Long Term Results of Perforated Duodenal Ulcer Following Surgery

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Abstract
Sixty four patients with perforated duodenal ulcer were followed up for 9 months to 4 years subsequent to their initial management to evaluate their long term results.

Of the 46 patients who underwent simple closure, 23 (50%) remained asymptomatic and required no further treatment; of the rest, ten required definitive surgery subsequently and six could be controlled on medical treatment alone. Eight of nine patients who underwent immediate definitive surgery remained symptom free; one had dumping syndrome, and none required second surgery. In the conservative group, two of three patients became symptomatic during the follow-up period and required definitive surgery later for ulcer recurrence. All the six patients who underwent miscellaneous procedures depending upon the laparotomy findings, were found to be doing well in the follow up period.

Fifty percent of the patients who underwent simple closure became symptomatic subsequently and required medical/ surgical treatment, whereas definitive surgery gave better long term results.

Key words: Perforation, duodenal ulcer, long term follow-up.

Introduction
Perforation constitutes one of the major and common complications of duodenal ulcer. All round improvement in medical care has led to lower mortality figures of 2-9% compared to previous results of 4-8% to 12-7%.

Better understanding of the disease has resulted in conservative approach for poor risk patients and aggressive ulcer curative surgery in good risk cases. Reports on long term follow up results of patients with perforated duodenal ulcer following primary treatment are scanty. We, therefore, report our findings in this area.

Material and Methods
Patients with surgically and/or endoscopically proven duodenal ulcer perforation were studied (22 prospectively and 42 retrospectively) to evaluate their long term results following initial treatment.

Details of the following symptoms subsequent to primary treatment were obtained: vomiting suggesting gastric outlet obstruction, hematemesis or melena, persistent abdominal pain, and dyspepsia. Symptomatic enquiry also included type of diet or medical treatment; consultation with any physician or surgeon for further treatment; and about any surgery carried out subsequently.

On the basis of this evaluation the patients were divided into the following groups:

Symptomatic: Patients who had answered positively any of the above questions.

Asymptomatic: Absence of all the above features.

Controlled on Medical Treatment: Patients symptomatic following primary treatment, but adequately controlled with medical treatment alone for at least one year.

Failure: Patients who required subsequent surgery.

Symptomatic patients were subjected to barium meal and/or endoscopic study for confirmation of diagnosis and their response to treatment.

Results
Prospective Group
Twenty two patients who had undergone simple closure for their primary treatment were followed up for 9 to 24 months.

Twelve of these patients (54.5%) remained asymptomatic. Of the ten symptomatic patients, seven had persistent abdominal pain suggesting intractability, but ulcer could be documented in only two patients by barium meal and endoscopic studies conducted at 5 to 12 months after simple closure. Symptoms in all these seven patients were controlled satisfactorily with dietary restrictions, antacids and/or cimetidine therapy; ulcer healing was confirmed by endoscopy 6 to 12 months later.

Pyloric stenosis developed in one patient four months after surgery. This patient was subjected to truncal vagotomy and gastro-jejunostomy, and has been doing well subsequently.

One patient presented with hematemesis and melena three months after primary treatment; bleeding settled on conservative treatment with antacids, cimetidine and blood transfusion.

One patient was readmitted three months after primary treatment for reperforation, which on laparotomy was found to be at the same site and was smaller in size. After his primary treatment this patient had remained asymptomatic and his ulcer was proved on
barium and endoscopic examination. The reperforation was treated with truncal vagotomy and pyloroplasty; subsequent he has been doing well.

**Retrospective Group**

These 42 patients were followed up for 30 to 54 months. The following four modes of treatment were used in this group:

**Simple Closure:** 24 patients undergoing this procedure could be followed up. Of these eleven patients (45.8%) remained asymptomatic without further treatment. Seven of the other 13 patients (29.5%) developed dyspeptic or persistent ulcer like symptoms. Barium meal and endoscopic evaluation of these seven patients established recurrent ulcer in four; all these four patients were operated upon. Two patients had acute gastritis with multiple gastric erosions, and one was free of ulcers.

Three patients (12.5%) had features of gastric outlet obstruction for 9 months following primary treatment. Pyloric stenosis was confirmed by barium studies and endoscopy; all these patients were treated surgically.

Two patients (8.3%) who developed hematemesis or melena at 6-9 months following initial treatment responded favourably to medical treatment. One patient (4.3%) reperforated 5 months after initial closure and required surgical intervention.

In all, eight patients (33.3%) needed subsequent definitive surgery for ulcer recurrence—4, gastric outlet obstruction—3, reperforation—1. All these eight patients subsequently were symptom free. The remaining five symptomatic patients were controlled with medical treatment.

**Definitive Surgery:** Ten patients were subjected to primary definitive form of surgery; six had truncal vagotomy and pyloroplasty (3) or gastro-jejunostomy (3) and four patients had partial gastrectomy. There was no mortality and nine of the ten patients could be followed up for a period ranging from 10 months to 4 years. All were in good health except one patient with partial gastrectomy who developed dumping syndrome.

**Conservative Treatment:** Of the four cases in this group, one died in hospital and three patients were followed up. One patient remained asymptomatic, two patients had persistence of ulcer symptoms and both of them showed ulcer on endoscopic examination. One was subjected to partial gastrectomy and the other to truncal vagotomy with drainage; subsequently they remained well.

**Miscellaneous Procedures:** Two of the six patients in this group had sealed off perforations and residual intra-abdominal abscesses; these were drained. Two patients had large perforations and serosal patch was used with a retractile jejunal loop. Two patients were subjected to closure of perforation and anterior gastro-jejunostomy because of evidence of pyloric obstruction on laparotomy; vagotomy could not be carried out in these patients because of their poor general condition.

Five of these six patients remained asymptomatic; one patient who underwent perforation closure and gastro-jejunostomy had dyspeptic symptoms, which could be controlled with medical treatment.

**Discussion**

We followed up 64 patients to study the course of duodenal ulcer disease subsequent to primary treatment for perforation. Four main modalities of treatment were chosen during the initial emergency treatment, and these patients have been analysed for their long term results accordingly.

Simple closure of perforation was the commonest operation performed and 46 patients were available for follow up over a period ranging from 9 to 54 months. A majority of the 50% of patients who developed symptoms and/or complications following this procedure did so within 1 to 2 years of primary treatment.

The symptomatic group seems to increase with the duration of follow up as evidenced by larger number of patients (54.2%) developing symptoms in the retrospective group in contrast to the prospective group (45.5%). Similar observations have been made by others.6,7

Dyspepsia and persistent abdominal pain were the commonest complaints in the symptomatic group. This was the experience in other series as well.5,8

Pyloric stenosis was observed in four of 46 (8.7%) patients within 4 months to 1 year of follow up and all of them required resurgery. Other investigators6,8 have also noted this complication following simple closure of duodenal ulcer perforation. Upper gastrointestinal bleed was seen in three and reperforation in two patients.

Overall, of 23 symptomatic cases, 13 (56.6%) could be controlled with medical treatment and the remaining ten required resurgery. Other investigators have also found that 50%—70% of such patients develop symptoms following simple closure; many of them require definitive surgery subsequently.3,5-7,8,9

We agree with other investigators14,15 that simple closure is not the ideal procedure in patients of duodenal ulcer perforation but should be adopted only when definitive surgery cannot be undertaken due to poor general condition.

Like other investigators,5,6,16 we have found emergency definitive surgery for perforated duodenal ulcer to be useful in a selected group of patients.

Conservative treatment was undertaken in only four patients who were not suitable for surgical treatment. Two of the surviving three patients developed ulcer recurrence and this is in conformity with the results of Wengsten.17

No conclusion can be drawn from the patients who underwent miscellaneous procedures because of the small number of patients involved.
We conclude that definitive surgery provides better long term results and should be undertaken when feasible.

References