

## Non-surgical management of perforated peptic ulcer: An alternative method of definitive treatment

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### **Abstract:**

**Introduction:** Peptic perforation is a common surgical emergency presenting as acute abdomen. Perforation which is potentially the most serious complication for the ulcer patient is fortunately rare. It is probably not seen in more than 2% of the patients suffering from peptic ulceration. The accepted therapeutic options in perforated peptic ulcer are simple closure or immediate definitive operation. Conservative/ non- surgical treatment, originally proposed by Wangenstein, was recommended as the treatment of choice in perforated peptic ulcer by Taylor in 1956.

**Materials and methods:** The present study was a retrospective cum prospective study conducted by reviewing the records of patients admitted with signs and symptoms diagnosis of dry peptic perforation In the retrospective study records of 50 patients with dry perforation In the prospective study 25 patients the study groups who presented as peptic perforation to be sealed and/ or haemodynamically stable patients with peptic perforation and/or with other serious illness when the risk of surgery is prohibitive.

**Aims and objectives:** To access the efficacy and reliability of conservative /non-operative treatment of perforated peptic ulcer and also to observe the complication leading to morbidity and mortality. It also aimed to access and evaluate the criteria used for conservative management of peptic perforation.

**Results:** Non-surgical management was taken as the treatment of choice for all 75 cases. 60 out of total (80%) were cured by non-surgical treatment. Operative intervention was done in 6 cases (8%) and was regarded as failure of conservative treatment, complication developed in 4 patients (5.33%) and mortality was 9.33%.

**Keywords:** Peptic Perforation, dry perforation, Non-Surgical Management,

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### I. Introduction

Peptic perforation is a common surgical emergency presenting as acute abdomen. It is one of the commonest complication of peptic ulcer next to haemorrhage, but before obstruction. Perforated peptic ulcer disease has been known since 167 BC. Surgical and non-surgical strategies for perforated peptic ulcer disease were not developed until later half of nineteenth century. [1] Perforation which is potentially the most serious complication for the ulcer patient is fortunately rare. It is probably not seen in more than 2% of the patients suffering from peptic ulceration. [2]. The risk of perforation of untreated peptic ulcer is about 5% during a lifetime. [3]. Prospective studies, have confirmed that co- existing medical disease, pre-operative shock and independent risk factor all are predicting poor outcome. Those with all the three factors have markedly high risk of mortality. [3] Old age, extensive peritoneal contamination, and short history before surgery are also important but are not independent factors. The mortality rate for high risk patients undergoing surgery is extremely high. The accepted therapeutic options in perforated peptic ulcer are simple closure or immediate definitive operation. Conservative/ non- surgical treatment, originally proposed by Wangenstein, was recommended as the treatment of choice in perforated peptic ulcer by Taylor in 1956. [4]

#### **1.1. Pathological basis of non- surgical treatment of perforated ulcer:**

Based on the pathologic sequence of events in the untreated cases in which gastric contents flow through the perforation into the peritoneal cavity. If the leak is small, body's natural defences comes in action in which omentum tries to contain the infection, localized peritonitis occurs which causes reactionary paralytic ileus which helps in preventing the spread of infection by cessation of peristalsis. Also, the peritoneum contributes in its share of defence by close network of blood vessels, which become dilated by the inflammation and pour out the exudates rich in antibodies, which is able to protect the peritoneal cavity from infection for a considerable time.

The perforation is plugged by fibrin, which is precipitated from the inflammatory exudates around the perforation and upon the contiguous peritoneal surfaces so that two stick together. This spontaneous consolidated within few hours and viscera are firmly bound together. [5] [Hermon Taylor 1957].

The main factor opposing this mechanism of defence is continuous or repetition of flow of contents through the perforation, resulting in large effusion in peritoneal cavity, which becomes infected and fibrin tends to be dissolved by the bacterial toxins and leucocytes. The peritoneal surfaces may then fail to adhere and the perforation would remain open and general peritonitis would ensue, which causes death of the patient in three days. The classical way of controlling the escape of fluid through the perforation is close it by suture. The same effect, however can be achieved by keeping the stomach empty allowing the sealing of perforation to take place, and minimum clinical handling too. The stomach is kept emptied by means of continuous nasogastric suction and supportive conservative treatment include nothing by mouth, intravenous fluids, antibiotics, proton pump inhibitor or H2 blocker and close observation. [6]

This treatment policy is presently use in following situations:

- A forme- fruster ulcer, a perforated ulcer that leaked into the peritoneal cavity but was sealed by omentum or surrounding tissue.
- Patient is hemodynamically stable
- In- patient with other serious illness when the risk of surgery is prohibitive.

Although satisfactory results have been reported using this treatment today, most surgeon have reserved it for the high risk moribund patients for perforation discovered late, hemodynamically stable patient with no signs of general peritonitis or sealed perforation. [7]

The chief contraindication of conservative treatment are lack of patient compliance, unsuccessful nasogastric intubation and late presentations. [8]

The theoretical criticism of non-operative method are:

- Aspiration will not be successful when perforation occurs with a stomach filled with food or liquid
- It is difficult to guess which lesion will seal spontaneously
- There is a danger of passing the aspiration tube through perforation
- There is often insufficient evidence of diagnosis in successful causes
- The diagnosis may be missed in cases of acute perforated appendicitis, cholecystitis, diverticulitis and in cases of devatilized bowel, and
- Perforation due to malignancy cannot be distinguished. [9]

Conservative treatment is not advocated for all perforated peptic ulcer, but to offer it is a reasonable option provided strict criteria and guidelines are followed.

## **II. Aims And Objectives**

- To access the efficacy and reliability of conservative /non-operative treatment of perforated peptic ulcer and also to observe the complication leading to morbidity and mortality
- To access and evaluate the criteria used for conservative management of peptic perforation.

## **III. Materials And Method**

The present study was a retrospective cum prospective study conducted by reviewing the records of patients admitted with signs and symptoms diagnosis of dry peptic perforation in department of General Surgery, S.P. Medical College and P.B.M Hospital, Bikaner. In the retrospective study records of 50 patients with dry perforation admitted in P.B.M Hospital, Bikaner was studied in details from the view point of history, clinical examination and investigation like X-Ray chest with both domes of the diaphragm and Ultrasonography. In the prospective study 25 patients the study groups who presented as peptic perforation to be sealed and/ or haemodynamically stable patients with peptic perforation and/or with other serious illness when the risk of surgery is prohibitive.

## **IV. Results**

Amongst 75 cases incidence of peptic perforation was present during 4<sup>th</sup> decade of life followed by 5<sup>th</sup> and 3<sup>rd</sup> decade. These three decades of life constitute 66.66% of total patients. None of the patients were found in the first decade. 4 patients (5.33%) were admitted in 2<sup>nd</sup> decade of life. 10 patients (13.33%) were of the age more than 60 years. Youngest patient was of 15 years and oldest being 86 years. Hence we concluded that the critical age of perforation was 4<sup>th</sup>, 5<sup>th</sup> and 3<sup>rd</sup> decades of life. Smoking was the most common predisposing factor present in 37 (49.33%). 28 patients were alcoholic and 19 had a history of NSAID and steroid abuse. Besides these similar history was elicited in 22 patients in the past. Maximum incidence of peptic perforation was seen in Blood group O+ 47.36% followed by B+ , A+, and AB+. Abdominal pain was the most common symptom at presentation, found in all 75 patients. Vomiting was the next common followed by abdominal distension, haemetemesis and malena which were present in 45, 35, 3 and 1 patient respectively. Most

common sign at presentation was tenderness found in 74 out of 75 patients, followed by rigidity, guarding and distension which was found in 80%, 68%, 44% patients respectively.

On examination fluid thrill was present in 26 cases (34.66%) and liver dullness was obliterated in 65 cases (86.66%). Bowel sounds was absent in 35 cases (46.66%). Gas under diaphragm on X-Ray was found in 63 cases (84%). Out of 75 cases ultrasonography was done in 52 cases. 31 showed free fluid in peritoneal cavity, 13 showed normal study, 2 showed separate ascites, 2 showed hepatomegaly, 1 had right subdiaphragmatic collection, 1 had incidental asymptomatic cholelithiasis, 1 showed dilated bowel loops and in one patient USG showed gaseous abdomen hence the sonography interpretation could not be done properly. Upper GI endoscopy was done in 3 patients and showed gastritis and duodenitis in 2 patients and ulcer in stomach and duodenum in one patient. Gastrografin study was not done in any case out of 75. Serum amylase was done in 28 cases and all were found to be within normal limits. Associated medical comorbidities was present in 30 cases, arthralgia being the most common present in 7 out of 30 cases. All these patients had a history correlating to NSAID and steroid abuse. Non-surgical management was taken as the treatment of choice for all 75 cases. 60 out of total (80%) were cured by non-surgical treatment. Operative intervention was done in 6 cases (8%) and was regarded as failure of conservative treatment, complication developed in 4 patients (5.33%) and mortality was 9.33%. Mortality rate was directly proportional to the advancing age as was shown by the data that 30% of the patients who died belonged to age more than 60 years. The mortality rate also showed that females mortality rate was 1.33 times higher than males. 2 patients presented with signs and symptoms suggestive of septic shock, out of which 1 succumbed to death. 42.66% of the patients had a hospital stay of 6 to 10 days and 41.33% had 0 to 5 days of conservative management in the hospital. Most of the patients (84%) had less than 10 days of conservative management. The mean duration of conservative management was 7.06 days. 41.33% of cases had hospital stay between 6 to 10 days while 36% patients stayed less than 6 days. The mean duration of hospital stay was 7.50 days.

## V. Discussion

Peptic perforation is one the complication of peptic ulcer disease, it affects 2% of peptic ulcer patients approximately. Udwardia reported maximum cases of peptic perforation in 20-30 years of age group almost more than a decade less than those reported in Western literature. [10] Budhraj et al reported that majority of patients were in 20-50 years of age group with an average of 35 years of age. [11] In our study maximum number of cases were found during 4th decade of life followed by 5th and 3rd decade, collectively constitutes 66.66% of total patients. These findings are comparable of above findings. Our youngest patient was 15 years old male and oldest being 86 years old female. Bhansali reported 48 peptic perforation out of which only one patient was female and 47 were males with male female ratio 47:1. [12] Budhraj et al reported 38 males and four females patients out of total 42 peptic perforation patients, male: female ratio of 9.5:1. [11] On the other hand Christainjen, Anderson, Bonnesen and Backgaard on their consecutive patient admitted at Copenhagen reported 23 males and 27 females. [13] In our study of total 75 cases of peptic perforation 60 were males and 15 females male: female ratio 4:1. Delis et al in their study reported male: female ratio 3:1 (96 males, 32 females in total 128 patients) which was just similar to our study. Udwardia et al reported that past history of peptic ulcer disease was present in 40% of cases with peptic perforation. [10]. Bhansali reported that past history of similar episode was present in only 40% patients with peptic ulcer perforation. [12] Budhraj reported that past history of peptic ulcer disease was present in 17 cases out of total 42 cases with peptic perforation. [11]. In our study past history regarding peptic ulcer disease was present in 22 patients out of total 75 patients (29.33%) which was similar to past observations.

Sudden onset of severe epigastric pain followed by variable degree of shock and slight vomiting usually may be present. Physical examination reveals a board like abdomen, tenderness most marked in mid and right epigastrium are the usual clinical presentation. Clifford et al reported that sudden onset of excruciating pain in mid abdomen is the most common presentation and board like rigidity of abdomen is most striking physical finding. [2] In our study clinical features are similar to the observations of previous study. T.J Crofts, M.S Kenneth studied conservative management of peptic perforation and in their study mortality was about 5% and morbidity was 50%. [14]. In 1946, Herma Taylor reported series of 28 patients with perforated ulcer treated conservatively, there were 4 deaths (1 avoidable and 3 untreated), to give an approximate 20% mortality at that time following simple oversew and omental patch [15] In 1951 Taylor's mortality for conservative management was 11%. [16] In 1956 he had collected 200 cases and in 1957 there were published reports of 1102 patients from 18 centers treated conservatively with a total mortality of 5%. [4, 5]. In the 1950 it was accepted that the mortality for treatment of perforated ulcer should be 5%. [17]. TABLE 1 shows comparison of various authors and their observation in view of conservative management of peptic perforation.

**Table 1:** Results obtained by various authors by conservative management of peptic perforation.

Authors	Year	Cases	Mortality	Mortality (%)
Herman Taylor[16]	1951	73	7	9.58%
P.K.Sen and S.D. Deodhar[9]	1958	139	7	5.03%
Blackford [18]	1942	28	3	10.71%
Sen and Karanjawala	1955	9	0	0%
Present Study	2015	75	7	9.33%

In our study mortality was 9.33% (7cases). Out of 7 cases, 3 patients were above age of 60years, constituting major mortality. Out of 7, 3 were males and 4 were females. The findings of our study are in collaboration with study by Blackford and Taylor.Thomas did a study of 35 patients of peptic perforation treated conservatively, an intraabdominal abscess developed in one patient while in our study subhepatic abscess was developed in one patient, subdiaphragmatic abscess was developed in one patient and pericolic collection was developed in one patient. These complication are due to late presentation, poor antibiotic response and lack of patient compliance. Operative intervention was done in 6 (8%) patients regarded as failure of conservative treatment. Operative intervention was done because of increase in pulse rate, pyrexia and signs of general peritonitis which was not relieved by conservative management.

## VI. Conclusion

To conclude perforation mainly affects 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup> decades of life. Perforation is much more common in males than females with ratio of 4:1. Smoking was the most common predisposing factor being present in 49.33% cases, followed by alcohol and NSAID's and steroids. O+ blood group in these patients. Pain abdomen is the most common symptom and tenderness is the most common sign affecting 100% and 98.66% respectively. Gas under diaphragm was present in 84% of cases and most important diagnostic procedure. Mortality of conservative treatment of perforated peptic ulcer was 9.33%. Operative intervention was done in only 8% of total patients, regarded as failure. Hence we conclude that non operative management of peptic ulcer disease with perforation can be taken as a good and promising option for the high risk patients and in patients with dry perforation or who are under high risk for surgery.

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