

Cases of Perforated Duodenal Ulcer treated in College of Medical Sciences, Bharatpur over a period of one year

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Abstract

Background: Eighteen patients were studied in our institution between January and December 2002. Simple closure followed by eradication of *Helicobacter Pylori* was used to manage the cases of perforated duodenal ulcer. **Method:** After resuscitation, laparoscopy followed by simple closure of perforation reinforced with pedicled omental patch was performed for all the patients. H- Pylori eradication using “triple regime” was done in all. Follow-up between 6 to 12 months was done, for which endoscopy and Visick’s grade was used. **Results:** All the patients were male, maximum incidence (39%) noted in 51 to 60 age group. Mean time interval between start of symptoms and surgery was 60 hours. As a result the patients were moribund with gross purulent peritonitis and poor general condition. Chest infection was the commonest complication (44%) and two patients (11%) with very poor prognosis died during post operative period. Good to excellent results using Visick’s grades were obtained in 81% surviving patients. Endoscopy did not show active ulcer in any of the patients. **Conclusion:** Patients with perforated duodenal ulcer were late in presenting to the hospital, precluding the option of definitive surgery for peptic ulcer disease. Simple closure of perforated duodenal ulcer if combined with eradication of H-Pylori is an effective method of treatment of duodenal perforation and is not associated with high recurrence of symptoms of peptic ulcer disease.

The incidence of perforated peptic ulcer in the Western countries varies between 7 to 9 cases per 1,00,000 population per year¹. Although the exact incidence of perforated duodenal ulcer in Nepal is not known, it accounts for a major cause of peritonitis² and is still an important problem in developing countries. 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 resuscitated³. 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. Definitive surgery is indicated only for those who are reasonably fit and presented early to the hospital for surgery⁶. Fulfilment of both these criterion are difficult in Nepal and other developed countries and simple closure continues to be the most commonly performed operation for perforated duodenal ulcer in these countries³. Prior to use of H₂ blockers, simple closure of perforated duodenal ulcer was associated with recurring ulcer symptoms in 40 to 80 percent of patients and about 40 to 60 percent required subsequent definitive operation^{3,5,6}. Recent literature suggests that the use of Proton Pump Inhibitors as well as therapy directed against *Helicobacter-Pylori*, may reduce the necessity for re-

operation to alleviate recurrent ulcer symptoms^{7,8,9}. Simple closure followed by H- Pylori eradication may become the optimum treatment for majority of the cases of duodenal perforations as occurring in developing countries like Nepal.

Patients and methods

All patients with perforated duodenal ulcer admitted under our care between January 2002 to December 2002 were reviewed. Patients with perforated gastric ulcer, pre-pyloric ulcer and perforated gastric malignancies were excluded from our study. All the patients were diagnosed preoperatively on the basis of clinical and radiological findings, and laparotomy was done through upper midline incision. Purulent peritonitis with gross peritoneal soiling and tissue oedema was found in each of the patients. No attempt at emergency definitive surgery was made. Simple closure of the perforation and reinforcement with pedicled omental patch was done in all the cases. Thorough peritoneal lavage with 3 to 4 litres of normal saline was followed by placement of intra-

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peritoneal drain. All the patients were put on triple regime consisting of Amoxicillin (500mg TID), Metronidazole(400mg TID) and Omeprazole (20mg BID), all given orally for 14 days to eradicate H-Pylori. Follow up of the patients were undertaken on an out patient basis between 6 to 12 months. Standard questions especially pertaining to recurrence of ulcer symptoms and its severity were asked and documented. Number of patients could be followed up with Upper Gastro-Intestinal Endoscopy between 6 to 8 weeks following surgery to document ulcer healing. The findings were graded using a modified Visick classification:

- Grade I No symptoms, excellent results.
- II Mild symptoms, good results.
- III Moderate symptoms, easily controlled by medications.
- IV Severe symptoms, requiring constant medication or reoperation

History of use of ulcerogenic drugs, previous use of drugs to eradicate Helicobacter Pylori infection, operative findings, were all considered while assessing the follow up results.

Results

Eighteen patients were treated at our institution between January 2002 to December 2002. All of them were male and the mean age of presentation was 50years and the range was between 26 and 70 years. The maximum number of cases (39%) were in the 51 to 60 years age bracket, closely followed by 28% occurring in the 41 to 50 age group (Table-1).

Table-1. Incidence of Duodenal Ulcer perforation in various age groups

Age Group	No. of Cases	Percentage
21 to 30	3	17
31 to 40	1	5
41 to 50	5	28
51 to 60	7	39
61 to 70	2	11
n= 18		

The overall clinical characteristics of the patient are discussed in Table-2. Ten patients were either smokers or were using tobacco in some form. Regular alcohol intake was noted in only four patients. In four patients there was history of use of Non Steroidal Anti Inflammatory Drugs(NSAID) and was the most probable cause for the duodenal perforation. Past history suggestive of duodenal ulcer was elicited in ten patients but none of them had taken any regular course of antiulcer drugs or

therapy for eradication of H-Pylori either before or at the time of the perforation.

Table 2. Clinical Characteristics of the patients with duodenal perforation

Characteristics	Number of Patients
Male	18
Female	nil
Mean age in years (range)	50 (26-70)
Smoker/Tobacco user	10
Alcoholic	4
NSAID use	4
History of dyspepsia	10
Past eradication of H-Pylori	nil
Receiving anti ulcer drugs at the time of perforation	nil
Interval between symptoms and surgery	60
Peritoneal Suction (litres)	1.5 to 2.5

Time interval between the beginning of the symptoms of perforation and surgery ranged from 12 to 120 hours, mean was 60 hours (Table-3). All the patients had frank purulent peritonitis with widespread peritoneal soiling. The volume of peritoneal suction ranged from 1.5 to 2 litres and the procedure took between 60 to 75 minutes (Table-2).

Of the eighteen patients, eight developed significant purulent cough and other evidences of chest infection, while five developed wound infections. Two patients developed postoperative duodenal fistula due to suture line leakage. They developed abdominal wall dehiscence, intra abdominal abscess, and septicaemia and died subsequently.

Table-3. Duration of symptoms

Range of Duration in hours	Number of patients
0-12	2
13-24	1
25-48	5
49-72	7
73+	3

Table-4. Follow-up results in the sixteen surviving patients.

Visick's Grade	No. of patients
I	4
II	9
III	3
IV	nil

Excellent and Good Results = Visick's I + II = 13 (81%).

Sixteen patients were followed up between 6 months to 12 months. The overall Visick's grades are given in the Table-5. Good to excellent result was obtained in thirteen patients (81%). None of the patients showed any endoscopic evidence of active duodenal ulcer. All the patients with NSAID induced perforation had either mild or no symptoms (Visick I & II) at all during the follow up. None of the patients developed severe symptoms (Visick IV), haematemesis or malaena during the period of follow up. Reoperation for recurrent ulcer symptoms was not necessary for any of the patients.

Discussion

Our study confirms the effectiveness of simple closure with reinforcement by pedicled omental patch followed by eradication of *Helicobacter Pylori* for the treatment of perforated duodenal ulcer. The mean age of our patients was 50 years, and is similar to other series^{3,4,5}.

The mean time interval between occurrence of perforation and surgery was 60 hours. This varies from 10 hours³ to 72 hours² according to the development of the region from where the literature has been published.

We could attribute lack of accessibility to health care facilities and lack of awareness as the chief reasons for the delay. This late presentation of cases has been the chief cause of the higher levels of complications and mortality. Poor general condition, gross purulent peritonitis and tissue oedema were all contraindications to any attempt towards definitive surgery^{3,11}.

Post operative chest infection was the most common complication, which occurred in 44% patients. Mortality of 11% as in our series finds favour with two literatures^{1,2} which puts their mortality figure at 12.7% and 9.8% respectively. Both the deaths occurred in patients who presented later than 72 hours and were more than 70 years of age.

Use of NSAID is an important cause of perforated duodenal ulcer in the West, accounting for 65 % of patients¹. In our series, NSAID use as an offending cause could be attributable in only 22% patients.

Ten patients (56%) had past history suggestive of peptic ulcer disease. Because tests for detecting *H-Pylori* was possible in only few patients, we did not take this into consideration in our discussion. However the use of the 'triple regime' produced excellent to good results in 81% of our patients. This is comparable to the results from recent studies^{7,8,9} which have successfully used simple closure followed by eradication of *H-Pylori* as a treatment

for perforated duodenal ulcer. This is in contrast to the earlier studies^{1,3,6,10,11} which propagated emergency definitive surgery as a means to prevent the 40 to 80 percent recurrence in symptoms and 40 to 60 percent reoperation rates. These findings are extremely important for developing nations like Nepal where delay in presentation often prevents any attempt at definitive surgery.

Conclusion

Peptic perforation is an important cause of peritonitis. NSAID use is emerging as an important cause for the development of perforated duodenal ulcer. Delay in presentation for surgery is a major cause for mortality and morbidity. It is also an important determinant of the type of surgery to be performed. Simple closure of perforation, reinforced by omental patch and followed by eradication of *H-Pylori* is an effective way of treatment of perforated duodenal ulcer. This may reduce the requirement for emergency definitive surgery for preventing recurrence of ulcer.

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To
Prof. Dr. Manindra Ranjan Baral
The Chief Editor
Publication Section
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Dear Sir,

We had studied those cases of perforated duodenal ulcers which were treated in our institution over a period of one year. We also studied the efficacy of simple suture of perforated duodenal ulcer followed by eradication of Helicobacter Pylori. The results were encouraging and definitely reduces the chance of recurrent symptoms and may reduce the need for definitive surgery. Being a new institution, the number of cases are not as large as we would like it to be and we would like to come out in the future with higher number of cases. Recently we have also started documenting the incidence of H- Pylori infections in all such cases.

We shall be grateful if you kindly accept this paper and publish it as an original article.

Thanking you,

Yours Sincerely

Bodhisatwa Sen Gupta Ramendra Nath Talukdar Harish Chandra Neupane