Original Research Article

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Peptic ulcer perforation in young Indians the causation and the trend

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ABSTRACT

Background: Peptic ulcer perforation is the commonest surgical emergencies in India. Recent emergency surgical procedures show an increasing trend in peptic ulcer perforation surgery in young adults. This study is carried out with an aim to understand the trend, causation and complications of peptic ulcer perforation in young Indians.

Methods: A prospective observational study of young adult Indian patients operated for emergency peptic ulcer perforation for a 3 years period from January 2014 to January 2017 was carried out. The incidence, causative factors and the complications were analyzed.

Results: In study of 150 patients, maximum incidence of 42.85% was seen in age group of 21 to 30 years that is young adults. 80% of them were males. 59% patients had blood group O. Association with smoking and alcoholism was seen in about 64% and 66.6% respectively. In about 13.33% there was an association seen with history of NSAID / steroid ingestion / treatment with proton pump inhibitors or H2antagonists. The duodenal perforation was found in 84.66%. In 90% the perforation was less than 1cm. Wound infection was the commonest complication among all patients. Mortality was seen in 3.33%.

Conclusions: Peptic ulcer perforation shows increasing incidence in young adult males. The increased incidence shows association to smoking, alcoholism, irregular food habits, use of NSAIDS/steroids and overall stressed lifestyle.

Keywords: Emergency surgery, Peptic ulcer perforation, Young Indian adults

INTRODUCTION

Perforative peritonitis is one of the commonest surgical emergencies faced by surgeons all over India.^{1,2} Of these peptic ulcer perforation is the commonest cause of peritonitis.³ These perforations are usually encountered in the first part of the duodenum anteriorly and in the pylorus of stomach. The occurrence of perforative peritonitis is associated with previous history of peptic ulceration in only few patients.

The workup of peptic ulcer perforation includes x-ray abdomen, ultrasound, basic laboratory investigations and special investigation for Helicobacter pylori in places

where facility is available. The role of contrast enhanced CTSCAN exists only in areas where diagnosis is doubtful. The only rational treatment of perforated peptic ulcer is surgical operation. The role of conservative treatment is in only sealed perforations with little contaminated fluid in the abdominal cavity with resolving pneumoperitoneum and hemodynamically stable patient. Simple closure of the perforation with non-absorbable suture material and graham's omentopexy using tongue of greater omentum are the procedures of choice. Vagotomy and highly selective vagotomy are the definitive procedures of choice; seldom attempted in emergency setting. Local bilateral flank drain placement is done in cases not fit for anesthesia and provides an interim management by drainage of the infected fluid

from the abdomen till fitness is obtained for general anaesthesia.

There is variation in the pattern of peptic ulcer perforation from one geographical area to another. The demographic variation is due to different ethnic, cultural, food, lifestyle factors in different geographical areas.

With the advent of proton pump inhibitors, the overall incidence of peptic ulcer disease and its definitive surgery has declined. However, the incidence of peptic ulcer perforation is showing increasing trend among young Indian patients predominantly males.

This may be due to association of acid hypersecretion with alcoholism, smoking, NSAID/steroid use, irregular diet and stressful lifestyle led by young adults in today's competitive era. Helicobacter pylori infection has also been implicated in complicated peptic ulcer disease.^{4,5}

Considering the changing scenario, an observational study was planned to understand the trend of peptic ulcer perforation among young Indian adults in emergency surgery department of tertiary teaching hospital over a three years period.

The aim of the study is to describe the occurrence, trend, etiologic factors, complications, mortality in the young adult males in the developing world.

METHODS

A Prospective study was carried out among the patients of age 18-30 years operated in emergency for peptic ulcer perforation. A verbal informed consent was taken, and data was collected using a preformed questionnaire. The variables included in the questionnaire were age, sex, duration of illness, blood group, time between onset of pain and hospitalization, alcohol use, cigarette smoking, NSAID and steroid use, irregular food habits and previous history of peptic ulcer disease. Postoperative complications as also the site and size of perforations in these cases were recorded. Patients were followed up for a period of 6 months on outpatient basis after surgery.

All patients underwent thorough history taking and examination. Chest X ray, X ray erect abdomen with both domes of diaphragm and ultrasound abdomen was done in all cases. Basic laboratory investigations were done, and laparotomy performed after adequate resuscitation. Graham's omentopexy, thorough peritoneal lavage with about 4 to 5 litres of normal saline, abdominal drain placement was done.

Patients were followed up for postoperative complications and mortality. Helicobacter Pylori kit was started in all recovered patients for 14 days. Helicobacter pylori testing was not done due to lack of diagnostic facility at our center. Patients were followed up for a period of 6 months on outpatient basis after discharge.

Inclusion criteria

- Cases operated in the emergency with perforated peptic ulcer.
- 18 to 30 years of age.

Exclusion criteria

- Patients of peptic ulcer perforation <18 or >30 years were excluded.
- Traumatic perforations.
- Perforations of other parts of bowel.

Diagnostic criteria

Presence of duodenal or gastric ulcer on laparotomy.

RESULTS

The study was carried out on young patients (18-30yrs) admitted and operated for emergency peptic ulcer perforation in the Department of General Surgery in Gandhi Hospital, Secunderabad from January 2014 to January 2017. The incidence, causative factors and complications were analysed, and the results tabulated.

Table 1: Age incidence.

Age group	No of patients	Percentage
0 - 17	0	0
18 - 20	10	2.85
21 - 30	140	40
31 - 40	65	18.5
41 - 50	70	20
51 - 60	50	14.28
61 - 70	12	3.42
71 - 80	3	0.8

Maximum incidence was found in the age group of 18 to 30 years (42.85%).

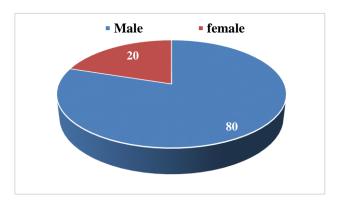


Figure 1: Sex incidence.

In the present study of 150 patients of peptic ulcer disease 80% were males and 20% were females. Male to female ratio observed was 4:1.

In the study maximum age incidence of 42.85% was seen in 18-30 years of age group. The occurrence noted in 31-40 years age group was 18.5%. Least incidence was found in 71-80 years age group of around 0.8%. The male to female ratio was 4:1. Peptic ulcer disease shows male preponderance. This is perhaps due to increased association of the male sex with smoking, drinking, alcohol, stressed lifestyle and other factors. There was increased association with smoking (64%), alcoholism (66.6%) and irregular food habits (73.33%) among the patients with perforation. These factors predispose to hyperacidity like conditions. Previous history of peptic ulcer disease on treatment with proton pump inhibitors or H₂ antagonists was present in 13.33%. There was positive history of NSAID/steroid ingestion in about 13.33% patients. Maximum incidence was seen in blood group O patients (58.66%) followed by blood group B (17.33%).

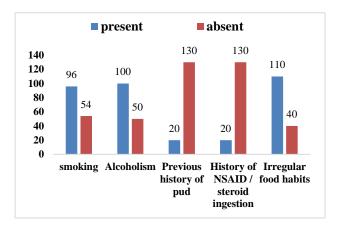


Figure 2: Risk factors.

In the present study of peptic ulcer perforation smoking history was present in about 96 patients (64%), alcoholism history was present in 100 patients (66%), history of peptic ulcer disease was present in 20patients (13.33%), history of NSAID usage was present in 20 patients, 110 patients had irregular food habits.

Table 2: Blood group.

Blood group	No. of patients	Percentage
0	88	58.66
В	26	17.33
A	22	14.66
AB	14	9.53

In the present study of 150 patients of peptic ulcer perforation in young adult's maximum incidence was seen in patients with O blood group (58.66%) while AB blood group had the least number of patients only 9.53%.

The X- ray positivity for pneumoperitoneum was seen in 96% of individual. In patients in whom x-ray was not confirmatory, ultrasound which showed evidence of septate collection or presence of free fluid was used to confirm the diagnosis .The maximum number of patients

(53.33%) presented to hospital 24 to 48 hours after the onset of pain. 13.33% patients presented within 12 hours while 16% presented within 12-24hours. Intraoperatively duodenal perforation was found in 84.66% while gastric perforation was noted in 15.33% of patients. In 90% of patients perforation was less than 1cm.

Large perforations larger than 1 cm was noted in only 15 patients. Burst abdomen was seen in 5 patients. Mortality rate was 3.33% (5 died out of 150 patients). Wound infection was the commonest complication seen in about 23.33% of the patients. Re-exploration was done in about 4 patients for leak or residual abscess. 115 (76.67%) patients continued to follow up for 6 months while 35(23.3%) were lost to follow up.

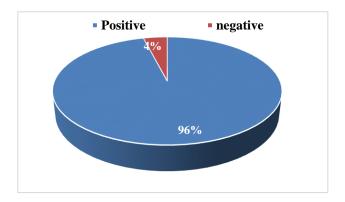


Figure 3: X-ray findings (pneumoperitoneum).

X-ray positivity (pneumoperitoneum) was found in 96% of patients while normal x-ray was found in 4% of patients.

Table 3: Postoperative complications.

Complications	No of cases	Percentage
Wound infection	35	23.33
Burst abdomen	5	3.33
Atelectasis	10	6.66
Residual abscess	3	2
Leak (biliary)	6	4
Re exploration	4	2.66
Postop intestinal obstruction	2	1.33
Death	5	3.33

In present study of peptic ulcer perforation, wound infection was present in 23.33% of patients, burst abdomen in 3.33% patients, atelectasis was present in 6.66% of patients, residual abscess was seen in 2% of patients, biliary leak was seen in 4% of patients, 2.6% needed re exploration, 1.33% patients landed up with postop intestinal obstruction, mortality was 3.33%. The commonest complication noted is wound infection (Table 3). In the present study among 150 patients 127(84.66%) patients had duodenal perforation and 23 (15.33%) patients had gastric perforation (Figure 4).

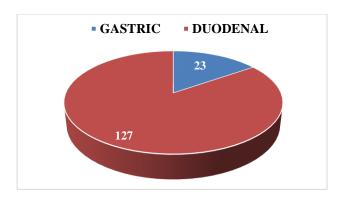


Figure 4: Site of perforation.

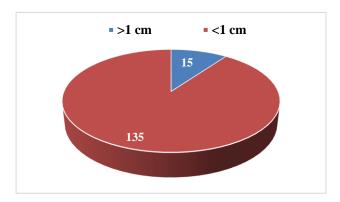


Figure 5: Size of perforation.

In the present study among 150 patients 135(90%) patients had perforation <1cm and 15(10%) patients had perforation of size >1cm.

Table 4: Time interval between onset of pain and hospitalization.

Duration (hours)	No. of patients	Percentage
Within 12	20	13.33
12-24	24	16
24-48	80	53.33
>48	26	17.33

In the present study of peptic ulcer perforation maximum incidence was seen in patients whose time interval between onset of pain and hospitalization was 24-48 hours (53.33%) while only 13.33% presented within12 hours of pain and perforation.

DISCUSSION

Peptic ulcer perforation is the commonest surgical emergency requiring urgent surgical management. The review of literature reports increased incidence of peptic ulcer perforation in the age groups 21-30 years as seen in the results reported by Elnagib E et al and Chaliya PL et al (41%) while other studies reported a maximum incidence in the age groups of 31 to 40 years as seen in studies by Bharti RC et al (48%) and Hannan A (34%).⁶⁻⁹ Present study reports an incidence of 42.85% in the 21 to

30 years of age group which suggests predisposition of the disease in the younger adults.

Young adults most commonly present directly with perforation with previous history of peptic ulcer disease seen only in few 13.33%. Smoking and alcoholism contribute majorly to the causation of peritonitis consistent with other studies. ^{10,11} NSAID ingestion is seen in few patients only13.33%. Mortality is about 3.33% which is less than the overall mortality rates reported in literature of about 10 to 20%. ¹² This may be due to better physiological reserve in the young compared to the elderly age group. Commonest post-operative complication is wound infection as in almost all other studies. ⁹⁻¹¹

CONCLUSION

Peptic ulcer perforation is surgical emergency requiring immediate operative attention. The occurrence of perforation is most often the first presentation of the disease. The history of peptic ulcer perforation is present in few patients only. The incidence of peptic ulcer perforation is increasing in young adults due to addictions like smoking, alcoholism, irregular food habits and overall stressed lifestyle. The advances in medical treatment of the peptic ulcer disease have led to decrease in the number of elective surgeries performed. The number of patients undergoing surgery for complications has been unchanged or even increased. A shift in increased incidence is being observed from 30-40 age group to 21-30 years.

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Ethical approval: The study was approved by the

Institutional Ethics Committee

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