

Study to Determine the Paraumbilical Hernia Incidence in Patients with High Body Mass Index.

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ABSTRACT

Background: Aim: To determine the incidence of paraumbilical hernia in patients with increased body mass index (BMI). Study design: A prospective cohort study. Place and Duration: In the department of surgery Khairpur Medical college and Civil Hospital, Khairpur for the duration of six months from July 2019 to December 2019. **Methods:** A total of 78 paraumbilical hernia cases were selected for this study. A questionnaire was used to save the data. BMI was calculated and data was evaluated using statistical methods. **Results:** 18% (n = 14) of 78 patients with Paraumbilical hernia were overweight, 7.69% (n = 6) were normal weight, 70.51% (n = 55) were obese, and only 3.84% (n = 3) were underweight. **Conclusion:** This study highlights the increase in BMI as an important risk factor for the development of paraumbilical hernia. Many patients have multiple risk factors such as constipation and lower urinary tract symptoms. The general population should be trained in a healthy diet and exercise to reduce the risk of PUH.

Keywords: Body mass index (BMI), obesity, paraumbilical hernia (PUH).

INTRODUCTION

The word "hernia" comes from Greek and means "bulge" or "offshoot". A paraumbilical hernia is a defect in the fascial plane around the umbilical region that causes the omentum or intestines to protrude through the muscular covering of abdominal wall.^[1,2] The hernia itself is covered with skin and subcutaneous tissue. A true hernia is caused by the failure of closing the umbilical ring's during pregnancy, which causes a defect in the linea Alba.^[3,4] Most hernias are spontaneously small and close in the first five years of life; they do not require any surgical intervention. Paraumbilical hernia can also be occurred later in life.^[5,6] There is a risk of developing a hernia in patients with increased abdominal pressure. The incidence is much higher in patients with pregnancy, obesity, weight lifting and chronic coughing. Most PUH patients are obese with increased BMI.^[7,8] A 2016 study in Pakistan confirmed obesity as a major public health problem. Incidence was observed with a frequency of 25% and a higher frequency of 42.8% (age 35-54) among females. Patients often experience swelling around umbilicus, skin changes or pain. Color change, irreducibility and pain require immediate

examination and surgery because of the risk of entrapment. Uncomplicated hernia is surgically repaired under general anesthesia on the list of elective operations.^[9,10] Hernias are repaired using open surgical technique, as well as laparoscopic. Overlay hernioplasty is the most common procedure in our environment. The prognosis is excellent, but there is always a risk of infection or relapse.^[11] This is the second most common form of abdominal hernia, which accounts for over 0.3% of all hernia operations in the Pakistan. Elective surgery is the preferred procedure due to the assumed risk of obstruction, entrapment and suffocation, the choice of the appropriate surgical procedure is still controversial.^[12,13] The simplest and most radical method of Mayo repair in which transverse overlapping of defect with non-absorbable suture material is carried out. The use of a mesh to repair an open or laparoscopic hernia defect is now widely used. In the case of repair of paraumbilical hernia, the recurrence is minimum in the case of drainage placed after repair.^[14] Wound infection is common among postoperative complications. However, persistent discomfort caused by low-intensity abdominal pain may develop when breathing during abdominal wall movement, scars and deformities in the surgical field after surgery.^[15]

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MATERIALS AND METHODS

This prospective cohort study was held in the In the department of surgery Khairpur Medical college and Civil Hospital, Khairpur for the duration of six months from July 2019 to December 2019.

Criteria included:

78 patients of both sexes were included in the study.

Exclusion criteria:

Patients who did not agree were excluded from the study.

A previously developed questionnaire was used to collect data on possible risk factors such as name, gender, age, height, pregnancy weight and number, surgical history, lower urinary tract symptoms and constipation. BMI values were calculated based on height and weight. BMI categories are created in accordance with WHO recommendations for people of Asian origin. BMI lower than 18.5 was rated as low weight, 18.5 to 24.9 normal, 25-25.9 overweight. The BMI value of 30 or more was considered obese. Related pathologies such as gallstones, fatty liver enlargement and hernia repair were also recorded. Data were statistically analyzed using SPSS version 18.0.

RESULTS

The study included 78 patients aged 25-70; 22 of them (28.20%) are men and 56 (71.79%) are women. The average age was calculated at 45 years,

the median was 46.08, and the standard deviation was 11.08.

Table 1: Demographic data of patients is given

Males	Females
22(28.20%)	56(71.79%)
Age Range by Percentage	
25-45(17)	25-45(35)
46-70(5)	46-70(21)

Patients' average BMI was 33.8, minimum 17.5 and maximum 52.08. 18% (n = 14) of 78 patients with Paraumbilical hernia were overweight, 7.69% (n = 6) were normal weight, 70.51% (n = 55) were obese, and only 3.84% (n = 3) were underweight. 2 of 78 patients had lower urinary tract symptoms and 25 (32.05%) had a history of constipation. Only 5 patients (6.41%) complained of chronic cough. All women had a pregnancy history and 35 (44.87%) had 5 or more pregnancy histories. Coexistence of cholelithiasis and fatty hepatomegaly was detected in 13 (16.66%) and 19 (24.35%) patients, respectively. History of previous abdominal surgery was present in 24 (30.7%) patients, 41.66% (n = 10) of these patients underwent one surgery and (n=14) 59.44% had multiple surgeries. Recurrence of PUH was observed in five patients (6.41%). [Table 1] shows the BMI stratification by risk factors.

Table 2: Stratification of BMI with respect to risk factors

Variable	BMI Categories			
	Underweight	Normal	Overweight	Obese
Male	2	3	5	12
	9.09%	13.64%	22.73%	54.55%
Female	1	3	9	43
	2%	5.4%	16.1%	76.8%
Prostate	0	3	0	0
	0%	100%	0%	0%
Pregnancy >5	0	2	5	28
	0%	5.71%	14.29%	80.00%
Cough	0	0	2	3
	0%	0%	40%	60%
Gallbladder Stones	0	2	4	7
	0%	15.38%	30.77%	53.85%
Hepatomegaly	0	0	3	16
	0%	0%	15.79%	84.21%

DISCUSSION

This study was conducted to determine the prevalence of obesity in PUH patients. BMI of 78 patients was calculated. 55 patients were obese and 6 patients had normal BMI. Owei et al data was analyzed in 2005–2015 by the American College of Surgeons National Surgical Quality Improvement Program.^[16] 58.5% of patients were obese and a significant percentage of complications were observed in patients with increased BMI. They concluded that an increase in BMI is a risk factor for hernia, complications before and after surgery. Sauerland et al. A statistically significant increase in the recurrence rate (11%) in hernia after surgery was found in patients with increased BMI.^[17] Sugermn et al. We conducted a study that showed an increased

risk of abdominal hernias and incisional hernia in patients with increased BMI. Postoperative complications such as wound infection (12%), serum formation (5%) and recurrent hernia (4%) occurred in 35% of patients.^[18] PUH is the most common type of hernia in adult women in Pakistan. Studies abroad have also shown that PUH is more common in women, but the difference is in the ratio of men to women. In most other studies it is 1: 5, while in some studies it is more common in men than in women.

For our patients, the common age group was the third decade. In other studies, it occurs more often in the fifth and sixth decade of life. After a literature review, we did not find any reported PUH difference.

Some authors have found that PUH is common in many patients. Generally the supraumbilical type of PUH is more common than infra umbilical type. This is due to the fact that the critical place for PUH development in most cases lies at a level slightly above the level of the umbilicus. This place is the attachment of a tendinous inter section to the linea Alba. Weight lifting, which causes abdominal pressure to increase, has been a well-known cause of anterior abdominal hernia for a long time. There is a clear tendency to hernia in some families, although no specific hereditary factor has been detected. Due to the narrow neck, the fibrous edge of linea Alba, the location of the pouch and the presence of PUH adhesion, it is usually irreducible. According to the Abdul Qayoom Daudpoto et al study; as age increases, muscle tone decreases and causes hernias; the more common associated condition in old age is COPD and chronic cough and constipation, and BPH, all of which contribute to the emergence of umbilical hernia.^[19] The most common condition associated with umbilical hernia turned out to be more common in women secondary to cesarean. The most frequently related factors are Female gender (63.49%), Age ≥ 50 (57.14%), Obesity (BMI ≥ 30); H / O Chronic cough / COPD (39.68%); Parity > 5 (36.50%); H / O BPH (23.80%); H / O constipation (22.22%); H / O Previous cesarean section (20.63%); Heavy lifting (19,045); Previous abdominal surgery H / O (14.28%); Congenital H / O umbilical hernia (7.93%).^[20] These findings are according to Lydia Kraun, together with Muhammed Saleem Shaikh and Qayoom Daudpoto and friends. Some people are born with a congenital defect (present from birth), which makes the abdominal wall abnormally thin. The risk of developing a ventral hernia increases. Other risk factors for ventral hernia are: pregnancy, obesity, history of previous hernias, history of abdominal surgery, injuries in the intestinal area, family hernia history, permanent removal or repulsion of heavy objects.^[21,22]

CONCLUSION

Our study highlights the prevalence of obesity in PUH patients. Obesity is an important risk factor for developing abdominal wall hernias. Many patients have many risk factors such as constipation and lower urinary tract symptoms. The general population should be trained in a healthy diet and exercise to reduce the risk of PUH.

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