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Clinical Management, Associated and Post operative complications associated with development of Umbilical hernia: A hospital based study

Authors

1st Author

Dr. Deepak Ranjan Nayak

Assistant Professor, Department of Surgery

SCB Medical college and Hospital, Cuttack, Odisha

2nd Author

Dr. Sridhar Panda

Assistant professor, Department of medicine

SCB Medical college and Hospital, Cuttack, Odisha

3rd Author

Dr. Sujit kumar Mohanty

Assistant Professor, Department of Surgery

SCB Medical college and Hospital, Cuttack, Odisha

4th Author and Corresponding Author

Dr. Udayanath Behera

Assistant professor, Department of Anesthesia

SCB Medical college and Hospital, Cuttack, Odisha

Abstract

Introduction

A common hernia is an umbilical hernia, which occurs when the umbilical scar fails and stretches, allowing abdominal contents to protrude through the opening. Umbilical hernia management is a common surgical problem, with small defects repaired surgically without undue tension and a low recurrence rate. This is a clinical study that focuses on clinical management and post operative complications.

Methodology

From October 2018 to October 2020, all umbilical hernias admitted and treated at SCB medical college and hospital were included in the study. Patients with severe comorbid conditions and those undergoing emergency surgery were excluded from the study. Clinical data were gathered using pre-prepared Performa. The mean postoperative hospital stay, mean defect size, and mean follow-up period between the various surgical procedures were analysed using statistical software.

Result

From October 2018 to October 2020, 50 patients with umbilical hernias were admitted and treated with various surgical procedures. Umbilical hernias are more common in the third and fifth decades of life. Females are more likely to have it (68%) than males (32 percent). The mean follow-up period for Mayo's repair was 13.15 months, with a standard deviation of 7.98

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months, while it was 10.74 months for Mesh repair. The majority of patients had swelling for one to three years before coming to the hospital, with the longest period of symptoms lasting ten years and two patients having swelling since childhood.

Discussion

The main topics of discussion were Mayo's repair and Mesh repair, and the incidence of different types of hernia operated on in the hospital was 69.2 percent, incisional hernia-15.4 percent, and femoral hernia-0.3 percent. Two less common precipitating factors were chronic cough and constipation. The postoperative hospital stay after Mayo's repair and mesh repair is the same. Six patients were diabetic, twelve were hypertensive, and two were anemic. Because these associated diseases were adequately treated prior to surgery, there was little effect on the outcome following surgery.

Conclusion

One of the most common hernias treated in this medical setting is umbilical hernia. It is more common in the middle-aged and female populations. The patient presented with a variety of symptoms and signs, with swelling being the most common presenting symptom, either with or without pain.

Keyword- Umbilical hernia, Morbidity, Post operative complication, Mesh repair.

Introduction

A common hernia is an umbilical hernia, which occurs when the umbilical scar fails and stretches, allowing abdominal contents to protrude through the opening. It is classified into three categories: infants, children, and adults.(1–5) Obstacle and strangulation of umbilical hernias in infants and children is uncommon, whereas obstruction is more common in adults and older patients. Adults have a greater need for repair than infants.(6–8)

Umbilical hernias are typically acquired lesions. It is possible that relative weakness in the umbilical ring occurs in many people when intra-abdominal pressure rises, as in extreme obesity or a high number of pregnancies. The ring protrudes and the umbilical scar is poorly supported.(6,9–12) The management of Umbilical hernias remain one of the common surgical problems. If the defect is small, it can be repaired surgically without causing undue stress, and the recurrence rate is extremely low. Large Umbilical hernias with wide openings, on the other hand, are difficult to manage by anatomical repair, which, if done, will result in an early recurrence due to undue tension causing tissue necrosis.(7,9,11,13–16) These hernias should be repaired with prosthetic mesh. Surgeons worked hard to find a material to implant in the abdominal wall that would add strength while avoiding the excessive tension caused by large defects bridged with prosthetic mesh.(8,17–21)

A variety of operations are currently used in the management of umbilical hernia with the goal of achieving a permanent cure. The recurrence rate, which was high in the pre-antibiotic era, has nearly disappeared thanks to safe anaesthesia, antibiotics, antisepsis, and a better understanding of anatomy, closed drains, and implants such as prolene mesh. Currently reasonable use of

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following three aspects in the repair of Umbilical hernia has led to low morbidity, recurrence rates. They begin with the use of imbricated layers in an attempt to enhance surgical repairs. Second, a synthetic prosthesis is used to buttress repair, and finally, a laparoscopic approach is used.(7,9,11,14,22–25) This study consists of clinical study with discussion regarding the methods of clinical management, morbidity and postoperative complications.

Objective

To study etiology, clinical features and factors associated with development of Umbilical hernia.

Methodology

Study included all umbilical hernias admitted and treated in SCB medical college and hospital from October 2018 to October 2020. A detailed clinical performa for collecting information on clinical management of umbilical hernia treated with both anatomical repair and reinforcement with mesh, was prepared. The cases were selected at random. All patients of non-pediatric age group were selected at random. Patient with severe comorbid conditions (severe cardiopulmonary disease, uncontrolled ascites) and patients undergoing emergency surgery were excluded. No other particular criteria have been adopted in selection of cases.

During collection of clinical data importance was given to following factors: Umbilical hernia, Clinical history, progression in size, associated complaints like pain in the swelling or abdomen, vomiting, reducibility, chronic cough, constipation, difficulty in micturition, abdominal distension-history suggestive of ascites and other causes of abdominal distension, number of pregnancies, previous surgery for same problem. In local examination special attention was given to the position, size, shape, composition, cough impulse, reducibility, skin over the swelling, size of defect in linea alba and tone of abdominal muscles.

In routine general physical examination attention was given to obesity, hypertension, in finding cause of abdominal distension, per-rectal examination to look for mass (malignant) in the rectum, benign prostatic enlargement, examination to look for external meatal stenosis and stricture urethra in males. Respiratory system examination to look for rhonchi, crepitations suggestive of COPD. All cases were clinically diagnosed and all patients included in the study 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. No other special investigations were required for any of the patients except patients who underwent ultrasound examination of the abdomen for ascites. Informed written consent was obtained after explaining the surgical procedure and its results.

The Chi square and Fisher Exact test has been used to find the significance of proportions of postoperative complications and recurrence. Descriptive statistics was used to find the significance of mean postoperative hospital stay, mean size of defect and mean follow-up period between the different surgical procedures. The Statistical software namely SPPS 10.0 were used for the analysis of the data and Microsoft Word and Excel have been used to generate graphs, tables etc.

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Result

The study was carried out from October 2018 to October 2020 and a total of 50 patients were enrolled as study participants in the study. Out of 5200 cases in General Surgery Department SCB MEDICAL COLLEGE, total number of hernias operated were 650 (12.5%). In that umbilical hernia accounts for 15.1% of cases.

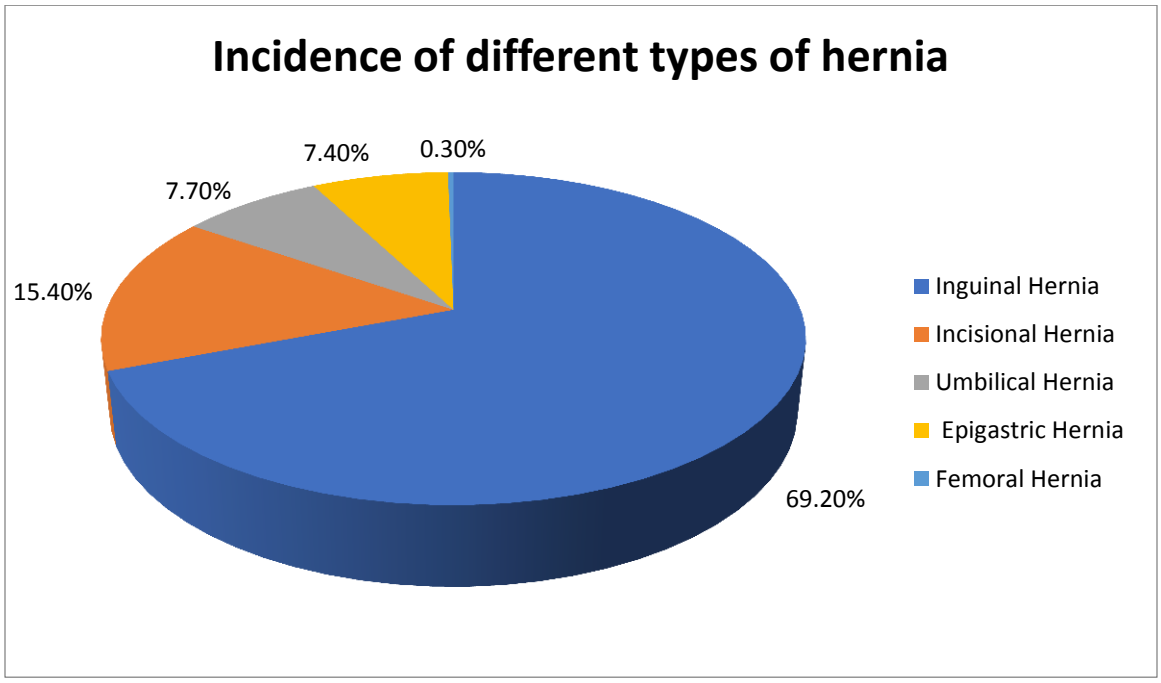

Figure-1 Incidence of different types of hernia

In total, 34 patients (68%) were female, while 16 patients (32%) were male. Females had a mean age distribution of 42.8813.61, while males had a mean age distribution of 41.0611.85.

Table-1 Presentation of Symptoms

Symptoms	**Number**	**Percentages**
Swelling around Umbilicus	50	100.0
Pain in the Swelling or Pain Abdomen	15	30.0
Symptoms Suggestive of Intestinal Obstruction	1	2.0

The most common symptom presented by the patient was swelling around the umbilicus. Thirty

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percent of patients experienced swelling or dragging pain in their abdomen. One patient experienced symptoms of intestinal obstruction. In our study, 44% of patients had swelling around the umbilicus for 1-3 years prior to presenting to the hospital. 20% of patients had swelling for 6-11 months, while 16% had swelling for 0-5 months.

In our study, umbilical and below umbilical swelling was present in 80% of patients; above umbilical swelling was present in 20% of patients. Hernia was reducible with cough impulse present in 92% of patients. Tone of abdominal muscle was poor in 30% of patients. The details are provided in Figure 2

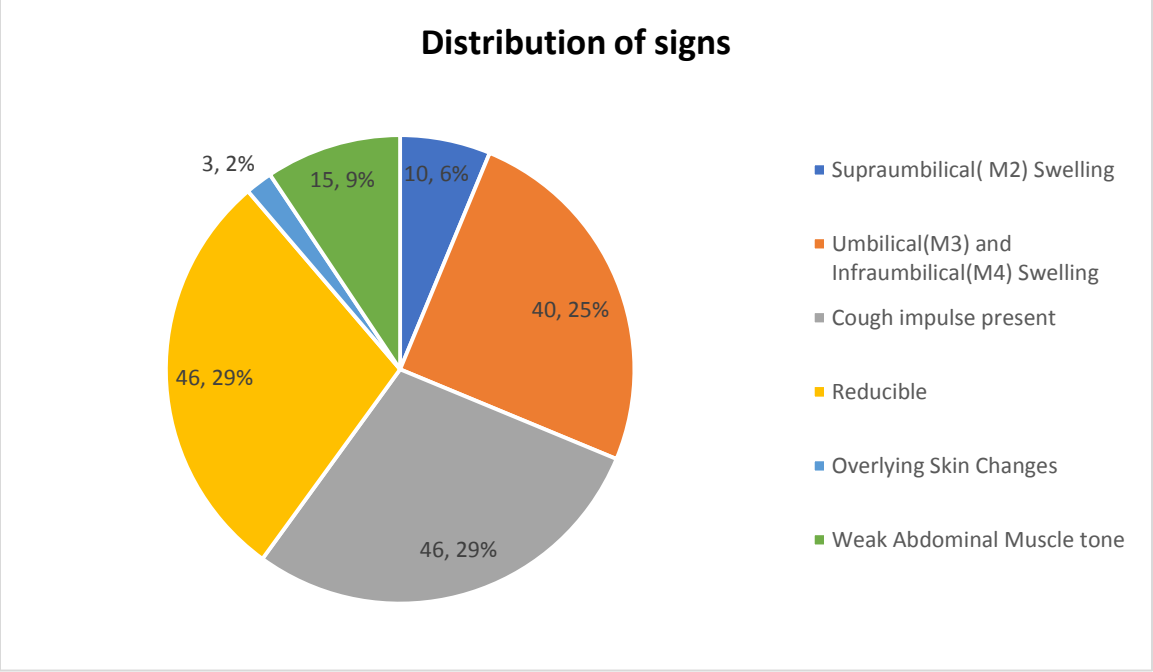

Figure-2 Distribution of signs

Multiparity (91.2%) was the most common cause of Umbilical hernia in females, followed by obesity (50%) constipation (5.9%), and chronic cough (5.9%). (2.9 percent). Obesity (50%) was the most common precipitating factor in males, followed by smoking (37.5%), chronic cough (25%), and heavy manual labour (25%). (6.3 percent). Figure 2 shows that the defect was 2 cm in 28 patients (56 percent), 2-4 cm in 18 patients (36%), and > 4 cm in 4 patients (8 percent).

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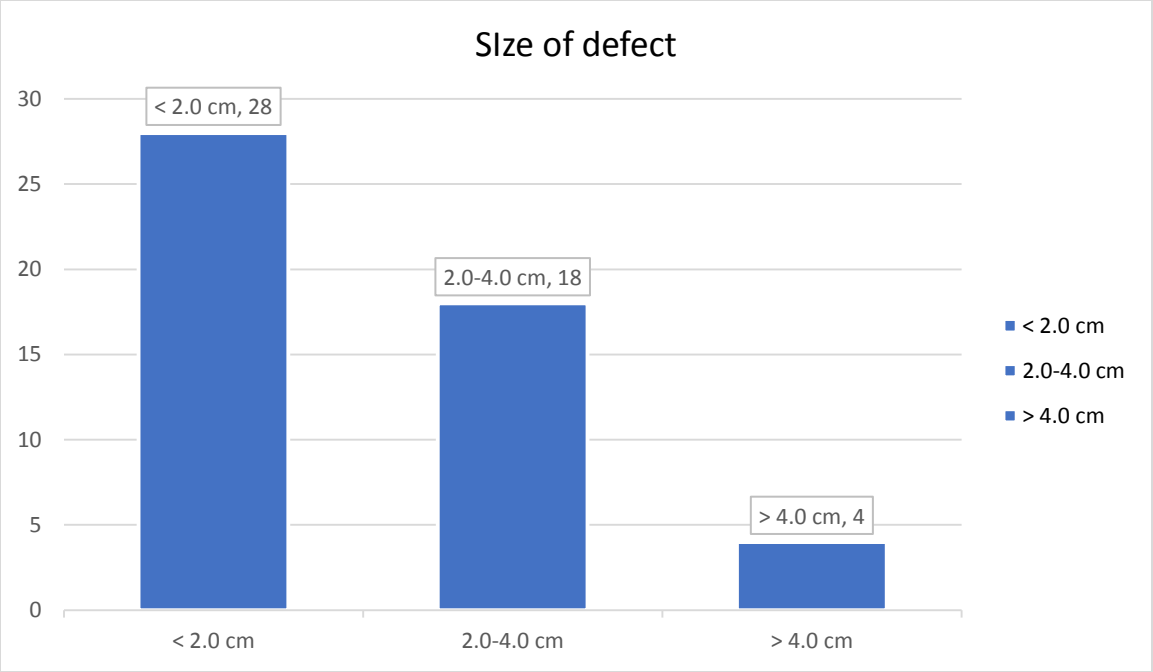

Figure-3 Size of defect

In our study, 23 patients (46%) had Mayo's repair, 23 patients (46%) had prosthetic mesh repair, of which 15 were sublay mesh repair, 7 were on lay mesh repair, and 1 was inlay mesh repair, and 4 (8%) patients had vertical anatomical repair.

Table 1 Associated diseases in study participants

Associated Diseases	**Number (n=50)**	**Percentage**
Diabetes Mellitus	6	12.0
Hyper tension	12	24.0
Anemia	2	4.0
Others	3	6.0

In our study, 12 (24 percent) of the 50 patients had hypertension, 6 (12 percent) had diabetes mellitus, and 2 (4 percent) had anaemia as an associated disease. In our study, 23 patients (46%) had Mayo's repair, and 23 patients (46%) had prosthetic mesh repair, with 15 having sublay mesh repair, 7 having onlay mesh repair, and 1 having inlay mesh repair. and 4 (8%) patients had vertical anatomical repair.

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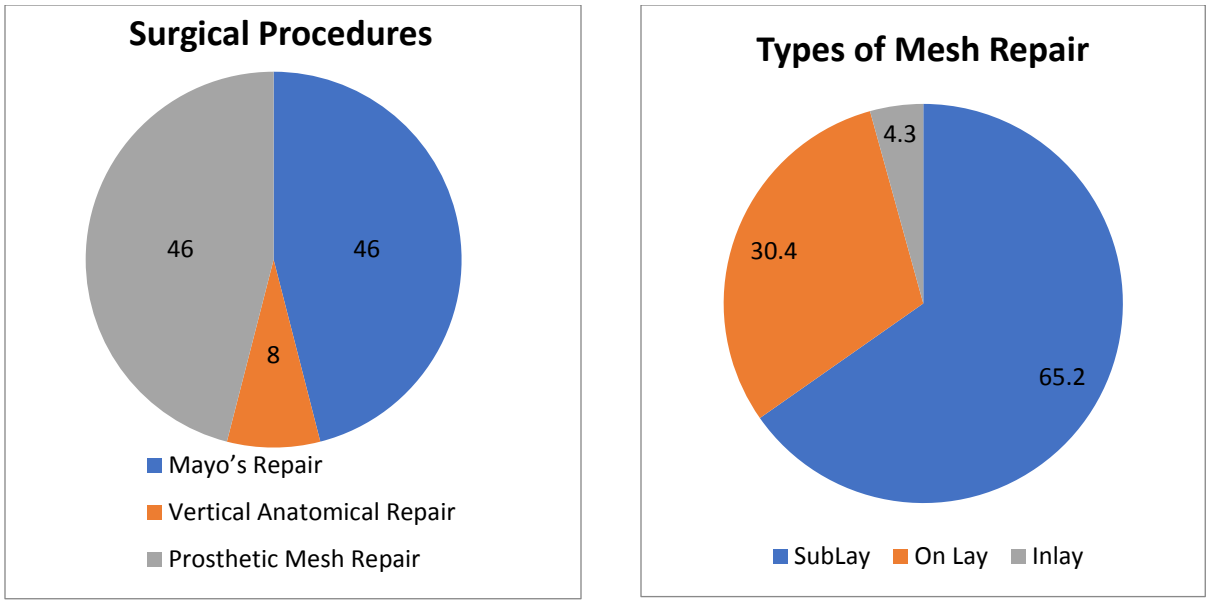

Figure-4 Surgical procedures and types of Mesh repair

The table shows the frequency of postoperative complications in various surgical procedures. In both groups (Mayo's repair and prosthetic mesh repair), seroma was present in three patients, hematoma in one, and wound infection in two. Skin necrosis occurred in one patient following Mayo's repair. There is no statistically significant difference in postoperative complication rates between Mayo's repair and mesh repair.

Table 2 Variables with mean hospital stay

Variable	Procedures	Mean Hospital Stay (days)	SD
Postoperative hospital Stay	Mayo's Repair (n=23)	12.26	5.97
	Mesh Repair (n=23)	11.30	6.87
	Vertical Ana. Repair (n=4)	14.0	3.61
Procedure in relation to size of the defect	Mayo's Repair (n=23)	1.53	0.69
	Mesh Repair (n=23)	3.92	2.29
	Vertical Ana. Repair (n=4)	2.1	1.14
Recurrence of the Disease	Mayo's Repair (n=23)	2	8.7
	Mesh Repair (n=23)	-	-
	Vertical Ana. Repair (n=4)	-	-
Period of follow up	Mayo's Repair (n=23)	13.15	7.98
	Mesh Repair (n=23)	10.74	6.39
	Vertical Ana. Repair (n=4)	10.00	2.82
Postoperative Hospital	Mayo's Repair (n=23)	12.26	5.97

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stay	Mesh Repair (n=23)	11.30	6.87
	Vertical Ana. Repair (n=4)	14.0	3.61

In this series, the most common postoperative complications were seroma (13% in Mayo's repair, 13% in Mesh repair), wound infection (8.7% in Mayo's repair, 8.7% in Mesh repair), and haematoma (1% in Mayo's repair, 1% in Mesh repair). Because the infection was superficial and responded well to antibiotics, no patient required mesh removal due to infection.

Discussion

In this clinical study, 50 patients with umbilical hernia were admitted and treated with various surgical procedures from October 2018 to October 2020. The study period incidence, clinical features, treatment, and postoperative complications were all studied in the same group of patients. Because they make up the majority of the sample, Mayo's repair and Mesh repair are the main topics of discussion. In our hospital, the following types of hernias are most common: inguinal hernia (69.2%), incisional hernia (15.4%), umbilical hernia (15.1%), and femoral hernia (0.3%). Although the incidence of umbilical hernia is not specified in the literature, it is considered one of the most common hernias, along with inguinal hernias.

Umbilical hernias were more common in patients aged 30-50 in our study (51 percent). The study did not include the paediatric population. The youngest patient in our study with umbilical hernia was 20 years old. Only one patient was over the age of 70, indicating that umbilical hernia after that age is uncommon. Umbilical hernias are more common in females. There were 34 females and 16 males among the patients. In the literature, the female to male sex ratio is 3:1. The ratio in our study is 2.13:1. Because disease is more common in both sexes between the third and fifth decades, there is no statistically significant difference in age distribution between males and females.

Before presenting to the hospital, the majority of the patients had swelling for 1 to 3 years. The longest period of symptom occurrence was ten years, with two patients experiencing swelling since childhood. The minimum time frame was one month. In our study, swelling was present in the majority of patients (80 percent) below the umbilicus and in the umblicus position, but not above the umbilicus (20 percent). Although most umbilical hernias are irreducible or partially reducible, in our study, 92 percent of patients had a cough impulse and swelling that could be reduced. Only four patients lacked a cough reflex and experienced irreversible swelling. Long-term patients had overlying skin changes.(3)

The average size of the defect for which vertical anatomical repair was performed was 2.1 cm. There is a statistical difference in defect size between Mayo's and Mesh repair. A shoelace repair patient developed superficial wound dehiscence. There is no statistically significant difference in postoperative complications between Mayo's repair and Mesh repair. In comparison to a study conducted by A Arryo et al. in 2001, the incidence of immediate postoperative complication is high. However, there is no difference in postoperative complications between Mayo's repair and Mesh repair in that study.(9)

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In our study, out of 23 patients who underwent Mayo's repair two patient had recurrence of umbilical hernia (8.7 percent), there were no recurrence following Mesh repair. A Arryo study found that the recurrence rate after suture repair (Mayo's repair) was 11% and 1% after mesh repair. This recurrence is due to the tension on repair caused by Mayo's repair. Although there is no statistically significant difference in recurrence after Mayo's repair and Mesh repair (p=0.207), there is a statistical trend toward a difference in recurrence after Mayo's repair and Mesh repair, indicating a high recurrence rate after Mayo's repair.(9)

The average follow-up period after Mayo's repair was 13.15 months, with a standard deviation of 7.98 months. The average follow-up period after Mesh repair was 10.746.39 months. There is no statistically significant difference in recurrence after Mayo's repair and mesh repair, p value = 0.207, but there is a statistical trend toward a difference between the two procedures in terms of recurrence, which may be converted to a significant difference if the sample size and follow-up period are increased. To summarise, the sample size and follow-up period in our study are insufficient to demonstrate a significant difference between two procedures.

Conclusion

Umbilical hernia is one of the most common hernias treated in our facility. It is more common in the middle-aged and female populations. The patient presented with a variety of symptoms and signs, with swelling being the most common presenting symptom, either with or without pain. Diabetes mellitus, hypertension, and anaemia may have an impact on outcome in terms of increased postoperative complications in these patients. Mayo's, vertical anatomical, prosthetic mesh, and shoelace repair are all surgical procedures.

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