ORIGINAL RESEARCH PAPER

Volume-8 | Issue-7 | July - 2019 | PRINT ISSN No. 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

A STUDY ON CORRELATION BETWEEN VENTRAL ABDOMINAL WALL HERNIAS AND ACID PEPTIC DISEASE

General Surgery

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ABSTRACT

INTRODUCTION: The term ventral abdominal wall hernia refers to herniation through the anterior abdominal wall and includes epigastric hernia, umbilical hernia, paraumbilical hernia, Spigelian hernia, lumbar hernia, incisional hernia, parastomal hernias and traumatic hernias. This study focuses on presence of peptic ulcers in patients presenting with epigastric, umbilical and paraumbilical hernias. Many of these hernias present painfully, where the pain should not be attributed to the hernia before ruling out gastrointestinal pathology such as peptic ulceration.

AIM OF STUDY: The aim of this study is to find a correlation, if any, between non-traumatic, non surgical, true ventral abdominal wall hernias (viz. epigastric, umbilical and paraumbilical hernias) and acid peptic disease.

MATERIALS AND METHODS: Fifty patients who presented to Thanjavur Medical College with Epigastric hernia, Umbilical hernia and Paraumbilical hernia were subjected to Upper GI endoscopy/ Oesophagogastroduodenoscopy to detect concomitant Acid Peptic Disease

OBSERVATIONS AND RESULTS: Out of 50 patients admitted with ventral abdominal wall hernias subjected to UGI endoscopy, 40 patients had a normal scopy. However, 10 patients had one of antral erosion, duodenal erosion, prepyloric ulcer or duodenitis which can be considered as hallmarks of acid peptic disease, resulting in a correlation of 20% between ventral abdominal wall hernias and acid peptic disease.

CONCLUSION: In spite of resultant correlation of 20%, this study is limited by need for larger sample size, confounding factors such as alcohol consumption, smoking, and NSAID intake. Hence further evaluation is needed to authoritatively comment on the exact figure of correlation.

KEYWORDS

MATERIALS AND METHODS

Type of study : Correlational Study
Place of study : Thanjavur Medical College Hospital
Period of study : June 2018 to June 2019
Sample size : 50 cases

Selection of patients:
a) Sampling method- Purposive.

b) Inclusion criteria-

i. Patients presenting with epigastric, umbilical and paraumbilical herina
ii. Age more than 18 years

c) Exclusion criteria - Patients with age less than 18 years and those with incisional hernias, lumbar hernias, spigelian hernias traumatic hernias

Study procedure:

Method of sampling was non-random, purposive. After admission short history was taken and physical examination was conducted on each patient admitted in surgery department with features of ventral abdominal wall hernia. Baseline investigations, as routinely required, were done followed by imaging studies. Patients were then explained about their disease process and the possible line of management. All the necessary information regarding the study was explained to the patients or their valid guardian. Informed written consent was taken from the patients or their guardian willing to participate in the study. Detailed history was taken from the study group to establish proper diagnosis.

Thorough physical examination was done in each case. Data collection sheets were filled in by the investigator himself. All of the preoperative factors related to the patient were noted down in the data sheet. After proper evaluation and preparation, patients who required surgical management were taken up for surgery. Strict aseptic precautions were followed during the operation. Meticulous technique was practiced during surgery. After completing the collection of data it was complied in a systematic way.

Variables studied:

I. Age
ii. Sex
iii. Blood parameters
iv. type of hernia
v. OGD scopy finding

RESULTS

This correlational study was carried out to determine the correlation between ventral abdominal wall hernias and acid peptic disease. Fifty patients fulfilling the inclusion criteria from the department of General Surgery, Thanjavur Medical College and Hospital during the period of June 2018 to June 2019 were selected.

All cases were evaluated clinically. Only essential investigations necessary for diagnosis and preoperative assessment were carried out. All patients underwent OGD scopy. The patients of both sexes and different ages were included in the study. The results obtained are as follows.

Table 1. Frequency distribution of age category in years as overall in the study population.

S. No	Age category in years (overall n =50)	N	%
1	Young adults (18 - 35 years)	18	36
2	Middle aged adults (36 – 55 years)	26	52
3	Elderly (>55 years)	6	12

Data are expressed as n with %. Total N= 50. The mean age was 41.3 with standard deviation of 12.39 years. The minimum age was 19 and the maximum age was 65 years.

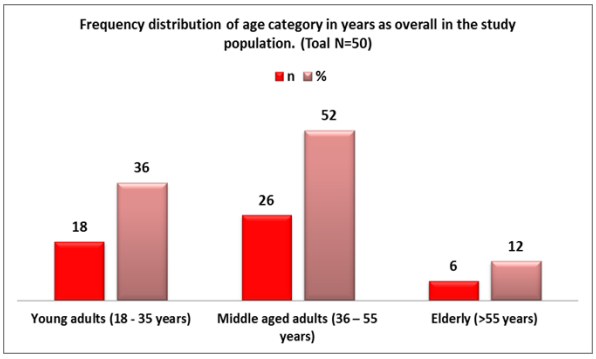

Figure 1. Frequency distribution of age category in years as overall in the study population

Table 2.Frequency distribution of gender in the study population.

S. No	Gender	N	%
1	Male	32	64
2	Female	18	36

Data are expressed as n with %. Total N =50

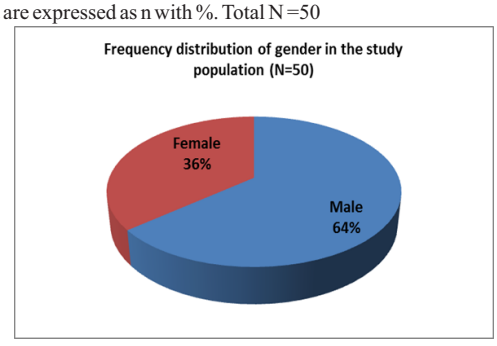

Figure 2.Pie chart representing the frequency distribution of gender in the study population.

Table 3.Frequency distribution of gender with respect to age category in the study population.

S. No	Age category	Male (n=32)		Female (n=18)	
		N	%	n	%
1	Young adults (18 - 35 years)	10	31.2	8	44.4
2	Middle aged adults (36 – 55 years)	16	50	10	55.6
3	Elderly (>55 years)	6	18.8	0	0

Data are expressed as n with %. Fisher's exact test was used to compare the frequencies between the age category and the gender. No significant difference was noted (p=0.135).

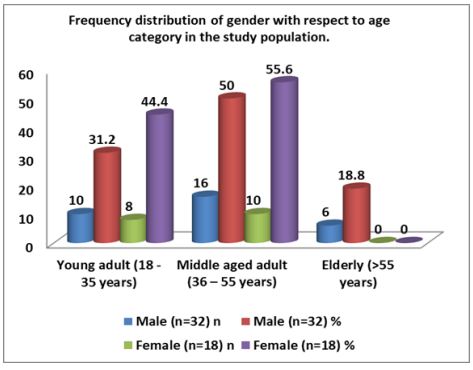

Figure 3.Frequency distribution of gender with respect to age category in the study population represented in vertical cylindrical diagram.

Table 4. Frequency distribution of type of hernia observed in the study population

S. No	Type of hernia	n	%
1	Epigastric hernia	14	28
2	Paraumbilical hernia	10	20
3	Umbilical Hernia	26	52

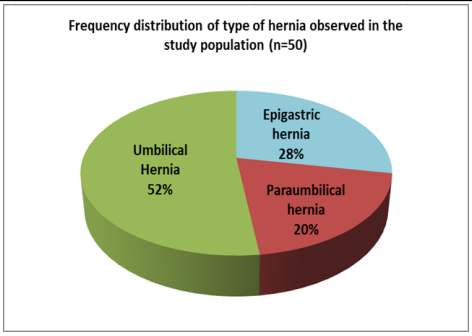

Figure 4. Pie chart representing the Frequency distribution of type of hernia observed in the study population.

Table 5. Frequency distribution of type of hernia observed with respect to age category in the study population.

S. No	Type of hernia Vs age category	Young adults (n=18)		Middle aged adults (n=26)		Elderly (n=6)	
		n	%	n	%	n	%
1	Epigastric hernia	7	38.9	6	23.1	1	16.7
2	Paraumbilical hernia	3	16.7	5	19.2	2	33.3
3	Umbilical Hernia	8	44.4	15	57.7	3	50

Data are expressed as n with %. Fisher's exact test was used to compare the frequencies between the age category and the type of hernia observed. No significant difference was noted (p=0.135).

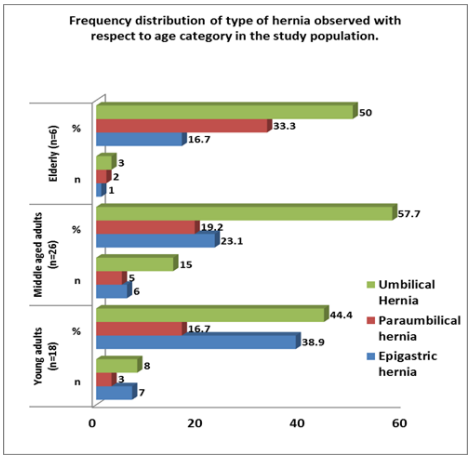

Figure 5. Frequency distribution of type of hernia observed with respect to age category in the study population represented in horizontal bar diagram.

Table 6. Frequency distribution of type of findings observed with UGI endoscopy in the study population with hernia overall (n=50)

S. No	Findings in the UGI endoscopy	n	%
1	Antral Erosion	3	6
2	D1 erosion	4	8
3	Duodenitis	2	4
4	Pre pyloric ulcer	1	2
5	Normal	40	80

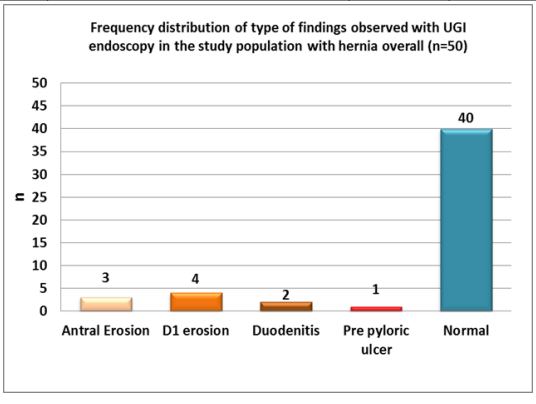

Figure 6. Vertical Bar Diagram depicting the frequency distribution of type of findings observed with UGI endoscopy in the study population with hernia overall (n=50)

Table 7. Frequency distribution of type of findings observed with UGI endoscopy in the study population with hernia with respect to gender.

S. No	Findings in the UGI endoscopy	Male (n=32)		Female (n=18)	
		N	%	n	%
1	Antral Erosion	2	6.2	1	5.6
2	D1 erosion	2	6.2	2	11.1
3	Duodenitis	2	6.2	0	0
4	Pre pyloric ulcer	1	3.1	0	0
5	Normal	25	78.1	15	83.3

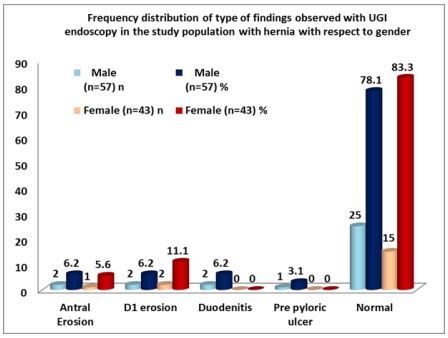

Figure 7. Frequency distribution of type of findings observed with UGI endoscopy in the study population with hernia with respect to gender represented in vertical bar diagram.

Table 8. Frequency distribution of type of findings observed with UGI endoscopy in the study population with respect to the age category.

S. No	Type of hernia Vs age category	Young adults (n=18)		Middle aged adults (n=26)		Elderly (n=6)	
		n	%	n	%	n	%
1	Antral Erosion	0	0	2	7.7	1	16.7
2	D1 erosion	1	5.6	3	11.5	0	0
3	Duodenitis	2	11.1	0	0	0	0
4	Pre pyloric ulcer	1	5.6	0	0	0	0
5	Normal	14	77.8	21	80.8	5	83.3

Data are expressed as n with %. Fisher's exact test was used to compare the frequencies between the gender. No significant difference was noted (p=0.367).

Table 9. Relationship of umbilical hernia with the development of peptic ulcer disease in the study population.

S. No	2 X 2 table	Peptic ulcer present	Peptic ulcer absent (Normal finding in UGI endoscopy)	P value	Relative risk with confidence interval
1	Umbilical hernia present	4	22	0.487 (NS)	0.61 (0.1 to 1.9)
2	Umbilical hernia absent	6	18		

Fisher's exact test was used to compare the frequencies. No difference was noted.

Table 10. Relationship of Epigastric hernia with the development of peptic ulcer disease in the study population.

S. No	2 X 2 table	Peptic ulcer present	Peptic ulcer absent (Normal finding in UGI endoscopy)	P value	Relative risk with confidence interval
1	Epigastric hernia present	5	9	0.118 (NS)	2.5 (0.8 to 7.5)
2	Epigastric hernia absent	5	31		

Fisher's exact test was used to compare the frequencies. No difference was noted.

Table 11. Relationship of Paraumbilical hernia with the development of peptic ulcer disease in the study population.

S. No	2 X 2 table	Peptic ulcer present	Peptic ulcer absent (Normal finding in UGI endoscopy)	P value	Relative risk with confidence interval
1	Paraumbilical hernia present	1	9	0.66 (NS)	0.44 (0.06 to 3.1)
2	Paraumbilical hernia absent	9	31		

Fisher's exact test was used to compare the frequencies. No difference was noted.

DISCUSSION OF RESULTS

This correlational study was carried out to determine the correlation between ventral abdominal wall hernias and acid peptic disease using UGI endoscopy as investigating modality. Fifty patients fulfilling the inclusion criteria from the department of General Surgery, Thanjavur Medical College and Hospital during the period of June 2018 to June 2019 were selected. Age of the 50 patients ranged from 19 - 65 years. The patients were predominantly of the 36 - 55 age group. The involvement in extremes of age group was comparatively lesser than the middle age.

The male to female ratio was ~ 1.8 : 1. So, it can be assumed that males are predominantly, the frequency distribution being 64% males and 36% females. On analysing the gender distribution with regard to age, 31.2% of involved males were young adults, 50% of involved males were middle aged and 18.8% of involved males were elderly. 44.4% of involved females were young adults, 55.6 % of involved females were middle aged and there were no women involved in the elderly age group.

On evaluation of the type of presenting ventral hernia, twenty six patients (52%) presented with umbilical hernia. Fourteen patients (28%) presented with paraumbilical hernia. Ten patients (20%) presented with paraumbilical hernia.

On comparing type of hernia with respect to age, 44.4 % of the young adults had umbilical hernia, 38.9% of the young adults had epigastric hernia and 16.7% of the young adults had paraumbilical hernia. 57.7% of the middle aged had umbilical hernia, 23.1% of the middle aged had epigastric hernia and 16.7% of the middle aged had paraumbilical hernia. 50% of the elderly had umbilical hernia, 33.3% of the elderly had paraumbilical hernia and 16.7% of the elderly had epigastric hernia.

An analysis of the type of findings noted in the Upper GI endoscopy revealed normal study in 40 patients (80%), D1 erosion in 4 patients (8%), antral erosion in 3 patients (6%), duodenitis in 2 patients (4%) and pre-pyloric ulcer in 1 patient (2%).

Proceeding to compare the UGI endoscopy findings with gender, 78.1% of the involved males had normal findings, 6.2% had antral erosions, 6.2% had D1 erosion, 6.2% had duodenitis and 3.1% had pre-pyloric ulcer. 83.3% of involved females had normal findings, 11.1% had D1 erosion and 5.6% had antral erosion.

On comparing the type of endoscopy findings found with the age group of the population, among young adults, 77.8% of young adults had normal findings on UGI scopy, 11.1% had duodenitis, 5.6% had D1 erosion and 5.6% had pre pyloric ulcer. Among the middle aged, 80.8% of the middle aged had normal findings on UGI endoscopy, 11.5% had D1 erosion and 7.7% had antral erosion. Among the elderly, 16.7% of the elderly had antral erosion.

Regarding the relationship of individual ventral hernia with acid peptic disease, four out of twenty six patients with umbilical hernia had peptic ulcer, and 6 out of twenty four patients with ventral hernia other than umbilical hernia had peptic ulcer. Twenty two of the twenty six patients with umbilical hernia had normal findings on UGI scopy. This gives us a relative risk of 0.61 with a confidence interval of 0.1 to 1.9 using Fischer's exact test.

Five of the fourteen patients with epigastric hernia had peptic ulcer in UGI scopy, and nine of the fourteen patients with epigastric hernia had normal findings in UGI scopy. Five of the thirty six patients with ventral abdominal hernia other than epigastric hernia had peptic ulceration. This gives us a relative risk of 2.5 with a confidence interval of 0.8 to 7.5 using Fischer's exact test.

One out of the ten patients with paraumbilical hernia had peptic ulcer and nine of the forty patients with ventral abdominal wall hernia apart from paraumbilical hernia had peptic ulcer. Nine of the ten patients with paraumbilical hernia had normal findings on UGI scopy. This gives us a relative risk of 0.44 with a confidence interval of 0.06 to 3.1

LIMITATIONS OF THE STUDY

As this study has been carried out over a limited period of time with a limited number of patients , it could not have been large enough to be of reasonable precision. More number of patients with ventral hernias have to be analysed to determine the correlation of the

disease with APD. The confounding factors such as NSAID intake, alcohol abuse, smoking and dietary habits should also be included in future studies. All the facts and figures mentioned here may considerably vary from those of large series covering wide range of time, but as the cases of this study were collected from a tertiary level hospital in our country, this study has some credentials in reflecting the facts regarding prevalence of peptic ulcers in patients with ventral abdominal wall hernias.

SUMMARY

Ventral abdominal wall hernias area common surgical problem encountered in our clinical practice. It is a source of great discomfort for the patient and causes prolonged morbidity in those patients who are not properly managed or who developed complications. There is an increasing number of newer treatment modalities available. This study tries to throw a light on few of those factors

Age and Sex Distribution :

Male to female ratio is 1.8:1 and the thirty six to fifty five age group was the most affected population. Since they constitute the primary work force in any society, any morbidity of the disease constitutes a great strain on the economy of that family.

Commonest findings on UGI endoscopy:

The commonest findings on UGI scopy are normal findings in 80%, D1 erosions in 8%, antral erosions in 6%, duodenitis in 4% and pre pyloric ulcer in 2% individuals

Diagnostic Studies :

All patients underwent routine blood investigations, CT abdomen where indicated and OGD scopy.

Management :

Proton pump inhibitors were administered to those with evidence of peptic ulceration. Patients with ventral abdominal wall hernia were proceeded for surgical repair.

Morbidity :

The incidence of complications was negligible in patients subjected to OGD scopy.

RECOMMENDATIONS

On the basis of the findings of the study, the following recommendations can be made:

1. Proper preoperative evaluation which includes UGI scopy are recommended for all patients with ventral abdominal wall hernias
2. Patients with concomitant peptic ulceration and ventral abdominal wall hernia are managed with pre-operative, peri-operative and post-operative proton pump inhibitors
3. Further large scale studies have to be initiated to determine significant correlation between the two entities.