Basrah Journal of Surgery

Bas J Surg, September, 8, 2002

UMBRELLA MESH VERSUS MAYO'S REPAIR IN PRIMARY UMBILICAL HERNIA

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Summary

Prosthetic repair has become a promising method for repairing hernias. The present study try to show the benefit of open umbrella mesh repair for umbilical hernia. This is a prospective randomised study comparing umbrella mesh and Mayo's repair for primary umbilical hernia. Children and those who needed emergency surgery were excluded. The study was conducted on 80 patients (63 females and 17 males) with age range from 18-67 years. The follow up period was 51 months. There were no statistically significant difference between both repairs in regards to operative time, hospital stay, postoperative pain and early complications. There was earlier return to activity and no recurrence in umbrella mesh repair than in Mayo's repair. Mesh repair represent safe and effective surgical method in repairing primary umbilical hernia.

Introduction

Umbilical hernia is common in adults and is frequently performed operation in females [1].

The surgical treatment of umbilical hernia has evolved through several stages to reach a modern and successful era. This success was shared by all our predecessors who contributed some knowledge with respect to anatomy, physiology and surgery[2,3]. Although most patients are treated with satisfaction by simple suture repair, the recurrence rate is 10-30% [2,4].

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The modern treatment of umbilical hernia is the availability of reliable prosthetic materials and some techniques of repair[3]. The concept of tension free open repair has proved popular amongst many surgeons, specially in the treatment of inguinal, femoral and incisional hernias, with low recurrence rate[5,6].

The purpose of this study is to compare open umbrella mesh technique with Mayo's technique in the repair of primary umbilical hernia in adults.

Patients and Methods

This prospective study was conducted at Basrah General Hospital from Jan 1998 to March 2002. Eighty patients with primary umbilical hernia were

randomised into two groups, 30 patients were repaired by umbrella mesh and 50 patients repaired by the classical Mayo's repair. Children and those who needed emergency surgery were excluded.

The population studied included 63 females and 17 males. Patient's ages ranged from 18 to 67 years. Patients were allocated regardless of the hernia size and all the patients had surgery under general anaesthesia. All patients received three doses intravenous anti-biotic (ampiclox vial 500mg) after the operation. Postoperatively, patients were followed for pain, hospital stay, length of disability, short and long term complications followed by the same surgeon at one and four weeks, three months and then annually. Pain scores were recorded at 12 and 24 hours, given a numerical value for statistical analysis: 1, none; 2, mild; 3, moderate; 4, severe; 5, unbearable.

Differences between the two surgical groups were measured with chi square test. $P<0.05$ was considered significant.

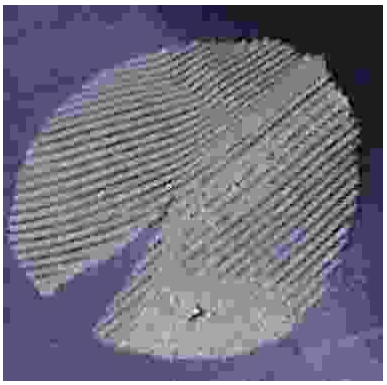
Surgical technique

A-Open Umbrella Mesh Repair

An elliptical incision was made and the umbilicus removed with the skin . The sac was dissected from the skin, avoiding resection. Both the sac and its content were restored into the abdominal cavity without opening the sac and if it was opened, it was sutured. Hernioplasty was done by fashing an umbrella from the polypropylene mesh, then introduced into the hernia defect and fixed by using continuos 2/0 prolene sutures (Fig1 A,B,C,D&E).Subcutaneous Drains are used in obese patients only.

B-Classical Mayo's repair: as mentioned in Farquharsons Text Book of Operative Surgery [7] .

A



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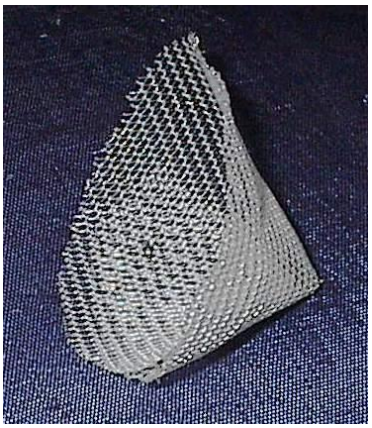

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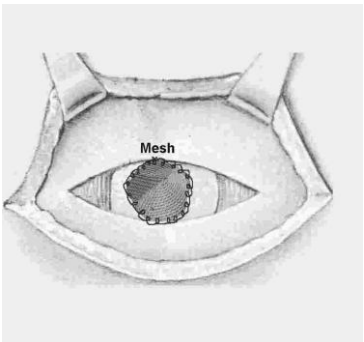

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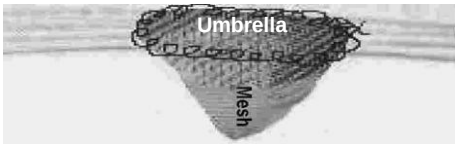

E

Figure 1. Technique of Umbrella Mesh Repair

Results

Over a five years period, 80 patients (63 women and 17 men) were randomised to either mesh repair (n=30) or the Mayo's repair (n=50). The age of patients in mesh group was from 20-67, while in Mayo's group from 18-64 years. The median operation time in mesh group ranged from 35-50 minutes, while in Mayo's group was from 30-55minutes and this was not statistically significant. The postoperative stay was 12-24 hours in mesh group, while in Mayo's group was from 12-48 hours, this was also not statistically significant. Among patients having mesh repair 25 had hernia defect less than 3 cm in diameter; the remainder were more than 3cm. In Mayo's group, the hernia defect was less than 3cm in 42 patients (Table I).

	Umbrella Mesh repair	Mayo's repair
Age (years)	20 – 67	18 – 64
Sex	22 F , 8 M	41 F : 9 M
Hernia neck defect		
> 3 cm	5	8
<3 cm	25	42
Duration of surgery (minute)	35 – 50	30 -55
Hospital stay (hours)	12 – 24	12 - 48

Table 1. Characteristics of patients

The pain scores of patients at 12 and 24 hours showed that the majority of patients in both groups fell into mild to moderate range, and there was no significant difference in mean pain scores between both groups as shown in Table II and III. The time for return to usual activity was 8-15 days for mesh group and 15-25 days for Mayo's group. There was no significant difference in the early postoperative complications such as seroma, haematoma or wound infection in both groups (Table IV).

Pain	Score	Mesh repair	Mayo's repair
None	1	0	0
Mild	2	16 (53.3%)	25 (50%)
Moderate	3	12 (40%)	21 (42%)
Severe	4	2 (6.7%)	4 (8%)
Un bearable	5	0	0
Total		30	50

Table II. Postoperative Pain score after 12 hours

Pain	Score	Mesh repair	Mayo's repair
None	1	0	0
Mild	2	25 (83.4%)	34 (68%)
Moderate	3	5 (16.6%)	15 (30%)
Severe	4	0	1 (2%)
Un bearable	5	0	0
Total		30	50

Table III. Postoperative Pain score after 24 hours

Complication	Mesh repair	Mayo's repair
Haematoma	1 (3.3%)	2 (4%)
Seroma	1 (3.3%)	1 (2%)
Wound infection	0	1 (2%)
Recurrence	0	4 (8%)
Total	2	8

Table IV. Postoperative Complications

The follow up period ranged from (6-51) months. There were no deaths during follow up in either group. There was no recurrence after mesh repair (0 %) while in Mayo's repair there was 4 recurrences (8%), without a significant relationship between recurrence rate and size of hernia defects.

Discussion

The results of this study indicate that polypropylene umbrella mesh repair has no added advantage over Mayo's repair with respect to operation time (which depends on skill and experience of the surgeon), postoperative pain, hospital stay and early complications. This shows that the use of mesh does not increase the specific risk of infection and pain [8].

Our results also show that mesh repair result in early return to normal activity, this explained by minimal dissection of muscle, tension free repair and low complications rate. [9]

The recurrence rate of hernia after umbrella mesh repair is lower than in Mayo's repair, this is explained by the fact, that covering the defect in the abdominal wall with mesh lead to less dissection o f muscle and the mesh can better with stand the tension to which it is subjected, which originates inside the abdomen[10].

Our study suggests that umbrella mesh repair of umbilical hernia represent safe method, with no increased morbidity, early return to normal activity and lower recurrence rate than Mayo's repair. These results could be improved by increased skill and experience.

References

1.Morgan WW, White JJ, Stambaugh S, Haller JA. Prophylactic umbilical hernia repair in childhood to prevent adult incarceration. Surg Clin North Am 1970; 50: 839 – 845.

2.Mayo WJ. An operation for the radical cure of umbilical hernia. Ann Surg 1901; 34: 276 – 280.

3.Robert Bendavid. New techniques in hernia repair. World J Surg, 1989; 13: 522 – 531.

4.Britton BJ, Morris PJ. Local anesthetic hernia repair. An analysis of recurrence. Surg Clin North Am 1984;64: 245- 255.

5.Lichtenstein IL, Shulman AG, Amid PK. The cause, prevention and treatment of recurrent groin hernia. Surg Clin North Am, 1993; 73: 529 – 544.

6.Lichtenstein IL, Shulman AG, Amid PK, Montlor MM. The tension free hernioplasty. Am J Surg, 1989; 157: 188 – 189.

7.Johnstone JMS, Rintoul RF. Operations for hernia. In Farquharsons Text Book of Operative Surgery. R.F. Reintoul. 7th ed. Churchill Livingstone. New York; 1986:494-496.

8.Arroyo A, Garcia P, Perez F, et al. Randomized clinical trial comparing suture and mesh repair of umbilical hernia in adults. Br. J.Surg, 2001; 88: 1321 – 1323.

9.Mike SL, Laurents PS, Augustinus JP, etal. Comparison of conventional anterior surgery and laparoscopic surgery for inguinal hernia repair. New Eng J Med. 1997; 336 (22); 1541 – 1547.

10.Stoppa RE. The treatment of complicated groin and incisional hernia. World J Surg 1989; 13; 545 – 554.