

Experiences with Peptic Perforations in the Era of PPI: A Tertiary Care Centre Institutional Study

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Abstract

Background: Gastrointestinal perforation is a common abdominal emergency having a high morbidity and mortality [1]. Surgery plays an important role in the management of hollow viscus perforation. Peptic viscus perforation is one of the most common causes of acute abdomen. Evaluating patients who have hollow viscus perforation remains one of the most challenging and resource-intensive aspects of acute surgical care. **Aim:** To discuss the surgical management in regard with 26 cases of peptic perforation. **Methods:** A retrospective analysis of 26 cases that underwent exploratory laparotomy for an indication of hollow viscus perforation in the period between June, 2015 and December, 2017. **Results:** Of the 26 cases that were included in the study it has been observed that the median age of patients has been 46.8 years and 22 (84.6%) were male and 4 (15.4%) were female. 23 (88.4%) cases were managed successfully and had recovered while 3 (11.6%) case expired. **Conclusion:** The analysis of patient data reveals that early attention and prompt management of a patient presenting with hollow viscus perforation can significantly improve chances of survival.

Keywords: Omental Patch; Peptic Perforation; Laparotomy.

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Introduction

Acute abdomen is a challenging condition in emergency surgical services which if not treated properly may lead to significant morbidity and sometimes mortality. Missed diagnosis and late intervention are frequent causes of increased morbidity and mortality especially in patients who survive the initial phase of insult [1,2].

GI perforation constitutes the third most common cause for explorative laparotomy as an emergency [3]. Main aims of treatment to minimize the peritoneal contamination and treat the underlying cause [4]. Surgery plays an important role in the management of perforation. Mortality of secondary peritonitis was as high as 90% in the early 20th century and is still 30-50% despite advances in antibiotics, surgical technique, radiographic imaging, and resuscitation therapy [5].

India being a developing country poses a threatening situation where patients do not always possess resources and awareness to present early to a specialty level care centre and the process is further hindered by local quacks and religious healers.

Physical examination findings are sometimes unreliable for several reasons. Successful treatment requires a thorough understanding of anatomy, microbiology, pathophysiology of the disease process and in-depth knowledge of the therapy, including resuscitation, antibiotics, source control, and physiologic support [6].

This clinical study was undertaken to find the incidence and etiological factors, clinical features and management of different types of perforations.

Methods

This case study comprises a retrospective analysis of 26 cases that underwent emergency laparotomy for hollow viscus perforation in the period between June, 2015 and December, 2017. The patients with history of trauma were not included in the study. There was no age limitation to the cases selected. All cases underwent investigations and were handled by a team comprising of a consultant level surgeon, anesthetist and radiologist. Initial resuscitation and fluid management was carried out in all cases. Patient’s blood samples were sent upon admission for blood grouping and hemoglobin estimation. The patients were managed for a time period seen fit in an ICU after the procedure and were evaluated over a 30 day postoperative period or discharge, whichever was earliest and were thus categorized into three patient outcome groups as Recovered (R), Recovered with complication (RC) and death (D).

Results

The ages of the patients included in the study were as follows:

Table 1: Showing the age distribution amongst cases included in the study

Age Range	Number	Percentage
0-9 years	0	0%
10-19 years	0	0%
20-29 years	3	11.6%
30-39 years	4	15.4%
40-49 years	8	30.8%
50-59 years	5	19.2%
60-69 years	2	7.7%
70-79 years	3	11.6%
80-89 years	1	3.8%
total	26	100%

22 (84.6 %) of the 26 cases included in the study were male patients and 4 (15.4%) cases were females. 16 (61.5 %) cases of the 26 arrived to the hospital within 24 hours of onset and 4 (15.4 %) arrived between 24 and 48 hours and 6 (23.1 %) cases arrived after 48 hours since onset (Table 2).

14 (53.8%) of the patients had a history of peptic ulcer disease with use of PPIs. All 26 (100%) of the patients had a presenting complaint of pain abdomen. 15 (65.2%) had a complaint of distention. 5 (21.7%) of patients had fever on presentation. 6 (26%) had nausea on arrival. 1 (4.3%) had constipation as a presenting feature and 22 (95.7%) patients could recall a history of trauma (Table 3).

10 (38.4%) of patients had tachycardia (>90) on initial examination.

1 (3.8%) patient was hypotension on admission with a systolic BP recorded below 90 mm Hg. 7 (27%) patients were found to have tachypnea (>20) on admission. 24 (92.3%) patients were found to be febrile on admission. On examination of the abdomen of patients the following signs were elicited (Fig. 1).

Table 2: Showing the time of arrival of various patients

Time of arrival	Number	Percentage %
<24 hours	16	61.5
24-48 hours	4	15.4
>48 hours	6	23.1
total	26	100

Table 3: Showing presenting features amongst the patients that underwent emergency laparotomy

Presenting feature	Number	Percentage
Pain	26	100
Distention	25	96.1
Fever	23	88.4

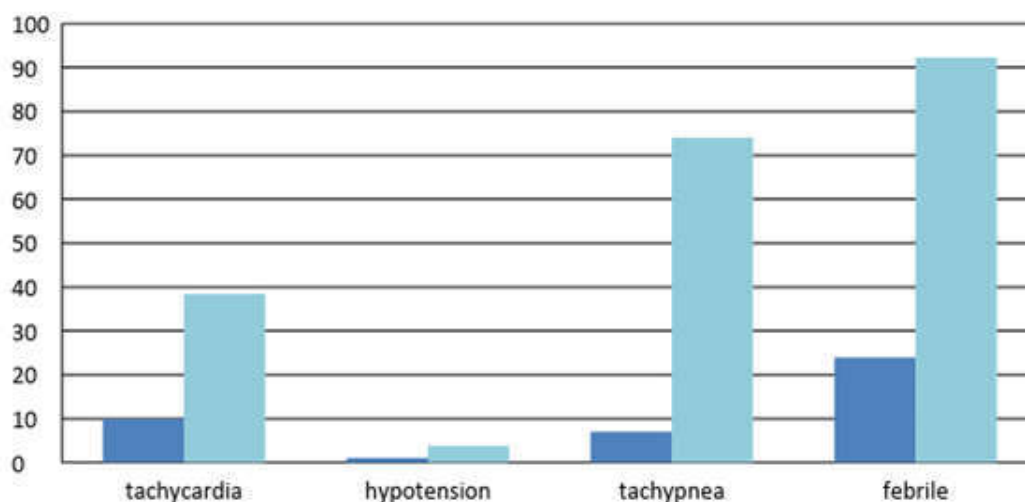


Fig. 1: Vital signs on examination of the patients on admission

Tenderness was seen in 25 (96.1%) of the cases whereas distention was seen in 24 (92.3%) cases. Guarding and rigidity were seen in 5 (96.1%) cases (Table 4).

Renal function tests were deranged in 3 (11.5%) patient and electrolyte disturbance was seen in 2 (7.6%) patient.

X-Ray abdomen erect was sufficient in reaching a diagnosis in 25 (96.1%) whereas CT was necessary in 1 (3.9%) patient. TLC count was elevated (>12000/mm³) in 25 (96.1%) cases.

Ten (38.4%) cases had comorbidities along with the presenting complaints. Of these comorbidities hypertension was seen in 3 (11.5%) cases. Type 2 Diabetes was seen in 9 (34.6%) cases and TB was seen in 1 (3.8%) case.

Five (19.2%) cases were found to be anemic with Hb< 10g/dl and 2 (7.6%) cases were found to have hypoproteinemia (<3.5g/dl).

Fifteen (57.6%) cases were shifted to operating room within 6 hours after their arrival for definitive management. In 11 (42.4%) cases it took between 6 and 24 hours to shift the patient into the operating room (Table 5).

Table 4: Showing different signs elicited in patients admitted for emergency laparotomy

Sign	Number	Percentage
Tenderness	25	96.1
Distention	24	92.3
Guarding	25	96.1
Rigidity	25	96.1

Table 5: Time taken to shift patients to the operating room after arrival.

Time to OT	Number	Percentage
<6 hours	15	57.6
6-24 hours	11	42.4

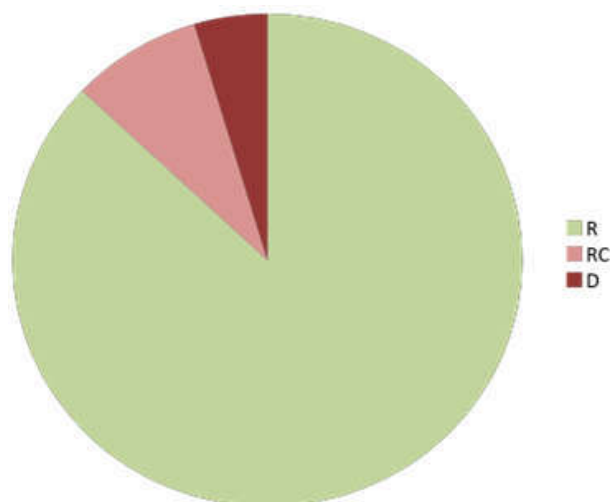


Fig. 2:

In 24 (92.3%) cases the perforation was in the duodenum and in 2 (7.7%) cases the perforation was located in the gastric antrum.

In the following post operative period it was seen that 2(7.7%) patient recovered with complications and 3 (11.6%) expired whereas 21 (80.7%) patients made a complete recovery. (Figure 2).

Discussion

Perforated peptic ulcer is a surgical emergency with acute abdomen. *Helicobacter pylori*, NSAIDs and smoking are confirmed risk factors for ulcers, but the pathogenesis that leads to perforation is not well understood [1,2].

All cases included in the study were received by the casualty emergency response team and were adequately resuscitated. Case management and decision making was under the guidance of a team of consultant surgeons, anesthetists and radiologists.

Most of the patients in the study group belonged to the age of 40-49 years (30.8%) kuldip et al in the article reported that Peptic ulcer perforation in present scenario is a disease of relatively younger age group. Rural background, poor socioeconomic status and occupation like farmer and labourer seem to contribute to causation of peptic ulcer perforation [7].

The event seems to occur more in males (84.6%) according to this study. Being a painful condition it is seen that majority of these patients have arrived to the hospital within 48 hours of the onset of symptoms except in 6 (23.1%) patients. The 3 patients that died had a very delayed presentation the hospital at 5,8 and 10 days after the onset of initial complaint.

Of these patients about half (53.8%) had a history of peptic ulcer disease with use of PPIs. This signifies the prevalence of silent peptic ulceration. Biopsy taken from the ulcer edge in all cases has not revealed any perforation due to a malignant etiology in our study group.

Pain was the most constant complaint (100%) for which the patients presented to the hospital with distention only one case short (96.1%). Almost all patients were febrile (92.3%) on presentation and the signs of peritonitis were only absent in 1 case (96.1%).

X-Ray was sufficient to detect perforation in virtually all cases (96.1%) taking free air under the right hemidiaphragm as diagnostic. demonstration of ‘free air’ on radiological examination is highly indicative of a perforated viscus organ. An erect chest x-ray or an upright abdominal x-ray is easy, cheap and quick to perform and may be diagnostic. However, sensitivity is only 75% and it may not reveal the exact cause of pneumoperitoneum [7,8,9].

Ten cases (38.4%) had comorbidities and all 3 patients that expired also had comorbid association being diabetes. Renal function tests were deranged in 3 patients and it was significantly noted that all 3 patients expired. TLC was seen to be elevated in almost all cases and hence could not serve as a prognostic indicator.

All cases that expired were associated with anemia and 2 (66.6%) of the cases that expired had hypoproteinemia. 10 (38.4%) cases had comorbidities along with the presenting complaints. Of these comorbidities hypertension was seen in 3 (11.5%) cases. Type 2 Diabetes was seen in 9 (34.6%) cases and TB was seen in 1 (3.8%) case. The frequent comorbidities reported in the literature are pulmonary disease, hypertension, and diabetes mellitus. are found to be important prognostic factors in our study. In our patients, comorbidities also had a significant effect on mortality, which is in agreement with other studies [10,11,12].

All cases were operated within 24 hours of arrival to the hospital.

It was noted that 92.3 % of the perforations were duodenal and all were confined to the D1 region while only 2 (7.7%) of the cases in our experience were in the gastric antrum. Omental patch closure with 2-0 vicryl was performed in all cases along with peritoneal lavage and drain placement. 2 cases had postoperative complications in the form of wound infection and biliary leak and necessity for relaparotomy. Age greater than 60 years, tachycardia, hypotension, anemia and hypoproteinemia, size of perforation greater than 5 mm were identified as risk factors for leak. Serum albumin, hemoglobin and size of perforation were independent risk factors for prediction of leak on multivariate analysis [13,14]. In our case both the case were having large perforation with hypotension and anemia.. Postoperatively both the case were on ventilator support for 48 hrs

Renal function tests were deranged in 3 patients and it was significantly noted that all 3 patients expired. All cases that expired were associated with anemia and 2 (66.6%) of the cases that expired had hypoproteinemia. Leak was found to be a significant cause of death in patients with perforated duodenal ulcer. 2 cases of leak in our study was expired [13,14].

Mean hospital stay of the patients was 8.2 days. The mortality rate of the study was 11.5%.

Conclusion

Although the treatment of peptic ulcer disease has improved in the generation of PPIs, yet its complications are still evident to us in clinical practice. A major share of emergency operations comprise of peptic ulcer

perforations. Management requires skilled surgeons as well as an expert team approach. However, in almost all cases pain was the commonest feature. Though surgical strategy was different the basic principle of management was same in all sorts. Outcome was also different depending upon the underlying causes. Furthermore, interval between time of perforation and time of operation is the key factor for their management, irrespective of type of perforation and it is directly proportional to morbidity and mortality.

References

1. Langell JT, Mulvihill SJ. Gastrointestinal perforation and the acute abdomen. *Med Clin N Am.* 2008;92:599-625.
2. Dhikav V, Singh S, Pande S, Chawla A, Anand KS. Non-steroidal drug-induced gastrointestinal toxicity: Mechanisms and management. *JACM* 2003;4:315-22.
3. Kellog LC. A treatise on peptic perforations. *Surgery* 1939;6:524-30.
4. Donovan AJ, Berne TV, Donovan JA. Perforated duodenal ulcer: An alternative therapeutic plan. *Arch Surg.* 1998;133:1166-71.
5. Arveen SI, Jagdish S, Kadambari D. Perforated peptic ulcer in South India: an institutional perspective. *World J Surg.* 2009 Aug;33(8):1600-4. doi: 10.1007/s00268-009-0056-9.
6. Prof. Kjetil Søreide, Mr. Kenneth Thorsen, Mr. Ewen M. Harrison, Prof. Juliane Bingener, Mr. Morten H. Møller, Prof. Michael Ohene-Yeboah, and Prof. Jon Arne Søreide. Perforated peptic ulcer. *Lancet.* 2015 Sep 26;386(10000):1288-98. doi:10.1016/S0140-6736(15)00276.
7. Kuldeep M, Barkesiy B.L, Barolia D, Kuldeep P. A prospective study of clinical profile, management and outcome of surgical treatment of perforated peptic ulcer in northern India: A tertiary hospital experience. *Int J Med Res Rev* 2015;3(10):1140-1145. doi: 10.17511/ijmrr.2015.i10.206.
8. Chalya PL, Mabula JB, Koy M, McHembe MD, Jaka HM, Kabangila R, et al. Clinical profile and outcome of surgical treatment of perforated peptic ulcers in Northwestern Tanzania: a tertiary hospital experience. *World J Emerg Surg.* 2011;6:31. [PMC free article][PubMed].
9. Geeta Sabhnani, Akula Nyna Sindhu. Peptic ulcer perforation in young Indians the causation and the trend. *International Surgery Journal.* *Int Surg J.* 2018 Jan;5(1):200-204.
10. Mutlu Unver et al. Prognostic Factors in Peptic Ulcer Perforations: A Retrospective 14-Year Study. *Int Surg.* 2015 May; 100(5): 942-948. doi: 10.9738/INTSURG-D-14-00187.1
11. Buck DL, Vester-Andersen M, Moller MH. Surgical delay is a critical determinant of survival in perforated peptic ulcer. *Br J Surg.* 2013;100(8):1045-9. [PubMed].
12. Al-Temimi MH, Griffie M, Enniss TM, Preston R, Vargo D, Overton S et al. When is death inevitable after emergency

- laparotomy? Analysis of the American College of Surgeons National Surgical Quality Improvement Program database. *J Am Coll Surg* 2012; 215:503-11.
13. Surapaneni S, SR, Reddy AV. The Perforation-Operation time Interval; An Important Mortality Indicator in Peptic Ulcer Perforation. *J Clin Diagn Res.* 2013;7(5):880-2. [PMC free article] [PubMed].
14. Kumar K, Pai D, Srinivasan K, Jagdish S, Ananthakrishnan N. Factors contributing to leakage after surgical closure of perforated duodenal ulcer by Graham's Patch. *Trop Gastroenterol.* 2002;23(4):190-192. [PubMed].
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