

Abdominal wall hernias

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Abstract: Abdominal wall hernias are familial surgical problems, some types of abdominal wall hernias have been described for long time ago. **Methods:** 325 patients who have abdominal wall hernias studied in this prospective study at Zawia Teaching Hospital, Zawia. **Results:** the great number of patients was males (63.6%), while females represent a smaller number of patients (36.3%). Abdominal wall hernias involve all age groups, and in these patients there were increased body weights (BMI > 25%) in 25.8% of patients. The study includes inguinal hernias (37.3%), paraumbilical hernias (17.8%), incisional hernia (10.7%), epigastric hernias (6.4%), umbilical hernias (4.3%), femoral hernias (1.2%), and spegelian hernia (0.3%). Many operations had been performed, including herniotomies, herniorrhaphies, hernioplasties and laparoscopic repairs. **Conclusion:** Abdominal wall hernia repair without tension is the main aim of operative treatment. Mesh prosthesis and laparoscopic repair increased many benefits to the involved patients.

Introduction

Abdominal wall hernias are a familiar surgical problem (1). The inguinal hernia was first described Ca. 1550 B C (2), in the groin inguinal hernia is more common than femoral hernia (3). Femoral hernias are more common in females than males and are rare in children (3). Incisional hernia is a failure of the abdominal wall fascia to heal properly after a surgery (4), its incidence varies from study to other, ranging from 1 to 20% (1-9). Umbilical hernias were described as early as the first century (10), umbilical hernia account for 6 % of all abdominal wall hernias in adults (11). A hernia is a progressive disease and has many risk factors, among these risk factors are patient age, associated chronic diseases, metabolic diseases, alteration of interstitial collagen (8, 12), diabetes mellitus (6, 8), steroids, ascites (6, 10),

pulmonary disease obesity (6, 8, 13), wound infection (13), smoking frequent laparotomies (8), and some patients at special risk of some hernias e.g. multiparous females and those at 30-50 years old are typical patients of para-umbilical hernia (10).

A hernia will continue to enlarge over time if not treated (1), but in congenital umbilical hernia most of them close spontaneously within the first three years of life (14). Among the presentations of patients are pain (1, 4), lump (3, 10), incarceration, intestinal obstruction, and strangulation (1, 3, 4). Elective ventral hernia repairs are undertaken largely to alleviate symptoms and prevent complications (1), hernia repair has improved over the past 20 years but it is still associated with significant morbidity and recurrences (4). Primary hernia repair under

tension is associated with a hernia recurrence rate ranging from 10% to 63% (4, 5, 7, 9, 12). The use of prosthesis typically proline mesh for a tension-free repair is a way to reduce recurrence rates (1, 4, 5, 6), to between 0% and 18% (2, 5, 9, 10, 12). The surgical technique differ from each others regarding the site of prosthesis which can be over the rectus muscles plan according to Chevrel's procedure (onlay technique), between the rectus muscles and the posterior rectus sheath or peritoneum according to the Rives-Stoppas (inlay technique) or intraperitoneally in direct contact with the bowel (underlay technique) (12).

Alternatives of inguinal hernia repair include Shouldice, Lichtenstein and laparoscopic repairs (15). The surgical treatment for inguinal hernia were recorded between 330-250 B C and in 1990s mesh hernioplasties became widely used (2). The popularized treatment of paraumbilical hernia the (rest – over trousers) overlapping repair in 1901 is started by William Mayo (10). A recent contribution to the treatment of umbilical hernia has been the introduction of mesh and the use of laparoscopic repairs (10). The recurrence rate after femoral hernia repair is generally not high (16). Laparoscopic repair has excellent reported results in large series (6), with a lower complication rate (7), less postoperative pain, shorter hospital stays, less chronic pain and increased patient satisfaction (2), also it has a lower recurrence rate (4), and laparoscopic repair is recommended for recurrent inguinal hernias (17). Although the introduction of mesh in primary hernia repair has improved outcome, the presence of mesh complicates reoperation (18), and can be a risk factor for seroma formation, adhesion (4, 7), and erosion

into the bowel (4, 7, 9), and mesh infection is the most significant complication (4). Most surgeons believe that permanent prosthetic materials for hernia repair are contraindicated in the setting of gross contamination because the risk of infection as high as 10% to 35% (5). Usher introduced the knitted monofilament polypropylene meshes into the clinical practice in 1963; these have less tissue reaction, excellent tensile strength, easy sterilization and easy use (9).

Materials and methods

This study was conducted at the general surgical department, Zawia Teaching Hospital, Zawia University, from December, 2008-2010. 325 of patient patients having abdominal wall hernia were enrolled in this study, the following criteria were included, age, sex. Body mass index, the type of abdominal wall hernia, and the classification of the hernia at presentation whether simple or complicated, the type of operation, the postoperative stay and those who were not operated. Either a Claforan or Rocephine were administered before surgery as a prophylactic measure in those patients who presented with complicated hernia and in those for whom a mesh has been used.

General anesthesia used in majority of patients and spinal anesthesia used in 9 patients who have inguinal hernias.

Results

This study analysed 325 patients admitted because of abdominal wall hernia, among these patients 207 patients were males (63.3%), 118 patients were females (36.3%), the

greater number of patients presented in the fifth decade followed by the fourth

and the first decades (19.3%, 17.2% and 13.2%, respectively).

Age	Male	Female	Total number	Percentage
0-10 yr	27	16	43	13.2
>10-20 yr	13	4	17	5.2
>20-30 yr	26	6	32	9.8
>30-40 yr	28	28	56	17.2
>40-50 yr	32	31	63	19.3
>50-60 yr	13	16	29	8.9
>60-70 yr	28	9	37	11.3
>70-80 yr	30	6	36	11
>80-90 yr	10	2	12	3.6
Total	207	118	325	100
percentage	63.6	36.3	100	

Table 1: Age and Sex of the patients

Increased weight presented in 84 patients (25.8 %), 39 patients (12%) have over-weight with a BMI more than 25

and less than 30, and 45 patients (13.8%) have obesity with a BMI more than 30 (Table 2, Fig. 1).

Patient	BMI > 25 ≤ 30%	BMI > 30%	Total number of patients	Percentage
Male	29	14	43	13.2
Female	10	31	41	12.6
Total number	39	45	84	25.8
Percentage	12	13.8	25.8	

Table 2: Distribution of overweight and obese patients

In this study, many types of abdominal wall hernia had been analysed, (Table 3), 191 patients (37.2%) have inguinal hernias, which involves the right side more than the left side and 10 patients were present with bilateral inguinal hernias. The other hernias are Para-umbilical type presented in 58 patients (17.8%). Incisional hernias presented in 35 patients (10.7%), Epigastric hernias presented in 21 patients (6.4%) Umbilical hernias presented in 14 patients (4.3%), Femoral hernia presented in 4 patients (1.2%), and Spigelian hernia presented in one patient. Such data revealed that

inguinal hernia was the most common type in this study as compared to other types of abdominal wall hernias (Fig. 2).

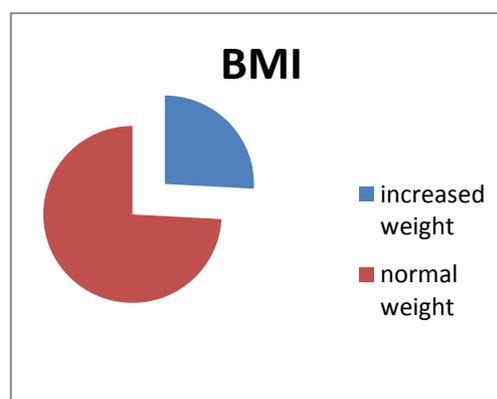


Figure 1: BMI of involved patients.

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Type of hernia		Number of patients		percentage
Inguinal hernia	Left side	73	19	37.2
	Right side	106		
	Bilateral	10		
	Recurrent	2		
Paraumbilical hernia		58		17.8
Incisional hernia		35		10.7
Epigastric hernia		21		6.4
Umbilical hernia		14		4.3
Femoral hernia		4		1.2
Spigelian hernia		1		0.3

Table 3: Types of abdominal wall hernias

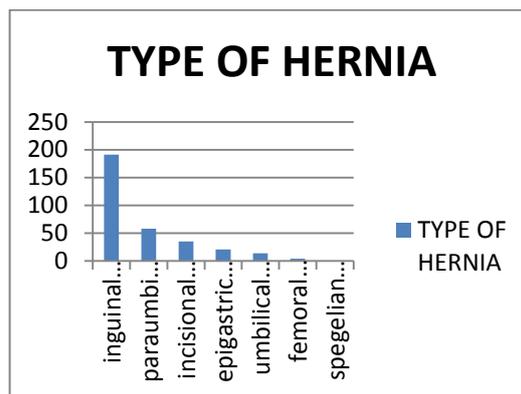


Figure 2: type of abdominal wall hernia

The most common presentations were abnormal swelling and pain, the majority of hernias were not complicated at the time of presentation, reducible hernias represents 69.2%, irreducible, obstructed, strangulated represent 14.7%, 0.3% and 0.9%, respectively (Table 4).

Classification of hernia at presentation	Number of patients	Percentage
Reducible hernia	225	69.2
Irreducible hernia	48	14.7
Obstructed hernia	1	0.3
Strangulated hernia	3	0.9
Inflamed hernia	0	0

Table 4: Classification of hernia at the time of presentation

The operative treatments have been performed in 261 patients (80.3% of all patients), in those with bilateral inguinal hernias, little number received bilateral repairs at the same operation, and 69 patients were not operated because of medical illnesses. Inguinal hernia repairs performed in 50.2% of patients and the operations which done include Herniorrhaphy in 68 patients,

Hernioplasties using proline mesh in 42 patients, herniotomies for children in 41 patients and laparoscopic repairs using trans-abdominal preperitoneal (TAPP) method in 14 patients. For paraumbilical hernias Mayos repairs used in 49 patients (15%). Repairs for incisional hernias performed in 19 patients (5.8%) including herniorrhaphy in 15 patients for small hernias and hernioplasty in 4 patients using proline mesh. Other repairs performed include Epigastric herniorrhaphy in 14

patients (4.3%), umbilical herniorrhaphy in nine patients (2.9%), Femoral herniorrhaphy in 4 patients (1.2%) using the low approach, and Spiegelian herniorrhaphy in one patient (Table 5). During this study and the months following it no recurrences have been reported and no wound complications reported because of the preoperative antibiotics and the use of subcutaneous drains especially in those used a proline mesh.

Type of operation		Number of patients		percentage
Inguinal operation	herniotomy	41	165	50.7
	herniorrhaphy	68		
	hernioplasty	42		
	Laparoscopic repairs	14		
Paraumbilical herniorrhaphy (mayos repairs)		49		15
Incisional operation	herniorrhaphy	15	19	5.8
	hernioplasty	4		
Epigastric- herniorrhaphy		14		4.3
Umbilical herniorrhaphy		9		2.7
Femoral herniorrhaphy		4		1.2
Spiegelian herniorrhaphy		1		0.3
Total number of operated patient		261		80.3

Table 5: Types of hernia repairs

Table 6: Duration of postoperative stay

Post Operative stay	Number of patients	percentage
1 day	73	
2 days	115	
3 days	35	
>3 days	33	

The operated patients discharged during the first two postoperative days among these patients, those for whom herniotomy and laparoscopic repairs have been performed were discharged in the first postoperative day (Table 6).

Discussion

Repair of abdominal wall hernias without tension is the main aim of operative treatment, in children herniotomy for inguinal hernia is the treatment of choice, but in adults and for all other hernias, a mesh prosthesis decreases the rate of recurrence (8, 9), and repair without mesh has poor outcome. For inguinal hernia repair Lichtenstein repair is a simple, safe, and easy to learn and has a low recurrence rate (15). Laparoscopic inguinal herniorrhaphy has many advantages including, less postoperative pain,

reduced recovery time, earlier return to full activity easier repair of a recurrent hernia, the ability to treat bilateral hernias, and improved cosmesis (4, 19). The Rives-stoppa procedure is the most practical approach for incisional hernias as for other hernias, and has a low recurrence rate (12), and a low infection rate (5). Even for ventral hernias laparoscopic repairs have reduced perioperative morbidity and fewer wound complication and lower rate of hernia recurrence (1). In

addition to Mayos repair, laparoscopic repair for umbilical and paraumbilical hernias in adults has a minimal wound complication (10), and similar laparoscopic advantages. Recurrence after femoral hernia repair is rare and the use of mesh plug further reduces the recurrence rate. It is clear that hernia repair is advanced from simple hernia repair to repair using a mesh with its advantages to the recent advances which is the laparoscopic hernia repair.

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