UMBILICAL HERNIA FACTORS AFFECTING OUTCOME

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ABSTRACT

AIM

Aim of this study is to compare the effectiveness of surgical technique - Mesh repair techniques versus anatomical repair techniques with respect to the parameters of complications and recurrence rate.

MATERIALS AND METHODS

A detailed clinical study of paraumbilical hernia treated with both Mesh repair and Anatomical repair was undertaken at Department of General Surgery from January 2015 to June 2016 at K.R. Hospital attached to Mysore Medical College and Research Institute. Sixty patients were randomly assigned to Group A - Mesh Repair and Group B - Anatomical (Mayo's Repair). The same group of patients were studied for incidence, clinical features, treatment and postoperative complications pertaining to study period. Pts with irreducibility and incarcerated hernia were excluded from the study. Median period of followup was eighteen months.

RESULTS

Paraumbilical hernia is more common between 3rd and 6th decade of life. It is more common in males 56.7% than in females. There is no difference in age distribution of cases between males and females. Most common presenting symptom is swelling around the umbilicus, which may or may not be associated with pain. Most common position was Supraumbilical (56.7%), post-op complications like wound infection occurred in 10% in mesh repair and 6.67% in anatomical repair. In long-term follow-up, the recurrence was higher in Mayo's suture repair (10%) compared to mesh repair (3.33%) in our studies.

CONCLUSION

This study concludes that mesh repair has low recurrence rate with minimum complications. Mesh repair is considered the best and more superior to anatomical repair in due consideration to recurrence; however, in certain circumstances anatomical repair holds good which is cheaper and simple procedure.

KEYWORDS

Umbilical Hernia, Mesh Repair, Anatomical Repair.

HOW TO CITE THIS ARTICLE: Madhu BS, Shashikumar HB, Kalabhairav S, et al. Umbilical hernia factors affecting outcome. J. Evolution Med. Dent. Sci. 2016;5(71):5186-5189, DOI: 10.14260/jemds/2016/1176

INTRODUCTION

Umbilical hernia is an abnormal protrusion of a viscus or part of a viscus through a congenital or acquired defect. In adults, most umbilical hernias are in fact para-umbilical with the defect arising just above or below the cicatrix.¹

Umbilical hernias along with paraumbilical hernias are the most common spontaneous adult hernias and account for almost 10% of all primary abdominal wall hernias. Umbilical hernia develops either due to absence of umbilical fascia or due to incomplete closure of umbilical defect.

Umbilical hernias in adults are largely acquired. These hernias are more common in women and in patients with conditions that result in increased intra-abdominal pressure such as prostatic hypertrophy, COPD, constipation, pregnancy, obesity, ascites or chronic abdominal distention.²

Umbilical hernia is more common in those who have only a single midline aponeurotic decussation compared with the normal decussation of fibers from all three lateral abdominal muscles.³

Classically, repair was done using the "vest over pants repair" proposed by Mayo,⁴ which uses imbrication of the superior and inferior fascial edges.^{5,6} Because of increased tension on the repair and recurrence rates of almost 30% with long-term follow-up; however, the Mayo repair is rarely performed today. In 1950's prosthetic repair with polypropylene was introduced and led to a significant decrease in recurrence rate.

AIM

- Aim of this study is to compare the effectiveness of surgical technique - Mesh repair techniques versus anatomical repair techniques with respect to the parameters.
- Immediate post-op pain.
- Seroma.
- Infection.
- Long-term pain.
- Activity limitation.
- Recurrence.

Financial or Other, Competing Interest: None.

Submission 27-07-2016, Peer Review 18-08-2016,

Acceptance 26-08-2016, Published 03-09-2016.

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DOI: 10.14260/jemds/2016/1176

MATERIALS AND METHODS

A detailed clinical study and management of 60 cases of paraumbilical hernia treated with both mesh repair and Anatomical repair were made.

Inclusion Criteria

- Pts who provide an informed consent.
- Patients aged >18 years.
- Pts scheduled to receive a surgically implanted mesh product for repair of hernia defect.

Exclusion Criteria

- Those who do not give consent.
- Pts <18 yrs.
- Pts suffering from chronic pain.
- Pts with incarcerated hernia.

Clinical history regarding duration of hernia, progression in size, associated complaints like pain in the swelling or abdomen, vomiting, reducibility, chronic cough, constipation, difficulty in micturition, history suggestive of ascites and other causes of abdominal distension, number of pregnancies, previous surgery for same condition is collected.

In local examination special attention was given to the position, size, shape, contents, cough impulse, reducibility, skin over the swelling, size of defect in linea alba and tone of anterior abdominal muscles.

All cases were clinically diagnosed and all patients underwent surgery following preoperative investigation in the form of Hb%, BT, CT, FBS, PPBS, Blood urea, serum creatinine, urine for albumin, sugar and microscopy, ECG, chest X-ray.

All patients underwent ultrasound abdomen to rule out concurrent intra-abdominal pathology warranting surgical intervention before mesh repair and also for evaluation of ascites.

Cases were prepared for surgery after preoperative correction of anaemia, hypertension, obesity, diabetes and local skin conditions.

All patients underwent surgical procedure after following preoperative preparation.

Postoperatively, all patients were kept nil orally for 24-36 hrs. Patients were treated with IV fluids, 3rd generation cephalosporin, injection Diclofenac and injection Pantoprazole.

Patients allowed to take oral liquids after 24-36 hrs. and allowed to take soft diet subsequently.

Quantity and nature of suction drain in mesh repair surgeries noted down. Suction drain was removed depending upon the amount of the drain.

Operative wound inspected on 2nd postoperative day. During wound inspection, special attention was given to signs of inflammation and discharge from wound.

If swelling was present which was soft in consistency (At the wound site), collection was let out by removing one or two sutures, was sent for culture and sensitivity.

Sutures of the operative wound were removed about 8-10 days after surgery.

After complete wound healing, patient was advised to review once in two or three months. During followup, patient was examined for fresh symptoms and signs pertaining to surgical procedure.

Details regarding duration of hospital stay following surgery, postoperative wound complications and recurrence with in study period was recorded and these findings were compared between two surgical procedures.

Age (Years)	Total
21-30 Years	10 (16.67%)
31-40 Years	12 (20%)
41-50 Years	20 (33.33%)
51-60 Years	12 (20%)
61-70 Years	6 (10%)
Total	60 (100%)

Age Distribution of Patients

Gender	Total
Female	26 (43.33%)
Male	34 (56.67%)
Total	60 (100%)

Gender Distribution of Patients

Symptom	Total (n=60)
Swelling	50 (83.33%)
Pain	24 (40%)

Comparison of Swelling and Pain in Two Groups

Duration	No. of Pts.
1-6 Months	14 (23.3%)
7-12 Months	4 (6.67%)
1-2 Years	30 (50%)
2 - 5 Years	10 (16.67%)
>5 Years	2 (3.33%)
Total	60 (100%)

Duration of Complaints

Precipitating Factor	Mesh Repair (n=30)	Anatomical Repair (n=30)	Total (n=60)
Nil	0 (0%)	2 (6.67%)	2 (3.33%)
Yes	30 (100%)	28 (93.3%)	58 (96.67%)
Obesity	8 (26.67%)	14 (46.67%)	22 (36.67%)
Multiparity	14 (46.67%)	4 (13.33%)	18 (30%)
Lifting Heavy Weights	4 (13.33%)	8 (26.67%)	12 (40%)
Smoking	4 (13.33%)	2 (6.67%)	6 (20%)

Precipitating Factors

Reducible/Irreducible	Total
Irreducible	18 (30%)
Reducible	42 (70%)
Total	60 (100%)

Location	Total
Infraumbilical	26 (43.3%)
Supraumbilical	34 (56.7%)
Total	60 (100%)

Associated Disease	Mesh Repair (n=30)	Anatomical Repair (n=30)	Total (n=60)
No	20 (66.7%)	24 (80%)	44 (73.3%)
Yes	10 (33.3%)	6 (20%)	16 (26.7%)
HTN	4 (40%)	2 (6.7%)	6 (10%)
DM	0 (0%)	4 (13.3%)	4 (6.7%)
Hypothyroidism	6 (60%)	0 (0%)	3 (5%)

	Mesh Repair (n=30)	Anatomical Repair (n=30)
Hernia Defect		
2-4 cm	19 (63.33%)	24 (80%)
4-6 cm	11 (36.66%)	06 (20%)
Operation Time		
45-60 mins.	13 (43.33%)	21 (70%)
60-80 mins.	17 (56.67%)	09 (30%)
Hospital Stay (Average in Days)	4.5	4.5
Operative Data		

Complications	Mesh Repair (n=30)	Anatomical Repair (n=30)
Wound Infection	03(10%)	2(6.67)
Haematoma	01(3.33%)	0(0%)
Seroma	01(3.33%)	3(10%)
Recurrence	01(3.33%)	3(10%)
Post-Op Complications		

DISCUSSION

In this clinical study, 60 patients with paraumbilical hernia were admitted and treated with different surgical procedures from January 2015 to June 2016 at K. R. Hospital attached to Mysore Medical College and Research Institute. The same group of patients were studied for incidence, clinical features, treatment and postoperative complications pertaining to study period. Discussion is mainly concentrated on Open Mesh repair and classical Mayo repair.

Paraumbilical hernia is more common in patients aged between 30-60 years (73.3%) in our study. Youngest patient who presented with paraumbilical hernia in our study was 22 year old. Eldest patient was 68 years.

In our study paraumbilical hernia is more common in males; 26 patients were females and 34 patients were males. There is no significant difference in age distribution in males and females, as disease is more common between 3rd and 6th decades; 50 (83.3%) patients presented with chief complaint of swelling around umbilicus; 24 (40%) patients had pain in the swelling or dragging type of pain in abdomen.

Most of the patients had swelling for 1 to 2 years before they presented to hospital. Maximum duration of symptoms was 10 years, 1 patient had swelling since childhood. Minimum duration was 1 month.

In our series supraumbilical swelling was present in majority of the patients which was 34 (56.7%), infraumbilical swelling was present in 26 patients (43.3%).

Even though it is stated in literature that most of the paraumbilical hernias are irreducible or partially reducible, in our study swelling was reducible in 70% of patients and 30% were irreducible swellings. Overlying skin changes were present in longstanding cases.

Common precipitating factor was obesity - 22 patients. In females most common precipitating factor was multiparity. Out of 13 patients, 9 were multipara. This can be attributed to stretching and weakening of anterior abdominal wall musculoaponeurotic layer.

Other less common precipitating factors were chronic cough and constipation.

In males most common precipitating factor was lifting heavy weights - 12 patients, obesity - 22 patients followed by

smoking in 6 patients. Smoking is an important predisposing factor in development of ventral hernias, as it causes degeneration of collagen fibres. Some patients had more than one precipitating factor and one patient did not have any precipitating factor.

Four patients were diabetic, 6 patients were hypertensive and 6 patients were hypothyroid. These associated diseases were treated adequately before surgery; hence, there was no much effect on the outcome following surgery.

In this series, 30 open mesh repairs and 30 anatomical repairs were conducted. All cases were randomly selected for particular surgical procedure.

Mayo's suture repair will take shorter operative time 45-60 mins. in 70% and 60-80 mins. in 30% and in mesh repair the procedure took 45-60 mins. in 43.33% and 60-80 mins. in 56.67%. In our study, post-op complications like wound infection occurred in 10% in mesh repair and 6.67% in anatomical repair, which were treated conservatively.^{7,8,9} Haematoma and seroma was higher in mesh repair.

Arroyo in 2001 and Asalani in 2010 reported lower recurrence in open onlay mesh repair than Mayo's suture overlap method.¹⁰ In long-term follow-up the recurrence was higher in Mayo's repair, 10% as compared to mesh repair 3.33%. Complication rate was higher in mesh repair compared to Mayo's repair.

In long-term follow-up, the recurrence was higher in Mayo's suture repair (10%) compared to mesh repair (3.33%) in our studies.

CONCLUSION

Paraumbilical hernia is more common between 3rd and 6th decade of life. It is more common in males 56.7% than in females. There is no difference in age distribution of cases between males and females. Most common presenting symptom is swelling around the umbilicus, which may or may not be associated with pain. Most common position was supraumbilical (56.7%). Though Literature says most of the paraumbilical hernias are irreducible or partially reducible, in our series swelling was reducible in 70%. There are many precipitating factors for paraumbilical hernias. The most common being obesity (36.7%) followed by Multiparity (30%) and lifting heavy weights (26.7%) owing to the age group. Paraumbilical hernias are associated with co-morbid conditions like HTN and DM.¹¹ Weight loss in obese patients may reduce the chances of recurrence and post-op complications.

This study concludes that mesh repair has low recurrence rate with minimum complications. Mesh repair is considered the best and more superior to anatomical repair in due consideration to recurrence, however, in certain circumstances anatomical repair holds good.

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