

Original Research Article

A clinical study of factors affecting the prognosis in duodenal ulcer perforation cases in tertiary care hospital, Kanchipuram district

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ABSTRACT

Background: Peptic ulcer disease is an erosion of the lining of the stomach or duodenum. It is associated with potentially life-threatening complications such as bleeding, perforation and obstruction. The main predisposing factors for peptic ulcer perforation are smoking, use of non-steroidal anti-inflammatory drugs (NSAIDs), chronic stress, *Helicobacter pylori* infection, and age >60 years. In recent years, with introduction of proton pump inhibitors and increased knowledge of duodenal ulcer perforation (DUP) has decreased the incidence of DUP.

Methods: 50 patients with DUP were studied prospectively with respect to age, gender, use of NSAIDs, morbidity, mortality and complications.

Results: Out of 50 patients, the mean age of incidence DUP was 46 yrs, which is more common in males. And also 48% patients were chronic alcoholic and 52% patients were chronic smokers. Moreover, 14% patients were chronic NSAIDs users.

Conclusions: Factors such as age, gender, use of NSAIDs, Alcohol and smoking affects the life expectancy of the patients, which leads to morbidity and mortality.

Keywords: Duodenal ulcer perforation, Peptic ulcer disease, NSAIDs

INTRODUCTION

Peptic ulcer disease (PUD) is an erosion of the lining of the stomach or duodenum. PUD is associated with potentially life-threatening complications, including bleeding, perforation and obstruction.

The first description of a perforated duodenal ulcer was made in 1688 by Muralto and reported by Lenepneau.¹ Perforation is the second most frequent complication after bleeding.²

The main predisposing factors for duodenal ulcer perforation (DUP) are smoking, use of non-steroidal anti-

inflammatory drugs, chronic stress, *Helicobacter pylori* infection and age >60 years.³

In recent years, with introduction of proton pump inhibitors (PPIs) and increased knowledge of DUP, has decreased the incidence of DUP.⁴

But mortality ranges was reported between 1.3% - 20% and morbidity was reported as 20-50% in patients treated surgically for DUP.⁵

In addition, having significant symptoms of DUP makes diagnosis easier. Delayed diagnosis and treatment causes negative results for patients and increases costs.⁶ The

presence of gas under the diaphragm on plain abdominal erect X-ray is diagnostic in 75% of the cases.

In 1894, Dean reported the first successful surgical closure of a perforated duodenal ulcer. Surgery is still the mainstay of treatment for duodenal perforation.⁷

Many perforations are repaired using an omental patch, a technique that was first described by Cellan-Jones in 1929.⁸ And was later modified by Graham in 1937.⁹

The first laparoscopic repair for a perforated duodenal ulcer was reported in 1990.¹⁰ Successful results can be gained by early recognition and early treatment.¹¹

Aim

The aim of the study was to determine the factors affecting the mortality and morbidity of DUPs and to assess the postoperative complications in patients with duodenal ulcer perforation.

METHODS

It is a type of prospective cohort study done in Karpaga Vinayaga Institute of Medical Sciences, Kanchipuram district, Tamil Nadu. During the time period of 2 years (October 2017 to October 2019) and Ethical approval is obtained from my own institution for the study.

Inclusion criteria

Inclusion criteria were patients with duodenal ulcer perforation of age >15 years; patients with duodenal ulcer perforation of peptic ulcer origin.

Exclusion criteria

Exclusion criteria were traumatic duodenal perforation; iatrogenic duodenal perforation; malignant duodenal perforation; paediatric patients of age <14 years presenting as duodenal ulcer perforation; patients presenting as recurrent perforation or stomal ulcer perforation.

The data was entered in excel sheet and was analysed using SPSS version 16. Results were expressed in tables.

Procedure followed

A detailed history of suspected patients of duodenal ulcer perforation regarding age, gender, previous use of NSAIDs, smoking and other associated illnesses was taken.¹²

The diagnosis was made on clinical findings supported by investigations like plain x-ray erect abdomen.¹³ Relevant investigations were performed on the patient.

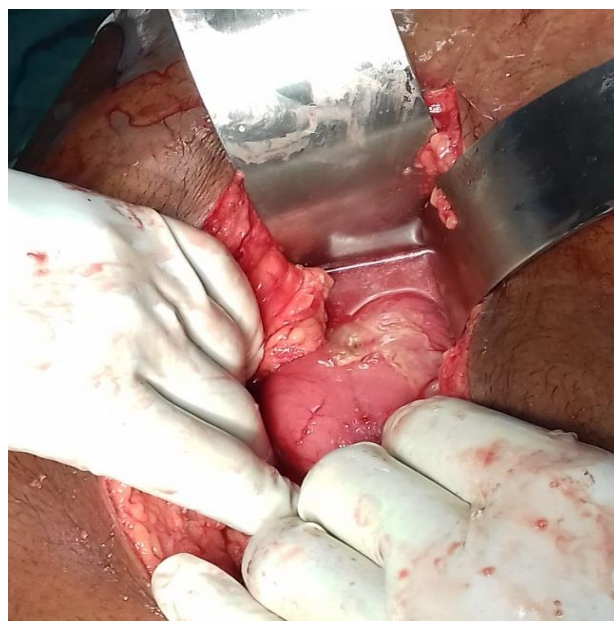


Figure 1: Duodenal ulcer in the first part of the duodenum.



Figure 2: Closed duodenal perforation with Graham's omental patch.⁹

Immediate resuscitation was done with naso gastric suction, intravenous fluids, antibiotics and urine output monitoring.

Patients were followed up every day with continuous bedside monitoring of vital data in the immediate postoperative period. Due attention was paid to note the development of any complication.¹⁴

Suitable and appropriate treatment was instituted from time to time according to the needs of the patients.¹⁵

The postoperative complications like wound infection, wound dehiscence, paralytic ileus, residual abscess, septicemia and multi-organ failure; these factors are also looked to predict prognosis of patients.

After satisfactory improvement, patients were discharged from the hospital with advice regarding diet, anti-ulcer drugs and quitting of smoking or alcohol etc.¹⁶

All the patients were instructed to come for regular follow-up at 1 month, 3 months and 6 months.¹⁷

RESULTS

Out of 50 patients, increase incidence in males (43/50) and females (7/50). Age >60 years, males 16.3% (7/43) and females 14.3% (1/7).

Among 50 patients, 14% use of NSAIDs was reported. Overall smoking was reported in 53% patients. Alcohol intake was noted in 46% patients.

Table 1: Smoking and its complications.

Postoperative complications	%
Morbidity	40
Mortality	4

Table 2: Alcohol intake and its complications.

Postoperative complications	%
Morbidity	9
Mortality	5

Postoperative morbidity was seen in 48.3% of patients and mortality in 5%. Most common postoperative complication was wound infection (36%) followed by wound dehiscence (12%), paralytic ileus (10%) and septicemia (6%).

DISCUSSION

Peptic ulcer disease is a leading cause of duodenal perforation. Acute perforations of the duodenum are estimated to occur in 2-10% of patients with ulcers.¹⁸

DUP is common in second and third decade. In study conducted by Noola et al, the common age group with duodenal perforation was 40-49 years.¹⁹ DUP was common in the age group of 30-50 years with mean age 46 years in this study.

DUP was common in males than females, in the study conducted by Noola et al, with ratio of 19:1. And in the present study the ratio is 7:1.^{19,20}

Abhishek et al, estimated the morbidity range from 13-73% and mortality ranging from 1.9- 40%.²¹ In this study,

smoking as risk factor with morbidity as 40% and mortality 4%.

Initial conservative management consists of nil per os, intravenous fluid therapy, broad-spectrum antibiotics, intravenous PPIs, nasogastric tube insertion and *H. pylori* eradication.²²

The choice of surgical treatment depends on the size and localization of the perforation, the viability of the duodenal walls, the degree of local contamination and underlying etiology.²³

CONCLUSION

In this study, we have proved that factors such as use of NSAID, Alcohol intake and smoking are modifiable risk factors which increases the morbidity and mortality, if lifestyle modifications are advised for such patients, we can reduce both morbidity and mortality.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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