitis, COPD, known smokers and asthmatics [Table 1].

Table 2: Distribution of age in both genders.

Age interval (yrs)	Total no. of patients	Male	Female
21-30	6	1	5
31-40	16	3	13
41-50	21	5	16

>50	15	4	11
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[Table 2] shows that the disease is more common in females with the ratio of 1:4 and in the fourth decade of life.

Table 3: Clinical presentation.

Symptoms	No. of patients	Percentage %
Swelling	45	77.58
Pain	8	13.79
Swelling and Pain	5	8.62

In this study the most common symptom associated with para umbilical hernia is swelling (77.58 %) and pain associated with swelling is least (8.62 %) [Table 3].

Table 4: Post-operative complications

Complications	Open Mayo's repair	%	Prosthetic Mesh repair	%
Pain at wound site	13	44.82	3	10.34
Pain and fever	4	13.79	2	6.89
Operative wound infection	3	10.34	1	3.44
Mesh infection with collection	0	0	1	3.44
Recurrence	1	3.44	0	0

Post-operative complications like pain at wound site, fever, wound infections, mesh infection and recurrence were studied in both the surgical techniques. The patients were followed for a period of 3 years and found that open Mayo's repair was associated with more complications as compared to Prosthetic mesh repair. A follow up was done for a period of 3 years to see the recurrence. Only 2 patients had recurrence with the open surgical technique which was seen after 10 months and 12 months of surgery [Table 4].

Table 5: Comparison between hospital stay and back to normal routine duties.

No. of Days	Open Mayo's repair	Prosthetic Mesh repair
1	0	5
2	5	15
3	9	9
4	6	--
5	4	--
6	3	--
7	2	--

Mean hospital stay: 2-3 days.

Back to normal routine duties: 10-30 days

In this study the period to return back to normal routine duties was 5 to 15 days (mean 10 days) [Table 5].

DISCUSSION

Para umbilical hernias are associated with a high recurrence rate which is attributed mostly due to poor surgical technique, haematoma formation,

wound infection and recurrence of hernia due to operative failure resulting from weakness of the area which requires further operation. Elective surgery is the treatment of choice. Increased incidence is seen in females due to multi parity and obesity which is also seen in the historical review of literature.^[5]

Incisional hernia is the most common complication after abdominal wall surgery. In the last decade the rate of tension-free surgical technique has been highly increased. According to literature the results of different methods of abdominal wall reconstructions represent wide variety. Until the 1990s, suture repair of incisional hernias was the gold standard technique. Unacceptable high recurrence rates associated with primary suture repair have led to an increased application of prosthetic mesh for the repair of incisional hernias. In Mayo's repair recurrence is through the gap between the recti.^[6] Increase in the recurrence was also due to the extended transverse incision.^[7] Recurrence is mostly due to tension closure of the defect, poor surgical technique, obesity, post-operative wound infection, COPD, known smokers and chronic cough.

Surgery by open or Laparoscopy is the preferred treatment.^[8-10] Recurrence is less seen in Mesh repair which is also evident from our study.^[9-12]

The mean surgical time is basically determined by the size of hernia and intraperitoneal adhesion formation and not essentially by the methods of reconstruction.^[6,13-15] We confirmed these observations when we found numerous difference between two groups (group 'A' and group 'B'), but there was no significant differences between the types of reconstructions inside these groups.

The present day surgery for para umbilical hernia is Prosthetic onlay Mesh repair which has a negligible recurrence rate, low morbidity and higher patient satisfaction with excellent results, short hospital stay, less post-operative pain and early return to work as compared to open Mayo's repair. This shows that tension free mesh repair is superior to open Mayo's repair. Our study with 58 patients also showed that tension free mesh repair is very safe and effective for para-umbilical hernia with regards to post-operative complications, recurrence and morbidity.

CONCLUSION

Open Mayo's repair is safe and cost effective but tension free mesh repair is also proved cost effective in terms of short hospital stay, lesser use of drugs, patient comfort and satisfaction as well as early return to normal routine work. Hence Mesh repair should be considered as a first line surgical option for adult para umbilical hernias.

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