



Original Research Article

## Perforative Peritonitis - A Study of 100 Cases in Rural Area

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### ABSTRACT

**Background:** Diffuse peritonitis is still a dreaded condition and has a high mortality and morbidity.

**Aim & objective:** To study perforative peritonitis in rural area.

**Material & method:** A prospective study of 100 cases of perforative peritonitis over a period of two years was carried out and reviewed in terms of clinical presentation, operative findings, mortality and morbidity.

**Result:** Peptic perforation & enteric perforation were the common causes of perforative peritonitis. Maximum cases were seen in 4<sup>th</sup> decade of life with male preponderance. Simple closure of perforation was effective enough in most cases. E. coli was the commonest organism. Commonest cause of mortality is septicaemia with septic shock. Morbidity was 30% in cases who reported for regular follow-up.

**Conclusion:** Surgical intervention is the treatment of choice in perforative peritonitis. Upper G.I. tract perforations constitute the majority of cases in rural area. The result and outcome depends upon time interval between perforation, admission and operative procedure. Peptic perforation is more in men due to their habits of alcohol, smoking, tobacco chewing and eating spicy food also leading to increased post operative morbidity.

**Key words:** Enteric perforation; Peptic perforation; Perforative peritonitis; Septicaemia.

### INTRODUCTION

The evidence of acute abdomen is documented in the literature from the time of Hippocrates 400 BC who described Hippocratic facies in the terminal stage of peritonitis. [1] Diffuse peritonitis is still a dreaded condition and has a high mortality and morbidity. [2]

#### **Aims and objectives:**

1. To study perforative peritonitis in rural area.
2. To determine whether only simple closure of perforation is still an effective treatment of perforation.
3. To know how many patients of peptic perforation required further definitive treatment.

4. To study morbidity and mortality and its causes.

## MATERIALS & METHODS

100 consecutive cases of perforative peritonitis admitted to a referral hospital in rural area over a period of two years were studied in detail. All these patients were admitted as emergency cases. After admission detailed history and thorough clinical examination was done. In every patient routine blood and urine examination & erect X-ray abdomen was done. In addition, blood sugar, urea, creatinine, electrolytes, s. amylase & USG Abdomen were done as required. After diagnosis, line of treatment was decided whether conservative or operative after considering age, etiology, duration of symptoms, general condition of patient & associated illness.

In this study all 100 patients were treated surgically. Conservative management was not given as opinion is changing towards surgical treatment. [3] After opening abdomen, peritoneal fluid was collected in sterile tube & sent for culture & sensitivity test. Stomach, duodenum, intestines were inspected; perforation was identified and treated surgically according to its individual merit. After discharge patients were followed for a minimum of 8 months to know post operative complications.

Results were computed as percentages of total participants. Also data was internally compared for age and gender and outcomes were also compared accordingly and were tabulated.

## OBSERVATION & RESULT

### Incidence:

53% patients had peptic perforation while 22% patients had enteric perforation (see table 1).

**Table 1 – Aetiology & sex distribution in perforative peritonitis**

Aetiology	No.of. cases	Male	Female
Peptic perforation	53	49	4
Enteric perforation	22	15	7
Traumatic perforation	12	9	3
Appendix perforation	3	3	0
Tubercular perforation	3	0	3
Malignant perforation	2	2	0
Colonic perforation	2	1	1
Hernial perforation	1	1	0
Small bowel obstruction	1	1	0
Sealed ileal perforation	1	0	1
Total	100	81	19

### Age & Sex:

Maximum cases of perforative peritonitis were seen in the third & fourth decade of life. Similar findings were seen by J. Bhatt and S.C Gupta. [4] Maximum cases of peptic perforation were seen in the 4<sup>th</sup> decade (33%) followed by 7<sup>th</sup> decade (20%). The youngest patient was a 20 years male while eldest was 70 years male. Maximum cases of enteric perforation were seen in 4<sup>th</sup> (36%) and 3<sup>rd</sup> decade (31%) with youngest being 8 years old female and eldest being 75 years old female. Male preponderance was seen as there were 81 males and only 19 females in our study. (See table 1). Youngest was a 2 days old male baby with spontaneous sigmoid perforation and oldest was 84 years male with colonic perforation due to carcinoma.

### Interval between symptom & admission:

A 6 year old patient who had abdominal trauma was admitted within 30 minutes while a 21 year old patient with enteric fever got admitted three weeks after symptoms started. 59% patients were admitted within 24 hours of symptoms and 9 % after 3 days of symptoms.

### Clinical Presentation:

Pain in abdomen with guarding (localised / generalised) were the commonest clinical presentation. (see table 2).

### Diagnosis:

Plain X-ray erect abdomen and USG of abdomen were very helpful in confirming the diagnosis of perforation and

aided in treatment. Gas under diaphragm was seen in 82% of cases while it was absent in 18% cases.

**Table 2 – Clinical presentation in perforative peritonitis**

Clinical symptoms & signs	Percentage of cases
Pain	100%
Vomiting	58%
Distention of abdomen	61%
Constipation	32%
Fever	26%
Tenderness	98%
Guarding	100%
Rigidity	97%
Obliteration of liver dullness	68%
Absent peristalsis	72%

**Mode of treatment:**

All 100 patients underwent surgery. Finney had said in 1900, “The only rationale treatment of perforation is surgical operation and to this there is no contraindication to save a morbid patient.”<sup>[5,6]</sup> Simple closure of perforation was the treatment of choice. Multiple and or big traumatic perforations were treated with resection and anastomosis. Ascending colon injury was treated with ileo-colic anastomosis. In sigmoid colon perforation and colonic perforations due to malignancy, transverse loop colostomy with closure of perforation was done. In tubercular stricture with perforation cases, resection and anastomosis was done. Appendectomy and two layer closure of bladder perforation with suprapubic cystostomy was done when required. Bladder injuries are more likely to occur when the pelvis is crushed in automobile or mining accidents.<sup>[7]</sup> Same was seen in our study.

**Culture and Sensitivity:**

Culture and sensitivity of peritoneal fluid was done in all 100 cases of which 53% were sterile and 47% cases showed organism growth. E. coli was the commonest organism detected. (34 patients)

**Hollow viscus involved:**

Duodenum is the most commonly perforated hollow viscus (51%) This is

followed by ileal perforation (32%) either due to enteric fever, obstruction, trauma or Koch’s. Colon (5%), stomach (4%), appendix (3%) & miscellaneous (5%) were other hollow viscus involved.

**Post operative complications:**

Were wound infection (13%), wound gaping (9%), septicaemia (7%), faecal fistula (2%), burst abdomen (1%), pneumonia (1%), hiccough (1%), intraabdominal collection (1%), G.I. bleeding with CRF (1%) & CCF with septicaemia (1%).

**Mortality:**

Was 12% in this study. Septicaemia with septic shock was the commonest cause of mortality. Mortality increased if duration between symptom and admission increased. Only one patient who was admitted within 12hours of symptoms died. All three patients (100%) with ileal perforation due to Koch’s died while 2 patients (100%) with colon / recto-sigmoid malignancy expired. Mortality was higher in females (6/19 patients died).

**Follow up findings:**

Of the 88 surviving patients, 70 attended regularly for follow up while remaining 18 were lost to follow up. Of the patients who were treated for enteric perforation only one patient complained of malena and the rest were symptom free. 15 patients who were treated for peptic perforation complained of abdominal pain & 5 patients complained of malena. So, 21 out of 70 patients (30%) had post-operative complaints. 3 patients were advised to undergo vagotomy and gastrojejunostomy for their intractable abdominal pain. But one patient refused. Minhas observed that symptom persisted in only 35% of patients after simple closure and only 2% required re-operation.<sup>[8]</sup> Gastroscopy was done in all 15 patients. 8 had duodenitis, 4 had gastritis, 2 were normal & one had active ulcer. Others were adviced medical line of

treatment, stop alcohol, tobacco chewing, smoking & spicy food.

## DISCUSSION

In perforative peritonitis undesirable outcome is multifactorial mainly depending upon the underlying disease, the interval between perforation & treatment, patients' age, general condition & associated illness. It is time to resolve the controversy for the moment; we believe that the 'Man on the spot' should content himself with adequate resuscitation of the patient and the simple closure of the perforation. [9] Perforative peritonitis commonly occurred in the 3<sup>rd</sup> & 4<sup>th</sup> decade of life with peptic perforation being the commonest cause of perforative peritonitis. Male preponderance was seen. However, in recent years there is definite decrease in male to female ratio. Men are more susceptible and prone for peptic perforation & the reported incidence varies from 88% to 91%. [10] In our study we found male to female ratio of 49:4 in peptic perforation. Similar findings were found by Goswamy, [11] S.K. Banerji, [12] A.K.Choudhari, [13] P.C. Bornman [14] and R.M. Hodnett [15] in their respective studies. (See table 3).

**Table 3 – Sex distribution in peptic perforation in various series studied**

Series	Male	Female
Goswamy	48	2
S.K. Banerji	58	2
A.K. Choudhari	106	30
P.C. Bornman	86	27
R.M. Hodnett	134	68
Present series	49	4

The male to female ratio of enteric perforation cases is 15:7 in our study. Peptic perforation is more common in men due to alcoholism, tobacco chewing, cigarette smoking, eating spicy food & stress. Radio diagnosis is simple, noninvasive, easily available & cost effective in rural area like ours. All the

patients were treated surgically but result and outcome depended upon the interval between perforation and admission to surgery, age, general condition of patient and associated illness. The prognosis is poor in patients with large perforations especially with Koch's, malignancy and peptic perforation occurring post meals. Though perforative peritonitis shows male preponderance mortality was higher in females (6/19). This was because of poor general condition of females in rural area where they are deprived of good & balanced diet since childhood. All 3 patients who died due to Koch's perforation were females. Overall mortality was 12%. 70 patients reported for follow-up for a minimum of 8 months. Of these 49 patients (70%) were symptom free. 21 patient (30%) required further treatment. Of these; 20 were patients of peptic perforation who did not change their habits of tobacco chewing, smoking, alcoholism & eating spicy food.

## CONCLUSION

- Peptic perforation is the commonest cause of perforative peritonitis.
- Perforative peritonitis is commonly seen in the 3<sup>rd</sup> & 4<sup>th</sup> decade of life.
- Abdominal pain and guarding are the clinical presentations in perforative peritonitis.
- Erect x-ray abdomen is highly accurate, cost-effective, non invasive & easily available diagnostic tool in rural area like ours.
- Surgical intervention is the treatment of choice & simple closure of perforation is adequate treatment in maximum cases.
- E. Coli is the commonest organism found.
- Though perforative peritonitis is commoner in males, mortality was more in females (6/19 patients).

- Mortality increases with age, poor general condition, associated illness, hypotension at admission, delay in admission & hence surgical intervention, cause & extent of peritoneal contamination
- Morbidity was more in patients of peptic perforation who did not change their habits.

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