Sir Salimullah Medical College Journal

Sir Salimullah Med Coll J 2021; 29: 153-157

Original Article

Aetiology and Outcome of Resection and Primary Anastomosis in Multiple Ileal Perforation

Gobinda Chandra Saha[1], Md. Ali Azam[2], Md. Shoeb-Ur-Rashid[3], Debashis Dey[4], Muslema Begum[5], Md. Hasib-Al-Mamun[6], Chhamita Sultana Chhanda[7]

Article information
Received: 03.03.2021
Accepted: 01.06.2021

Cite this article:
Saha GC, Azam MA, Rashid MSU, Dey D, Begum M, Mamun MHA, Chhanda CS. Aetiology and Outcome of Resection and Primary Anastomosis in Multiple Ileal Perforation. Sir Salimullah Med Coll J 2021; 29: 153-157

Key words:
Multiple Ileal perforation, Typhoid ileal perforation, Non specificic ileal perforation, Tubercular perforation, Wound dehiscence, Incisional hernia

Abstract:

Background: *Ileal perforation is a very frequent surgical emergency in surgery wards. In tropical country infection is the commonest cause. Repair of perforation, primary repair with loop ileostomy and resection and primary anastomosis are the commonly performed methods.*

Objectives: *To identify the aetiology and assess the outcome of resection and primary anastomosis in multiple ileal Perforation.*

Study Procedure: *This Quasi experimental study was carried out in the Department of Surgery, Rajshahi Medical College Hospital, Rajshahi. 92 patients were included in this study. Thorough clinical, Radiological and biochemical parameters evaluation with postoperative histopathology were performed. All patients treated with resection and primary anastomosis. Different types of Data and variables were recorded through data collection sheet. Mean and frequency of all quantitative and categorical variables were determined.*

Results: *The mean age 42.60±4.44 (age range:18-69) years. Out of 92 patients 74(80.43%) were male and 18(19.56%) were female and ratio was 4.11:1.Presentation were 92(100%) abdominal pain, vomiting 74(80.43%), fever 60(65.21%) and abdominal distension 56(60.86%). Common Cause were typhoid fever 43(46.73%) and nonspecific inflammation 28(30.43%). Patient suffered from wound infection 18(19.44%), dehiscence 7(7.56%), anastomosis leakage 6(6.68%) and 5(5.43%) patient experienced incisional hernia. 74(80.43%) recovered uneventfully, 17(18.47%) recovered with complication and only 1(1.08%) died.*

Conclusion: *Among the infections, typhoid fever is still the prime cause of multiple ileal perforation. Wound infection, wound gap, burst abdomen & primary repair leakage are the common complications. Uneventful outcome is present in majority cases. Delayed presentation, nutritional status and anastomosis from ileocaecal valve are the important deciding factor of worst outcome.*

Introduction:

In Egyptian Mummies, gastrointestinal perforation was first evident. Ileal perforation is mostly evident in the tropical countries. Typhoid fever, tuberculosis, trauma and malignancy are the very frequent reasons for high morbidity and mortality due to ileal perforation[1]. Preoperative resuscitation, antibiotic therapy and total parenteral nutrition minimized the mortality regarding ileal perforation from 28.5% to 10%,

1. Professor, Department of Surgery, Sir Salimullah Medical College & Mitford hospital, Dhaka.
2. MS (Resident), Department of Surgery, Rajshahi Medical College Hospital, Rajshahi.
3. Junior Consultant, Department of Burn and Plastic Surgery, Sir Salimullah Medical College & Mitford Hospital, Dhaka.
4. Assistant Professor, Department of Surgery, Sir Salimullah Medical College & Mitford Hospital, Dhaka.
5. Assistant professor, Department of Anesthesiology, Dhaka medical college Hospital, Dhaka.
6. Registrar, Department of Burn and Plastic Surgery, Sir Salimullah Medical College & Mitford Hospital, Dhaka.
7. MD (Resident), Department of Anesthesiology, Dhaka medical college Hospital, Dhaka.

Corresponding author: Gobinda Chandra Saha; Professor, Department of surgery, Sir Salimullah Medical College & Mitford Hospital, Dhaka. Phone: +8801819134530; Email:prof.gcs@gmail.com

Srihari et al[2]. It is reported to constitute the fifth common cause of abdominal emergencies due to high incidence of enteric fever and tuberculosis in these regions[3]. Patient may present with local signs and symptoms of abdominal pain, abdominal tenderness, guarding / rigidity, distention, diminished bowel sounds and systemic findings like fever, tachycardia, chills or rigors, sweating, restlessness, tachypnoea, dehydration, oliguria, disorientation and ultimately shock. Ileal perforation is due to many causes, the most common being typhoid fever but tuberculosis, trauma and nonspecific inflammation causes continues to be the most frequent reason for high morbidity and mortality[1]. Among them typhoid ulcer perforation is the commonly evident[4]. There are several surgical techniques that are advocated by different researches. They are primary repair[5], repair of perforation with ileotransverse anastomosis[6], primary ileostomy[7], single layer repair with an omental patch[8], and resection and anastomosis[9]. The main aim of this study was to determine the aetiology and assess the outcome of resection and primary anastomosis in the treatment of the patient with multiple ileal perforation.

Materials and Methods:

This quasi experimental study was done From July 2018 to June 2019 in the Department of Surgery, Rajshahi Medical College Hospital, Rajshahi, Bangladesh. Sample size was 92.

Inclusion Criteria: 1. Age: 15-70 years, 2. Both sex, 3.Presenting with features of peritonitis of suspected ileal perforation, 4. Patient with multiple ileal perforation found during surgery.

Exclusion Criteria: 1. Patient of paediatric age group, 2.Patient with single ileal perforation, 3.Patients with severely contaminated peritoneal cavity, 4.Patient with malignant perforation.

Case Selection: Total 92 patients of suspected ileal perforation were selected according to the presenting symptoms like fever, abdominal pain especially right lower quadrant, vomiting, abdominal distension and on examination tenderness, rigidity, bowel sound were evaluated and also who had trauma to the abdomen. The cases were confirmed by clinical evaluation and appropriate investigations like Widal test, Blood culture and stool culture, plain X-ray abdomen. The patients were taken for emergency surgery after adequate resuscitation. The patients and their attendants were informed regarding the study and written consent was taken**.** All the patients underwent primary resection and anastomosis in multiple ileal perforation. Anastomosis was done as single layer extra mucosal interrupted method with 3-0 vicryl (Polyglycolic acid). In all cases biopsy was sent for histopathological examination. Postoperative complications like wound infection, wound dehiscence, intra-abdominal abscess, anastomotic leakage, faecal fistula, peritonitis, septicemia, and death and so forth were evaluated. Categorical variables were expressed as frequency, percentage and mean with standard deviation and all quantitative data was expressed as mean ± SD and qualitative data was expressed as percentage and ratio.

Results:

Study population was 92, mean age±SD was 42.60±4.44 (age range: 18-69) years. The highest 39(42.39%) belonged to 21-40 years age group. 74(80.43%) were male and 18(19.56%) were female and ratio was 4.11:1. Among 92 patients 48(52.17%) had normal, and 37(40.21%) had poor BMI (Table 1).. Among the study populations, 43(46.73%) patients presented between 24-48 hours after onset of symptoms. Typhoid fever 43(46.73%), and nonspecific inflammation 28(30.43%) were the commonest aetiology (Table 1). Wound infection 18 (19.44%) was the commonest complication (Table 1). The commonest (100%) clinical presentation was abdominal pain then vomiting 74(80.43%) (Figure 1). Figure 2 shown the relation between nutritional status and complications. Patient presented earlier had better out come and less complications (Figure 3). 1(1.08%) died who presented after 72 hours. Among 92 patients 10 (10.8%), 20 (21.73%) and 62 (67.39%) patients were underwent primary anastomosis about < 10 cm, 10-30 cm and 30 cm from ileocaecal valve out of which 3 (30%),1(5%) and 2(3.22%) patients developed anastomotic leakage respectively. Out of 92 responded, 74 (80.43%) recovered uneventfully, 17 (18.47%) recovered with complication and only 1(1.08%) died and mean hospital stay was 8.84 ± 0.92 days.

Table 1. *Shown demographic profile, time since presentation, aetiology and complications of study population (n=92).*

Parameters		Frequency	Percentage
Age: Mean ±SD	42.60±4.44		
Age range	18-69 years		
Common age group	21-40 years	39	42.39%
Male		74	80.43%
Female		18	19.56%
M:F Ratio	4.11:1		
Nutritional status (BMI):			
Poor(<18.5)		37	40.21%
Normal(18.5-24.9)		48	52.17%
Overweight (25-29.9)		6	6.52%
Obese (>30)		1	1.08%
Time since perforation			
12-24 hrs		2	2.17%
24-48 hrs		43	46.73%
48-72 hs		39	42.39%
>72 hrs		8	8.69%
Aetiology:			
Typhoid Fever		43	46.73%
Nonspecific inflammation		28	30.43%
Traumatic		14	15.21%
Ileal tuberculosis		7	7.60%
Complication:			
Surgical site infection		18	19.44%
Wound dehiscence		7	7.56%
Anastomosis leakage		6	6.48%
Incisional hernia		5	5.43%

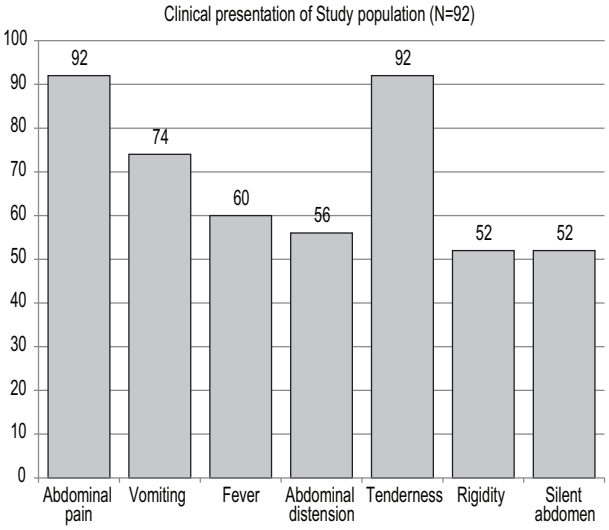

Fig.-1: *Column Chart shown clinical presentation of study population (n=92).*

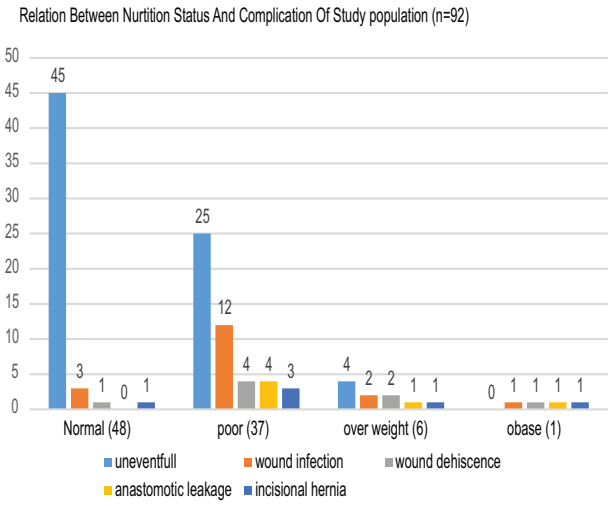

Fig.-2: *Column shows relation between nutritional status and complication of study populations. (n=92)*

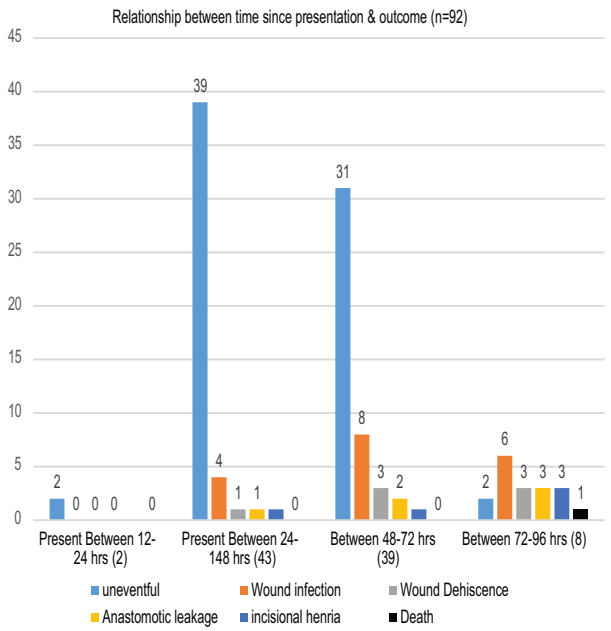

Fig.-3: *Column chart shown relation between Time since presentation and outcome (n=92).*

Discussion:

Ileal perforation peritonitis is a common surgical emergency. The mean age of the patients in our study was 42.60± 4.44 (age range: 18-69) years. The incidence of ileal perforation is higher in 3rd and 4th decade according to this study which correlates with Mittal S et al[1] and Singh et al[11]. The etiology of multiple ileal perforation shown that majority cases were diagnosed as Typhoid ulcer perforations 43 (46.73%) and nonspecific inflammation (30.43%). Our results were supported by the previous studies conducted by Khalilur RA et al[11] about 53.5% and 25%; Mittal S et al[1] about 36.67% and 35% respectively. The most important factor influencing the outcome of surgical procedure is the time of surgery since perforation. Prompt surgery after adequate resuscitation, is the treatment of choice for multiple ileal perforation; This has considerably reduced mortality from 30-60% to approximately 8.33%, Sandeep Thakre et al[12] and 1.08% in this study. Wound infection 18(19.44%) was the most common postoperative complications in the present study whereas it was about 21.42% in Khalilur RA et al[11]. Wound dehiscence was 7(7.56%) whereas it was about 3(10.71%) in Khalilur RA et al[11], anastomotic leakage 6(6.48%) but it was 1(3.57%) in Khalilur RA et al[11] and 2(3.33%) in Mittal S et al[1]. Incisional hernia occurred in 5(5.43%) patients. Outcome revealed that majority 74 (80.43%) recovered uneventfully in this study whereas 17(18.47%) recovered with complications. Only one patient (1.08%) died due to septicemia developed after surgery who presented after 72 hours of onset of symptoms. So, it is assumed that time of presentation since onset of symptom is a good deciding factor regarding outcome of resection and primary anastomosis. Outcome of primary anastomosis is largely depend upon the nutritional status of the patient. In this study recovery of 45 (48.91%) normal nourished patient was uneventful. Complication like wound infection, haematoma, dehiscence, anastomotic leakage and incisional hernia are more in poorly nourished patient. 2 (3.22%) anastomotic leakage out of 62 patient whose anastomosis was done >30 cm away from ileocaecal valve. 1(5%) anastomotic leakage out of 20 patients whose anastomosis was done 10-30 cm from ileocaecal valve and 3(30%) anastomotic leakage out of 10 patients whose anastomosis was done <10 cm from ileocaecal valve. So, it is better to avoid anastomosis <10 cm from ileocaecal valve. The mean hospital stay was 8.84 ± 0.92 day, which was supported by the previous studies of Khalilur RA et al[11]; Sandeep Thakre et al[12].

Limitation of the study:

It was a quasi-experimental study. Study was done in a single center with small sample size and short study duration.

Conclusion:

Among the infections typhoid fever still the prime cause of multiple ileal perforation. Wound infection, wound gap, burst abdomen, primary repair leakage are the common compli-cations encountered in this study. It is noteworthy that, uneventful outcome is present in majority cases. Delayed presentation, poor nutritional status and anastomosis near ileocaecal valve are the important deciding factor of worst outcome.

References:

1. Mittal S, Singh H, Munghate A, Singh G, Garg A, Sharma J . A comparative study between the outcome of primary repair versus loop ileostomy in ileal perforation. Surg Res Pract. 2014; Mar 27.

2. Srihari G, Sudheer D . Study of prognostic factors and outcomes in ileal perforations. J Evid Based Med Healthc2016;3(90):4911-7.
3. Pal DK . "Evaluation of best surgical procedures in typhoid perforation—an experience of 60 cases," TropicalDoctor, 1998;vol. 28, no. 1, pp. 16–18.
4. Kapoor VK, Kriplani AK, Chattopadhyay TK, Sharma IK . Tuberculous Perforations of the Small Intestine. Ind. J. Tub1986; 33, 188
5. Bhansali SK . "Gastrointestinal perforations. A clinical study of 96 cases," Journal of Postgraduate Medicine, 1967; vol. 13, no. 1, pp. 1–12.
6. Prasad PB, Choudhury DK, Prakash O . "Typhoid perforation treated by closure and proximal side-to-side ileotransverse colostomy," Journal of the IndianMedical Association, 1975; vol. 65, no. 11, pp. 297–299.
7. Singh KP, Singh K, Kohli JS . "Choice of surgical procedure in typhoid perforation: experience in 42 cases," Journal of the IndianMedical Association, 1991; vol. 89, no. 9, pp. 255–256.
8. Purohit PG . "Surgical treatment of typhoid perforation. Experience of 1976 Sangli epidemic," Indian Journal of Surgery, 1978; vol. 40, no. 5, pp. 227–238.
9. Athie CG, Guizar CB, Alcantara AV, Alcaraz GH, Montalvo EJ . "Twenty-five years of experience in the surgical treatment of perforation of the ileum caused by Salmonella typhi at the General Hospital of Mexico City, Mexico," Surgery,1998; vol. 123, no. 6, pp. 632–636.
10. Singh G, Dogra BB, Jindal N, and Rejintal S . Non-Traumatic Ileal Perforation: A Retrospective Study - NCBI – NIH. J Family Med Prim Care, 2014.;3(2):132-5.
11. Khalilur RA, Krishnaswamy J, Muthukumaran G, Prakash SJ . A comparative study on outcome of ileal perforation after primary perforation closure and resection and ileostomy. Int Surg J, 2018;5:445-51.
12. Sandeep Thakre, Kamal Singh Mandloi, Madan Mohan Mudgal, Achal Gupta . A Comparative Study of Morbidity and Mortality in Typhoid Ileal Perforation with Primary Repair or Ileostomy. SAS J. Surg., 2015:1(1): 21-24.