The THAI Journal of SURGERY 2005; 26:5-8.
Official Publication of the Royal College of Surgeons of Thailand

Conservative Management of Perforated Peptic Ulcer

Ruangsak Nusree, MD
Department of Surgery, Chainat General Hospital, Chainat, Thailand

Abstract

Objective: **To determine whether surgery could be avoided in selected patients with perforated peptic ulcer.**

Patients and Methods: **A prospective study of the outcome of non-operative treatment in patients with a clinical diagnosis of perforated peptic ulcer was conducted. Of all 41 patients with clinical diagnosis of perforated peptic ulcer over the 3-year period, 35 were included for conservative treatment consisting of intravenous fluid resuscitation, nasogastric suction, and intravenous administration of antibiotic (Cefazolin 1 gm. IV every 6 hrs) and Ranidine 50 mg. IV every 8 hrs.**

Results: **Five (14%) of these 35 patients did not improve after 12 hours of conservative treatment and required an operation. All had unsealed perforation and were true failure. There was no mortality in this conservative group and no significant difference in the morbidity, such as complications or median hospital stay, between the failure group and the conservative group. Patients over 70 years old were less likely to respond to conservative treatment (P <0.05).**

Conclusions: **In patients with perforated peptic ulcer, an initial period of non-operative treatment with careful observation and resuscitation may be safely allowed, except in patients over 70 years old, and that the use of such an observation period can obviate the need for emergency surgery.**

Introduction

The accepted therapeutic options in patients with perforated peptic ulcer are simple closure or immediate definitive operation. Conservative treatment, originally proposed by Wangensteen, was recommended as the treatment of choice in perforated acute peptic ulcer by Taylor in 1956[1]. Today it is reserved for patients considered to be too ill to stand the stress of surgery or in situations where immediate surgery is unavailable. A trial of conservative management in all cases of perforated peptic ulcer that met the inclusion criteria was undertaken. Its efficacy and long-term outcome were assessed.

Patients and Methods

Forty-one patients admitted under one surgeon, with perforated peptic ulcer, from October 1998 to September 2001 were reviewed. The clinical details are shown in Table 1. All 41 patients were diagnosed by history and clinical examination and all had radiological evidence of perforation (pneumoperitoneum). Inclusion criteria consisted of a clinical

Correspondence address : *Ruangsak Nusree, MD, Department of Surgery, Chainat General Hospital, Chainat 17000, Thailand.*
E-mail: chainath.hospital@hotmail.com

diagnosis of perforation in less than 12 hours[1], with stable hemodynamic condition[2] and age not exceeding 70 years[1].

Conservative management consisted of intramuscular analgesia, intravenous antibiotic (Cefazolin 1 gram every 6 hours), H_2-blocker (Ranidine 50 mg intravenously every 8 hours) and hydration. A large-bore radio-opaque nasogastric tube was passed to empty the stomach by intermittent suction. Accurate tube placement in the distal greater curvature and frequent re-assessment were mandatory in this regimen. Conservative treatment was abandoned if the patient failed to improve or deteriorated (increasing tachycardia, pyrexia, abdominal distension or pain) after 12 hours of conservative treatment.

Results

Six patients who failed to meet the inclusion criteria underwent immediate surgery. All had perforation over 12 hours before presentation. A total of 35 patients entered a trial of conservative therapy and 30 were successfully managed. Five patients failed to improve and underwent laparotomy.

There were no significant difference between the failure group (although consisted of only 5 patients) and the successfully managed group regarding age (unpaired student's t test), duration of perforation before presentation [Mann-Whitney (2-tailed) U test], medications or length of ulcer symptoms (Fisher's exact test). Conservative treatment did not prolong hospital stay (Table 2).

Table 1 Clinical characteristic of 41 patients with perforated peptic ulcer

Characteristics	Number of patients
Male	38
Female	3
Mean age in years (range)	47 (26-70)
Previous peptic ulcer	5
Previous perforation	1
NSAIDS or steroid used	10

Failure Group

Five patients underwent laparotomy after 12 hours of trial. All had unsealed perforations and were true failure of conservative treatment.

Complications

One patient who underwent immediate surgery died of valvular heart disease and congestive heart failure. Two patients developed postoperative pneumonia. Complications in the conservative group included upper GI hemorrhage (N = 2), prolonged ileus (N = 1) and diarrhea (N = 1). No mortality in the conservative group.

Subsequent Course

Seven successfully treated patients could not be traced. Twenty-three patients were followed up for 1-4 years (mean 2.9 years). All 23 patients did not require definitive surgery and did not develop re-perforation. Two patients died of unrelated courses.

Table 2 Comparison of clinical characteristics of 41 patients with perforated peptic ulcer in relation to eventual outcome

	Emergency Surgery (n = 6)	Failed conservative treatment (n = 5)	Successful conservative treatment (n = 30)
Mean age (years)	50	43	47
Median duration of perforation (hrs)	18	5	8
Symptoms			
Acute (<3 months)	2	2	10
Chronic (>3 months)	4	3	20
Complications	2	1	3
Median hospital stay (days)	10	9	8
Mortality	1	-	-

Nine patients had medically managed dyspepsia and twelve were asymptomatic.

Discussion

The results of conservative treatment were satisfactory. Thirty (85%) were successfully treated with conservative management. Complications occurred in 11%, and there was no mortality. These results were achieved using strict selection of patients and regular re-assessment. When conservative treatment failed, it was promptly abandoned and operation was performed. Nasogastric suction has been the vital element in conservative treatment, in keeping the stomach empty, allowing sealing of the perforation to take place. Careful positioning of the tube and regular aspiration are important. Opposition to conservative treatment is related to the possible consequences of an error in the diagnosis. However, as Taylor has shown, with regular re-assessment, misdiagnosis should become rapidly apparent and conservative treatment can then be abandoned. Taylor reported no serious consequences resulting from the short delay in correcting the diagnosis[1]. The chief contraindications include lack of patient compliance, unsuccessful nasogastric intubation and late presentation. Using conservative treatment, definitive surgery cannot be performed at the time of operation. However, not all chronic peptic ulcer perforation require definitive procedures and with the advent of H_2 antagonists, the number may be even less[3]. Conservative treatment allows time for an accurate ulcer history, for clinical and interval endoscopic assessment and for elective definitive treatment if required.

The author does not advocate conservative treatment for all perforated peptic ulcer but offer as a reasonable option provided strict criteria and guidelines are followed.

That some perforated ulcers sealed themselves off spontaneously with omentum, even though there was considerable free air in the peritoneal cavity, had been noted by Taylor and Visick when they operated on duodenal ulcers that had perforated acutely. Rossoff[3] summarized his experience in Los Angeles, of 377 cases, 43% were shown to be sealed off.

Crofts TJ et al, from Hong Kong[4] conducted a prospective randomized phase 3 trial with 83 patients. Forty patients were managed conservatively, if there was no improvement after 12 hours they would undergo surgery. There were no significant differences in morbidity and mortality between these two groups of patients.

Other risk factors, both for operative and conservative management, have been assessed by multivariate analysis. Irvin[5] identified risk factors which included age over 70 years, use of steroidal or non-steroidal anti-inflammatory drug, and concomitant medical illness. The presence of shock (systolic B.P. less than 100 mm. Hg.) and delay in treatment, combined with these factors, could be used to predict post-operative death with 87% accuracy. With age over 70, the mortality rate rose to 34% whereas it was less than 14% in those under 70. Ball et al[6] also confirmed the risk of age, with a mortality rate of 47% in those over 70s, and shock (with mortality rate of 100%). Alizadeh et al[7] analyzed the indications and results of conservative therapy in 332 patients in 1997 and concluded that conservative treatment was associated with very high mortality, frequent and careful clinical monitoring was essential during the first 24 hours and, in the event of deterioration, surgery must be considered. However, Songne et al[8] in 2004 reported his prospective study in 82 patients on non-operative treatment for perforated peptic ulcer and concluded that more than 50% of patients with perforated peptic ulcer responded to conservative treatment without surgery and that the association of few criteria (size of pneumoperitoneum grerater than size of the first lumbar vertebra, heart beat over 94, pain at digital rectal exam and age over 59) required emergency surgery.

The wide variation in the time delay between perforation and treatment is also believed to be important. In the Hong Kong Series[4], the duration in the non-operative group was 10.5 hours and in an earlier Hong Kong series[9], the median was 12.6 hours. In the Exeter series[5], 33% of those over 70s had perforation for longer than 24 hours. Conservative treatment is not advised with a history longer than 12 hours[4].

Concern over peritoneal soilage has led surgeons to believe that it is important to carefully empty and wash out the peritoneal cavity with large volume of normal saline at the time of operation. The results are quite gratifying, as large volume of foul smelling fluid is oftenly removed. However the actual benefit of this

part of the operation is not so clear. Rosoff, in discussion of Donovan et al[3], reported that of 109 patients treated non-operatively during the acute phase, only 3 developed intra-abdominal abscesses.

Though there has also been concern about the ulcer re-leaking, this has been a very unusual occurrence. In the studies reported by Berne and Rosoff[10], this occurred in only 2 of 109 patients treated non-operatively. Donovan et al[3] reported no re-leaks, and there were no re-leaks in the patients described here. However, this knowledge provides surgeons the opportunity to avoid celiotomy in perforated acute ulcer disease.

Conclusions

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 non-operative therapy in selected case, such as when operative risk is excessive or when only closure of the perforation is contemplated.

REFERENCE

1. Taylor H, Warren RP. Perforated acute and chronic peptic ulcer. Conservative treatment. Lancet 1956; i: 397-9.
2. Keane TE, Dillon B, Afdhal NH, McCormack CJ. Conservative management of perforated duodenal ulcer. Br J Surg 1988; 75: 583-4.
3. Donovan AJ, Vinson TC, Maulsby GO, Gewin JR. Selective treatment of duodenal ulcer with perforation. Ann Surg 1979; 189: 627-36.
4. Crofts TJ, Park KGM, Steele RJC, Li AKC. A randomized trial of non-operative treatment for perforated peptic ulcer. N Engl J Med 1989; 320: 970-3.
5. Irvin T. Mortality and perforated peptic ulcer: case for risk stratification in elderly patients. Br J Surg 1989; 76: 215-8.
6. Ball AB, Thomas PA, Evans SJ. Operative mortality after perforated peptic ulcer. Br J Surg 1989; 76: 521-2.
7. Alizadeh N, Buhler L, Huber O, Morel P. Conservative treatment of gastroduodenal peptic ulcer perforations: indications and results. Schweiz Med Wochenschr Suppl 1997; 89: 17S-19S.
8. Songne B, Jean F, Foulatier O, Khalil H, Scotte M. Non operative treatment for perforated peptic ulcer: results of a prospective study. Ann Chir 2004; 129: 578-82.
9. Boey J, Lee NW, Koo j, Lam PH, Wong J, Ong GP. Immediate definitive surgery for perforated duodenal ulcer: a prospective controlled trial. Ann Surg 1982; 196: 338-44.
10. Berne CJ, Rosoff L Sr. Acute perforation of peptic ulcer. In: Nyhus LN, Wastell O, editors. Surgery of the stomach and duodenum. Boston, Mass: Little Brown & Co Inc; 1986: 457-73.