

A Retrospective Study of Perforated Peptic Ulcer: A Surgical Emergency

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Abstract:

Introduction: Duodenal perforation is a most commonly encountered surgical emergency. Usually seen secondary to duodenal ulcer it causes leak of bile juice acid peptic juice and pancreatic juice into the general peritoneal cavity which causes peritoneal irritation followed by increased peritoneal fluid secretion which leads to easy invasion by bacteria leading to peritonitis within 12 hours of perforation¹.

Materials and methods: This is a retrospective study of patients who were diagnosed, managed and operated for perforated peptic ulcer at Saptagiri Institute of Medical Sciences and Research Center, Hesarghatta main road, Chikkasandra, Bangalore, India from January 2017 to December 2017. Data of 300 patients were collected from case records using a standard proforma and their risk factors, post-operative progress and outcome were analysed.

Results: In our study of 300 cases, patients between ages of 30-50 years (72%) were commonly affected and there was male predominance (83%). Smoking, alcohol consumption and improper treatment for peptic ulcer were major risk factors. The significantly related complications were due to co-morbid illness, age and delayed presentation for treatment.

Conclusion: Perforation of peptic ulcer is frequent surgical emergency and requires awareness and prompt management and operation. It mostly affects young and middle aged males in their productive age. Most of the times there are no alarming signs before actual ailment, but seeking proper medical help in time results in favorable results. Simple closure with omental patches i.e. omentopexy give excellent results. Patient should be prescribed treatment for *Helicobacter pylori* and PPI. They should be advised to avoid the common risk factors like too much spicy food, smoking, excess alcohol use, and indiscriminate use of NSAIDs and should seek proper medical advice in time.

Key words: peptic ulcer, Duodenal perforation, NSAIDS, *Helicobacter pylori*.

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I. Introduction

Duodenal perforation is a most commonly encountered surgical emergency. Usually seen secondary to duodenal ulcer it causes leak of bile juice acid peptic juice and pancreatic juice into the general peritoneal cavity which causes peritoneal irritation followed by increased peritoneal fluid secretion which leads to easy invasion by bacteria leading to peritonitis within 12 hours of perforation¹.

Ulcer perforation was a rare disease in the nineteenth century; however its incidence increased greatly at the turn of the twentieth century. Since then, the world has seen an epidemic of duodenal perforations among young men which now seems to be waning^{2,4}. The incidence of perforated peptic ulcer in Western countries varies between 7 to 9 cases per 100,000 populations per year⁵. Following the introduction of H₂-Receptor blockers and proton pump inhibitors, there has been a sharp decrease in elective peptic ulcer surgery. However, emergency operations for complications such as perforations are on the rise^{6,7}. However on contradictory to our study an epidemiological change with increase in age and increase in the number of female patients has been noted⁸. Free perforation into the general peritoneal cavity can be a catastrophic event, the signs and symptoms of which do not usually cause problems in diagnosis⁹. Once the diagnosis of perforation has been made, it is generally agreed that emergency surgery should be performed as soon as the patient has been adequately resuscitated¹⁰. Accepted therapeutic options are either simple closure or immediate definitive operation. Conservative treatment, originally proposed by Wangenstein, is reserved for patients considered to be too ill to stand the stress of surgery⁴. Simple closure of a perforated peptic ulcer is a standard operation at many centers as a quick straightforward procedure but might involve significant risk of later complications for recurrences¹¹. Duodenal ulcer perforation is a common surgical emergency in our department, however most of the patients

present late (usually after 2-3 days) because of illiteracy, poverty and ignorance. Hence it becomes important to determine the epidemiology and define the morbidity and mortality factors with respect to duodenal perforation.

II. Materials And Methods

All patients were studied, who were diagnosed and operated for PPU in our institute, Saptagiri Institute of Medical Sciences and Research Center, Bangalore, Karnataka, India. The details of patients who presented from January 2017 to December 2017 were retrieved retrospectively from medical record department and operation theater records. Case history and detailed clinical examination of patients were evaluated. Investigations viz. blood CBC, RBS, serum urea, creatinine, BT, CT, Electrolytes, HbsAg, HIV, urinalysis, ECG, X-ray chest P.A. view and X-ray flat plate abdomen in erect posture were carried out. In some cases -119, USG was also done, but it was not a mandatory practice. Diagnosis of PPU was made from history, clinical examination, abdominal distension, upper abdominal tenderness, rigidity and obliteration of liver dullness. Signs of peritonitis noted. Radiological investigation viz. X-ray chest and X-ray abdomen in erect posture showing free gas under the dome of diaphragm, more obviously on right side clinched the diagnosis. After admission in surgical ward or in surgical intensive care unit as per patient's general condition, all the patients were resuscitated by continuous nasogastric suction (rules tube suction), intravenous fluids, intravenous broad spectrum antibiotics, metronidazole and proton pump inhibitors. Adequate hydration achieved with urine output 30-40 ml/hour. After adequate resuscitation, laparotomy under endotracheal general anaesthesia was performed through midline incision, mostly supraumbilical. Perforation was identified, noted the site viz. gastric, prepyloric or duodenal with its size.

Simple closure of perforation with commonly 3 sutures with nonabsorbable silk suture was done and reinforcement with free or pedicle omental patch (Graham's omentopexy). In larger perforation (more than 1 cm. size), omental plugging was done. Thorough peritoneal lavage was done with 3-4 liters normal saline and removal of all food debris and easily removable flakes. In most of the cases mostly two abdominal drains were put, one sub hepatic and other in pelvis, but at times only one drain was put in pelvis. In 4 patients, only drains were put as they were in severe shock. Conservative management was advocated by Taylor in 1946, but it is not generally accepted.⁸

No patient was treated by definitive surgery for peptic ulcer by truncal vagotomy and drainage procedure or gastric resection. Almost all operations were performed by consultant faculty members. In 6 patients, the surgery was performed laparoscopically, as all surgeons are not well versed with laparoscopic procedure and in emergency it was not routinely done. Data were analysed using a questionnaire proforma, including patient's demographic details (age, sex), rural or urban, associated premorbid illness, previous history of PUD and faulty treatment, use of NSAID, cortisone and, alcohol use, smoking (bidi or cigarette) time between onset of symptoms and surgery, site of perforation, type of surgical procedure, postoperative complications and mortality.

III. Results

Gender	Number	Percentage
Male	202	67.33
Female	98	32.66

Table 1: Gender wise incidence (N=300)

Age in years	Number of patients	Percentage
20-30	39	13
31-50	197	65.66
51-70	48	16
More than 70	16	5.33

Table 2: Age Wise Distribution

Site of Perforation	Number	Percentage
Duodnum	243	91.95
Prepyloric	19	5

Gastric (lesser curatives)	11	2.95
Size of perforation	Number	Percentage
<1 cm	252	94
>1 cm	21	6
Surgical Procedure (N:173)		
Simple closure with graham's patch open (ometopexy)		148
Laparoscopice		6
Omental plugging		15
Simple abdominal drainage		4

Table 3: Site of perforation

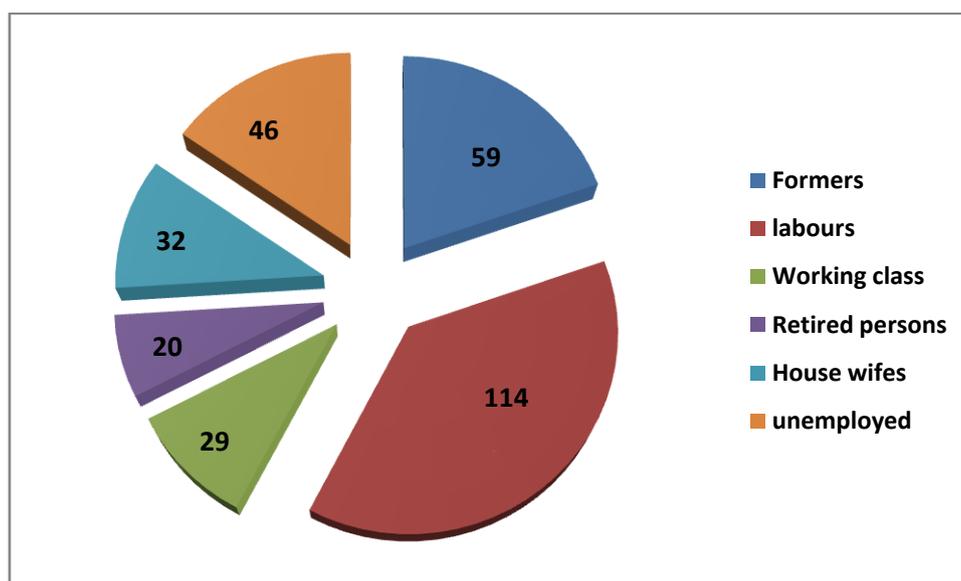


Figure 1: Occupation's frequency

Complications	Frequency	Percentage
Surgical site infection	112	37.33
Pulumonary infection	12	4
Reactionary pleural effusion	45	15
Wound detri scence requiring secondary suturing	17	5.66
Acute renal failure	4	1.33
Managed in SICU	67	22.33
Re - perforation	4	1.33
Jaundice	2	0.66
Cardio pulmonary arrest-mortality	16	5.33

Table 4: Complications (N=300)

IV. Discussion

In this retrospective study of 300 patients over a period of 1 year. As PUD and PPU is quite frequent in our part of state, may be because of spicy foods, smoking, alcohol use, irregular and inadequate treatment for PUD and most of patients were from rural areas where ill literacy is still prevalent and proper medical facility is

lacking. In our study PPU was more found in middle age group, from 30-50 years age and also mostly the patients were male, as was observed in other studies also.

Male predominance may be attributed to use of alcohol and smoking. NSAIDs also play an important role, in elderly patients in particular. It may be because of frequent and indiscriminate use for pains. NSAIDs inhibit prostaglandin synthesis which reduces gastric mucosal blood flow.¹⁹ Preoperative *H. pylori* determination was not done, because of emergency nature of disease, but all patients were discharged with treatment regimen for 14 days for *H. pylori* and then continuous use of PPI for another three months. In many cases post-operative endoscopy was performed on follow-up. Only 21% patients gave history of previously diagnosed PUD, but about 50% had history of occasional epigastric pain and dyspepsia. These patients were on irregular and inadequate treatment. Patients with no particular history of PUD are more likely to have PPU, as they take no treatment and dietary precautions.

Most of the patients present late for treatment, after more than 24 hours. This may be attributed to lack of awareness of the disease, patients take some medication for pain locally at home and continues to eat and also the clinicians they consult at smaller places may not had suspected perforation. They only reach to higher centers when the pain becomes unbearable.

V. Conclusion

Perforation of peptic ulcer is frequent surgical emergency and requires awareness and prompt management and operation. It mostly affects young and middle aged males in their productive age. Most of the times there are no alarming signs before actual ailment, but seeking proper medical help in time results in favorable results. Simple closure with omental patches i.e. omentopexy give excellent results. Patient should be prescribed treatment for *Helicobacter pylori* and PPI. They should be advised to avoid the common risk factors like too much spicy food, smoking, excess alcohol use, and indiscriminate use of NSAIDs and should seek proper medical advice in time.

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