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Original Research Article

Surgical management of umbilical and paraumbilical hernias

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ABSTRACT

Background: To evaluate several types of surgical repair and their morbidity and post-operative complications.
Methods: This was a prospective observational surgical study conducted in 50 cases of umbilical and paraumbilical hernias were included, the study was carried out by history, clinical examination, and appropriate investigations for operation were conducted. The patients were treated by either of the two surgical procedures Mayo's repair or tension free repair using prolene mesh (mesh repair).
Results: Umbilical and paraumbilical hernias were more common in females. Highest incidence was noted in 30-40 and 50-60 years age groups. Abdominal swelling was the most common complaint followed by pain. Post-operative complications like wound infection and seroma were noted in both the procedures. These hernias were operated by Mayo's anatomical repair and tension free hernioplasty (mesh repair). Two recurrences were noted in patients operated by Mayo's repair. There was no recurrence following mesh repair.
Conclusions: Surgery was the main modality of treatment. Fewer complications like wound infection and seroma formation which can be managed conservatively by antibiotics, drainage of the seroma and pus with regular dressings were done. Study emphasizes tension free hernioplasty (mesh repair) to be the procedure of choice for the treatment of umbilical and paraumbilical hernias.

Keywords: Hernioplasty, Paraumbilical hernias, Umbilical

INTRODUCTION

Hernia is a word derived from a Greek word heron, meaning a branch or protrusion. A Hernia is the bulging of the part of the normal contents of the abdominal cavity through a weakness in the abdominal wall.[1] Most common hernias are inguinal, femoral, ventral hernias. The ventral hernias are characterized by defect in the anterior abdominal. Umbilical hernia is an acquired defect in over 90% of adults, umbilical hernia is a frequently encountered clinical problem that is infrequently discussed critically in medical literature.[2,3] The umbilicus is one of the potential weak areas of the abdomen and a relatively common site of herniation. Midline hernia occurring through linea alba abutting superiorly or inferiorly on the umbilicus is called as "Paraumbilical hernia". These hernias constitute one of the common hernias of adulthood. They have the potential of developing from simple swelling to obstruction, strangulation. If the strangulation persists, the tissue can go for gangrene due to lack of blood supply. This can cause severe pain and vomiting which can lead to a life-threatening situation requiring emergent surgery. The management of these hernias remain one of the common surgical problems. If the defect is small it can be repaired surgically without undue tension and recurrence rate is very low. But large one's with wide openings are difficult to manage by anatomical repair, which if done will results in early recurrence due to

undue tension resulting in tissue necrosis. Such hernias should be treated with prosthetic mesh repair.[4] Surgeons searched diligently for a material to implant in the abdominal wall, something that could add strength, while avoiding excessive tension created when large defects were bridged by prosthetic mesh. Many operations are presently employed in the management with an aim to affect a permanent cure. The recurrence rate, which was high in pre-antibiotic era, has almost nullified with safe anaesthesia, antibiotics, antisepsis and with greater understanding of anatomy, closed drains, implants like prolene mesh and merlex mesh. Currently judicious use of following three concepts in the repair of these hernias has resulted in low morbidity, recurrence rates. They include firstly use of imbricated of several layers to reinforce surgical repairs. Secondly the use of synthetic prosthesis to buttress repair and thirdly laparoscopic approach.

METHODS

The patients admitted to government general hospital Vijayawada, Andhra Pradesh, India, the teaching hospital of Siddhartha medical college, Vijayawada, Andhra Pradesh, India, with umbilical and paraumbilical hernias have been taken for this prospective study from 2015 to 2017. Direct interview and clinical examination of the patients admitting to the above said hospitals has been adopted as the method of collection of data. A minimum of 50 cases with the following inclusion and exclusion criteria had been selected for study and allocated randomly. Using a pretested performa, relevant information (patient data, clinical findings, lab investigations, etc.) had been collected from all the selected patients.

Inclusion criteria

All patients with umbilical and paraumbilical hernia irrespective of the age. Both uncomplicated and complicated hernias are taken into the study.

Exclusion criteria

Umbilical and paraumbilical hernias in pregnant patients. Patients presenting as hernia with co morbid conditions like cirrhosis of liver with ascites, chronic renal failure etc.

The cases had been studied as per proforma attached and master chart was made for the cases studied to make the report brief. Detailed clinical history from the patients or their attendants on various aspects like age, sex, clinical presentation, duration of the presenting symptoms was obtained. Clinical history regarding duration of hernia, 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 was collected.

RESULTS

A Prospective observational surgical study consisting of 50 cases of umbilical and paraumbilical hernia patients were taken. Incidence, clinical features, complications and the methods of treatment of this hernia and to study the postoperative complications. The total number of operated cases were 6300, The number of hernias operated were 770 constituting to 12.2%. Inguinal hernias were 550 (71.4%), Incisional hernias were 120 (15%), Umbilical and paraumbilical hernias were 72 (9.3%), epigaric hernias were 34 (4.4%) and femoral hernias were 4(0.5%). The incidence of hernias among the operated cases in C.G and Bapuji hospitals among which umbilical and paraumbilical hernias constitute around 9.3%, i.e. 72 cases. Among these cases 50 were randomly picked for this study. Out of 50 cases, 21 were umbilical hernias, 29 were paraumbilical hernias. The ratio of umbilical to paraumbilical hernia was 1:1.38.

Table 1: Age distribution, gender distribution.

Age in years	Diagnosis		Total
	Paraumblical	Umblical hernia	
<30	1 (3.4%)	0 (0%)	1 (2%)
30-40	9 (31%)	7 (33.3%)	16 (32%)
41-50	6 (20.7%)	5 (23.8%)	11 (22%)
51-60	8 (27.6%)	6 (28.6%)	14 (28%)
61-70	5 (17.2%)	2 (9.5%)	7 (14%)
>70	0 (0%)	1 (4.8%)	1 (2%)
Total	29 (100%)	21 (100%)	50 (100%)
Mean ±SD	48.72±12.02	50.04±14.01	49.29±12.77
Gender			
Female	14 (48.3%)	14 (66.7%)	28 (52%)
Male	15 (51.7%)	7 (33.3%)	22 (44%)
Total	29 (100%)	21 (100%)	50 (100%)

Table 1 shows that the distribution of umbilical and paraumbilical hernias is more common within 30-40 years age group. The youngest patient in the study was 27, and the oldest was 82 years. (P=0.722, Not significant). It also shows incidence of umbilical hernia in females was 14% and males was 7%, and paraumbilical hernia in females was 14% and males was 15%. In present study male to female ratio was 1:1.2 showing female incidence was more common. P=0.196, not significant, chi-Square test.

Table 2 shows both umbilical and paraumbilical hernias presented with swelling as the chief complaint followed by pain in 40% of cases, abdominal distension, vomiting, constipation was noted only in 4% of cases. This Table shows the complications of both hernias, irreducibility was the most common complication seen in 9% of paraumbilical and 5% of umbilical hernias.

Surgical procedure adopted was anatomical repair and mesh repair. Among the 21 cases of umbilical hernia 11 underwent anatomical repair and remaining 10 underwent mesh repair, where as in 29 cases of paraumbilical hernia, 12 underwent anatomical repair remaining were repaired using mesh. overall 46% of cases underwent anatomical repair and 54% underwent mesh repair.

Table 2: Clinical presentation and complications.

Clinical	Diagnosis		Total	P-value
	Paraumbilical	Umblical		
Swelling	29 (100.0%)	21 (100.0%)	50 (100.0%)	1.000
Pain	24 (82.8%)	16 (76.2%)	40 (80.0%)	0.723
Abdominal distension	1 (3.4%)	1 (4.8%)	2 (4.0%)	1.000
Vomiting	1 (3.4%)	1 (4.8%)	2 (4.0%)	1.000
Constipation	1 (3.4%)	1 (4.8%)	2 (4.0%)	1.000
Complications				
Ulceration	0	1 (48%)	1 (2.0%)	0.420
Irreducable	9 (31.1%)	5 (23.8%)	14 (28.0%)	0.574
Inst obst	1 (3.4%)	1 (4.8%)	2 (4.0%)	1.000
Strang	1 (3.4%)	1 (4.8%)	2 (4.0%)	1.000

Table 3: Post-operative wound infections in groups.

Complication	Diagnosis		Total	P-value
	Para umbilical	Umbilical hernia		
Wound infections in anatomical repair				
Absent	11 (91.7%)	10 (90.9%)	21 (91.3%)	
Present	1 (8.3%)	1 (9.1%)	2 (8.7%)	1.000
Total	12 (100%)	11 (100%)	23 (100%)	
Wound infections in mesh repair				
Absent	17 (100%)	8 (80%)	25 (92.6%)	
Present	0 (0%)	2 (20%)	2 (7.4%)	0.179
Total	17 (100%)	10 (100%)	27 (100%)	
Seroma in anatomical repair				
Absent	11 (91.7%)	11 (100%)	22 (95.7%)	
Present	1 (8.3%)	0 (0%)	1 (4.3%)	1.000
Total	12 (100%)	11 (100%)	23 (100%)	
Seroma in mesh repair				
Absent	15 (88.2%)	9 (90%)	24 (88.9%)	
Present	2 (11.8%)	1 (10%)	3 (11.1%)	1.000
Total	17 (100%)	10 (100%)	27 (100%)	

Table 4: Recurrence in both groups.

Recurrence	Diagnosis		Total	P-value
	Para umbilical	Umbilical hernia		
Anatomical repair				
Negative	11 (91.7%)	10 (90.9%)	21 (91.3%)	
Positive	1 (8.3%)	1 (9.1%)	2 (8.7%)	1.000
Total	12 (100%)	11 (100%)	23 (100%)	
Mesh repair				
Negative	17 (100%)	10 (100%)	27 (100%)	
Positive	0 (0%)	0 (0%)	0 (0%)	1.000
Total	17 (100%)	10 (100%)	27 (100%)	

Table 3 shows wound infection in both repairs which is equal in both. 2 cases one umbilical and other paraumbilical hernia underwent anatomical repair developed wound infection. 2 cases of umbilical hernia underwent mesh repair developed wound infection.

Seroma collection that had occurred in 1 case of paraumbilical hernia that underwent anatomical repair and 3 cases underwent mesh repair of which 2 were paraumbilical hernias 1 was umbilical hernia.

Table 5 shows the recurrences that occurred in present study. 2 recurrences noted in hernias underwent anatomical repair, whereas no recurrences noted in hernias which had been repaired using a mesh.

DISCUSSION

A prospective observational surgical study of 50 cases of umbilical and paraumbilical hernias that had been treated in government general hospital Vijayawada, Andhra Pradesh, India, during 2015-2017. Out of 72 admitted cases 50 cases were selected on random basis for the present study. The incidence, clinical features, complications, operative methods and their complications has been taken in to consideration in this study.

This table shows the incidence of various hernias in numerous studies. Out of 770 cases of operated hernias in government general hospital, Vijayawada, Andhra Pradesh, India, 71.4 % constitutes inguinal hernia, 15.5% were incisional hernia, umbilical and paraumbilical were 9.3%, epigastric hernia was 4.4%, remaining 0.5% were femoral hernias. Out of the randomly selected 50 cases from the admitted 72 cases, 21 were umbilical hernias and 29 were paraumbilical hernias. Age incidence: in study series, the maximum incidence of both hernias are noted in the age group of 30-40 years and 50-60 years. 42% of the patients presented with umbilical hernia and remaining 58% were paraumbilical hernias. The youngest patient got operated in present study was 27 years and the oldest being 82 years.

Umbilical and paraumbilical hernias are more common in females. In present study total females were 56% and the males were 48% indicating the higher incidence in females. The reason can be explained by the presence of multiple precipitating factors like multiparity, pregnancy, obesity, flabby abdominal wall etc. Clinical presentation: All the patients in the study presented with a chief complaint of swelling in and around the umbilicus. Around 40 patients complained of vague dragging type of pain. 2 cases presented with signs of intestinal obstruction like vomiting, abdominal distension, constipation. Complications: In present study out of 50 cases 19 (38%) had complications, out of which irreducability was the most common complication in 14 cases (28%), 10 were partially irreducable where as remaining 4 were completely irreducable. The cause for partially irreducability was due to narrow neck. Among the 4 cases with completely irreducibility 2 cases had features of intestinal obstruction and strangulation of the bowel. 2 cases had ulceration over the hernia, which might be due to pressure necrosis or due to a trivial trauma. Surgical techniques: 23 cases out of 50 underwent Mayo's anatomical repair and the other 27 cases were repaired by tension free hernioplasty using a prolene mesh.

Although cases were randomly selected for particular surgical procedure, size of defect, age of patient and tone of abdominal muscles has been considered. Mesh repair has been done for most of the large defects. Drains: In majority of the patients romovac suction drain no. 12F was used and the drain was brought out through separate incision in all the cases. The drain was removed after 48-72 hours. Post operative complications: In this series, the postoperative complications were (a) Wound infection ocurred in total 4 cases-2 cases in Mayo's anatomical repair (8.7%), 2 cases in mesh repair (7.4%).[9,10] Wound infection was treated conservatively with drainage of pus and a course of antibiotics. No patient required removal of mesh because of infection, as infection was superficial and responded well to antibiotics. (b) Seroma collection noted in 4 cases-1 case of Mayo's anatomical repair (4.3%), and 3 cases of mesh repair (11.3%). The seroma collection at the suture line was treated by drainage and dressing of the wound. There is no statstical significant difference in percentage of postoperative complications. (c) Among 23 patients who underwent Mayo's anatomical repair 2 cases had recurrence(8.7%), and none of the cases that underwent mesh repair had recurrence. Duration of stay in the hospital: mean duration of hospital stay was 7 days for both the groups of the patients. Duration was prolonged to 15 days in cases of wound infection.

CONCLUSION

Surgical management of umbilical and paraumbilical hernias, is an observational prospective surgical study done from the 50 randomly selected cases admitted during 2013 to 2015, in our hospitals. Present study mainly reflects the clinical aspects, surgical techniques and the related post-operative complications. These hernias are most common in elderly females, with swelling followed by pain being the chief presentation, irreducibility is the common complication.

In a follow up of 2 months to years, among the procedures used classical Mayo's repair had 2 recurrences none were noted in patients underwent mesh repair. The classical repair Mayo's repair for umbilical and paraumbilical has been the procedure of choice in many centers, but the tension free mesh repair done in this study has no recurrences and can be used in presence of bigger defect, weaker abdominal muscle tone, thus showing it as more superior and favorable than Mayo's repair. To conclude from present study considering the advantage of no recurrence tension free mesh repair

should be the procedure of choice in operating umbilical and paraumbilical hernias.

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