

A RETROSPECTIVE STUDY ON DUODENAL ULCER PERFORATION AND OUTCOME

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ABSTRACT

INTRODUCTION

Duodenal ulcer disease which was once so common 3-4 decades ago has drastically decreased in its incidence due to invent of PPIs and anti H. Pylori therapy. But percentage of patients with complications of duodenal ulcer has not shown a similar decline. In spite of understanding the disease effective resuscitation and prompt surgery there is still High incidence of morbidity and mortality. Hence in this study an attempt is made to analyse the various factors which effect the morbidity, mortality of patients with duodenal ulcer perforation and management of the same.

AIMS

The objective is to study,

1. The factors responsible for duodenal ulcer perforation.
2. The factors that affect the post-operative outcome.
3. Morbidity, mortality after surgery.

MATERIALS AND METHODS

Fifty patient's case sheets were selected retrospectively who were diagnosed as duodenal ulcer perforation, admitted in MIMS Hospital, Mandya. Between 2012 to 2014 patients underwent Graham's omentoplasty. All the data related to the objectives of the study were collected.

RESULTS

Majority of patients belong to the. Age group of 30-50 years and commonly males Most of the perforations occur in first part of duodenum low socio-economic group, O+ve blood group with maximum seasonal incidence in October-January All cases were managed by Graham's omentoplasty. Four per cent of mortality noted.

CONCLUSION

Duodenal ulcer perforation is one of the common acute abdominal emergencies. The peak incidence between 30 and 50 years, majority cases males, common in lower socio-economic group, unskilled workers, maximum incidence period October-January, increased morbidity and mortality when perforation time period >24 hours, maximum in patient with blood group o+, early diagnosis and septicaemia management necessary for patients better prognosis, emergency procedure is Graham's omentoplasty (perforations<2cm) with H. pylori eradication treatment. Mortality noticed in longer duration of presentation, larger perforations with associated co-morbidities.

KEYWORDS

DUP, H. Pylori, Urea breath test, PPI, Outcome, Complications.

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INTRODUCTION: Perforation is one of the most important complications of a peptic ulcer. In spite of modern management, it is still a life threatening catastrophe. The sudden release of gastric or duodenal contents into the peritoneal cavity through a perforation leads to a devastating' sequence of events which, if not properly managed, is likely to cause death. Perforation may occur in a patient with a known chronic peptic ulcer or it may happen without any preliminary symptoms at all (20%).

Recent statistics indicate that roughly 10% of the population develop a gastric or duodenal ulcer in lifetime. Roughly 1-3% of population above the age of 20 years have some degree of peptic ulcer activity during any annual period.

Among abdominal emergencies, 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.

There is decline in incidence of peptic ulcers and elective surgery for peptic ulcers, which is attributed to the era of H2 blockers and proton pump inhibitors, which provides symptomatic relief to patient. But the percentage of patients

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with perforation has not declined, probably due to increased inadvertent use of NSAIDS, corticosteroids and because of irregular use of H2 antagonist drugs, PPIs.¹

Lord Moynihan has stated that, "perforation of duodenal or gastric ulcer is one of the most serious and most overwhelming catastrophes that can befall a human being". A detailed history with regard to the symptomatology of the patient, a meticulous examination of the patient, radiological and biochemical investigations help to arrive at a correct preoperative diagnosis.

Conservative treatment is definitely unsuitable for routine use. But few of the patients who are brought, to the hospital at a late stage, have major concurrent illness and preoperative shock, may improve with conservative treatment using Herman Taylor's regimen. Ulcer perforation was frequently treated by gastric resection in-former days, whereas suture introduced, in 18'87, is the method of choice today.² Current reports advocate omental patch closure only often laparoscopically with postoperative' anti H. pylori therapy.^{3,4}

Immediate treatment for perforated peptic ulcer has been an established procedure for some time now. It can be stated that immediate definitive surgery like truncal vagotomy with a drainage procedure or Proximal Gastric Vagotomy (PGV) after simple closure for perforated duodenal ulcer offers the prospects of a permanent cure with a mortality and morbidity comparable to that of patients with elective surgery.

The recent studies show that whenever a definitive surgery is deemed as appropriate addition to a simple closure of perforated DU, PGV is the procedure of choice.

If the condition is not diagnosed properly and not adequately treated, it progresses in a definite manner with a typical course and may lead to the death of the patient due to Bacterial peritonitis in about 7-8 days.

The mortality increases with delay in operating. The mortality rate when operation is performed within 6 hours of onset of pain approaches Zero, from 6-12 hours the rate is 5-10%, 12-24 hours it is 25% or higher and in the course of 3rd day after, operations are seldom successful.

This is achieved by prompt transportation of patient to major surgical centre.

MATERIALS AND METHODS: Fifty patient's case sheets were selected retrospectively who were diagnosed as duodenal ulcer perforation, admitted in MIMS Hospital, Mandya. Between 2012 to 2014 patients underwent Graham's omentoplasty. All the data related to the objectives of the study were collected.

Inclusion Criteria:

1. Patients with H. pylori associated disease. (Urea Breath Test).
2. Ulcer diameter >5mm in one direction.
3. First part of duodenum.

Exclusion Criteria:

1. Combined DU and GU.
2. Reflux oesophagitis.
3. Post-operative stomach.
4. Zollinger–Ellison syndrome.
5. Recent antibiotic and / or PPIs usage.

AIMS AND OBJECTIVES: To find out the factors affecting the outcome, of duodenal ulcer perforation and postoperative analysis after Graham's omentoplasty in MIMS Hospital, Mandya. The objective is to study,

1. The factors responsible for duodenal ulcer perforation.
2. The factors that affect the post-operative outcome.
3. Morbidity, mortality after surgery.

OBSERVATION AND RESULTS: Majority of patients belong to the. Age group of 30-50years (table 1) and commonly males (table 2). Most of the perforations occur in first part of duodenum (table3), low socio-economic group (table 4), O+ve blood group (table5) with maximum seasonal incidence in October-January (table 6). All cases were managed by Graham's omentoplasty. Four per cent of mortality noted.

Age group (years)	No. of Cases	Percentage
1 to 10	-	
11 to 20	2	4
21 to 30	6	12
31 to 40	10	20
41 to 50	15	30
51 to 60	10	20
>60	7	14
Total	50	100

Table 1: Age incidence

Sex	No. of case	Percentage
Male	48	96
Female	2	4
Total	50	100

Table 2: Sex incidence

Site of perforation	No. of Cases	Percentage
D ₁ - anterior wall	49	98
D ₁ - Posterior wall	-	-
D ₂ - anterior wall	1	2
Total	50	100

Table 3: Site of perforation

Occupation	No. of patients	Percentage
Unskilled	33	66
Semiskilled	11	22
Dependents	6	12
Total	50	100

Table 4: Occupation

Blood group	No. of Cases	Percentage
O+ve	25	50
A+ve	8	16
B+ve	13	26
AB +ve	2	26
Not done	2	4
Total	50	100

Table 5: Blood group

Months	No. of Patients	Percentage
February to May	12	24
June to September	15	30
October to January	23	46
Total	50	100

Table 6: Seasonal incidence of perforation

DISCUSSION: Duodenal ulcer perforation is one of the commonest surgical emergencies requiring hospitalization and early management.

Peptic ulcer disease which was once so common 3-4 decades ago has drastically decreased in the incidence due to the invent of PPIs and anti H. pylori therapy.

Although perforated duodenal ulcer remains a dramatic surgical emergency, now-a-days it seldom results in death. The surgical mortality has decreased steadily and is now about 5% (Sawyers et al, 1976). This improvement as well as high incidence of ulcer relapse after closure of perforations. Obviously, patient characteristics are crucial in choosing optimal surgical treatment. Simple closure or even non-operative management is acknowledged to be most appropriate for patients who are markedly debilitated or in shock.^{1,2,3,4}

Simple closure is associated with an unacceptably high recurrence rate of Duodenal ulcer, it's as high as 92.50% (Anantha Krishnan et al. 1993).⁵ But with increased knowledge about the significance of H. pylori infection in perforated DU, it has been shown that eradication of this organism has become imperative after patch closure.

Duodenal ulcer perforation is common in the age group of 30-50 years in our study, but the age is no bar for perforation to occur.

Studies	Peak age in years
Turner (1951)	30-40
James et al. (1961)	30-50
Jamison (1964)	20-35
Mishra SB et al. (1982)	35-55
Weinganker	20-40
Present Series	30-50

Table 7: Comparison of age incidence with other studies

Svanes C has reported that lethality is higher in the elderly (Hlysocki A et al., 2000).⁶

In the present series of 50 cases, 48 were males, the majority of authors have reported that incidence is high in males when compared to females.

The high incidence of male can be explained on the basis of great Hardship stress, anxiety, indulgence in alcohol, and smoking and protective influence of female sex hormones in them.⁷

It is believed that Duodenal ulcer perforation occurs in those people who are engaged in heavy manual labour. Wair et al. in a study of 1390 cases in Scotland, found highest incidence in fisherman farm labourers and heavy manual workers. Very few incidences were found in people with professional sedentary occupation.

In our study, it is noticed that perforations occurred in patients belonging to poor socio-economic status and more so in rural population who are unskilled labourers. The incidence of perforation is urban class less, because of effective medical treatment and early surgery they seek whenever they suffer from peptic ulcer disease.

The analysis of 50 cases in present series in relation to various months showed that the maximum incidence of perforation was during Oct-Jan (46%) followed by June Sept (30%).

It was lowest during Feb. May (24%). According to Shanmukhrao, in India a great number of perforations occur during Nov, Dec and Jan months because of the work of cultivators being more during the winter season.

Svanes C and Feuung BT et al. showed that chronic smoking increased the risk of perforation to 10 fold in the age group of 15-74 years, and there was a highly significant dose-response relationship. They concluded that smoking is a causative factor for ulcer perforation and accounts for a major part of ulcer perforation in the population aged 75 years.

In our study total 33 patients out of 50 were well smokers and alcohol. Majority (Inpatients) of them were in a habit of smoking and alcoholism. This points out to the synergism between the both and has a higher incidence when compared to people having only one habit either alcohol/smoking).

Tsugawa K, et al. (2001) reviewed that 3 risk factors pre-operative shock delay to surgery over 24 hours and medical illness, led to increased morbidity and mortality in patients with perforation.⁸ Boey John et al. (1982). Revealed concurrent medical illness, pre-operative shock and delayed presentation (>48 hours) are significant risk factors that increase mortality in patients with perforated DU.⁹

In the present study (2012) we reported that age duration of perforation, size of perforation, pre-operative shock, H. Pylori infection associated co-morbid medical illness are the risk factors for the outcome of perforated peptic ulcer.

Ng. et al. (2000) noted that 81% of the patients with perforated D.U. were infected with H. pylori.¹⁰ Kate V et al. (2001, BJS) reported 73% prevalence of H. pylori in perforated peptic ulcer.¹¹ In the present study, we were not able to analyse the H. pylori infection, because of non-availability of facility in our hospital and poor socio-economic status of our patients.

- Lavval et al. (1998) advised the treatment of perforation in the majority of patients was by simple closure or truncal vagotomy and pyloroplasty.
- Marque/. R et al (2000) revealed that simple closure remains the selected Rx. in the majority of patients who present with a perforated peptic ulcer.¹²
- Michael W Mulholland (1996) published that omental patch closure of the perforation combined with proximal gastric vagotomy is the attractive choice for. Patients with perforated D U. The procedure is safe and effective in preventing ulcer recurrence.¹³
- Tsugowa K et, al. (2001) reported that omental patch closure is recommended for perforated DU because of its low mortality and measuring over 20 mm is diameter at perforation hole.
- Jain and Savvna et al. (2006) showed that omental plugging is a safe and reliable method of management for large sized (>2 cm) duodenal ulcer perforation.

Present series of 50 patients show that duodenal ulcer perforation are more common in people with O+ve blood group (50%).

Clark et al. (1980) reported the incidence of DUP in various ABO blood group and concluded that it is more common in O+ve individuals and rare in AB+ve.

Since D.U. Perforation is an emergency, time spent for unnecessary investigations is cut off and basic investigations like X-ray erect (Abdomen) for gas under diaphragm and paracentesis for bile is all that is enough in making a probable diagnosis of perforation.

The amount of gas under diaphragm will give an idea about the size of perforation and also duration of perforation.

In our series 76% of cases yielded bile on paracentesis and 6% of them has bile admixed with pus. These later patients had long duration of presentation and presented in shock.

In the present study, all 50 cases were subjected to Graham's omentoplasty as no perforation was greater than 2cm.

The mortality in these 2 patients can be attributed to elderly age. In late presentation. Shock at the time of presentation, bigger size of perforation and chronic smoking, alcoholism with other co-morbidities.

CONCLUSION: The following is the list of conclusion drawn after the study of 50 cases of perforated duodenal ulcer.

1. Duodenal ulcer perforation is one of the common acute abdominal emergencies and accounts for 9% of total abdominal emergencies admitted.
2. The peak incidence was between 30 and 50 years.
3. In the present series, majority cases were males.
4. Duodenal ulcer perforation was common in lower socio-economic group and unskilled workers.
5. The maximum incidence of perforation occurred in the months of October to January.
6. The duration of perforation >24 hours has increased morbidity and mortality.

7. Perforation of more than 1 cm size had a mortality of 4% which indicates that size of perforation, has a significant role in prognosis.
8. The evidence of duodenal ulcer perforation was maximum in patients with blood group 'O' positive compared to other blood groups.
9. Early diagnosis and prompt management of shock and septicemia is important for better prognosis of patients.
10. Graham's omentoplasty is the emergency procedure of choice for all duodenal ulcer perforations of size less than 2cms.
11. H. pylori eradication treatment is mandatory after simple closure of the perforation to prevent recurrence of ulcer.
12. Mortality was high in patients with long duration of presentation, large perforation size and having associated comorbidities.

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