



CLINICO-PATHOLOGICAL AND MICROBIOLOGICAL STUDY OF PEPTIC ULCER PERFORATION

General Surgery

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ABSTRACT

Background: Peptic ulcer disease affects 4 million people around the world yearly, 2-14% of these perforate. The lifetime risk for developing a peptic ulcer is approximately 10%. Prevalence is higher in developing countries, where it is estimated in about 70% population. This study was undertaken because our community is ripe with incidence of peptic ulcer and peptic ulcer perforation is commonly seen. If diagnosed promptly, is life saving with better outcome.

Methods: Prospective observational study, conducted over a period of 12 months (April 2018– march 2019), in the Department of surgery, Dr.BhimRao Ambedkar Memorial Hospital, Raipur.

Result: Inflammation was the most common histopathological finding seen (62% patients). 3 patients had malignancy, while 2 had nuclear atypia reported in histopathology. Significant correlation was found between history of dyspepsia and neoplasia($p=0.02$)(Fischer's test). None of the culture reported positive for H.pylori ; while Gram negative bacilli was reported in 19.6% cases, Gram positive organisms in 8.2% cases. Gram negative bacilli was most common in age group 40-50 yrs.

Conclusion: Incidence of peptic ulcer perforation increases with age. Most common presentation was abdominal pain. Inflammation was the most common histological finding. Gram negative bacilli were reported in 19.6% cases.

KEYWORDS

Peptic Ulcer Perforation, Histopathology In Peptic Ulcer Perforation, Microbiology In Peptic Ulcer Perforation

INTRODUCTION

Peptic ulcer disease is a break in the inner lining of the stomach, first part of duodenum, or sometimes the lower esophagus. (1-2)

Every year peptic ulcer disease affects 4 million people around the world and 2-14% of these ulcer perforate.(3-4)

The natural history of peptic ulcer ranges from resolution without intervention to the development of complications with the potential for significant morbidity and mortality , such as bleeding and perforation.

The lifetime risk for developing a peptic ulcer is approximately 10%. Prevalence is higher in developing countries, where it is estimated about 70% population, whereas developed countries show maximum of 40% ratio. In developing countries , most children become infected by age of 10.(5)

The most common symptom is pain . In gastric ulcer pain worsen with eating while in duodenal ulcer patient wake up in night with pain which get relieved after eating.(6-7)

Other symptoms include- belching, vomiting, weight loss(weight gain can occur with duodenal ulcer), hematemesis and melena.(1) The diagnosis is typically suspected due to presenting symptoms with confirmation by either Endoscopy or Barium Swallow and biopsy.(1)

H.pylori can be diagnosed by- urea breath test, Testing blood for antibodies and Biopsy from lesion site. (1)

Morbidity and mortality in ulcer is due to its complication which are Gastrointestinal bleeding, perforation, gastric outlet obstruction and cancer.

Erosion of gastrointestinal wall by ulcer leads to spillage of GI content into peritoneal cavity leading to peritonitis, presenting with sudden onset of severe pain in abdomen . Posterior wall perforation can lead to severe bleeding due to involvement of Gastroduodenal Artery. The therapeutic priorities are the treatment of peritonitis and closure of perforation. This goal can be achieved by simple closure of perforation with omentopexy.(8)

Perforated peptic ulcer occurs in 2-10% of patients with peptic ulcer disease and account for more than 70% deaths. (9)

Development of cancer is also a complication of peptic ulcer disease and if H.pylori is etiological factor, this increases by 3-6 times .(10)

METHODS

This was a prospective hospital based observational study, conducted in Department of Surgery, Pt JNM Medical College & Dr B R Ambedkar Memorial Hospital Raipur, C.G., from March 2018 – March 2019, over a period of 1 year, - All cases of peptic perforation admitted in Department of surgery, were included.

Inclusion Criteria

All cases of peptic ulcer perforation admitted in department of surgery, Dr.BRAMH, Raipur, above 18yr.

Exclusion Criteria

Ileal and colonic perforation.
Outside operated cases of perforation peritonitis.

METHODOLOGY

All cases of Gastric, duodenal perforation diagnosed intraoperatively and margin of perforation was refreshed and tissue collected in two vials.

- 1) one in 0.9% NS for culture.
- 2) Other in 10% formalin for histopathological examination.

For culture tissue sample was incubated in Skirrow's media for 48 hours. The sample for histo-pathological examination was fixed and stained with haematoxylin and eosin stain and slides reported accordingly.

RESULTS

Table. 1. Incidence Of Various Symptoms

Incidence of various symptoms

S.NO.	Symptoms	No. of cases	Incidence
1	Pain in abd.	97	100%

2	Abd. Distention	94	96.9%
3	Not passing f/m	89	91.8%
4	Fever	14	14.4%
5	Vomiting	27	27.8%

Table. 2. Histopathology Findings

Histopathology findings			
S.NO.	HPE report	No. of cases	Incidence
1	Inflammatory cell	60	61.8%
2	Nuclear atypia	2	2.0%
3	Neoplasia	3	3.0%
4	Necrotic tissue	17	17.5%
5	Other	15	15.5%

Table. 3. Microbiology Findings

Microbiology findings			
S.NO.	Microbiology report	No. of cases	Incidence
1	No growth	50	51.5%
2	Commensal	20	20.6%
3	Gram+ve cocci/bcili	08	8.2%
4	Gram -ve bacilli	19	19.6%

In the study, the maximum number of peptic ulcer perforation cases were seen in age group above 50 years i.e.32 out of 97(33%), followed by 24.7% in age group between 40-50 years and least number of cases is seen in age group between 10-20 years i.e. 6.2%. Of them, 80% patients were male 77/97, whereas female constituted only 20% (20/97) of total cases.

Also, the maximum number of patients belonged to lower socioeconomic status i.e. 64/97(66%). None of the patients belonged to upper class.

Addiction of alcohol and smoking was seen in 81% of patients (79/97), while 58% patients were seen of taking spicy food in their diet . 11% of the patients had history of using NSAID for more than 6 months for some sort of chronic pain. History of dyspepsia was given by 12% of the patients.

Pain in abdomen was the most common symptom complained by all the patients(100%), followed by abdominal distention (97%). 92% of the patients complained of not passing flatus-motion and vomiting was complained by 28% patients. History of fever given by 14% patients.

Tenderness was present in all the patients(100%). Guarding seen in 97% patients whereas rigidity was present in 76% patients. 41% of all the patients attended the hospital after 72 hours of onset of symptoms, while 37% patients came within 24-48 hours of onset of symptoms. only 8% patient came within 24 hours of onset of symptoms.

94% patient had pneumoperitoneum in erect abdominal x-ray. while 6% did not had free gas under right dome of diaphragm.

43% patients had mild-moderate collection in abdominal cavity as their USG finding. Two patients had ?neoplastic lesion in USG abdomen.

59% patients had sero-purulent peritoneal content. 2% patients had hemorrhagic content and they had history of trauma.

Maximum patients had prepyloric perforation (78%). , followed by gastric wall perforation (15%), duodenal perforation was seen in 6% patients.

46% patients had 0.5cm perforation followed by 38% patients who had 0.5 to 1cm perforation size. Only 4% patients had more than 2 cm perforation size.

62% patients had inflammation as histopathological finding. Neoplasia was found in 3% patients, where one had non-differentiated adenocarcinoma as histological finding, other had

Non-Hodgkins lymphoma and one patient had metastatic adenocarcinoma on histology. 2 patients had nuclear atypia with high N:C ratio on histology. 15% patients had granulation tissue and blood clots on histology report.

On microscopic examination, no growth was found in 51% patients. Whereas 20% patients had commensal growth.19% patients had gram negative bacilli on culture. 8% patients had gram positive organism on culture.

For the treatment, 76% patients underwent primary repair with omentopexy, 13% patients had primary repair. Omentopexy was done in 9% patients. One patient undergone primary repair of perforation with gastrojejunostomy and jejuno-jejunostomy.

Gastric wall perforation was seen twice more common in males than females. Duodenal perforation was found to be 5 times more common in males. Prepyloric perforation was 5-6 times more common in males.

DISCUSSION

1.In the study conducted by Mathur PN etal 2017(14), pain was most common presentation seen in 97.3% patients followed by abdominal distention found in 83% patients. Vomiting presented in 71%, constipation was seen in 50% while fever was present in 17% patients and in the present study also we found that abdominal pain was most common presentation seen in all the patients followed by abdominal distention in 96.9%. 91.8% patients complained of not passing flatus- motion. Vomiting was seen in 27.8% patients while fever was present in 14.4% patients.

2.In the present study we found that inflammation was most common histological finding seen in 62% patients . Neoplasia was found in more than 3% patients, one had non-differentiated adenocarcinoma as histological finding, other had Non-Hodgkins lymphoma and one patient had metastatic adenocarcinoma on histology. 2 patients had nuclear atypia with high N:C ratio on histology. 15% patients had granulation tissue , fibrocollagenous tissue and blood clots on histology report. Similarly in study conducted by Koto K etal 2016 (13), all the sample had inflammation on histology. While in study conducted by Mahim koshariya etal,2018 (15), malignancy found in one out of 119 subjects i.e <1% patients.

3.In the study conducted by Kumar S etal 2004 (11), none of the culture was positive for H.Pylori , similarly in our study H.Pylori was not detected in any of the sample but in study conducted by Tayal R etal 2015 (12), 18.6% samples were positive for H.Pylori.

4.In the present study19.6% cases show Gram negative bacilli on culture, few were salmonella, E.coli, Klebsiella . 8.2% cases detected Gram positive organism on culture, whereas 20.6% samples reported commensal on culture.

CONCLUSION

In this study 97 patients were included who were diagnosed, admitted and operated for peptic ulcer perforation under surgery department of Dr.B.R.M.H, Raipur during April 2018 toAugust 2019.This patients were evaluated for the clinical features, histopathological and microbiological features of peptic ulcer perforation.

Most common presenting symptom was abdominal pain seen in 100% patients. Tenderness was present in all the patients, while guarding was seen in 96.9% cases.

Inflammation was the most common histopathological finding seen in 62% patients. 3 patients had malignancy ,while 2 had nuclear atypia reported in HPE.

Significant correlation was found between history of dyspepsia and neoplasia.(p=0.02)(Fischer's test)

All cases of neoplasia was seen in males, most commonly inbetween age group of 40-50yr.

None of the culture reported positive for H.pylori, while Gram negative bacilli was reported in 19.6% cases. Gram positive

organisms were seen in 8-2%.

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