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# A STUDY ON MANAGEMENT OF ILEAL PERFORATION.

Surgery

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## ABSTRACT

**AIM** To study on management of ileal perforation.

**Background: -** Ileal perforation is a common problem seen in tropical countries. Ileal perforation is due to many causes, the most common being Enteric fever, Tuberculosis. Trauma continues to be the most frequent reason for high morbidity and mortality.

**Materials and methods:** This is a randomized comparative study conducted in general surgery department of ACSR GOVT. Medical College and Hospital, Nellore between August 2016 to September 2018. All the patients were followed up closely for post operative complications

**Results:** Twenty eight patients of ileal perforation belong to various ages , both sex and from different causes were observed postoperatively between August 2016 to September 2018 .The post operative results showed the following as the different causes of perforations. Out of 28 ileal perforations treated, fifteen (53.57%) patients had typhoid perforation, seven (4.76%) were nonspecific, five (17.85%) were traumatic, one (3.57%) was due to tuberculosis

**Conclusion:** Early surgery and adequate resuscitation are the important factors for successful management of patients with ileal perforation. This study proposes that ileostomy may be given priority over other surgical options especially in those moribund patients who present late in the course of their illness, have more than one perforation with massive faecal contamination of the abdominal cavity.

## KEYWORDS

Superior mesenteric artery. Resection, ileostomy.

### BACKGROUND

Peritonitis due to ileal perforation is a common surgical emergency in Indian subcontinent. It is reported to constitute the fifth common cause of abdominal emergencies due to high incidence of enteric fever in these regions. Despite the availability of improved modern diagnostic facilities and advances in treatment regimes, this disease has an sudden onset and a rapid downhill course with a high mortality if not treated[1,2,3]

William Cullen coined the term 'peritonitis' in 1776[4]. Benjamin Travers did the first successful closure of an intestinal perforation[5]. The introduction of Lempert's sutures was a significant advancement in the technique of restoring intestinal continuity[4].

In 1880, Karl Joseph Eberth discovered the Typhoid bacillus. Gaffkey first isolated and cultured Salmonella typhi in 1884[6]. Widal described the test to detect agglutinins in serum of patients suffering from typhoid fever in 1896. In 1896, the first vaccine for human use against typhoid was made by Pfeiffer and Kalle[6].

### MATERIAL AND METHODS:-

This is a randomized comparative study conducted in general surgery department of ACSR GOVT. Medical College and Hospital, Nellore between August 2016 to September 2018. The data was collected from the patients of all ages and both sex. Patients who underwent laporotomy and proven to be a ileal perforation intraoperatively were observed and a detailed clinical history was taken for all these patients with an emphasis on the presenting complaints.

All the cases of acute abdomen due to perforation confirmed by X-ray abdomen and ultrasound abdomen were initially taken for laporotomy and those cases with ileal perforation alone were included in the study and the rest were exclude. The Data was entered into Performa which also includes the demographic data, therapeutic intervention, course in hospital and follow up. A Thorough history and clinical examination was done for all patients, vital signs were recorded.

Routine pre operative investigations like Hemoglobin, Random blood sugar, Total Leukocyte count , Bleeding time, Clotting time Blood Urea , Serum Creatinine, Widal test, Chest x-ray, Electrocardiogram, Ultrasound abdomen, X-ray Erect Abdomen were done for all patients. Prior to surgery, all the patients were resuscitated with correction of fluid and electrolyte balance had a nasogastric tube placed for decompression of gastric contents, and proton pump inhibitors. An informed consent was taken for surgical procedure and for the possibility of stoma.

Patients were divided into two group's ileostomy group and primary closure group.

Irrespective of the severity of the peritonitis, primary closure and ileostomy was done alternatively. Thorough peritoneal lavage was done in all patients before closure.

All the patients were followed up closely for post operative complications.

All data was tabulated , graphical analysis were made and subjected to statistical analysis in the form of ratios , percentages and nonparametric tests like Chi square test are used for `p` values.

### RESULTS:-

Twenty eight patients of ileal perforation belong to various ages, both sex and from different causes were observed postoperatively between August 2016 to September 2018.

The post operative results showed the following as the different causes of perforations. Out of 28 ileal perforations treated, fifteen (53.57%) patients had typhoid perforation, seven (4.76%) were nonspecific, five (17.85%) were traumatic, one (3.57%) was due to tuberculosis

As for wound infection was concerned two (2) were in primary closure group and four (4) were in ileostomy group.

Of burst abdomen three (3) were in primary closure group and none were in ileostomy group.

One patient had faecal fistula in primary closure group and none were in ileostomy group.

Three (3) patients of primary closure had respiratory complications and one was in ileostomy group.

Five patients of primary closure did not have any postoperative complications where as nine patients of ileostomy group were without complications

### Frequency of symptoms

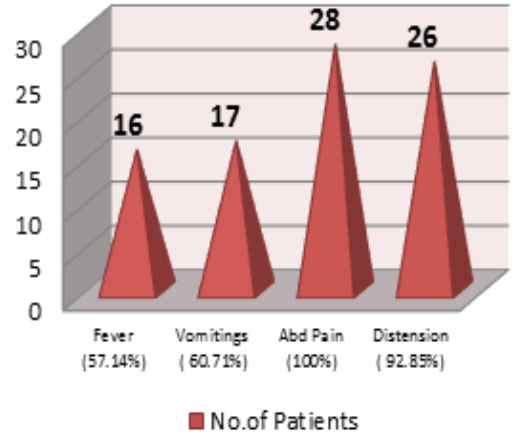
In this study of twentyeight patients, fever was present by 16 patients (57.14%) , vomitings was in 17 patients (60.71%) ,abdominal pain in 28 patients (100%), distension in 26 patients (92.85).

All the patients in this study were presented with pain abdomen.

**Table – 1: Frequency of symptoms**

| Symptoms | No. Of Patients (N = 28) | % |
|---|---|---|
| Fever | 16 | 57.14 |
| Vomitings | 17 | 60.71 |
| Abdomen Pain | 28 | 100.00 |
| Distension | 26 | 92.85 |

**Graph- 1: frequency of symptoms**



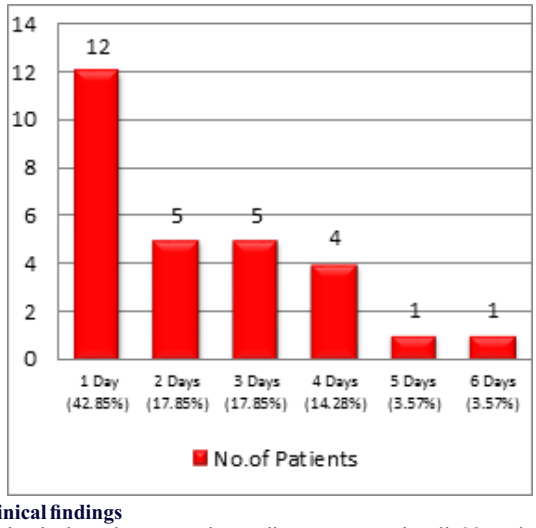

**Interval between onset of pain abdomen and surgical intervention**

The interval is one day to six days

**Table – 2: Interval between onset of pain abdomen and surgical intervention**

| Duration | No. Of Patients (N = 28) | % |
|---|---|---|
| 1 Day | 12 | 42.85 |
| 2 Days | 5 | 17.85 |
| 3 Days | 5 | 17.85 |
| 4 Days | 4 | 14.28 |
| 5 Days | 1 | 3.57 |
| 6 Days | 1 | 3.57 |

**Graph-2: Interval between onset of pain abdomen and surgical intervention**




**Clinical findings**

Abdominal tenderness and guarding was seen in all 28 patients. Distension is present in 26 patients and bowel sounds were absent in 21 patients

**Table – 3 clinical findings**

| Clinical Signs | No. Of Patients (N = 28) | % |
|---|---|---|
| Abdomen Tenderness | 28 | 100 |
| Guarding | 28 | 100 |
| Distension | 26 | 92.85 |
| Bowel Sounds Absent | 21 | 75.00 |

**Graph- 3: clinical findings**

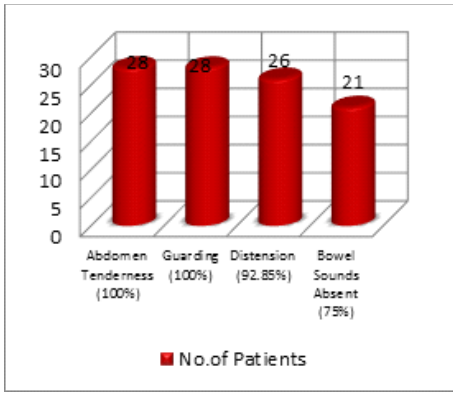
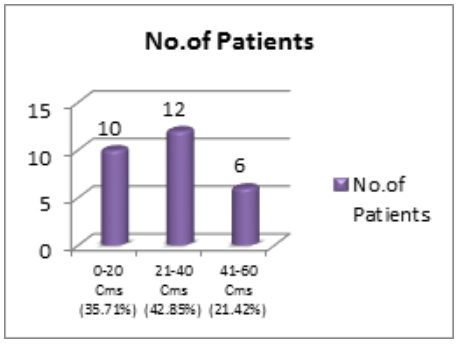



**TABLE-4 distance of perforation from ileo caecal junction**

| Site of Perforation from ileo caecal junction | No. of patients | Percentage |
|---|---|---|
| 0 – 20 Cms | 10 | 35.71 |
| 21- 40 Cms | 12 | 42.85 |
| 41-60 Cms | 6 | 21.42 |

**Graph-4 distance of perforation from ileo caecal junction**



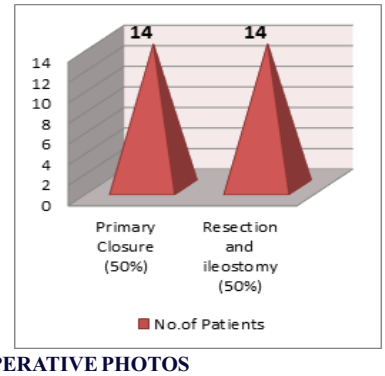

**Surgical procedures**

In total twenty-eight number of patients, fourteen patients had undergone primary closure and remaining fourteen patients underwent ileostomy.

**Table – 5 surgical procedures**

| Type of Surgical Procedure | No. Of Patients (N = 28) | Percentage |
|---|---|---|
| Primary closure | 14 | 50 |
| Resection and ileostomy | 14 | 50 |

**Graph-5: Surgical procedure**




**INTRAOPERATIVE PHOTOS**

**Figure-1: Ileal perforation**

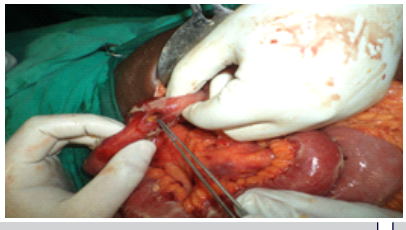
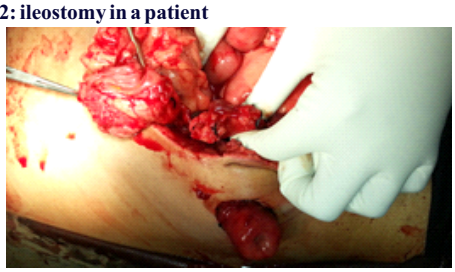


**Figure-2: ileostomy in a patient**



## DISCUSSION

The present study include a total number of twenty eight cases of ileal perforation admitted in ACSR GOVT. Medical College and Hospital, Nellore over a period of approximately 2 years. The results and observations of the study discussed.

Ileal perforation can be caused by many causes like trauma, tuberculosis etc. But typhoid fever is the most common cause of ileal perforation and its serious complications in the developing world that presents a challenge to surgeons. The perforation may lead to high morbidity and sometimes mortality if not treated in time[7]. The incidence of the disease varies considerably from one part of the world to another part of the world. The incidence of typhoid intestinal perforation had been reported as an indication of endemicity of typhoid fever in most of the localities [7,8].

In this study group twenty-eight cases of ileal perforations due to different causes were operated. In those cases typhoid intestinal perforation represented 53.5% .Onset of symptoms and time of presentation in the hospital are important prognostic factors. An early presentation holds a good prognosis. Unfortunately, in developing countries, the presentation to hospital is usually late with fully blown peritonitis, some cases may present with septicemia and multi-organ failure. Current literature strongly favors the surgical management only of enteric ileal perforation[9].

The other causes of ileal perforation in this study are 25% nonspecific, 17.8% traumatic, 3.5% TB. Typhoid fever accounted for 56.6% of cases of ileal perforation in the series by Karmakar[10].

When the etiology of the perforation was not identified it was termed non-specific perforation. Non-specific perforation was the second commonest cause in this study accounting for 25% of cases.

Five patients of non-specific perforation had fever prior to onset of abdominal symptoms. Non-specific perforations were the commonest cause of small bowel perforation in the series by Dixon and Bhalerao[11].

Trauma accounted for 17.8% of cases of ileal perforation in this series. 8.25% of ileal perforations published by Karmakar were due to trauma[10]. The rising rate of road traffic accidents and civil violence has contributed to this increased incidence of traumatic perforations.

Tuberculosis accounted for 3.5% of cases of ileal perforations in the present study . Talwar et al.. Have found 19% of non traumatic small bowel perforations due to intestinal Tb[12].

Most patients presented with features suggestive of peritonitis. Patients of both typhoid and nonspecific perforations had similar presentation with respect to abdominal symptoms and signs. Patients with typhoid perforation had fever, abdominal pain and vomiting. Examination revealed tenderness, guarding, distension and intraperitoneal free fluid. Eggleston[7] reported that most patients had fever, malaise and sudden increase in abdominal pain in typhoid perforation.

X-ray erect abdomen with both domes of diaphragm is a useful investigation to detect hollow viscus perforation. In our study free gas was seen under the diaphragm in 71.4% of perforations. In favor of this study, Pneumoperitoneum has been reported in 52% to 82% in studies by Hadley, Archampong, Tacyildiz and Vaidyanathan[13]. The value of the radiological investigation has been compared with other writers and with current radiological techniques; 80-90% of cases are correctly diagnosed. Findings from our study demonstrated free gas under the diaphragm on abdominal and chest radiographs in more than seventy percent of cases which is consistent with other studies. A plain abdominal or chest radiograph with free air under the diaphragm is a fairly frequent but variable finding significant hollow viscus perforation, but its absence does not exclude the diagnosis. Abdominal ultrasonography has also been found to be superior to plain radiographs in the diagnosis of free intra-peritoneal air as confirmed by the present study.

Widal test was positive in 53.5% cases of this study.

Widal was reported positive in 30% of patients with typhoid perforation by Kaul and in 46.1% of patients by Santillana[14]. It was reported positive in 75.5% of cases by Jarrett and in 73% by Vaidyanathan [13]. Four-fold increase in titers is considered more significant.

In this study most patients of confirmed typhoid were treated with ciprofloxacin and metronidazole. The rest had a third generation cephalosporin (cefotaxime) and metronidazole.

One of the many factors affecting the surgical outcome in patients with intestinal perforation is time interval between duration of illness and surgical intervention (perforation-surgery interval). Early surgery can minimize the complications while delayed surgery leads to severe peritonitis and septic shock. In the present study, the majority of patients were operated more than 24 hours after the onset of illness. Similar observation was reported by other studies done in developing countries.

Orloff[15] recommended debridement and closure in patients of traumatic perforation where the injury was small and resection anastomosis in patients with large wounds or multiple perforations. Patients with traumatic perforations had lesser complications presumably due to a healthier bowel than those patients with typhoid or non-specific perforations. In patients of traumatic perforations outcome in primarily influenced by injury to other organ[15].

The presence of single intestinal perforation in majority (83.1%) of patients in this study is consistent with other reports[8]. The number of intestinal perforation in patients with typhoid ileal perforation has been reported to have an influence on prognosis.

In the present study, patients with multiple perforations had significantly high mortality rates compared to those with single perforations. Beniwal et al found that the number of perforation had effect on surgical outcome. Adesunkanmi et al reported high incidence of residual abscess in patients with single perforation, Kaybal et al reported better outcome in single perforation and worse prognosis in multiple perforations while Rehman[16] does not favor correlation of perforation to morbidity and mortality. Mock[17] reported that increasing number of perforations, generalized contamination of the peritoneal cavity and primary closure influenced survival. Mock et al[17] report is in favour to this study that primary closure had influence on the survival of the patient.

In this study patients underwent primary perforation closure and ileostomy. Patients with multiple perforations underwent resection and ileostomy.

The overall complication rate for all patients in this series was 50%. In this study the common complications are wound infection, burst abdomen, faecal fistula and respiratory complications. Wound infection is the commonest complication in this study with a complication rate of 21.4% in six patients, Burst abdomen rates about 1 0.7%, faecal fistula rates about 3.5% and respiratory complications about 14.2%. Santillana[14] in his series reported a rate of 71.9% in 96 patients.

The mortality rate of 23.1% in the present study is comparable to the rates reported from tropical countries such as 22.0% from Nigeria where chloramphenical is still the drug of first choice[18]. These figures are much higher than the rates reported from other tropical countries such as 6.8% from Nepal, and 10.5% from India in another study. A high mortality rate of 39.0% was also reported in Nigeria by Meier et al. Exceptionally low mortality rates of 1.5-2% have been reported from some parts of the developed world, where socioeconomic infrastructures are well developed. The reasons for the high mortality are multifactorial. In this study high mortality rate was attributed to delayed presentation, inadequate antibiotic treatment prior to

admission, multiple perforations, severe peritoneal contamination and presence of postoperative complications.

In this series the outcome of best results in terms of mortality, morbidity and post operative complications were found to be in patients with ileostomy. The primary closure of perforation was associated with an overall 32% complication rate where as only 17% in ileostomy group. Ileostomy proved to be the most Successful procedure in this study in terms of overall mortality and morbidity, this is supported by Bhansali S.K study[19]. There is, however a consensus that late presentation, delay in operation, multiple perforations, degree of faecal contamination of peritoneum and old age determine mortality and morbidity associated with this problem .

## CONCLUSIONS

This study was conducted from August 2016 to September 2018. It includes twenty-eight cases of ileal perforation admitted to ACSR GOVT. Medical College and Hospital. A comparision between primary perforation closure and ileostomy in cases of ileal perforation is also studied.

Early surgery and adequate resuscitation are the important factors for successful management of patients with ileal perforation. This study proposes that ileostomy may be given priority over other surgical options especially in those moribund patients who present late in the course of their illness, have more than one perforation with massive faecal contamination of the abdominal cavity. Primary closure of perforation is a preferred technique in clinically stable patients with a single perforation with minimal soiling of the abdominal cavity.

## SUMMARY

This study includes 28 patients with ileal perforation presented to general surgery department and general medicine department, ACSR GOVT. Medical College and Hospital, Nellore for a period of 2 years
Diagnostic confirmation was made on the basis of the X-ray-erect abdomen, ultrasound abdomen, Widal test and intra-operative findings.

Typhoid perforation is the most common case of ileal perforation followed by non-specific perforation.

Post-operative complications are more in the primary closure group with 32.14 %( 9 patients) which is lower when compared to ileostomy group 17.85 %( 5 patients).

Complications of primary closure were wound infection (2 patients), burst abdomen (3 patients), faecal fistula (1 patient), and respiratory complications (3 patients).

Complications in ileostomy group were wound infection (4 patients) and respiratory complications (one patient).

Mortality is high in primary closure group with 21.42 %( 6 patients) and was less in ileostomy group with 7.14 %( 2 patients)

## REFERENCES


1) Sushil Mittal, Harnam Singh, Anand Munghate, Gurpreet Singh (2014) A Comparitive Study between the Outcome of Primary Repair versus Loop Ileostomy in Ileal perforation, volume 2014 edn., Rohtak, India: Hindawi publishing corporation surgery Research and Practice.
2) S. Siddiqui, "Epidemiologic patterns and control strategies in typhoid fever," Journal of the Pakistan Medical Association, vol.41, no. 6, pp. 143–146, 1991.
3) D. K. Pal, "Evaluation of best surgical procedures in typhoid perforation—an experience of 60 cases," TropicalDoctor, vol. 28,no. 1, pp. 16–18, 1998
4) Zachary Cope. A History of Acute Abdomen. 2nd Edition, Oxford University Press, 1965,12.
5) Zachary Cope. A History of Acute Abdomen. 2nd Edition, Oxford University Press, 1965,58.
6). Bitar R, Tarpley J. Intestinal perforation in typhoid fever: a historical and state-ofthe- art review. Rev Infect Dis. 1985 Mar-Apr;7(2):257-71. Review
7) Phillipo L Chalya, Joseph B Mabula, Mheta Koy, Johannes B Kataraihya, Hyasinta Jaka, Stephen E Mshana, Mariam Mirambo, Mabula D Mchembe, Geofrey Giiti and Japhet M Gilyoma. Typhoid intestinal perforations at a University teaching hospital in Northwestern Tanzania: A surgical experience of 104 cases in a resource-limited setting. World Journal of Emergency Surgery 2012 7:4.
8) Ameh EA: Typhoid ileal perforation in children: A scourge in developing countries. Ann Trop Paediatr 1999, 19:267-72.
9) Malik AM, Laghari AA, Mallah Q, et al.,Different Surgical Options and Ileostomy in A.P.M.C Vol: 5 No.1 January-June 2011 18 Typhoid Perforation. World J. Med. Sci., 2006; 1: 112-116.
10) Karmakar SR, Dwivedi Dr, Bhalerao RA. Perforations of terminal ileum. Indian Journal of Surgery, 1972; 34: 422-426
11) Dixon JM, Lamusden AM, Piris J. Small Bowel Perforation. Journal of the Royal College of Surgeons of Edinburgh, 1985; 30(1): 43-46.
12) S Talwar MS, R Talwar MD, P Prasad MS, Tuberculous perforations of small intestine. IJCP 1999;53:5 14-8.
13) Vaidyanathan S. Surgical management of typhoid ileal perforation. Ind J Surg, 1986;335-341.
14) Santillana M. Surgical complications of typhoid fever: enteric perforation. World J Surg. 1991 Mar-Apr;15(2):170-5.
15) Marshal J Orloff, Crane Charters. Injuries of the small bowel and mesentery and retroperitoneal hematoma. Surgical Clinics of North America, 1972; 52(3): 729-734.
16). Rahman GA, Abubakar AM, Johnson AW, Adeniran JO: Typhoid ileal perforation in Nigerian children: An analysis of 106 operative cases.Pediatric Surg. Int 2001, 17:628-30
17) Mock CN, Amaral J, Visser LE. Improvement in survival from typhoid ileal perforation. Results of 221 operative cases. Ann Surg. 1992 Mar;215(3):244-9.
18) Otegbayo JA, Daramola OO, Onyegbatulem HC, Balogun WF, Oguntoye OO: Retrospective analysis of typhoid fever in a tropical tertiary health facility. Trop Gastroenterol 2002, 23:9-12.
19) Bhansali, S.K., 1967. Gastrointestinal perforation: a study of 50 patients. J. R. Coll. Surg. Edinb., 42: clinical study of 96 cases. J. Post Grad. Med. Inst., 395-399.13: 1.