



A RETROSPECTIVE STUDY: MANAGEMENT OF LARGE DUODENAL ULCER PERFORATION PERITONITIS AT PATNA MEDICAL COLLEGE & HOSPITAL, PATNA

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ABSTRACT

AIM: Aim of this study is to define, incidence, different procedure of management and complication related to large duodenal ulcer perforation peritonitis.

MATERIALS AND METHODS: A retrospective study on 108 cases of duodenal ulcer perforation that underwent emergency laparotomy at surgical emergency of PMCH, Patna during the period of December 2015 to November 2018. All these patients were classified into 3 groups based on size of perforation:

Group A: Small perforation: less than 1 cm in diameter

Group B: Large perforation: when the perforation was more than 1 cm but less than 3 cms

Group C: Giant perforation: when the perforation was more than 3 cms.

These groups of patients were then compared with each other in regard to the patient particulars, surgery performed and the outcome in all these 3 groups.

RESULTS & CONCLUSION: Patients had a significantly higher incidence of leak, morbidity and mortality in giant perforation as compared to those with smaller perforations.

It was concluded that in 27 patients were identified to have duodenal ulcer perforations more than 1 cm in size. These group A with small perforation it was easy to manage with low morbidity & mortality where as in group B with large perforation was less common but primary repair with omental patch closure and feeding jejunostomy given the best results while The last group C with perforation more than 3cm was extremely rare & most difficult to manage with high rate of complication.

KEYWORDS : duodenal ulcer, perforation peritonitis, small duodenal perforation, large duodenal perforation, giant duodenal perforation.

INTRODUCTION

A perforated ulcer is a condition in which an untreated ulcer can burn through the wall of the stomach (or other areas of the gastrointestinal tract), allowing digestive juices and food to leak into the abdominal cavity. Treatment generally requires immediate surgery.¹ The ulcer is known initially as a peptic ulcer before the ulcer burns through the full thickness of the stomach or duodenal wall. A diagnosis is made by taking an erect abdominal/chest X-ray (seeking air under the diaphragm). Many perforated ulcers have been attributed to the bacterium *Helicobacter pylori*.² The incidence of perforated ulcer is steadily declining, though there are still incidents where it occurs. Causes include smoking and non-steroidal anti-inflammatory drugs (NSAIDs.)

Duodenal ulcer perforations are a common cause of peritonitis. The classic, pedicled omental patch that is performed for the 'plugging' of these perforations was first described by Cellan-Jones in 1929³, although it is commonly, and wrongly attributed to Graham, who described the use of a free graft of the omentum to repair the perforation in 1937.. In this, a strand of omentum is drawn over the perforation and held in place by full thickness sutures placed on either side of the perforation. This procedure has become the "gold standard" for the treatment of such perforations.

However large perforations of the duodenum there exists the threat of post-operative leakage following closure by this simple method hence other surgical option like, jejunal serosal patch, free omental plug⁴, jejunal pedicled graft, proximal gastro-jejunostomy or even gastric disconnection may be deemed necessary for adequate closure⁵.

Since very little data is available for management of large duodenal perforation peritonitis our study is mainly based on management of this sort of perforation.

MATERIALS AND METHODS:

The study was performed among the patients who underwent emergency exploratory laparotomy for duodenal ulcer perforations at PMCH, Patna over a period of three years from Dec 2015 to Nov 2018. A total of 108 patients were studied during the period. These data are recovered from hospital records. These patients were divided into three groups based on size of perforation.

Group A: Small perforation: less than 1 cm in diameter

Group B: Large perforation: when the perforation was more than 1 cm but less than 3 cms

Group C: Giant perforation: when the perforation was more than 3 cms.

The technique of primary repair with omentopexy was essentially the same in all the cases total of three sutures were placed onto the normal, healthy duodenum on either side of the perforation, a strand of omentum was placed directly onto the perforation, and the sutures were knotted above this. No attempt was made to close the perforation prior to placing the omentum as a graft.

The case files of all the patients were then retrospectively analyzed for patient particulars, intra-operative findings, surgery performed, post-operative stay, morbidity and mortality. The groups were then compared with each other in terms of age, leak rates, hospital stay, morbidity, mortality and the surgery performed. Statistical analysis was done using the *chi-square* and the *t-test* by an independent comparison of each group singly against another by a statistician who was blinded to the study. A *p* value of < 0.05 was taken as significant.

RESULT AND DISCUSSION:

Of the total of 108 patients who underwent emergency exploratory laparotomy for duodenal ulcer perforations 98 (90.74%) were Male and 10 (9.25%) patients were Female (M:F = 9.8:1). The average age of the patients was 41.64 years (range 16 – 80 years), with an almost equal age of occurrence for males (41.524 years) and females (42.786 years).

As per group division most of the patients belonged to group A (small perforation as per our definition) & 25 (23.14%) belonged to Group B (Large perforation as per our definition). These patients had a higher age of presentation (48.28 years) than the patients with smaller perforations (40.62). Giant perforation or perforations greater than 3 cms in size were seen only 2 cases, accounting for a small percentage (1.23%) of all cases seen.

Table 1: patient data

Particulars	Group A (Small perforation <1cm)	Group B (Large perforation 1cm to 3cms)	Group C (Giant perforation >3cms)
No. of cases	81	25	2
Average age	40.62	48.28	52.40
Male/Female	15.6:1	5.25:1	1:1
Surgery Performed	Primary repair with Omental Patch	Primary repair with Omental Patch and feeding jejunostomy	Primary repair with Omental Patch and proximal gastrojejunostomy
Post-operative Leak	3	1	1
Mortality	6	2	1

The most characteristic symptom is the suddenness of the onset of epigastric pain. The pain rapidly becomes generalised although occasionally it moves to the right lower quadrant. Most of the patient was male in all these three groups. Group A has M:F ratio of 15.6:1, Group B has 5.25:1, Group C has 1:1. More than 50% patient has recent history of analgesia⁶.

Once an ulcer perforates the subsequent clinical picture is influenced by whether or not the ulcer self seals⁷. Approximately 40–50% of cases the ulcer self-seals with omentum or by fusion of the duodenum to the underside of the liver between the gallbladder and the falciform ligament. It is important in decision taking whether to operate or not.

Diagnosis is mainly proper history, clinical supported by radiological investigation. On an erect Chest X Ray free air can be seen in about 80% of cases⁸. In doubtful cases a water-soluble gastroduodenogram will show the leak from the duodenum or its sealing. CT scan may be needed if these tests are inconclusive.

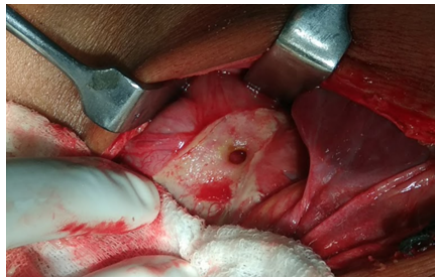


Fig: Showing duodenal ulcer perforation with slough all around.

Small duodenal ulcer can be easily managed by primary repair with modified graham's patch. Large ulcer needs some additional support like feeding jejunostomy and giant perforation need by-pass surgery like gastrojejunostomy.

As the size of perforation increases chances of leak increases, prognosis follows it inversely. Prognosis depends upon various factors like delayed presentation, pre-operative shock status, size of duodenal perforation, total duration of surgery, nutritional status of patient, concomitant comorbidities, age of patient, post-operative leak and others.

Post-operative leak was minimum in Group A = 3.7% (3/81), while in Group B it is 4.00% and in Group C it is 50.00%. In patients of group A there were 3 leaks, out of which 2 were managed conservatively and one old age male patient died. One patient in both Group B and C had lead and also died.

Mortality depends upon several risk factors. Individual risk can also be assessed by use of APACHE II⁹. Overall mortality is about 10%¹⁰. In our study mortality is approximately 8.33%. In Group A it is 7.4%, in group B it is 8.00% and in Group C it is 50.00%. With the advancement of medical facilities and patient's awareness, improved nutritional status incidence and mortality rate is decreasing gradually.

CONCLUSION:

Small perforation was managed easily by primary repair with omental patch, large perforation needs feeding jejunostomy while in giant duodenal perforation gastrojejunostomy was done. Prognosis was best in small perforation but worst in giant perforation. Prognosis become worse in old age patient, patient presented in the state of shock, poor nutritional status, post-operative leak.

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