Journal of Current Medical Research and Opinion
Received 08-11-2024 | Revised 09-11-2024 | Accepted 08-12-2024 | Published Online 11-12-2024

DOI: https://doi.org/10.52845/CMRO/2024/7-12-3 ISSN (O) 2589-8779 | (P) 2589-8760
CMRO 07 (12) 3795-3800 (2024) www.cmro.in

Research Article

Evaluation of results of Mesh Repair Versus non-Mesh Repair in the Treatment of Obstructed Para Umbilical Hernia

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Abstract:

Background: One of the most prevalent hernias in adults is the umbilical hernia, which is caused by a weakening of the umbilical scar or a defect in the linea alba. Numerous reasons have been proposed as contributing to this hernia. Mesh repair and tissue suture repair are two surgical techniques that have developed over time.

Aim of study: to evaluate the results of mesh repair in treatment of obstructed para umbilical hernia in comparison to non-mesh repair and to determine the efficacy of mesh repair compared to simple repair regarding post-operative hematoma and recurrence.

Patients and method: fifty patients diagnosed with obstructed para umbilical hernia were treated surgically with either mesh (group 1)(25 cases) or simple tissue repair (group 2)(25 cases), patients post operatively were followed for 7 months for complication of surgery and mesh application.

Results: we found that 38 cases (76%) were females and 12 cases (24%) were males, the most common age of presentation was 30-49 year(38 cases) (76%), complications recorded and showed significant difference in hematoma and recurrence in favor of mesh repair, also duration of surgery and hospital stay recorded and compared between the two groups of repair.

Conclusion: mesh repair is superior to non- mesh repair in case of obstructed para umbilical hernia.

Introduction:

Despite being one of the most common in adults, paraumbilical hernias have received very little attention in the literature compared to other formsof abdominal wall hernias. Unwanted high recurrences have been linked to some of the traditional methods of midline hernia treatment. In order to treat inguinal, femoral, and sectional hernias with a low recurrence rate, they developed the use of mesh material, which has prompted an assessment of its application in umbilical hernias

[1]. Numerous factors, such as obesity, diabetes mellitus, steroids, and smoking, are thought to contribute to paraumbilical hernias, which arise from a deficiency in the linea alba or the umbilical scar [2]. The concept of tension-free repairs has been made possible with the use of prosthetics in the surgical management of paraumbilical hernia and a meta-analysis done recently shown that the use of mesh has a ten fold lower recurrence rate when compared with suture repair [3]. For umbilical hernias in adults, the treatment is moderately frequent and is described as acquired in more than ninety per cent of instances; it develops mainly in obese women, particularly those who have been pregnant multiple times, and in patients with cirrhosis. The choice of surgeries remain from simple tissue repairs to mesh and more recent is the laparoscopic repair technique Different suture repair methods developed one after another because they were associated with unacceptably high recurrence rates as described in numerous trials[3]. Overall recurrence rates has dropped to one per cent following the use of mesh material in the inguinal area and this has become the recommended method; similar good results has also been reported with para-umbilical hernia [5, 6]. That is why, in comparison with other types of abdominal hernias, it is possible to emphasize some peculiarities of wound infection after para umbilical hernia repair There often can be less vascularization of the umbilical area as compared to the groin thereby limiting the access of the body immune system to the area, prolonging the period of wound healing, narrowing the delivery of antibiotics They may become necrotic if the skin flap of the umb The present study is to assess the outcome of mesh repair of the obstructed para-umbilical hernias with non-mesh repair.

Patients and methods:

In fifty patients of obstructed para umbilical hernias diagnosed and admitted to the surgical ward, in Baghdad teaching hospital from February 2012-Feb 2013. One target for each patient was randomly assigned to have prosthetic (mesh) repair or non-prosthetic (suture) repair surgery. The patients' age, sex, body mass index, ASA status, similar co-morbid condition and days in custody were recorded. American society of anesthesia (ASA) classify patients undergoing operations into 5 classes:

Class 1: normal healthy patient.

Class 2: patients with a relatively minor pathological process in the body.

Class 3: patients with severe systemic disease ADVERTISEMENT manifold amnesia PRAISE manifold surgery manifold.

* This includes; patients with severe systemic disease.

Class 4: ventilated patients with severe organic dysfunction which is a terminal threat.

Class 5: patients whose chances of survival if they do not go for surgery : are deemed minimal. All the patients received intra-venous antibiotics: ceftrixone 1gm each x 2 intravenous and metronidazole 500mg each x 3 intravenous at the onset of operation and for the next 4 days, all the patients were operated under general anaesthesia and a transverse wound was used.

For group (1) after opening of sac and exclusion of its content the defect was closed by continuous suturing with non-absorbable prolene and then the operative field was washed with normal saline, on-lay prolene mesh was utilized. A flap was designed and the mesh were fixed to lineaalba using interrupted non absorbable suture (prolene 2/0), a Redivack suction drain was inserted subcutaneously and removed when the collection for two consecutive days was less than 50 ml per 24 hours. Exclusion criteria were frank pus and/or generalized peritonitis or ascites; in fact, no patient with ascites was enrolled in the study. In group (2) after opening the sac and handling its content, the defect was closed by continuous nylon repair alone. The contents of the hernia sac in all cases was only omentum Only the following parameters were measured: operative time, postoperative mortality and morbidity, hospital stay and wound infection. All data are presented as mean ± SD. Outcomes measured were complications, seroma, wound infection,

haematoma, and recurrence. Both groups of patients were evaluated for the reappearance and other late operative complications for 7 months. The follow up pattern was once a week for the first one month, one month later, once in two months for the next four months. Any value of P <0.05 was taken as statistically significant; values of P > 0.05 were taken as not significant.

Results:

Neither major anaesthetic problems nor surgical deaths occurred. 50 cases admitted to surgical emergency department in Baghdad teaching hospital with a diagnosis of obstructed para-umbilical hernias and operated on, 25 cases repaired with suture material and 25 with mesh application. 38 patients were females and 12 were males in a percent of 76% and 24% respectively as shown in table 1. Most cases aged between 30-39 yr. and 40-49 yr. in a distribution as 30-39 yr. (15 cases) (30%) and age 40-49yr. (23 cases) (46%) as shown in table 2. Complications also recorded and showed in group (1) mesh repair: 3 cases (12%) seroma, 2 cases (8%) infection, 1 case (4%) recurrence. For group (2) suturing repair: 2 cases (8%) seroma, 3 cases (12%) infection, 1 case (4%) haematoma, and 3 cases (12%) recurrence, as shown in table 3. Complications classified as seroma, wound infection, hematoma and recurrence and there was no significant difference between the two methods of repair in case of seroma and wound infection but significance present in hematoma and recurrence. while mesh repair last for 66.4 min, as shown in table 4. There was no significant difference in hospital stay between the two groups and ranged from 3-5 days for both of them as shown in table 5. Hernia defect were recorded and classified as <3 cm and >3cm. in which for group (1) mesh repair 18 cases (36%) were >3 cm and 7 cases (14%) < 3cm while for group (2) suturing repair 14 cases (28%) was> 3cm and 11 cases (22%) <3 cm as shown in table 6. The ASA classification for the patients underwent operations also recorded and most of patients were class 2 and 3 (40 cases) in which class 2 is mild systemic disease(controlled hypertension or diabetes) and class 3 which is severe systemic disease in which there is some functional limitation, as it is shown in table 7.

Table 1. Male to female ratio.

Gender	No. of Patients	Percent	P-Value
Male	12	24%	
Female	38	76%	0.003

Tabe 2. Age group.

Age group	No.	Male	Female	total
0-9	0	0(0%)	0(0%)	0(0%)
10-19	0	0(0%)	0(0%)	0(0%)
20-29	6	0(0%)	6(12%)	6(12%)
30-39	15	3(6%)	12(24%)	15(30%)
40-49	23	5(10%)	18(36%)	23(46%)
50-60	6	1(2%)	5(10%)	6(12%)
total	50	9(18%)	41(82%)	50(100%)

Table 3. Complication.

Complication	Suturing(group2)	Mesh(group1)	P-Value
Seroma	2 (8%)	3 (12%)	0.355
Wound infection	3 (12%)	2 (8%)	0.355
hematoma	1(4%)	0(0%)	0.042
recurrence	3 (12%)	1 (4%)	0.036

Table 4. Duration of Surgery.

	Suturing	Mesh
Mean of Duration	43.5 min	66.5 min
Standard deviation	±4.5	±9.5
P-Value	0.032	

Table 5. Hospital stay (in days).

	Suturing	Mesh
Mean of Duration	3.5 days	5.5 days
Standard deviation	±0.22	±0.61
P-Value	0.382	

Table 6. Hernia Defect.

Defect	Suturing	Mesh
>3cm	14(28%)	18(36%)
<3cm	11(22%)	7(14%)
Total	25(50%)	25(50%)

Table 7. ASA Classification for the patients.

ASAclass	NO.ofcases	male	female
1	6	0	6
2	26	8	18
3	14	0	14
4	4	1	3
5	0	0	0
Total	50	9	41

Discussion:

For umbilical hernia in adult it is a common ailment and is classified as an acquired pathology in more than 90% of cases 14. It is noted most commonly in obese multiparous women, and in patients with cirrhosis. Our sample was therefore made up of 50 cases selected at random, 25 of which underwent classical tissue repair and 25 that were repaired with the use of a mesh. Seroma and wound infection rate did not differ

significantly between the two types of repair used in the study. as it was between (8-12%) (5cases total) for both groups and this result was consistent with the results of Sheikh et al in 2007 as it was (8-10%) for mesh repair group and (6-8%) for suturing group 10. Regarding hematoma there was a significant difference between simple repair which was (4%) (1 case) and mesh repair (0%) (Ocase) and this correlate with the results of Talpur et al which showed (0%) (Ocase) of hematoma in mesh repair group and (5%) (2cases) for simple repair group. In recurrence complication there was (12%) (3 cases) for simple repair group and (4%) (1 case) for mesh repair. group which indicates the efficacy of mesh repair in the treatment of obstructed para umbilical hernia on long term surveillance as it showed by Falgas et al in his study in 2008 which was (15%) recurrence for simple repair and (5%) for mesh repair. The mean duration of surgery was longer for the mesh repair (66.5)min. compared to simple repair (43.5) min. and these results does not correlate with the results of Nieuwenhuizen et al in 201111 which shows less time of surgery for the mesh repair. The hospital stay also recorded and compared between two groups of repair which showed longer hospital stay for the mesh group(5.5 days) in comparison to simple repair which was (3.5 days), in the study of Ferzli and Mihelsons conducted in 2010 they showed no significant difference in hospital stay for both groups of repair which was (3 days) unless there was a complication which necessitate longer hospital ital. 12 The present study supports this tendency to favor hernioplasty for obstructedpara umbilical hernia since the rate of recurrence is clearly lower after mesh repair.

Conclusion:

The data retrieved in this study supports our opinion that mesh repair of Obstructed para umbilical hernias is safer and better than conventional repair especially in long term outcomes, including recurrence and patients' comfort. Antibiotic prophylaxis targeted at the presumptive pathogens especially following mesh use should be contemplated.

Recommendations:

• Mesh should be the preferred mode of repair of para umbilical hernia. The antibiotics should be administered for 3-5 days to prevent the infection from occurring and to stop the recurrence.

• One should limit the degree of undermining to avoid skin death and resulting infections. Accordingly, it is critically important to effectively irrigate the operative field with warm normal saline before the application of the mesh. The only contraindication to mesh repair in obstructed-para umbilical hernia is pus and bulk volume of ascites.

• Antibiotic prophylaxis to likely causative organisms especially in mesh repair should be employed.

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