

Clinical Study on Patients with Duodenal Perforation

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Abstract

Background: Perforations of peptic ulcer are third in frequencies, acute appendicitis and acute intestinal obstruction being more common. Prompt recognition of the condition is very important and only by early diagnosis and treatment it is possible to reduce the still relatively high mortality. The aim of this study was to review and study the factors influencing, the outcome of the duodenal perforations. **Subjects and Methods:** A clinical study was conducted in 50 cases of diagnosed duodenal ulcer perforation that was established by the admitting surgeon, based on clinical features and supposed by radiological evidence and confined at operation. This study comprises of 50 cases of duodenal ulcer perforation admitted in period from January 2017 to January 2020. **Results:** In present study, out of total 50 patients with duodenal ulcer 46(92%) males and 5(8%) females, with male predominance. Highest incidence was found between 41-50 years followed by 21-29 years. Most of the patients admitted by 12-24 hours, common site of ulcer is prepyloric in presentation. Duodenal ulcer perforations were single perforation, while two cases of ileal perforations were multiple. Smoking is main predisposing cause of ulcer. ARDS were 14% (7 patients) and it was observed that 32 percent (16 patients) having wound complication, 2 percent (1 patient) having mortality and 46% (23 patients) have no complications. In this present study, 60% of patients had h/o Peptic ulcer. On X- ray, 90% of patients had finding of air under diaphragm. **Conclusion:** The mortality in perforated duodenal ulcer has been reduced owing to early approach to hospital, diagnosis, prompt surgical treatment and appropriate and adequate antibiotics. Smoking and alcohol consumption and life style modification may reduce morbidity and mortality in patients with duodenal perforation.

Keywords: Serum CRP, Serum PCT, post operative Infection, Hepato-biliary surgery

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Received: 06 January 2020

Revised: 11 February 2020

Accepted: 15 February 2020

Published: 26 May 2020

Introduction

Ulcer when found in the upper part of your small intestine, they are called duodenal ulcers. Some people aren't even aware they have an ulcer. Others have symptoms like heartburn and abdominal pain. Ulcers can become very dangerous if they perforate the gut or bleed heavily (also known as a hemorrhage). Duodenal ulcers occur due to an imbalance between gastroduodenal mucosal defense mechanisms and the damaging forces, particularly gastric acid and pepsin. Hyperacidity is not a prerequisite for duodenal ulcers. Failure of mucosal defenses against gastric acid and pepsin results in ulceration.^[1]

Perforated duodenal ulcer, the most catastrophic complication was Associated with high mortality in the past due to late presentation of the patients, delay in surgery and lack of antibiotics. Various authors state that the incidence of peptic ulcer disease and perforation has been declining for the past

3 decades. Because of advances in the medical therapy of peptic ulcer with a wide range of drugs the management of peptic ulcer disease has been changing and the role of surgery has been declining. Perforation is usually seen in 3rd and 4th decades with a male preponderance and the epidemiological trend is not the same worldwide. Incidence is slightly declining in western countries. Increasing age among ulcer perforation patients has been observed during this time span, with declining incidence among the young and increasing incidence among the elderly. Most of this temporal variation could be attributed to changing rates of duodenal ulcer in men, whereas rates of gastric ulcer perforation appears to have been fairly stable. The aim of this study was to review and study the factors influencing, the outcome of the duodenal perforations.

Subjects and Methods

A clinical study was conducted in the Department of Surgery, Tertiary care Hospital. The diagnosis of duodenal ulcer perforation that was established by the admitting surgeon, based on clinical features and supposed by radiological evidence and confined at operation. This study comprises of 50 cases of duodenal ulcer perforation admitted from January 2017 to January 2020 for a period of 3 years.

Clinical history, clinical examination, diagnostic and therapeutic, biochemical investigations and diagnostic imaging. The data will be entered into a proforma which also includes the demographic data, therapeutic interventions and course in hospitalisation. A study of clinical features, investigations, operative procedures performed, postoperative morbidity and mortality and outcome was done. The above 500 cases of study were admitted as emergencies after which a detailed history was taken once the patients were stable. In critically ill patients, stabilisation was done first and history was taken later.

Clinical history regarding fever, pain, vomiting, abdominal distension, constipation and treatment prior to admission were taken. Vital signs, hydration, abdominal distension, tenderness, guarding and presence of free air were noted. Systemic examination was done. All basic investigations were done with preoperative fluid resuscitation, electrolyte and antibiotic cover were given. Following procedures were done, omental patch closure, simple two layered closure, resection and anastomosis and bilateral flank drain

Operative details included the site and nature of operation performed. Post-operative morbidity was defined in terms of duration of hospital stay and associated complications following surgery.

Results

In present study constitute 46 (92%) males and 5 (8%) females with male predominance.

Among 50 patients highest incidence was found between 41-50 years followed by 21-29 years.

Most of the patients admitted by 12-24 hours, common site of ulcer is prepyloric in presentation. Duodenal ulcer perforations were single perforation, while two cases of ileal perforations were multiple. Smoking is main predisposing cause of ulcer complications caused due to ARDS were 14% (7 patients) and it was observed that 32 percent (16 patients) having wound complication, 2 percent (1 patient) having mortality and 46% (23 patients) have no complications

In this present study, 60% of patients had h/o Peptic ulcer. On X- ray, 90% of patients had finding of air under diaphragm.

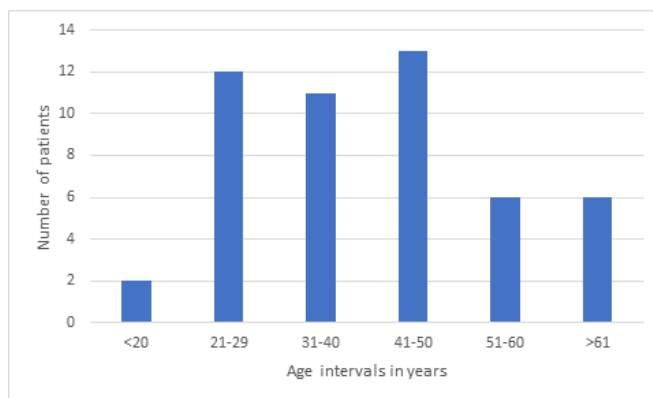


Figure 1: Age distribution in present study

Table 1: Details noted in patients with duodenal ulcer

Time Intervals	Number of Patients	Percentage
< 12 hrs	10	20
12 to 24 hrs	17	34
24 to 48 hrs	8	16
> 48 hrs	15	30
Site of Perforation		
Pre Pyloric	30	60
Antrum	15	30
Body	3	6
Body - through and through	2	4
Number of perforations		
Single	48	96
Multiple	2	4
Pre disposing factors		
Smoking	31	62
Alcohol	28	56
NSAIDS	20	40

Table 2: History of ulcers with perforated and air under diaphragm in patients

History of perforated ulcer	Number of cases	Percentages
Present	30	60
Absent	20	40
Air under diaphragm		
Air present	45	90
Air absent	5	10

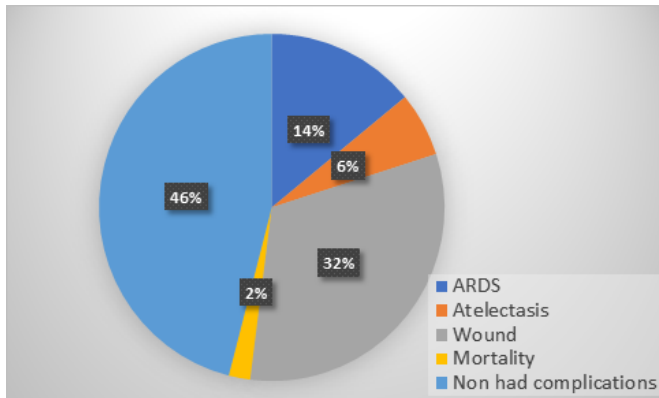


Figure 2: Duodenal Complications in present study

Discussion

Duodenal ulcer is a type of peptic ulcer disease that distresses the lining of the duodenum. Duodenal ulcer disease (PUD) represents a worldwide health problem because of its high morbidity, mortality and economic loss. Globally, the incidence of peptic ulcer disease has fallen in recent years. Despite this and recent advances in both diagnosis and management of peptic ulcer disease, namely the improvement in endoscopic facilities, eradication of *H. pylori* and the introduction of the proton pump inhibitors, complications such as peptic ulcer perforation remain a substantial healthcare problem.

This may be due to an increase in the risk factors for peptic ulcer complications. Peptic ulcer perforation is a serious complication which affects almost 2-10% of peptic ulcer patients on the average.^[2-5] Peptic ulcer perforation presents with an overall mortality of 10% although some authors report ranges between 1.3% and 20%. Being a life threatening complication of peptic ulcer disease, it needs special attention with prompt resuscitation and appropriate surgical management if morbidity and mortality are to be avoided. The pattern of perforated PUD has been reported to vary from one geographical area to another depending on the prevailing socio-demographic and environmental factors. In the developing world, the patient population is young with male predominance, patients present late, and there is a strong association with smoking. In the west, the patients tend to be elderly and there is a high incidence of ulcerogenic drug ingestion.

In present study constitute 46(92%) males and 5(8%) females with male predominance. Our study found male predominance for perforated duodenal ulcers which correlates to the reported observation. The very low incidence of female patients with duodenal ulcer perforation in comparison to male incidence may be due to great difference in habits, social, economical

and cultural activities.

Among 50 patients highest incidence was found between 41-50 years followed by 21-29 years which correlates with other studies in [Table 3].

Most of the patients admitted by 12-24 hours, common site of ulcer is prepyloric in presentation. Duodenal ulcer perforations were single perforation, while two cases of ileal perforations were multiple. Smoking is main predisposing cause of ulcer. Smitha S Sharma et al (2006),^[5] in the study of peptic ulcer perforation found an association of smoking and peptic ulcer perforation in 28 percent of patients, while 72 percent of patients were nonsmokers. ABMA Hannan et al,^[7] showed that 13 percent of patients had NSAIDS used, whereas 87 percent were not taking NSAIDS. Phillip L Chalya et al,^[8] in their study of peptic ulcer perforation, 64 percent of patients were smokers and 36 percent were nonsmokers. 85 percent of patients were alcoholic and 15 percent were nonalcoholic. 10 percent of patients had history of NSAIDS used and 90 percent not used.

In our study complications caused due to ARDS were 14% (7 patients) and it was observed that 32 percent (16 patients) having wound complication, 2 percent (1 patient) having mortality and 46% (23 patients) have no complications. High complications rate was reported by Montalvo-Javé et al.^[9] This difference in complication rates can be explained by differences in antibiotic coverage, meticulous preoperative care and proper resuscitation of the patients before operation, improved anaesthesia and somewhat better hospital environment. In keeping with other studies surgical site infection was the most common complication.^[10-12]

The mortality rate in this study was 2%. Factors such as advanced age, pre operative shock, post operative sepsis and delay in presentation and operation have been identified as risk factors. There is a significant association between age of the patients and outcome. As the age of the patient increases the risk of mortality significantly increases. However the presence of pre operative shock was not found to be significantly associated with mortality. Patients presenting with Preoperative shock can be resuscitated with recent advances in critical care and hence has no significance over outcome of the patient today.^[11]

In this present study, 60% of patients had h/o Peptic ulcer. Malik et al,^[13] in 2009 reported that 42 percent patients had a previous history of peptic ulcer. Phillip L Chalya et al,^[8] reported in their study that 31 percent of patients had previous history of peptic ulcer.

On X-ray, 90% of patients had finding of air under diaphragm. Shaffer et al,^[14] found pneumoperitonium in 70% of the patients with duodenal ulcer where as studied by Noola GS et al,^[15] showed 91.67%

Table 3: Studies in correlation with age association

Study done by	Year	Peak age incidence (years)
Ramesh C et al, [6]	1995	30-50
Hannah et al, [7]	2005	31-40
Kalpesh jani et al, [8]	2006	30-50
Taylor, [9]	2011	>50
Noola GS et al, [10]	2016	40-49
Present study	2020	41-50

Conclusion

Duodenal ulcer perforation is one of the most common acute abdominal emergencies. The mortality in perforated duodenal ulcer has been reduced owing to early approach to hospital, diagnosis, prompt surgical treatment and appropriate and adequate antibiotics. Smoking and alcohol consumption and life style modification may reduce morbidity and mortality in patients with duodenal perforation.

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How to cite this article: Rajan SP, UK S, S, Dinesh Babu MV. Clinical Study on Patients with Duodenal Perforation. *Acad. J Surg.* 2020;3(1):71-74.

DOI: dx.doi.org/10.47008/ajs/2020.3.1.15

Source of Support: Nil, **Conflict of Interest:** None declared.