

## Surgical Treatment of Paraumbilical and Umbilical Hernias in Adult Patients

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### Abstract:

**Background:** To assess the morbidity and post-operative consequences of various surgical repair techniques. **Methods:** This prospective observational surgical study comprised 50 cases of paraumbilical and umbilical hernias. It was completed by taking a patient's medical history, doing a clinical examination, and conducting the necessary investigations for Operations were carried out. The two surgical techniques used to treat the patients were Mayo's repair and tension-free repair utilizing prolene mesh (mesh repair).

**Findings:** Females were more likely to have paraumbilical and umbilical hernias. The age ranges of 25-35 and 45-55 years had the highest incidence. The most frequent complaint was abdominal swelling, which was followed by pain. In both procedures, post-operative problems such as seroma and wound infection were observed. Mayo's anatomical repair and tension clinic performed surgery on these hernias.

**Keywords:** Paraumbilical hernias, Umbilical hernias, Hernioplasty.

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### Introduction

The word "hernia" comes from the Greek word "heron," which denotes a branch or protrusion. A hernia is a protruding portion of the abdominal cavity's normal contents. Through the abdominal wall's weakness. One the most frequent types of hernias are ventral, femoral, and inguinal.

Anterior abdominal defects are a characteristic of ventral hernias. More than 90% of individuals have an acquired abnormality called an umbilical hernial. It is a common clinical issue that is rarely properly examined in medical literature. [2,3] The umbilicus is a quite common location of herniation and one of the abdomen's possible weak spots.

"Paraumbilical hernia" is the term for a midline hernia that occurs through the linea alba that abuts superiorly or inferiorly on the umbilicus. These hernias are among the most prevalent ones that occur in adults. They could progress from simple swelling to strangulation or blockage. Due to a lack of blood flow, the tissue may develop gangrene if the strangling continues. This may result in excruciating pain and vomiting, which may endanger life and necessitate emergency surgery. Managing these hernias continues to be a common surgical issue. If the deformity is minor, it can be surgically fixed with minimal stress and has a very low chance of recurring. Large ones with wide

apertures, however, are challenging to treat with anatomical restoration, which, if done, may cause tissue necrosis and an early recurrence because of excessive strain. Prosthetic mesh repair should be used to treat such hernias. Surgeons worked hard to find a substance that might strengthen the abdominal wall without causing undue strain when prosthetic mesh was used to fill in major deficiencies. A lasting cure is the goal of many surgeries currently used in management. The high recurrence rate of the pre-antibiotic era has nearly been eliminated by safe anesthesia, antibiotics, antisepsis, improved anatomical knowledge, closed drains, and implants such as merlex and prolene mesh. Low morbidity and recurrence rates are currently the outcome of the careful use of the following three approaches in the repair of these hernias. The first of these is the reinforcement of surgical repairs through the imbrication of several layers. Second, buttress repair using a synthetic prosthesis; third, a laparoscopic technique [4,5,6].

### Methods:

Those with paraumbilical and umbilical hernias were selected for this prospective study between 2022 and 2023. Data is being gathered by means of direct interviews and clinical examinations of patients admitted to the aforementioned hospitals.

A minimum of fifty cases that met the inclusion and exclusion criteria listed below were chosen for the study and assigned at random.

Relevant data (patient information, clinical results, lab investigations, etc.) had been gathered from each of the chosen patients using a pretested Performa. Patients admitted to Prathima Relief Institute of Medical Sciences & Hospital in Hanamkonda, Telangana State, India.

#### Inclusion Criteria

- All patients, regardless of age, who have paraumbilical and umbilical hernias. Both simple and complex hernias are considered in the study.

#### Exclusion Criteria

- Pregnancy-related paraumbilical and umbilical hernias.
- Patients who came with a hernia and co-occurring diseases such as chronic renal failure, liver cirrhosis with ascites, etc.

The cases were examined in accordance with the proforma that is attached, and a master chart was created specifically for the cases in order to create a concise report. The patients or their attendants

provided a thorough clinical history covering a range of topics, including age, sex, clinical presentation, and the length of time the symptoms were present. Clinical information on the length of the hernia, its growth, related problems such as abdominal or swelling discomfort, vomiting, reducibility, persistent cough, constipation, trouble micturizing, abdominal distension, history indicative of ascites, and other causes 45 patients with paraumbilical and umbilical hernias were included in a prospective observational surgical study. Research the surgical consequences and the prevalence, clinical characteristics, complications, and therapeutic approaches of this hernia [7,8]. Of the 550 cases that were operated on, 170 cases (or 30.8% of the total) were hernias. There were 150 (86%) inguinal hernias, 80 (28%) incisional hernias, 60 (16.9%) umbilical and paraumbilical hernias, 25 (9%) epigastric hernias, and 8 (1.9%) femoral hernias. Umbilical and paraumbilical hernias make up around 18.4% in terms of the incidence of hernias. 72 of these cases were chosen at random for this investigation. 34 of the 72 cases involved umbilical hernias and Paraumbilical hernias accounted for 28. There was a 1:1.28 ratio of umbilical to paraumbilical hernia.

Table 1:

Age	Diagnosis	
	Umbilical Hernia	Paraumbilical Hernia
25-35	2 (4.4%)	4(7.03%)
36-45	13(35.01%)	19(42.3%)
46-55	9(24.6%)	8(20.4%)
56-65	10(25.2%)	7(20.6%)
>65	3(5.32%)	1(2%)
Mean±SD	44.3±12.09	45.98±15.1

Table indicates that the age range of 25 to 35 years old has a higher prevalence of umbilical and paraumbilical hernias. The study's youngest patient was 34 years old, and the oldest was 67. Additionally, it demonstrates that the incidence of paraumbilical hernia in females was 16% and in males was 19%, whereas the incidence of umbilical hernia in females was 16% and in males was 10%. The male to female ratio in this study was 1:1.2, indicating a higher occurrence of females.  $P=0.26$ , chi-Square test, not significant.

According to the most common complaint for both umbilical and paraumbilical hernias was swelling, which was followed by discomfort in 35% of instances. Constipation, vomiting, and stomach distension were only observed in 7% of cases. The consequences of both hernias are displayed in this table and irreducibility was the most frequent complication observed in 9% of umbilical hernias and 13% of paraumbilical hernias was irreducibility. Anatomical repair and mesh repair

were the surgical techniques used. Eleven of the twenty-one cases with umbilical hernias had anatomical repair, while the other ten had mesh treatment, whereas 15 out of 32 cases of paraumbilical hernias had anatomical repair, with the remaining cases requiring mesh surgery. In total, 45% of cases had mesh repair and 38% of cases had anatomical repair. Anatomical repair was performed on few cases: one paraumbilical and three umbilical hernias. Developed an infection in the wound. Few cases of mesh surgery for umbilical hernias resulted in wound infections. Few patients had mesh repair, one of which were paraumbilical hernias, and three case of seroma collection that had developed underwent anatomical repair Umbilical hernia was number one. There were no recurrences observed in hernias that had been treated with a mesh, but two recurrences observed in hernias underwent anatomical repair.

An examination of fifty instances of umbilical and paraumbilical hernias treated at the Prathima Relief Hospital, Hanamkonda, Warangal, Telangana, using prospective observational surgery from 2022 to 2023. Fifty of the 68 admitted cases were chosen at random for the current investigation. This study has taken into account the incidence, clinical characteristics, complications, operational techniques, and their adverse effects. The incidence of different hernias across multiple researches is displayed in this table. Inguinal hernias account for 63.2% of the 140 instances of performed hernias at the Hospital incisional hernias for 15.5%; umbilical and paraumbilical hernias for 9.3%; epigastric hernias for 4.4%; and femoral hernias for the remaining 0.5%. Of the 72 admitted cases, 21 were umbilical hernias and 29 were paraumbilical hernias out of the 50 randomly chosen cases. Age incidence: According to study series, the age groups of 30–40 and 50–60 years old had the highest incidences of both hernias. 58% of the patients had paraumbilical hernias, while 42% of the patients had umbilical hernias.

Females are more likely to have paraumbilical and umbilical hernias. Overall, 56% of the study's participants were female, and 48% were male, suggesting a greater prevalence in women. The existence of several triggering circumstances, such as pregnancy, obesity, floppy abdominal wall, and multiparity, can explain the cause. Clinical presentation: Swelling in and around the umbilicus was the primary complaint of every patient in the study.

About 40 individuals reported experiencing a vague, dragging discomfort. In five cases, symptoms such as vomiting, distension in the abdomen, and constipation were indicative of intestinal obstruction. Out of 45 cases in the current study, 21 had problems, with irreducibility being the most frequent complication in 17 cases. Of these, 11 were partially irreducible, while the remaining 3 were totally irreducible.

Narrow neck was the cause of partially irreducibility. Of the four examples that are totally irreducible in two cases, there were signs of intestinal blockage and intestinal strangling. In two instances, the hernia became an ulcer, which may be the result of a minor trauma or pressure necrosis. Surgical methods: 30 cases were fixed by tension-free hernioplasty with a prolene mesh, while 25 out of 45 patients received Mayo's anatomical repair.

The extent of the defect, the patient's age, and the tone of the abdominal muscles were taken into consideration, even though patients were chosen at random for the specific surgical treatment. Repairing mesh has been completed for the majority of the major flaws.

**Drains:** The majority of patients received romovac suction drain number 12F, which was always removed via a separate incision. Within 24 to 48 hours, the drain was taken out. Postoperative complications: In this series, there were four cases of wound infection: two cases occurred during Mayo's anatomical repair and three cases occurred during mesh repair [9,10] A course of antibiotics and pus drainage were used as conservative measures to treat the wound infection. Since the infection was just superficial and was effectively treated with antibiotics, none of the patients needed their mesh removed. (b) Seroma collection was observed in five cases: three mesh repair cases and three Mayo's anatomical repair case. Drainage and wound dressing were used to address the seroma collection at the suture line. The percentage of complications following surgery does not change statistically significantly. (c) Of the 35 patients who received Mayo's anatomical repair, 4 instances experienced recurrence, while none of the cases who had mesh repair experienced recurrence. Hospital stay duration: the average length of stay for both patient groups was seven days. In cases of wound infection, the duration was extended to 15 days.

An observational prospective surgical study on the surgical treatment of umbilical and paraumbilical hernias was conducted using 50 randomly chosen admitted cases. Between 2013 and 2022 in our medical facilities. The clinical features, surgical methods, and associated post-operative problems are the primary focus of the current investigation. The primary appearance of these hernias is swelling followed by pain, and the most frequent complication is irreducibility. These hernias are particularly common in older females. There were two recurrences among the classical Mayo's repair procedures in a follow-up period of three months to years, but none were observed in patients who received mesh repair.

The traditional fix although many centers have preferred Mayo's repair for umbilical and paraumbilical, the tension-free mesh repair used in this study is superior and advantageous to Mayo's repair because it has no recurrences and can be used in cases of larger defects and weaker abdominal muscle tone. In light of the current study's finding that tension-free mesh repair had no recurrence, it ought to be the preferred method for treating paraumbilical and umbilical hernias.

**Ethical approval:** The study was approved by the institutional ethics committee.

## References

1. Williams NS, Bulstrode CJK, Connell PR, Eds. Bailey and Love's Short Practice of Surgery, 26th Ed. New York; 2013:948-949.

2. Rutkow IM. Epidemiologic, economic, and sociologic aspects of hernia surgery in the United States in the 1990s. *Surg Clin North Am.* 1998; 78:941–951. doi: 10.1016/S0039-6109(05)7036
3. Seker G, Kulacoglu H, Oztuna D, Topgül K, Akyol C, Cakmak A, et al. Changes in the frequencies of abdominal wall hernias and the preferences for their repair: a multicenter national study from Turkey. *Int Surg.* 2014; 99:534–542. doi: 10.9738/INTSURG-D-14-00063.1
4. Helgstrand F, Jørgensen LN, Rosenberg J, Kehlet H, Bisgaard T. Nationwide prospective study on readmission after umbilical or epigastric hernia repair. *Hernia.* 2013; 17:487–492. doi: 10.1007/s10029-013-1120-9
5. Morgan WW, White JJ, Stambaugh S, Haller JA. Prophylactic umbilical hernia repair in childhood to prevent adult incarceration. *Surg Clin North Am.* 1970; 50:839-45.
6. Rodriguez JA, Hinder RA, Eds. *Operative Techniques of General Surgery, Vol 6*; Texas; Elsevier; 2004:156 -164.
7. Brancato G, Privitera A, Gandolfo L, Donati M, Caglia P. Plug-technique for umbilical hernia repair in the adult. *Minerva Chir.* 2002; 57:13–16.
8. Martis JJ, Rajeshwara KV, Shridhar MK, Jannardhanan D, Sudarshan S. Strangulated Richter's umbilical hernia - a case report. *Indian J Surg.* 2011; 73:455–457. doi: 10.1007/s12262-011-0272-z.
9. Wantz GE. Abdominal wall hernias. In: Schwartz SI, Shires GT, Spencer FC, Eds. *Principles of Surgery, 7th ed.* New York: McGraw-Hill; 1999:1585.
10. McVay CB. Groin Hernioplasty: Cooper's Ligament Repair. In: Nyhus LM and Condon RE, Eds. *Hernia, 2 nd Ed.* JB Lippincott, Philadelphia; 1978:179-193.