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Research Article

Study of incidence of peptic ulcer perforation in young adults

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ABSTRACT

Background: Peptic ulcer perforation is the commonest perforation of the gastrointestinal tract affecting 2-10% population showing a shift from older to the younger population. With this statistics a study for incidence of peptic ulcer perforation in young adults 18-30 years was carried out.
Methods: Prospective study of patients admitted on emergency basis and diagnosed as peptic ulcer perforation either gastric or duodenal perforation intraoperatively in patients 18-30 years were studied from June 2009 to October 2011.
Results: Of 175 patients, 70 (40%) patients were between 18 and 30 years age. 58 (82.85%) were males and 12 (17.14%) were females. Twenty-three (32.85%) patients had history suggestive of acute peptic disease/ulcer and had taken some treatment in the form of antacid H-2 blocker or proton pump inhibitor while 47 (67.14%) patients had no history. Pain was the consistent symptom while tachycardia, tenderness, and guarding were the signs present in all 70 (40%) patients. Gas under diaphragm (pneumoperitoneum) was found in 67 (95.71%). Ultrasonography abdomen S/O pyoperitoneum was found that all 70 (100%). 57 (81.42%) patients had an anterior duodenal perforation, 12 (17.14%) patients had a gastric perforation with a ratio of 4.7:1, and 1 patient had a combined gastric and duodenal perforation. 1 (2.43%) patient expired in the post-operative period, 55 (78.57%) patients come for regular follow and 14 (20%) patients were lost to follow-up. Only 4 (7.2%) patients had mild to moderate symptoms of peptic ulcer disease which were controlled by anti-ulcer drugs.
Conclusion: Peptic ulcer perforation is a disease more common in the young population with a male preponderance.

Keywords: Incidence, Young adults, Peptic ulcer perforation, Pneumoperitoneum

INTRODUCTION

Peptic ulcer perforation is the commonest perforation of the gastrointestinal tract, and it is a very serious complication that affects 2-10% population on an average.[3] Peptic ulcer perforation demands prompt diagnosis, timely resuscitation and proper surgical management if morbidity and mortality have to be reduced.[5]

In the past few decades, the incidence of peptic ulcer perforation has increased in young adults, this may be due to the association with *Helicobacter pylori* infection; stress related to work in this competitive era, non-steroidal anti-inflammatory drugs (NSAIDs) abuse, increased smoking and alcoholism.[7,9]

Considering the importance of the situation a prospective study of peptic ulcer perforation in young adults either gastric ulcer or duodenal ulcer perforation was carried out on patients admitted in different surgical wards in this Medical College and Hospital from June 2009 to October 2011.

METHODS

Inclusion criteria

Cases admitted on an emergency basis and diagnosed as peptic ulcer perforation either as a gastric ulcer or duodenal ulcer perforation in patients 18-30 years were included.

Diagnostic criteria

Presence of free gas under diaphragm and gastric ulcer perforation or duodenal ulcer perforation confirmed only on exploration were included in this study.

Exclusion criteria

Patient having traumatic perforation involving jejunal or ileal perforation, appendicular or large bowl perforation and histopathologically proven cases of malignant gastric ulcer perforation, gastro-jejunal stomal perforation were excluded from this study.

Patients below 18 years and above 30 years were excluded. Patients who did not give consent to undergo the study procedure was also excluded from this study.

Intra-operative findings in the form of release of free gas as soon as abdomen was opened after pre-operative preparation and exploration under general anesthesia, amount and nature of peritoneal contamination present, site and size of perforation was noted. Perforations were palpated for induration or any other abnormality. No case of giant gastric or duodenal ulcer perforation was encountered so standard procedure of simple closure of the perforation and live omentoplasty followed by thorough peritoneal lavage with copious amount of normal saline and metronidazole was performed and as required abdominal drains were kept. Abdomen was closed in layers. Post-operatively the patients were kept nil by mouth until the return of their bowel activity, till then they were given intra-venous fluids, injectable antibiotics with a broad spectrum coverage and injectable analgesics along with injectable pantoprazole 40 mg once a day. As and when required patients were given blood transfusions. Post-operatively the patients in the study were evaluated for various complications in the form of post-operative wound complications, post-operative fever, leak from perforation, and any other co-morbidities. Operative mortality was defined as death during hospitalization. As facilities to study *H. pylori* are not available in our institute, *H. pylori* assay was not done. Similarly, gastric biopsy was not taken in gastric ulcer perforation patients considering the patients are young adults and Incidence of gastric cancer rare. On discharge, all patients were given empiric *H. pylori* eradication therapy in the form of "triple regimen." Patients were followed up after discharge on 2 weeks, 1 month, 3 and 6 months and till the completion of this study and will be followed thereafter also if they have any problem.

RESULTS

The present study evaluated 70 patients of peptic ulcer perforation between 18 and 30 years of age group out of total 175 patients of peptic ulcer perforation presented in casualty and surgery out-patient department from June 2009 to October 2011 i.e., 40% patients were between 18 and 30 years. Sex incidence showed 58 (82.85%) patients were males and 12 (17.14%) were females. The male is to female ratio of peptic ulcer perforation in young adult was 4.8:1. In the present study it was found that 23 (32.85%) patients had a previous history suggestive of acid peptic disease/peptic ulcer and had taken some sort of treatment in the form of antacid H-2 blocker or proton pump inhibitor while 47 (67.14%) patients had no previous history. Relation with smoking - It was found that 39 (55.71%) patients were smokers, whereas 31 (44.28%) were non-smokers. H/O of alcoholism - It was found that 37 (52.83%) patients were alcoholic, while 33 (47.14%) patients were non-alcoholic. H/O of NSAIDs use - It was found that 13 (18.57%) patients had a previous history of NSAIDs used while 57 (81.42%) patients had no history of NSAIDs used.

Plain X-ray abdomen in erect with gas under diaphragm (pneumoperitoneum) was found in 67 (95.71%) and ultrasonography abdomen S/O pyoperitoneum was found in all 70 (100%).

It was found that 57 (81.42%) patients had an anterior duodenal perforation, 12 (17.14%) patients had a gastric perforation with a ratio of 4.7:1, and 1 patient had a combined gastric and duodenal perforation. 59 (84.28%) patients had a perforation of size <1 cm, and 11 (15.71%) of the patients had a perforation of size more than 1 cm. Post-operative follow-up: 1 (2.43%) patient expired in post-operative period, 55 (78.57%) patients come for a regular follow and 14 (20%) patients were lost during the follow-up period of 6 months. Of 55 patients, 51 (92.67%) patients were completely asymptomatic and 4 (7.2%) patients had mild to moderate symptoms of peptic ulcer disease in the form of mild epigastric pain, regurgitation, and few episodes of vomiting that was easily controlled by anti-ulcer treatment like proton pump inhibitors (pantoprazole 40 mg BID). Not a single patient developed post-operative intestinal obstruction during their follow-up.

DISCUSSION

Bharti et al.[1] in 1996, in their study of peptic ulcer perforation, reported that the maximum incidence 48% of peptic ulcer perforation was found in the age group of 31-40 years. 72% patients had duodenal perforation. 84% patients had a positive X-ray finding and 94% were positive on ultrasound examination. Only an inconclusive X-ray had an indication for ultrasound examination.

Hannan et al.[2] in 2005, in their study of peptic perforation, reported that the mean age was 41 years, the highest incidence 34% was in the age group of 30-40 years.

Table 1: Distribution of number of patients by age range (*n*=175).

Age (in years)	Number of cases	Percentage
0-10	0	0
11-20		
11-17	4	2.2
18-20	6	3.4
21-30	64	36.57
31-40	30	17.14
41-50	36	20.57
51-60	22	12.57
61-70	11	6.28
71-80	2	1.14

Table 2: Presenting symptoms.

Symptoms	Number of cases	Percentage
Pain	70	100
Vomiting	36	51.42
Distension of abdomen	30	42.85
Fever	20	28.57
Constipation	8	11.42
Hematemesis and malena	0	0

Maximum patients had duodenal perforation and cause behind this was attributed to peptic ulcer disease.

Elnagib et al.[4] in 2008, reported the maximum number of peptic ulcer perforation patients i.e., 38% in the age group of 20-30 years. NSAIDs is amongst an important etiology for perforation accounting for total 43% patients with stress and alcoholism accounting for 23% cases when combined.

Chalya et al.[8] in 2011 in their study of peptic ulcer perforation from April 2006 to March 2011 reported the maximum number of patients, i.e., 41% in the age group of 21-30 years.

CONCLUSION

Peptic ulcer perforation is a disease more common in young population with male preponderance young adults most commonly presented for the first time with peptic ulcer perforation and many of them do not have any antecedent history of acid peptic disease or peptic ulcer disease. Common predisposing factors for peptic ulcer perforation in young adults are tobacco smoking and alcohol ingestion. Though it is world widely proven that *H. pylori* is an important predisposing factor for peptic ulcer perforation but its association in peptic ulcer perforation could not be proved in the present study due to lack of diagnostic facilities for *H. pylori* detection in our institute.

Table 3: Presenting signs.

Signs	Number of cases	Percentage
Tenderness	70	100
Tachycardia	70	100
Guarding/rigidity	70	100
Obliteration of UBLD	58	82.85
Bowel sounds		
Present	39	55.71
Absent	31	44.28
Pallor	29	41.42
Shock	4	5.7

Table 4: Post-operative complications.

Complications	Number of cases	Percentage
Wound complication	7	10
Infection	5	7.1
Burst abdomen	2	2.8
Atelectasis	6	8.5
Residual abscess	1	1.4
Suture leak	0	0
Re-exploration	0	0
Post-operative intestinal obstruction	0	0

First part of the duodenum is the most common site for peptic ulcer perforation followed by stomach and possibility of dual perforation in stomach and duodenum should not be overlooked. Most of the peptic ulcer perforation in young adults are small in size and are secondary to perforation of acute peptic ulcer simple closure of the perforation with live omentoplasty is an effective procedure in emergency situation. Empirical *H. pylori* eradication therapy should be given post-operatively to every patient for prompt ulcer healing, to prevent ulcer recurrence and to decrease the incidence of re-perforation.

Incidence of morbidity and mortality is less in young adults with peptic ulcer perforation because of early presentation, good physiological reserve and no other associated co-morbid factors. Post-operative follow-up of the treated patient is important to detect the recurrence of ulcer, and the symptomatic patient should be evaluated with upper gastro-intestinal endoscopy.

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