

## ORIGINAL RESEARCH

# A prospective study of evaluation, surgical management and outcome in small bowel perforation in a tertiary care centre

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### ABSTRACT

**Introduction:** Small bowel perforation, particularly terminal ileum, is one of the most common abdominal emergencies that a general surgeon will encounter. Small bowel perforation from a variety of causes accounts for the majority of emergency surgery admissions. **Aims and objectives:** To study the various causes of small bowel perforations. To study the various surgical procedures & its outcome. **Materials and methods:** A prospective study of 50 patients admitted to Government General hospital, Mahabubabad with a diagnosis of Small Bowel perforation during the period of June 2022 to January 2024 was included under the study. **Observations:** The present study is based on the analysis of 50 cases of Small bowel perforation admitted to Government General hospital, Mahabubabad between of June 2022 to January 2024. **Discussion:** This study, which conducted, was cross-computed with other studies of similar nature. 50 small intestine perforation cases were included in this study. **Conclusion:** A detailed clinical history was taken for all these patients with an emphasis on the presenting complaints. Majority of cases had guarding and rigidity at presentation.

**Keywords:** Small bowel perforation, Abdominal pain, Air under diaphragm, Ileostomy.

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### INTRODUCTION

Perforation of the small bowel especially terminal ileum is a common abdominal emergency faced by the general surgeon. Perforation of the small bowel from a wide variety of causes comprises the majority of emergency surgical admissions.

Perforation of the small bowel is relatively uncommon in western societies except in regions where typhoid, tuberculosis and parasitic infestation are endemic<sup>1</sup>. The preeminent complication of typhoid is perforation seen in the 3rd week. The ileum is the main site of perforation<sup>2</sup>. The perforated viscus challenges the surgeon's skill as a technician and his knowledge of pre-operative, intra-operative and post-operative care of severely ill surgical patients<sup>3</sup>. Majority of the patients present with sudden onset of abdominal pain. A high index of suspicion is essential to diagnose hollow viscus perforation early as significant mortality and morbidity results from diagnostic delay. Surgery plays an important role in the management of perforations. Evaluation and management of gastrointestinal perforation provide some of the most

challenging experiences for a surgeon with the advent of new technology.

This study is undertaken to find out the age and sex incidence, etiological factors, clinical features and various surgical procedures for gastrointestinal perforations, its complications in our setup.

### AIMS AND OBJECTIVES

- To study the various causes of small bowel perforations.
- To study the various clinical features and investigations to diagnose small bowel perforations.
- To study the various surgical procedures & its outcome.

### MATERIALS AND METHODS

A prospective study of 50 patients admitted to Government General hospital, Mahabubabad with a diagnosis of Small Bowel perforation during the period of June 2022 to January 2024 was included under the study. Only patients who underwent surgery

were included. The data was collected by purposive sampling with respect to their age and sex.

A detailed clinical history was taken for all these patients with an emphasis on the presenting complaints. A thorough physical examination was done for all patients, vital signs were recorded. Presence of Guarding / Rigidity, rebound tenderness, liver dullness obliteration was looked for in all patients. Absence or decreased bowel sounds were also recorded. The investigation which were particularly asked for were white cell counts, Blood routine. An Erect Abdomen X-ray was done for all patients to particularly look for presence of gas under diaphragm.

All patients were operated upon after adequate resuscitation. Patients were subjected for laparotomy with incisions depending on the probable site of perforation. The perforations were managed according to the protocol followed in our hospital.

The surgical procedures undertaken were recorded. Patients were followed up in the post operative period to know the post operative complications, morbidity and mortality rates.

### Inclusion Criteria

Patients aged > 12 years  
Patients presenting with Small bowel perforation.

### Exclusion Criteria

Patients aged <12years  
Patients managed conservatively (non surgically).

### OBSERVATIONS

The present study is based on the analysis of 50 cases of Small bowel perforation admitted to Government General hospital, Mahabubabad between June 2022 to January 2024.

### GENDER DISTRIBUTION

In the present study, 39 cases (71%) were observed in males and 11 cases (22%) were females  
A major part of the group were males

### Presenting symptoms

Pain abdomen was the presenting symptom in almost all cases under study followed by vomiting (76%), fever (46 %) and distension of abdomen (44%).

**TABLE 1 - Percentage of presenting symptoms**

Presenting symptoms	Number	Percentage
Abdominal pain	49	43
Vomiting	30	26.3
Abdominal distension	35	30.7

### Physical Examination

In the present study majority of cases had guarding and rigidity at presentation (39.4%), rebound tenderness (84%), absent bowel sounds were in 36.7% case, obliteration of liver dullness (23.9%)

### Diagnosis

In X ray erect abdomen all the cases of Hollow viscus perforation didn't show pneumoperitoneum which is signified by air under the diaphragm. But majority of the cases had which accounted for 90%

### SITE OF PERFORATION

The most common site of perforation was observed to be Ileal perforation which was in 31 cases (60.8%) followed by Jejunal perforation in 8 cases (15.7%) and D1 perforation (15.7%) D2 in 3 cases (5.9%) and Appendicular perforation in 1 case (2%)

### OPERATIVE PROCEDURE

In 20 cases 40% of patients Primary repair of perforation was done and in 17 cases 34% of cases anastomosis was performed 4 cases End Ileostomy which is 6% and Jejunostomy in 2 cases which is 4% of cases

### Post-operative Complications

The most common complication in this series was wound infection which accounted for 15 cases (34%). And Lung atelectasis in 13 cases, All the patients with this complication were more than 50 years old and 30% of those patients had ongoing respiratory problems (smokers) Reperforation was seen in 6 cases. The patients were operated in emergency setting and end to end anastomosis was done for the patient in 2 layers.

### DISCUSSION

This present study undertaken by me has been compared to other series of similar nature, 50 cases of small bowel perforation were taken up for this study which was done between October 2020 and November 2022.

### AGE DISTRIBUTION

The maximum numbers of cases were in the age group of 21-40yrs accounting for 23 cases 46 percent in our study and are comparable to D.C.M.Rao Et al., 1984 study which shows a maximum incidence in the same age group (50%).

**TABLE 2 - Age distribution in different studies**

Age in years	D.C.M.Rao Et al.,1984		OUR STUDY	
	Number	Percentage	Number	Percentage
<20	12	26	5	10

21-40	23	50	23	46
41- 60	11	24	22	44
Total	46	100	50	100

### GENDER DISTRIBUTION

There is a male predominance in our study accounts for 3.5:1 and is comparable to D.C.M.Rao. et al.,1984 (14.3:1) & M.C.Dandaput et al.,1991 (8.4:1).

**TABLE 3 - Gender Distribution in different studies**

Gender	D.C.M.Rao. et al.,1984	M.C.Dandaput et al.,1991	OUR STUDY
Male	43	304	39
Female	3	36	11
Ratio	14.3 : 1	8.4:1	3.5 :1

**Physical findings:** In the present study majority of cases had rigidity at presentation (39.4%), rebound tenderness (84%), absent bowel sounds were in 36.7% case, obliteration of liver dullness (23.9%) which was comparable to Waqar Alam Jan et al,

**Incision:** In all the cases in our study the incision taken was Midline laparotomy (100%) whereas in Right Para median incision (66%) was the most common incision in Waqar Alam Jan et al, 2002 study.

**TABLE 4 - Types of Incisions taken in different studies**

INCISION	Waqar Alam Jan et al,	Present study
Right Paramedian	66%	0%
Midline laparotomy	34%	100%

### OPERATIVE PROCEDURE

In a study done by Chambers et al<sup>28</sup> the mortality rate of perforations in primary closure in patients with Typhoid fever was 28%, the study was performed in 119 patients Out of which mortality was seen in 34 cases where as in the present study, the mortality rate in typhoid perforations is 20%, that is out of the 5 cases operated for typhoid perforations, mortality was seen in 1 case

**TABLE 5 - Mortality due to perforation secondary to typhoid**

MORTALITY	Chambers et al <sup>28</sup>	Present study
TYPHOID PERFORATIONS	28%	20%

**Complication:** The most common complication in this series was wound infection which accounted for 15 cases (34%). Wound dehiscence was seen in 2(4%) cases. Renal failure and ARDS (1%) were also part of the complication. We came across 6 deaths in the present study (12%). S.K.Nair et al, 1981 reported wound infection as their most common complication in 26 cases (52%), respiratory infection in 2 cases (4%).

**TABLE 6 - Post op complications in different studies**

COMPLICATION	S.K.Nair et al,	Present Study
Surgical site infection	52%	34%
ARDS	4%	1%

### MORTALITY

The mortality in our study was 10% and is comparable to Vadianadan et al, 1986 and less than Prasad et al, 1975 (20%), J.M.Eustche et al 1983 (30%).

### CONCLUSION

- A prospective study of 50 patients admitted to Osmania General Hospital with a diagnosis of Small Bowel perforation during the period of October 2020 and November 2022 was included under the study.
- Only patients who underwent surgery were included. The data was collected by purposive

sampling with respect to their age & sex.

- Incidence is more in the economically productive age group 2n d – 4t h decade.
- There was a M:F ratio of 3.9:1
- A detailed clinical history was taken for all these patients with an emphasis on the presenting complaints. A thorough physical examination was done for all patients, vital signs were recorded.
- Pain abdomen was the presenting symptom in almost all cases under study followed by vomiting (26%), Abdominal pain (43 %) and distension of abdomen (30.7%). Constipation accounted for only 14% of cases.

- Presence of Guarding / Rigidity, rebound tenderness, liver dullness obliteration was looked for in all patients. Absence or decreased bowel sounds were also recorded.
- Majority of cases had guarding and rigidity at presentation (84%), rebound tenderness (39%), absent bowel sounds were in 36% cases, obliteration of liver dullness (23%)
- An Erect Abdomen X-ray was done for all patients to particularly look for presence of gas under diaphragm. Pneumoperitoneum was detected in 90% of cases.
- Patients were subjected for laparotomy all the cases were operated using midline laparotomy incisions
- The perforations were managed according to the protocol followed in our hospital. The surgical procedures undertaken were recorded.
- In our study the most common cause of Small bowel perforation was Ileal perforation.
- Resection and anastomosis in two layers was the commonly done procedure.
- Patients were followed up in the post operative

period to know the post operative complications, morbidity and mortality rates.

- The most common complication in this series was wound infection which accounted for 15 cases (30%). Wound dehiscence was seen in 2 cases. Renal failure and ARDS were also part of the complication.
- Mortality rate in our study was 12%. Delay in the surgery and septicemia were associated with high mortality.

#### REFERENCES

1. Taylor BA. Gastro intestinal emergencies. Glimore Ian T, Robert Shields. Spontaneous perforation of the gut. 1st edition. WB Saunder company: 1992:359-79
2. Sleisenger and Fordtran. Gastro intestinal and liver disease pathophysiology, diagnosis and management. Hamer Davidson H, Sherwood. L. Gorbach. Infectious diarrhea and bacterial food poisoning. 7th edition. WB Saunder company: 2002:1882-85,1889-1901.
3. William Schumer and Sheldon Burman. The perforated viscus, diagnosis and treatment in surgical emergencies. Nyhus Lloyd, The surgical clinics of North America 1972;52(1): 231-38.