

# The Outcomoe Of Suture Versus Mesh Repair Of Primary Small Umbilical Hernias In Adults

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## Abstract

**Background:** There are a different methods of umbilical hernia repair and there is controversy about which repair is better for small umbilical hernias.

**Aim :** Is to compare which method is superior the mesh or suture repair for small umbilical hernias in terms of clinical outcome and recurrence rate.

**Methods:** In this study , 120 patients were treated surgically using either suture or mesh repair for their umbilical hernias from march 2013 to march 2015 at Al Imam Ali hospital. In 67 patients, the hernia was repaired by prolene suture and 53 patients their hernias were repaired by mesh. Both groups were followed for complications and recurrence rate. The data was analysed statistically for significance using Fishers exact test.

**Results:** 89 patients (74.16%) were females, 31 (25.84%) were males . ages of the patients were ranged between 21 to 67 years, mean age was (36.17). There was no significant difference statistically between two groups regarding recurrence after one year follow up, 4\67 (6%) in suture repair and 1\53 (1.9%) in the mesh repair. 5 patients (7.46%) got seroma in the suture repair group while 4 patients (7.54%) in the mesh repair. Hematoma developed in 2 patients (3%) in the suture repair group and nil in the mesh repair group. Regarding infection 3 (4.5%) in suture repair and 2 patients (3.7%) in the mesh repair group. 3 patients (4.5%) treated by suture repair complained of chronic pain while only 2 (3.7%) in the mesh repair group.

**Conclusion:** This study showed no significant difference between two methods of repair regarding short term complications and recurrence rates.

**Key words:** umbilical hernia, repair, suture, mesh, recurrence

## INTRODUCTION

Hippocrates (460\_375 B.C) described umbilical hernia. It was only in the late 18<sup>th</sup> century that articles started coming about anatomy, clinical features, and operative procedures of hernia.<sup>(1)</sup>

The initial approach to repair of umbilical hernia was proposed in 1895 by William Mayo.<sup>(2)</sup>

Hernia is an abnormal protrusion of a viscus or a part of a viscus through an opening or weakness in the wall of the cavity that contains it.

Many hernias in the umbilical region occur above or below the umbilicus through a weak area at the linea alba rather than directly through the umbilicus itself,

and the natural history and the treatment does not differ for these hernias . According to the European Hernia Society classification, defines the midline hernias from 3cm above to 3cm below the umbilicus as umbilical hernias.<sup>(3)</sup>

Umbilical hernia is regarded as a common surgical problem, approximately 10% of all primary hernias.<sup>(4)</sup> About 175000 umbilical hernia repairs are annually performed in the U.S.<sup>(5)</sup> In the U.K, it has been reported that umbilical and paraumbilical hernia repair increased from 5% to 14% over the last 25 years.<sup>(6)</sup>

There are two types of umbilical hernia, either congenital appearing at birth or acquired occurring overtime in adults due to the obesity, excessive coughing , pregnancy or other causes.

There are many types of umbilical hernia repair which is either only by suturing the defect with its different approaches, and types of sutures

used or with mesh repair which is fixed onlay, sublay, inlay or preperitoneal.

In this study we compared the outcome of adults small umbilical hernia repair regarding complications and recurrence rates using simple suture repair or onlay reinforcement with polypropylene mesh which both are commonly performed in Iraq.

## PATIENTS AND METHODS

From March 2013 till March 2015 at AL-Imam Ali hospital, Baghdad. Surgery was performed for 120 patients for their acquired adult primary umbilical hernia, the size of hernial defects were ranged between 1-5 cm, and more than 80% of them were below 3 cm.

All patients investigated for fitness for surgery. Operations were performed under general anesthesia or spinal anesthesia by the same surgeon expert in hernia repair. Surgery started with transverse incision above or below the umbilicus, hernial sac was transected after reducing the contents, and repair of the sheath defect was performed.

The patients were divided into two groups. In 67 patients the defect was sutured with prolene 1/1 double layers with a drain left for 3-7 days. The 2<sup>nd</sup> group of 53 patients suturing of the defect with prolene, and reinforcement with onlay polypropylene mesh, the mesh extended beyond the sutured borders of aponeurotic defect circumferentially by 4-5 cm, the mesh was fixed to the aponeurosis with two rows of interrupted 2/0 nylon sutures, the 1<sup>st</sup> one nearby the defect and the 2<sup>nd</sup> at the periphery, the repaired site was drained for 5-10 days. All patients were given broad-spectrum antibiotics for at least 5 days in both groups. The patients were randomly allocated to either of the operative techniques.

Diseases, obesity, jobs of the patients, and size of hernial defect that may affect the incidence of complications and recurrence

rate were ignored, because they were existed randomly in a number of patients in both groups.

Patients were followed after 1 week, 2 weeks for complications which including seroma, haematoma, infection and one year for chronic pain, and recurrence of hernia. The hernia site was examined clinically or with ultrasound for recurrence.

The significance of results was analysed statistically using Fisher's exact test.

## RESULTS

120 patients were subjected to umbilical hernia repair. 89 of them were females, 31 were males.

41 females and 12 males were treated with mesh repair. 48 females and 19 males were treated with suture repair.

Ages of the patients ranged from 21 to 67 years. The mean age was (36.17). 90% of the patients aged (20-50) years as shown in table 1.

The complications and recurrence rates are shown in table 2, and as follows. Five patients (7.46%) were treated with non mesh repair developed seroma, and 4 patients (7.54%) in the mesh repair. the p value was 1 which is insignificant.

2 patients treated with suture repair got haematoma and none in mesh repair (p value 0.5026), also insignificant.

Infection occurred in 3 patients treated with suture repair and 2 patients in mesh repair group (p value 1).

Three patients treated with suture repair were complained of chronic pain, and 2 patients in mesh repair group (p value 1), so infection, and chronic pain also showed no difference in both groups.

4 patients (6%) got their hernia recurred in suture repair and only one patient (1.9%) in mesh repair (p value 0.3818) which is insignificant.

No difference was found statistically between the two methods regarding complications and recurrence.

**Table 1: Age distribution of the patients**

| Age in years | Repaired with mesh | Repaired with suture | Total |
|--------------|--------------------|----------------------|-------|
| 21-30        | 11                 | 14                   | 25    |
| 31-40        | 29                 | 33                   | 62    |
| 41-50        | 9                  | 12                   | 21    |
| 51-60        | 3                  | 6                    | 9     |
| 61-70        | 1                  | 2                    | 3     |

**Table 2: Complications and recurrent rate in both groups**

| complications | Suture Repair | Repair with mesh | P value using fishers exact test, p value significant when <0.05 |
|---------------|---------------|------------------|------------------------------------------------------------------|
| seroma        | 5             | 4                | 1                                                                |
| haematoma     | 2             | 0                | 0.5026                                                           |
| infection     | 3             | 2                | 1                                                                |
| pain          | 3             | 2                | 1                                                                |
| recurrence    | 4             | 1                | 0.3818                                                           |

## DISCUSSION

There is controversy about which repair is superior for small umbilical hernia regarding complications and recurrence and cost effectiveness.

There are different methods for umbilical hernias repair, a new trend of laparoscopic hernial repair which now covers about 15% of all types of hernias but still there is serious complications mostly bowel injury which is if unrecognized mortality is (7.7%).<sup>(7)</sup> Still the traditional open repair for small umbilical hernia is more common.

Several techniques were used to decrease postoperative complications and recurrence. In our study the comparison was between suture repair, and repair with mesh.

Data showed most of the patients were females, and this gives an idea that pregnancy is an important cause and this is not different from others studies,<sup>(8,9)</sup> however some series showed males affected more than females.<sup>(10)</sup>

The age distribution showed most of the patients aged between (20-50)(89.2%). Mean age was (38.17) years and this age is child bearing age for females, and working age for males; most of the studies showed mean age of (40-50) years.<sup>(11,12)</sup>

Seroma and haematoma occurred in a small number of patients in both types of repair, this is because we used a drain in most of the cases. A study from Spain also showed no significant difference in short term complications.<sup>(13)</sup> Eryilmaz et al also found no great difference regarding.

occurrence of seroma which was (6%) in suture repair and (8%) in mesh repair<sup>(14)</sup>, while Berger et al who

used preperitoneal mesh repair showed great increased in the incidence of seroma in mesh repair (13.8%) versus (3.9%) in suture repair.<sup>(15)</sup>

Infection was reported in only 3 cases of suture repair group, and in 2 of mesh repair group and it was not significant. The low rate of infection due to the antibiotics used in all patients. A study from India showed that 11.5% of cases got infection in the suture repair group and 0% in the mesh repair group.<sup>(16)</sup> Buckminster Farrow et al showed a great increase in the rate of infection in mesh repair in comparison with suture repair.<sup>(11)</sup>

Chronic pain persistence showed no significant difference between the two groups. The pain is due to induration that occurred at the site of surgery and it still has a low occurrence rate, and is treated by analgesia and reassurance. A study published in the American journal of surgery showed no difference. It was with mesh repair 6% and with suture repair 5%.<sup>(17)</sup>

Recurrence rate in this study was In suture repair group, 4 cases (6%) and 1 case (1.9%) in mesh repair group, although it was in suture repair 3 times of that in mesh repair, still statistically insignificant, (p value = 0.3818). Winsenes et al showed same results, a repair with suture only decreased the risk of surgical complications without an increased in recurrence rate<sup>(18)</sup>. Berger RL et al from Texas university, also showed no significant difference in recurrence rate between the two groups, (5.6%) in mesh versus (7.5%) in suture repair with a great

Increased in incidence of seroma and surgical site infection in mesh group.<sup>(15)</sup> A study from Saudi Arabia by Ahmad K L he used Mayos suture repair and onlay mesh repair showed with recurrence rate of (10%) in mesh repair and (18.8%) in mesh repair.<sup>(19)</sup> Some studies showed a decrease rate of recurrence even in small umbilical hernia smaller than 3cm.<sup>(17,20)</sup>

The outcome of umbilical hernias repair specially the recurrence in both groups may need longer period follow up which is not always obtainable, still the suture repair for umbilical hernias has a place, and it should not be obsolete. The choice between the two types of repairs may be affected by factors related to the patients like diseases that increase intra abdominal Pressure, size of the hernia, age and job of the patient. A small size umbilical hernial repair are a common performed surgery and need further evaluation and researches.

## Conclusions:

The data in this study showed no significant difference in short term complications and recurrence rate between the mesh and suture repair of small size defect of adult primary umbilical hernia.

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