



## A Prospective Study of Non Traumatic Ileal Perforation

**Dr. M.A.Balakrishna** Professor and head, department of general surgery, Mysore medical college, Mysore, India.

**Dr. Shreedhar.S.K** Junior resident, department of general surgery, Mysore medical college, Mysore, India. Corresponding author

**Dr. chethankumar.G.S** Junior resident, department of general surgery, Mysore medical college, Mysore, India.

**Dr. Anandmurthy.K.T** Junior resident, department of general surgery, Mysore medical college, Mysore, India

**Dr.Karthik** Junior resident, department of general surgery, Mysore medical college, Mysore, India

### ABSTRACT

*Introduction: Perforation of the bowel is a serious complication and remains a significant surgical problem in developing nations. It is usually associated with high mortality and morbidity as it occurs mostly in underdeveloped countries in places where medical facilities are not readily available. There is still confusion and controversy over the diagnosis and optimal surgical treatment of non traumatic terminal ileal perforation—a cause of obscure peritonitis.*

*Objectives: To evaluate the clinical profile, etiology, and optimal surgical management of patients with nontraumatic ileal perforation. To testify clinical method of anticipating ileal perforation by mere perceiving feculent odour of paracentesis fluid.*

*Methods: This study was a prospective study conducted from August 2013 to December 2014 in department of general surgery, K.R. hospital, Mysore.*

*Results: There were 24 cases of nontraumatic terminal ileal perforation in the period. The causes for perforation were enteric fever (71%), nonspecific inflammation (20%), obstruction (9%). Primary closure of the perforation (82%) and resection and anastomosis (16%), and defunctioning ileostomy (2%) were the mainstay of the surgical management.*

*Conclusion: Terminal ileal perforation should be suspected in all cases of peritonitis especially in developing countries and surgical treatment should be optimized taking various accounts like etiology, delay in surgery and operative findings into consideration to reduce the incidence of deadly complications like fecal fistula.*

**KEYWORDS : ileum, perforation, typhoid fever, peritonitis.**

### INTRODUCTION:

Perforation of the bowel is a serious complication and remains a significant surgical problem in developing nations like India. Perforation of terminal ileum is a cause for obscure peritonitis, presented as severe abdominal pain associated with diffuse tenderness, guarding and rigidity, starting at periumbilical region and then involving whole abdomen. However for many patients in a severe toxic state, there may be obscured clinical features with resultant delay in diagnosis and adequate surgical intervention. The present study was taken to review our experience of clinical profile and management of terminal ileal perforation in the period of August 2013 to December 2014.

### METHODS:

The present study was a prospective study conducted by Department of General Surgery, K.R. Hospital, Mysore medical college, Mysore from August 2013 to December 2014. All the patients were admitted in emergency ward. A thorough history was taken and detailed examination was done. Baseline investigations included complete hemogram, renal function tests, chest xray and xray abdomen in erect posture taken and ultrasonography of abdomen was done. After confirming hollow viscus perforation, to know the perforation site, a diagnostic paracentesis was done. If the fluid is there which confirms peritonitis and the colour and smell of the fluid gives idea of site of perforation. If it is bilious, the perforation is probably duodenal and if it is fecal color and feculent smell, the perforation site is probably ileum. Most of the times the widal test is done postoperatively after typical findings were noted. After thorough resuscitation, the patients were subjected to exploratory Laparotomy under General Anesthesia. Operative findings were recorded and edge biopsy at the perforation site or the resected specimen was sent for his-

topathological examination. The type of surgical procedure was decided on basis of operative findings. Delay in operation was the time period calculated from the time of onset of severe symptoms like severe abdominal pain, distention and vomiting. Postoperatively the patients were followed up for a period of 6 months.

### RESULTS:

There were a total of 35 cases with perforation of terminal 2 feet of the ileum. 11 of these were due traumatic which were excluded from study. The mean age of the non traumatic ileal perforation was 27.6 years. In that, 19 patients were males and 5 patients were females. None were from paediatric group. Pain abdomen was only constant clinical feature in all the patients. Among the investigations, ultrasonography showed free fluid in 85% patients. Radiographic images showed air under diaphragm in about 62% of patients. Leucocytosis ( $>11 \times 10^9/L$ ) was present in 27% patients whereas 52% patients had a positive Widal test post operatively. Above all the sensitivity of clinical illustration of smell of paracentesis fluid with feculent odour was found to be 100% (in 21 cases). Only 8% of patients got operated within 24 hrs after estimated time of perforation. Mean delay in operation was 65 hours. The delay was mainly prehospital. On laparotomy 78% of the patients had a single perforation in terminal ileum with majority of patients having a feculent collection in peritoneal cavity. The final diagnosis in majority was enteric fever (71%). Those patients in whom the diagnosis could not be made and the histopathological examination revealed nonspecific inflammation were labeled as nonspecific. These were found to be around 20%. Obstruction at the level of ileo caecal junction causing proximal dilatation thus perforations were found in around 9% of patients. Other causes

of non traumatic ileal perforation like tuberculosis, radiation enteritis were not found.

Among 24 patients, 20 patients underwent primary closure(82%), 3 patients underwent resection anastomosis because of multiple perforations (16%), 1 patient underwent proximal ileostomy(2%).

2 patients had post operative leak who improved with conservative management and 3 patients had abdominal wound dehiscence managed with proper antibiotics and secondary suturing.



**both the pictures showing solitary ileal perforation at antimesenteric border.**

#### **DISCUSSION:**

Non traumatic terminal ileal perforation is still common as a cause for obscure peritonitis in developing and underdeveloped world although in west it is quite rare. The terminal ileal perforation presents a diagnostic dilemma to the surgeon. Laparotomy is usually carried out late often suspecting a perforated appendicitis or a duodenal ulcer. Causes other than typhoid perforations were considered. The clinical features were similar to any other acute abdominal condition. The decision for a laparotomy was mainly clinical supplemented by investigations. However no single investigation was specific. The delay in operation since the estimated time of perforation was mainly prehospital. This is due to the fact that there most of the cases came

from remote areas where the medical facilities are scarce. In cases of trauma usually there is no difficulty in management since the tissues are healthy and patients present in good clinical state. Typhoid fever is predominant cause of nontraumatic perforation in developing countries. Typhoid fever, a severe febrile infectious disease caused primarily by *Salmonella typhi* occurs in areas where poor socioeconomic levels and unsanitary environmental conditions prevail. After ingesting contaminated food, multiplication of bacteria occurs in the reticuloendothelial system during an incubation period of 1–14 days; clinical manifestations start with bacteremia, high-grade fever, signs of systemic sepsis with characteristic normal or low blood counts and anemia—the reason for low incidence of leucocytosis in our study. Later the bacteria become localized in Peyer's patches. These undergo swelling and ulceration that can progress to capillary thrombosis and subsequent necrosis. These ulcerations are always located on the antimesenteric border of the intestine and may perforate, usually in 3rd week of disease. An increase in titer of agglutinins against the somatic(O) and flagellar(H) antigens of *S typhi* occurs (basis for Widal test). The gut in typhoid fever is edematous and friable (especially last 60 cms). There may be one or several perforations and many other impending perforations, which makes the surgery difficult. Nonspecific inflammation of the terminal ileum was another predominant cause. In such cases, the operative findings were similar to that of typhoid fever but no laboratory evidence of the disease was found. The clinical picture of tuberculous perforation will be that of a diffuse peritonitis and a chest radiograph showing radiological manifestations of tuberculosis. The most common site is the terminal ileum and intraoperative differentiation from Crohn's disease is difficult. These causes are extremely rare in West where Crohn's disease, foreign bodies, perforated diverticula[4] and radiation enteritis[5] are important causes. Late presentation, delay in operation(>48 hrs), multiple perforations and drainage of copious quantities of pus and fecal material from the peritoneal cavity adversely affected the incidence of fecal fistula and subsequent mortality[6,7]. The peritoneal fluid content and the delay in operation-perforation time also determine the severity of contamination and friability of gut. Various surgical procedures have been used for distal ileal perforations with variable results. Unfortunately no matter what procedure is used postoperative mortality and morbidity remains high. The most catastrophic complication being the fecal fistula and the wound dehiscence [8]. Primary closure of the perforation with thorough peritoneal lavage is most commonly employed procedure in our setup but in severely contaminated cases with friable terminal ileum (those with delayed presentation, multiple perforations, fecal peritonitis), obviously something more than mere closure of perforations needs to be done to reduce the incidence of most deadly complication like fecal fistula. Resection anastomosis carried a high morbidity and mortality[9]. Ileostomy would have been ideal but its maintenance in our underprivileged and the need for second operation discouraged us from its frequent use. In such circumstances end to side ileotransverse anastomosis with closure of distal stump is a better procedure.

#### **CONCLUSION:**

Terminal ileal perforation should be considered as a possibility in obscure peritonitis. Early diagnosis and treatment avoids extensive procedures and is associated with lower morbidity and mortality. The preoperative diagnosis is usually made in an endemic country except in patients who are moribund; there has to be a high level of suspicion. Investigation aid in diagnosis but no single investigation is diagnostic. However the clinical method of act of perceiving the odour of paracentesis fluid which is taught by clinical veterans, gives a break through diagnosis. This clinical vignette stands test of time in this era of modern investigations. In developing countries enteric perforation is a strong possibility. Non specific inflammation and tuberculosis are other causes in developing countries. The operative findings are typical with most enteric perforations on the antimesenteric border of terminal 60 cm of ileum. The operative management consists of thorough peritoneal lavage with closure of perforation. However in the patients where the terminal ileum is grossly inflamed with multiple perforations, perforation-operation delay >48 hours, fecaloid peritonitis prognosis is poor irrespective of type of surgery.

## REFERENCES

1. Santillana M. Surgical complications of typhoid fever: Enteric perforation. *World J Surg.* 1991;15:170–175. doi: 10.1007/BF01659050. [PubMed] [Cross Ref]
2. Ameh EA, Dogo PM, Attah MM, Nmadu PT. Comparison of three operations for typhoid perforation. *Br J Surg.* 1997;84:558–559. doi: 10.1046/j.1365-2168.1997.t01-1-02494.x. [PubMed] [Cross Ref]
3. Huckstep RL. Recent advances in the surgery of typhoid fever. *Ann R Coll Surg Engl.* 1960;26:207–230. [PMC free article] [PubMed]
4. Rajagopalan AE, Pickleman J. Free Perforation of the Small Intestine. *Ann Surg.* 1982;196:576–579. [PMC free article] [PubMed]
5. Meissner K. Late radiogenic small bowel damage: Guidelines for the general surgeon. *Dig Surg.* 1999;16:169–174. doi: 10.1159/000018721. [PubMed] [Cross Ref]
6. Adesunkanmi ARK, Ajao OG. The prognostic factors in typhoid ileal perforation: a prospective study of 50 patients. *J R Coll Surg Edinb.* 1997;42:395–399. [PubMed]
7. Paredes C, Cruz J, Diaz-Plasencia J, Prevost M. Prognostic factors in typhoid perforation. *Rev Gastroenterol Peru.* 1993;13:13–19. [PubMed]
8. Eggleston FC, Santoshi B. Typhoid perforation: choice of operation. *Br J Surg.* 1981;68:341–342. [PubMed]
9. Shah AA, Wani KA, Wazir BS. The ideal treatment of the typhoid enteric perforation -resection anastomosis. *Int Surg.* 1999;84:35–38. [PubMed]
10. Chowdri NA, Wani RA, Wani NA, Wani KA, Malik AA, Fowzia F. A comparative study of Simple Closure versus resection with end to side ileotransverse anastomosis in nontraumatic terminal ileal perforation. *Tropical Doctor.* 2004;34:233–34. [PubMed]