

# Conservative Management of Perforated Peptic Ulcer

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**Abstract:** Peptic Ulcer disease remains the most common cause of gastroduodenal perforation, with an incidence between 2% and 10% inpatients with ulcers. With the advent of proton pump inhibitors (PPI) the surgery for perforated duodenal ulcer has changed from perforation closure with definitive acid reduction surgeries to simple primary closure with omental patch. With advances in laparoscopic surgery and its application in emergency abdominal conditions it has been shown feasible for management of perforated duodenal ulcer. Though there have been various studies showing successful nonoperative management of perforated duodenal ulcer. Conservative treatment has not gained widespread acceptance as an alternative approach to surgery. The reason being lack of uniform selection criteria and management guidelines for conservative management of peptic perforations. This article aims at reporting a case of successful management of perforated peptic ulcer and review of literature on non-operative management of peptic perforation.

**Keywords:** Peptic Perforation

## 1. Introduction

Peptic ulcer disease is one of the most prevalent diseases of the gastrointestinal tract. The common complications of peptic ulcer disease are bleeding, perforation and obstruction.

Perforation remains a major life-threatening complication. Duodenal, antral and gastric body ulcers account for 60%, 20% and 20% ulcers among the peptic ulcer perforations respectively. The current treatment of perforated peptic ulcer is surgical repair [1].

Although the results of surgery are excellent, these are associated with morbidity and mortality. The non-operative treatment, which was first proposed in 1935 by Wangenstein [2], has been shown to be safe and effective in selected patients [3]. It has been known that perforated ulcers frequently get sealed spontaneously by the adherence of the omentum and the adjacent organs. The first conservative treatment series for perforated peptic ulcer was described by Taylor in 1946 [4]. However, he proposed it for cases that were in a good general condition [5, 6, 7]

## 2. Case Report

A 28-year-old man presented to the surgical outpatient department of our hospital with a history of abdominal pain, vomiting for 3 days, and constipation and fever for 2 days. There was history of sudden pain in upper abdomen followed by vomiting. Pain was of severe grade and not relieved by medication. He had not passed flatus or stool for 2 days. He had also had fever with chills for 2 days. The patient had significant history of taking nonsteroidal anti-inflammatory drugs (NSAIDs) for toothache for the last 8 months. He was a smoker, drinker, and nonvegetarian.

On admission, he had pallor, tachypnoea, tachycardia (110 beats/min), and a fever of 38.5 °C, as well as a rigid abdomen. Guarding and rigidity were present and occasional bowel sounds were also noted. x-ray of the abdomen standing position demonstrated free gas under both hemidiaphragms. Preoperative investigations demonstrated altered renal function test (serum urea, 84 mg/L; serum creatinine, 1.8 mg/dl) and electrolyte imbalance (serum sodium 131 meq/L, serum potassium, 2.1 meq/L). The patient was stabilized hemodynamically and broad-spectrum antibiotics, usually a combination of injectable third generation cephalosporin and metronidazole, and pain killer were administered. After initial resuscitation (placement of intravenous lines and nasogastric tube followed by adequate administration of fluids), the patient prepared for exploratory laparotomy and he refused for operation and went discharge against medical advice.

After 4 days patient again came to emergency department with abdominal pain and vomiting and again x-ray abdomen standing was done but there was no free gas under diaphragm (FIG 1) and CT SCAN of abdomen revealed sealed off intestinal perforation. He admitted in hospital and treated conservatively for 10 days.



**Figure 1:** Gas under diaphragm

His endoscopy found normal and patient discharged on proton pump inhibitors.

### 3. Discussion

Perforation is one of the dreaded complications of peptic ulcers. Until recently, surgical closure of the perforation has remained the unchallenged treatment of choice. Recently, a conservative non-surgical treatment for perforated peptic ulcer has drawn much attention.

Study of the natural history of gastroduodenal ulcer perforation during the first half of the 20th century [7, 8] has shown that, after perforation occurs, it is promptly sealed by adjacent organs. A fibrin clot appears quickly on and around the perforation. This is the start of a definitive closure which associates adhesion between perforated and adjacent organs and healing of the digestive tract wall. According to Donovan, this phenomenon of self-healing is efficient in at least 50% of patients [9]. Indeed, it is a common experience for surgeons who operate for perforated ulcer to observe that they first have to mobilize the perforation from adjacent organs before being able to suture it. Moreover, in the event of gastroduodenal perforation the peritoneal cavity usually remains sterile for 12 hours, the bacterial load being low in the upper gastrointestinal tract. However, some patients experience peritonitis as well as septic complications. This can be due to continuous fluid extravasation, stronger bacterial load of the proximal digestive tract and/or poor healing ability impairing spontaneous sealing of the perforation. These observations were the basis for the development of conservative treatment [10], which associates fasting, nasogastric tube aspiration, systemic antibiotics and antisecretory therapy. Conservative treatment has not gained widespread acceptance as an alternative approach to surgery for perforated gastroduodenal ulcer. It was developed at a time when surgical closure was associated with high mortality<sup>10</sup>. As surgical and anaesthetic patient care have improved, the morbidity and mortality of emergency surgical ulcer closure have markedly decreased, so that mortality figures are currently in the range of 3–9%

[11, 12, 13]. During the same period, the results of the sparse series of conservative treatment for “fit” patients have remained stable: while mortality associated with the Taylor method was 5.2% in Taylor’s initial series in 1957, rates between 0% and 8% have been reported in more recent publications [14-20]. On the other hand, the failure rate of conservative treatment is not inconsiderable (13–46%) [14-20]. Failure of conservative treatment is generally defined as development of septic shock, multiple organ failure or intra-abdominal abscess [14-20]. Conservative treatment failure exposes patients to the risk of delayed surgical closure with mortality rates between 3 and 50% [21], depending on the criteria used to define conservative treatment failure and the timing of secondary surgery [21]. Nevertheless, none of these studies on conservative treatment was performed exclusively in patients treated with PPI and/or benefiting from *Helicobacter pylori* (HP) eradication. As better control of gastric acidity is achieved by PPI than by H<sub>2</sub>-blockers [22], and as HP infection has been shown to play a role in some cases of gastroduodenal ulcer perforation [23], it may be anticipated that these therapeutic improvements could further better the success rate of conservative treatment which our study seems to confirm. While conservative treatment was first proposed to patients not eligible for surgery [24], only a few series have investigated this approach in these patients [25-26] In fact these studies have reported high mortality (up to 63%) compared to the results achieved by surgical repair in elderly or medically frail patients [27]. The systematic introduction of PPI use and HP eradication seems to have favourably influenced the results of conservative therapy in this series, which showed mortality of 11% only for the PPI group. However, we could not rule out that improvement in resuscitative care may have at least partly influenced these results. Definition of prognostic factors for conservative treatment has been a concern for all investigators who have published their results. The present series appears to show that the presence of shock at admission is a major criterion for conservative treatment failure, which corroborates previous reports and Taylor’s guideline [28]. This implies that, even in a moribund patient, the presence of haemodynamic instability militates in favour of prompt surgery. The presence of shock being one of the Boey criteria, we attempted to apply, for the first time, the Boey classification in the setting of conservative treatment. We found a strong correlation between Boey’s criteria and mortality. Boey’s classification could be used in future reports on conservative treatment to facilitate comparison of results with the surgical approach, for which it is a well-established prognostic classification. Some authors have set an age limit, of 70 [29] or even 59 years [30], for success of the conservative approach. However, we found no correlation between patient age and treatment failure, a negative finding possibly related to the high proportion (70%) of patients aged over 70 in this series.

### 4. Conclusion

In patients with perforated peptic ulcer, an initial period of non-operative treatment with careful observation may be safely allowed except in patients over 70 years old, patients with shock, or perforation over 12 hours. The use of such an observation period can obviate the need for emergency

surgery. This observation also permits surgeons to adopt nonoperative therapy in selected case.

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