

Anterior abdominal wall hernias in regards to prevalence and risk factors

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Abstract:

Objective: General Surgical units are burdened with abdominal wall hernias. Main risk factors include obesity, chronic cough, smoking, constipation, previous surgery. The objective of this study is to assess the prevalence pattern of different anterior abdominal wall hernias along with risk factors involved.

Material and Methods: This cross sectional study was carried out in Department of Surgery, District Head Quarter (DHQ), Abbottabad, from January 2017 to December 2020. After ethical approval study on prevalence of anterior abdominal wall carried out with causative factors involved. 132 patients were included in study. SPSS 17 used for analysis. Groin hernias were not included in study.

Results: Study comprised of 132 patients. Mean age of presentation was 39.54 ± 12.16 years. 95 (72%) patients were female while 37 (28%) were male. Para-umbilical hernia was the most common hernia found in our study, occurring in 81 (61.4%) patients. This was followed by umbilical and epigastric hernia both of which comprised of 19 (14.4%) population individually. Incisional hernia was found in 12 (9.1%) of hernias. Spigelian hernia was found in 1 (0.76%).

Conclusion: Hernias are a major concern in general surgical unit. As risk involved in causation are nearly avoidable or treatable. By addressing etiological factor burden can be reduced.

Keywords: anterior abdominal wall hernia, obesity, spigelian hernia

Introduction:

Abdominal wall hernia is the protrusion of a sac lined by peritoneum through musculo aponeurotic abdominal covering.¹ Operations on hernias are amongst the commonly performed procedures in general surgical practice throughout the world. Hernia can be reducible or irreducible. Irreducible form can present as incarcerated or strangulated form. The commonest variety is external abdominal wall hernia.² The most common symptom is swelling and feeling of heaviness in the abdomen especially with bending, coughing or lifting heavy objects. Some people do not realize symptoms until they go through medical checkup.³ Time is required for hernia to manifest depending upon cause which is usually related to muscle weakness and straining. Commonest causes and risk factors include damage

through injury or because of previous surgery, and inability to close abdominal wound properly, obesity, chronic cough, benign prostatic hyperplasia, and weight lifting, multiparity.⁴ Abdominal wall hernias present at various site where fascia and aponeurosis are not covered by striated muscle like inguinal, femoral, site of previous operation, linea alba, umbilical area, linea semilunaris. Umbilical hernia is a congenital variety that occurs because of incomplete closure of umbilical cicatrix in a child or stretching during adult life due to increase intra abdominal pressure. The cause is acquired in adults and female to male ratio is 3:1.⁵ Premature infant have a high incidence of umbilical hernia. Surgical repair is not performed as it spontaneously closes within 2 years, and more than 85 % close before the child in of 6 years.⁶ Amongst ventral hernias

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Table 1: Prevalence of various types of anterior abdominal wall hernias

Type of Hernia	Number	Percentage
Paraumbilical hernia	81	61.4
Epigastric hernia	19	14.4
Incisional hernia	12	9.1
Umbilical hernia	19	14.4
Spigelian hernia	1	0.76
Total	132	100

Table 2: Gender distribution of various types of hernias

Hernia	Male	Female	Total
Paraumbilical	17(21%)	64(79.0%)	81
Epigastric	7(36.8%)	12(63.2%)	19
Incisional	6(50%)	6(50%)	12
Umbilical	7(36.8%)	12(63.2%)	19
Spigelian	0	1(100%)	1
Total	37(28%)	95(72%)	132

Table 3: Various types of hernia distribution according to etiology

Etiology	para-umbilical	umbilical	epigastric	in-cisional	spigelian	total
obesity	14(17.3%)	4(21.1%)	3(15.8%)	0	0	21(15.9%)
cough	5(6.2%)	2(10.5%)	2(10.5%)	0	0	9(6.8%)
smoking	3(3.7%)	2(10.5%)	1(5.3%)	0	0	6(4.5%)
diabetes	3(3.7%)	1(5.3%)	1(5.3%)	0	0	5(3.8%)
Previous operation	0	0	0	12(100%)	0	12(9.1%)
BPH	1(1.2%)	1(5.3%)	0	0	0	2(1.5%)
constipation	2(2.5%)	0	0	0	0	2(1.5%)

para-umbilical and incisional hernias are the most common one's and constitute 85% of all ventral abdominal hernias.⁷ Para-umbilical hernia arises from a defect in linea alba either just above or just below umbilicus. It is more common in female. Mostly occurs due to increase in intra abdominal pressure secondary to multiparity, obesity and weight lifting.⁸ Epigastric hernia are the second most commonest abnormality in defects arising from linea alba in adults. It is two to three times more common in men. They occur between xiphoid process to umbilicus.⁹ Incisional hernia manifests a protrusion or herniation occurring along a prior abdominal scar. It can arise from any type of previous surgical incision and even can occur at the site of previous port insertion. The reason behind occurrence is inadequate wound healing in different fascial

planes of surgical wound in early healing period that leads to less tensile strength of wound. If left unattended can grow in size and can even result in strangulation of abdominal contents.¹⁰ In our study we have focused on prevalence and risk factors of different abdominal hernia with the exception of inguinal hernias.

Materials and Methods:

This retrospective cross sectional study on prevalence was carried out on 132 patients with abdominal wall hernia in Department of Surgery, District Head Quarter (DHQ), Abbottabad, admitted during January 2017 till December 2020. Ethical committee approval was taken prior to study. Hernias in the groin area were excluded from study. All data including demographic details, medical co-morbidities were taken from record.

Microsoft excel used for data collection. Age, gender, type of hernia, risk factors involved, and previous surgery recorded. Risk factors were assessed for all patients. Patients were analyzed by using spss17. Descriptive studies assessed using frequency and percentages.

Results:

Our study comprised of 132 patients. Mean age of presentation was 39.54 ± 12.16 years. 95(72%) patients were female while 37(28%) were male. Para-umbilical hernia was the most common hernia found in our study, occurring in 81(61.4%) patients. This was followed by umbilical and epigastric hernia both of which comprised of 19(14.4%) population individually. Incisional hernia was found in 12(9.1%) of hernias. Spigelian hernia was found in 1(0.76%) all hernias were more common in female. Hernioplasty was performed in 80(60.6%), Mayo's repair in 30(22.7%), primary repair in 22(16.7%). Obesity was the commonest risk factor in most of the hernias.

Discussion:

The incidence of anterior abdominal wall hernias is 4 to 5%. According to their localization they are termed as external, internal, and dia-

phragmatic. Groin hernias are the most common hernia comprises 75% followed by anterior abdominal wall hernias. Hernias present with wide range of clinical feature. Symptoms of abdominal hernias may be non specific or absent. Sometimes they may present with mild abdominal discomfort alternating with episode of periumbilical pain and vomiting. Sometime they may present with complications (obstruction, incarceration, volvulus, and strangulation) requiring prompt intervention.¹¹ Ventral hernia is the herniation of abdominal contents through a defect in facial planes of anterior abdominal wall with the exception of groin hernias. Ventral therefore include umbilical, paraumbilical, incisional, epigastric, spigelian, lumbar, parastomal. In USA the same definition exists while it sometimes baffles because in Europe ventral hernia is used for incisional hernia.¹² In our study paraumbilical hernia was the most common abdominal wall hernia occurring in 61.4% population. Ahmed Alenazi A et al, also found para umbilical hernia to be the most common anterior abdominal wall hernia.⁴ Obesity was the predominant cause of paraumbilical hernia. Most of the patients with paraumbilical hernia are obese having increase BMI. A survey conducted in 2016 in Pakistan confirmed obesity as a major health problem. Obesity is a major risk factor for development of anterior abdominal wall hernia's particularly paraumbilical hernia.¹³ In our study female had more incidence of paraumbilical hernia as compared to male. Text book also state that umbilical and para-umbilical is five times more common in female than male population. Predisposing conditions of paraumbilical hernia includes any condition that increases intra abdominal pressure; apart from that stretching of the abdominal musculature because of fat content as in obesity can be another cause. Fatty tissue tends to separate muscle bundles and layers, causes weakening of aponeurosis, and aids in development of paraumbilical hernia. It is the reason that obesity, strenuous physical activity and pregnancy are important predisposing factors for paraumbilical hernia, epigastric hernia and umbilical.¹⁴ In our study umbilical and epigastric hernia had incidence of 14.4%. Both were com-

mon in female 3:1. Epigastric hernia comprise 1.6 to 3.6% of anterior abdominal wall hernias and more common in men in 3rd to 5th decade and incidence decline after 6th decade.¹⁵ Adult umbilical hernia is common in female. 90% of adult umbilical hernias are acquired. Only 10% have umbilical hernia in childhood. Female to male ratio is 3:1. Its incidence in adult population is 2%. Risk include obesity, ascites, chronic abdominal distension.¹⁶ In our study incisional hernia was found in 9.1% and mostly occurred because of previous general surgical procedures usually laparotomy and open cholecystectomy. In another study the incidence was high 41% and mostly occurred secondary to previous gynecological procedure. Incisional hernia is more common after midline incision involving avascular plane of linea alba as compared to transverse incision like muscle splitting incisions.¹⁷ There was only one case of spigelian hernia (0.76%) in a female patient. She had no risk factor. Its incidence out of anterior abdominal wall hernias is 0.12%. Spigelian hernia occurs because of weakness or defect in semilunaris line. Mostly occur in lower part of abdomen where posterior rectus sheath is absent.¹⁸ In our study obesity was major risk factor and cause of most of the hernia. Cough, smoking, diabetes were also significant cause of hernias. Priti Prasad Shah et al, study smoking constituted 19.5%, diabetes(17%), cough(17%), and alcohol(9%) in causing hernia. In our study smoking was responsible for 4.5% of hernia. In a study the incidence of hernia in smokers was high 13.63%.¹⁹ Also another study recommends that before elective umbilical and epigastric hernia surgery smoking should be abandoned at least 4 to 6 weeks prior and BMI should be decreased below 35 as smoking and obesity can increase the risk of complications in post-operative phase.²⁰

Conclusion:

Hernias are a major concern in general surgical unit. Abdominal wall hernia repair are amongst the commonest procedure performed. The prevalence of hernia's in midline through linea alba has increased considerably. As risk involved in causation are nearly avoidable or treatable.

By addressing etiological factor burden can be reduced. Abdominal wall hernias are common in women. Obesity is a major risk factor for all abdominal wall hernia. Life style modification plays a pivotal role in prevention of hernia. Addressing risk factors in developing countries can reduce the occurrence of hernias.

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Role and contribution of authors:

Sameeah Hanif, collected the data, references and did the initial write up

Soweba Hanif, collected the references and helped in discussion writing

Muhammad Nawaz, critical review the article and made final changes.

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