

# A Non-operative Treatment of Perforated Peptic Ulcer: A Prospective Study with 50 Cases

HANUMANTHAPPA M.B., GOPINATHAN S., GURUPRASAD RAI D., NEIL DSOUZA

## ABSTRACT

**Background and Objectives:** Perforation remains a major life threatening complication of peptic ulcer disease. Surgery has been the conventional treatment for it. The results of the surgery are excellent, but they are associated with morbidity and mortality. Wangensteen, in 1935 and Taylor, in 1946 have shown that a non-operative treatment is safe and effective in selected patients because the peptic perforations frequently get sealed spontaneously by the omentum and the adjacent organs.

We undertook a prospective study to evaluate the results and to assess the feasibility of a non-operative treatment for perforated peptic ulcers.

**Materials and Methods:** This prospective case series study was carried out at the AJ Medical College, Mangalore, Karnataka, India, from Dec 2009 to Dec 2011. We studied 50 cases with a clinical diagnosis of perforated peptic ulcer.

The inclusion criteria were a clinical diagnosis of perforation in less than 12 hours with a stable haemodynamic condition, age -20-70 years and a X-ray and/or a CT evidence of a pneumoperitoneum.

The conservative management consisted of nil by mouth, nasogastric suction, IV fluids, intravenous antibiotics and IV Omeprazole.

**Results:** Out of the 50 cases, 41 (82%) cases responded well, while the remaining 9 cases failed to improve and they required emergency laparotomy. 11 of the 41 cases in the successful group developed complications, which were managed successfully and they didn't prolong their hospital stay. The conservative management didn't increase the morbidity significantly.

**Conclusion:** We conclude that the conservative treatment for perforated peptic ulcer can be safely adopted in selected patients, provided strict inclusion criteria and guidelines are followed.

**Key Words:** Perforation, Peptic ulcer disease, Non-operative treatment

## 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 Wangensteen [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 [1]. 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].

We undertook a prospective study to evaluate the results and to assess the feasibility of the conservative treatment for perforated peptic ulcer.

## MATERIALS AND METHODS

This prospective case series study was carried out in the Department of Surgery, AJ Institute of Medical Sciences, Mangalore, India, from Dec 2009 to Dec 2011. The total number of cases which was studied was 50. The clinical details are shown in [Table/Fig-1].

All the 50 patients underwent a detailed clinical examination, routine haematological investigations, serum electrolytes, X-ray of the erect abdomen and USG of the abdomen. In doubtful cases, a CT scan with an oral contrast was done.

The inclusion criteria consisted of a clinical diagnosis of perforation in less than 12 hours [2] with a stable haemodynamic condition [3], age -20-70 years and a X-ray and /or a CT evidence of a pneumoperitoneum.

The conservative management consisted of IV fluids, intravenous antibiotics (Cefotaxime and Metronidazole) and IV Omeprazole. Ryle's tube no 18 was used to empty the stomach by constant suction. An accurate tube placement in the distal greater curvature is crucial. A strict input-output chart, a two hourly pulse rate, the blood pressure (BP) and the temperature were recorded. The abdomen was examined frequently for distension, tenderness and bowel sounds. For the first 2-3 days, absolutely nothing was given by mouth. For the first 4-5 days, the senior surgeon examined the cases 2-3 times daily. The conservative treatment was discontinued if the patient failed to improve or if he/she deteriorated (increasing pulse rate, pyrexia, abdominal distension or pain) after 12 hours of the treatment. Clear fluids were started on the 4th to 5th day, with the nasogastric tube being blocked. The patients were carefully watched for signs of peritonitis. If they tolerated well, the nasogastric tube was removed and liquid feeds were started.

A majority of the patients were discharged 10-15 days later, with anti-ulcer and anti-H. pylori treatment. An upper GIT endoscopy after 1 month was advised.

## RESULTS

During the study period, we had 113 cases of perforated peptic ulcer cases. 63 cases were excluded from the study (22 cases were not willing to take the non-operative treatment and the remaining 41 cases didn't fulfill our inclusion criteria). The clinical details of the selected 50 cases are shown in [Tables/Fig-1 and 2].

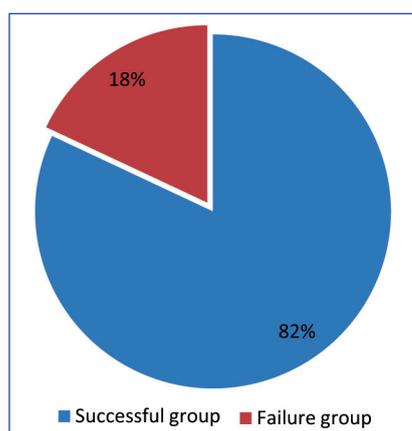
Features/characteristics:	No of patients (N=50)
Male	43
Female	7
Mean age in years (range)	45 (20-70)
Smoker/tobacco use	34
Alcoholic	26
NSAID/ Steroid	19
H/O Dyspepsia:	33
On H2 blocker at the time of perforation	8
On Proton pump inhibitor at the time of perforation	5
Associated medical illness:	
Cardiovascular diseases	6
DM	11
Chronic Brochitis	5
Cirrhosis	1

[Table/Fig-1]: Details about the cases

Duration in hours (range)	No of patients (N=50)
<4	14
4-8	22
8-12	14

[Table/Fig-2]: Duration of perforation at admission

41 of the 50 cases responded well to the conservative non-operative treatment, while the remaining 9 cases failed to improve and they required emergency laparotomy. Hence, the success rate of the non-operative management of perforated peptic ulcer in our study was 82% [Table/Fig-3].



[Table/Fig-3]: Results of the non-operative treatment

All the 9 patients who failed to improve after the 12 hours trial and underwent laparotomy had unsealed perforations. 7 were duodenal and 2 were benign gastric perforations. There were no significant differences between the failure group and the successful group with regards to the age, duration of the perforation before presentation and the hospital stay [Table/Fig-4].

11 patients in the successful group and 2 in the failed group had complications [Table/Fig-5]. All the 4 cases with peritoneal abscesses

were drained successfully by percutaneous needle aspiration under USG guidance and they recovered without any sequelae. Other complications were managed medically and they didn't prolong the hospital stay.

Features	Failed conservative treatment (N=9)	Successful conservative treatment (N=41)
Mean age (years)	41	44
Mean duration of perforation (hours)	7	8
Mean hospital stay (days)	9	10
Complications	2	11
Mortality	0	0
Re-perforation	0	0

[Table/Fig-4]: Features of failed group & successful group

Complication	No of patients (Percentage)
1) Successful group (N=41):	
Peritoneal Abscess	4 (10%)
Respiratory tract infection	5 (12%)
Prolonged Paralytic ileus (lasted 5 -6 days)	2(5%)
2) Failed group (N=9):	
Surgical site infection	2(22%)

[Table/Fig-5]: Complications in successful & failed group

## Follow up

Out of 41 cases in successful group, 9 cases didn't turn up for the follow up. The remaining 32 cases were followed up for about 1 year. All these 32 cases received the anti-ulcer treatment. 25 cases also received the anti-H pylori treatment, who had tested positive for the H.pylori infection. None of them required a definitive surgery for peptic ulcer. 26 of the 32 cases were subjected to upper GIT endoscopy, 1 month after the perforation [Table/Fig-6], while the remaining 6 cases were not willing to undergo endoscopy.

Among the 9 cases in the failed group, 3 didn't show up for follow up. The remaining 6 cases underwent endoscopy and they also received anti-H.pylori treatment [Table/Fig-6].

Endoscopy finding (1 month later)	No of patients
A. Successful group:	26
1) Duodenal ulcer (First part):	23 (88%)
Fully healed	9
Partially healed	14
2) Gastric ulcer:	3 (12%)
Benign (Healed partially)	3
Malignant	0
B. Failed group:	6
1) Duodenal ulcer (First part), healed fully	4
2) Gastric (healed fully)	2

[Table/Fig-6]: Endoscopic findings in the follow up

## 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 [8]. Recently, a conservative non-surgical treatment for perforated peptic ulcer has drawn much attention.

The earliest report of the recovery of a perforated peptic ulcer without a surgical treatment was recorded in 1870 by Redwood [9]. In 1935, Wangensteen noted that ulcers were able to self seal and he reported on seven cases which were treated without surgery. In 1946, this observation was confirmed by Taylor and he treated 28 cases without surgery, with good success. In 2004, Songne et al [10], in his study, reported that more than 50% of the patients with perforated peptic ulcers responded to the conservative treatment without surgery [11].

The rationale behind the conservative management is [8]:

- Peritonitis per se is no longer the killer as it used to be. Because, with the aid of the newer armamentarium at our disposal, the peritoneum will localize usually and absorb the contaminant.
- In gastroduodenal perforation, the peritoneal cavity usually remains sterile for 12 hours because the bacterial load is low in the upper gastrointestinal tract [12] and
- Most of the times, after opening the peritoneal cavity for the surgical treatment of perforated peptic ulcers, it is frequently observed that the perforation has already been sealed by the omental plug and the undersurface of the liver [8,12,13].

Concern over the peritoneal soilage has led the surgeons to believe that it is important to carefully empty and wash out the peritoneal cavity with a large volume of normal saline at the time of the operation [11]. However, the actual benefit of this part of the operation is not very clear. Rosoff reported that out of 109 patients who were treated non-operatively, only 3 had developed intra-abdominal abscesses [11].

Though there has also been concern about the leakage of the ulcer, this has been a very unusual occurrence [11]. In the studies which were done by Berne and Rosoff, this occurred in only 2 of the 109 patients who were treated non-operatively.

One of the major concerns with the conservative management is the risk of a misdiagnosis. However, as Taylor has shown, with a regular re-assessment, the misdiagnosis will become rapidly apparent and the conservative treatment can then be discontinued [11]. Taylor reported no serious consequences which resulted from the short delay in making the diagnosis [5].

Irvin [13] identified the risk factors, which included, age over 70 years, the use of steroidal or nonsteroidal anti-inflammatory drugs, concomitant medical illnesses and the presence of shock [11].

### Outline of the Treatment

These cases should be supervised by a surgeon who has got experience in the management of patients with peritonitis. The surgeon should examine these patients at least every four hours during the first two days of this treatment [8]. The non-operative treatment of perforated peptic ulcers cannot be handled casually [8].

Absolutely nothing is given by mouth [8]. Careful positioning of the nasogastric tube in the distal part of the greater curvature and nasogastric suction are the most important elements in the conservative treatment which keeps the stomach empty, allowing the sealing of the perforation to take place [8,11]. Strict input and output charts should be maintained. Intravenous antibiotics and H<sub>2</sub> blockers or proton pump inhibitors should also be given. It is crucial to monitor the pulse rate, the BP and the temperature. The abdomen should be examined frequently for tenderness, rigidity and bowel sounds. The rigidity regresses

rapidly, disappearing from below upwards, and it is usually gone within 24 to 48 hours [8].

In the more recent publications, the morbidity and the mortality rates of the conservative treatment have been reported to be between 0%-8%, while those of the emergency surgical ulcer closure are currently in the range of 3-9% [3, 10, 14-19]. Despite this data, the conservative treatment of perforated peptic ulcers has not gained widespread acceptance and it remains controversial. The reason may be the need of a prudent clinical monitoring by an experienced surgeon and the fear of a misdiagnosis [19, 20]. When a policy of a non-operative management is adopted, it is important to perform a follow-up endoscopy to monitor the ulcer healing, treat it for H. pylori, and to provide an accurate diagnosis.

The most common complication of a non-operative management is peritoneal abscess formation. Fortunately, most of the abscesses can be treated with antibiotics and/or percutaneous drainage without any sequelae [3, 21, 22].

### CONCLUSION

We conclude that the conservative treatment of perforated peptic ulcers is effective and that it is a safe alternative in selected cases, provided a strict inclusion criteria and guidelines are followed.

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**AUTHOR(S):**

1. Dr. Hanumanthappa M.B.
2. Dr. Gopinathan S.
3. Dr. Guruprasad Rai D.
4. Dr. Neil Dsouza

**PARTICULARS OF CONTRIBUTORS:**

1. Associate Professor
2. Assistant Professor
3. Resident
4. Resident

**NAME OF DEPARTMENT(S)/INSTITUTION(S) TO WHICH THE WORK IS ATTRIBUTED:**

Department of Surgery, AJ Institute of Medical Sciences, Mangalore, India.

**NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:**

Dr. Hanumanthappa M.B.  
AJ Institute of Medical Sciences ,  
Department of Surgery, Kuntikana  
Mangalore, India - 575004  
Phone: 9845170266  
E-mail: mb.hanumanthappa@gmail.com

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