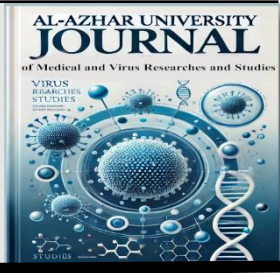




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### Coincidental Hernias in Cases of Ventral Hernias

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#### Abstract

Ventral hernia is defined as a protrusion of abdominal contents through a defect in the abdominal wall. The etiology of ventral hernia formation and recurrence suggested being linked to abnormal connective tissue metabolism. As the cases of ventral hernias have mesenchymal tissue weakness, SO, all cases that have ventral hernia will be surveyed for the presence of other hernias like inguinal, femoral and hiatus hernia. This Prospective study was done at General surgery department at AL-Zahraa university hospital and Damanhour teaching hospital, included 60 cases on both sexes, from January 2023 to June 2024. statistical analysis of our study showed a significantly higher percentage of direct inguinal hernia among cases aged 40 years or more with a p-value 0.04. On the other hand, there was no significant difference with p-value >0.05 between age groups regarding associated hernia and other types of hernia. Our study showed that ventral hernia is more common in female and also common above 40 years old. Also, direct inguinal hernia is common with ventral hernia in age above 40 years in comparison to age below 40 years.

**Keywords:** Ventral hernia, Inguinal hernia, Connective tissue disease.

#### 1. Introduction

An abdominal wall hernia is an abnormal protrusion of a peritoneal-lined sac through a defect in the musculo-aponeurotic covering of the abdomen. In this way ventral hernia may be para-umbilical,

epigastric, incisional, spigelian and parastomal [1].

Pathogenesis of abdominal wall hernia formation is complex and multifactorial. Abnormal metabolism of connective tissue

may play a role in hernia formation and recurrence [2].

Patients with ventral hernias usually present with pain or swelling which increase with Valsalva [3].

4% of population over 45 years old presented with ventral hernias. Rate of surgical repair is 10 per 100,000 of population every year in the United Kingdom and 28 per 100,000 in the United States [4].

Obesity is considered as one of the risk factors of ventral hernias due to increased intra-abdominal pressure. Central obesity is associated with an increase rate of hiatal hernia due to increasing thoraco-abdominal pressure. Obesity, COPD and chronic constipation may lead to high intra-abdominal pressure which is risk factor for hernia formation [5].

Anterior abdominal wall hernias can be defined as defect in fascia of the abdominal wall. Repair of these defects is common. Surgery is usually done for patients with symptomatic and complicated hernias. A reducible hernia identified when its contents replaced within the surrounding structures, strangulated hernia present compromised blood supply of its contents, which is a fatal complication [6].

Surgery for ventral hernias presents as one of most commonly performed operations. inguinal hernia accounts for 10-15% of all surgical interventions [7].

The inguinal canal is located at the lower part of the abdominal wall and extends medially and inferiorly in an oblique triangular shape for about 3-5 cm in length superior and parallel to the inguinal ligament [8].

sex and age are risk factors for different types of hernias. femoral hernia is more common in females while men usually present with inguinal hernia. [9,10].

Wound infection and operative techniques are risk factors in the pathogenesis recurrence of hernia [11].

During surgical repair of ventral hernias, the mesh can be placed intra peritoneally, pre peritoneally, or in the retro rectus (retro muscular) area [12].

## 2. Patients and Methods

This study was a Randomized controlled Prospective trial at the General surgery department at AL-Zahraa University hospital and Damanhour Teaching Hospital. This study was conducted on 60 cases with both genders. The study was started from January 2023 to June 2024.

### 2.1 Inclusion criteria

Patients of age group between 18-60, Whom had symptoms of ventral hernia like, umbilical, paraumbilical and epigastric hernia and recurrent hernia.

### 2.2 Exclusion criteria

Patients have associated comorbidities, incisional hernia and pregnant females.

### 2.3 Informed content

All patients were given informed content according to the local ethical committee.

### 2.4 All patients included in this study was subjected to the following

**Full history:** Personal history, complaint, Present history (analysis of patient complaint and other symptoms), past history of any hernias anywhere and any previous operations, family and medical history.

**Examination:** General examination and local examination were done while the patient was supine and erect position with or without Valsalva.

**Laboratory investigations:** (CBC, prothrombin activity, INR, liver enzymes, urea, creatinine and serum albumin).

**Radiological investigations:** abdominopelvic ultrasound with superficial probing, inguinal-scrotal ultrasound.

**Upper GI endoscopy:** For all cases in our study to detect associated hiatus hernia with ventral hernias.

**ECG:** In cases above 40 years.

## 2.5 Statistical analysis

Using Data collected and analysis performed using the Statistical Package of Social Science (SPSS). The following tests used for statistical analysis:

1. Chi square test used for comparison between two or more than two qualitative groups.
2. The P-value < 0.05 considered of statistical significance.

## 3. Results

In the 60 patients in our study, 53.3% were females (32 patients) while 46.7% were males (28 patients), Table.1. The mean age among our study was (40.5±8.9) years old ranged between (20 and 58) years, (table.2). 20 patients (33%) showed associated hernias in which 12 patients of them (20%) had direct inguinal hernia Fig. 1, 4 patients (6.7%) had indirect inguinal hernia Fig. 2, 2 patients (3.3%) had femoral hernia, and 2 patients (3.3%) had hiatus hernia Fig. 3. Incidence of associated hernias was more common above 40 years while the incidence is lower below 40 years, Table.3.

**Table (1):** Description of sex among study group.

Sex	Number (n=60)	
Male	28	46.7%
Female	32	53.3%

**Table (2):** Description of age among study group.

Variables	Number (n=60)	
<b>Age (years)</b>		
Mean ± SD	40.5±8.9	
<b>Age groups</b>		
<40 years	20	33.3%
≥40 years	40	66.7%

**Table (3):** Comparisons of associated hernia and its types in different gender among study group.

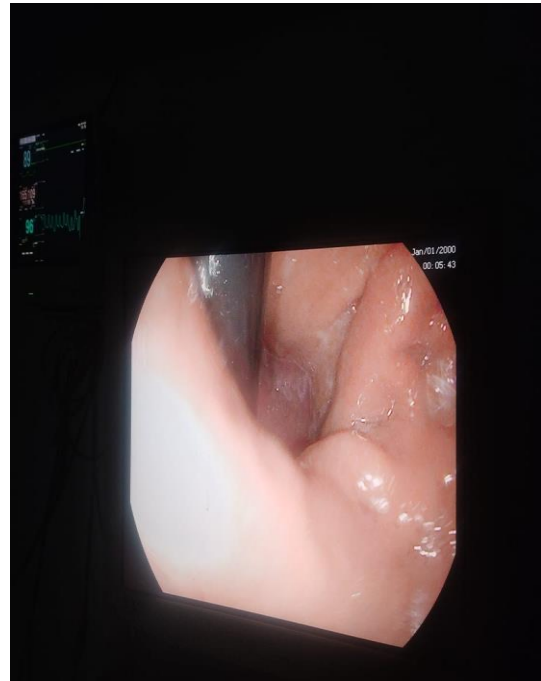
Variables	Age groups				P-value	Sig.
	<40 years (n=20)		≥40 years (n=40)			
	No.	%	No.	%		
<b>Associated hernia</b>						
No	14	70%	26	65%	0.77	NS
Yes	6	30%	14	35%		
<b>Direct inguinal hernia</b>						
No	19	95%	29	72.5%	0.04	S
Yes	1	5%	11	27.5%		
<b>Indirect inguinal hernia</b>						
No	18	90%	38	95%	0.59	NS
Yes	2	10%	2	5%		
<b>Femoral hernia</b>						
No	19	95%	39	97.5%	0.99	NS
Yes	1	5%	1	2.5%		
<b>Hiatus hernia</b>						
No	19	95%	39	97.5%	0.99	NS
Yes	1	5%	1	2.5%		



**Figure (1):** Umbilical hernia associated with left direct inguinal hernia.



**Figure (2):** Umbilical hernia associated with right recurrent inguinal hernia and left indirect inguinal hernia.



**Figure (3):** A case of hiatal hernia.

#### 4. Discussion

Abdominal wall hernias are one of the most common surgical problems [4].

Ventral hernias are defined as a non-inguinal, non-hiatal defect in the fascia of the abdominal wall [6].

Ndong et al reported that the mean age was 40.5 years  $\pm$  16.4 [13].

Jadhav et al reported that the majority of patients were with an average age was 52 years [14].

In this study, the mean age was 40.5 $\pm$ 8.9 years and 66.7% of patients were in the age group above 40 years which correlated with previous studies.

Jadhav et al and Klinge U et al reported that ventral hernia was more common in females [14, 15].

In this study male to female ratio was 1:1.28 as 46.7% of patients were males and 53.3% were females which correlated with previous studies.

Mehta et al. reported that over 28114 patients with ventral hernia found that 9.2% had additional more than one hernia associated with ventral hernia [16].

Henriksen N A et al reported that patients with direct inguinal hernias needed surgery for ventral hernia. Inguinal hernias with indirect components are not associated with ventral hernia [2].

In this study, 33.3% off cases show associated hernia, 20% of them had direct inguinal hernia, and 6.7% had indirect inguinal hernia, and 3.3% had femoral hernia and finally 3.3% had hiatus hernia which correlated with previous studies.

In this study, there was a statistically significant difference regarding association of direct inguinal hernia with ventral hernia in age above 40 years in comparison to age below 40 years.

In this study, there is no significance regarding hiatal hernia and ventral hernia. Only 2 cases were discovered of hiatal hernia. Both patients were asymptomatic for GERD and didn't need surgical correction for hiatal hernia. Which needs follow-up every year.

## 5. Conclusion and recommendation

Patients with ventral hernias have mesenchymal tissue weakness. So, all cases with ventral hernia will be surveyed for presence of other hernias like inguinal, femoral and hiatus hernia.

Our study showed that ventral hernia is more common in female and also common above 40 years old Also direct inguinal hernia is common with ventral hernia in age above 40 years in comparison to age below 40 years.

Further studies should be done on large scale cases of ventral hernia for association with hiatal hernia.

The relationship between ventral hernia and inguinal hernia may be related to mesenchymal tissue weakness which needs further studies on collagen metabolism got from skin biopsy and hernial sac tissues.

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**Conflicts of interest:** No competing interest

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