



A STUDY OF CLINICAL PROFILE & MANAGEMENT OF PATIENTS WITH SMALL INTESTINAL PERFORATION.

Surgery

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ABSTRACT

Background: Intestinal perforation, defined as a loss of continuity of the bowel wall, is a potentially devastating complication that may result from a variety of disease processes. Common causes of small bowel perforation include infection, inflammation, schema, obstruction, trauma, instrumental and congenital. Early recognition and prompt treatment are critical to prevent the morbidity and potential mortality of peritonitis and its systemic sequelae that result from the spillage of intestinal contents. **Aims & Objectives:** To assess the different modes of clinical presentation, different surgical management influencing the outcome of small bowel perforation and its complications. **Methodology:** An observational prospective study was conducted among 50 patients who were diagnosed with small intestine perforation, at Department of General surgery, Sheth L G municipal corporation Medical College and Hospital, Ahmedabad. **Results:** Out of total 50 patients, 40 were male and 10 were female patients. Total 26 patients belonged to 18-30 years age group. All the patients presented with abdominal pain (100%), vomiting (74%) and fever (62%). Surgical site infection was the most common postoperative complication. 3% mortality was observed in this study. Leading causes for mortality were duodenal perforation (2%) and ileal perforation (1%) even after surgical intervention. **Conclusion:** Closure of perforation with Primary repair and peritoneal lavage was the main stay of treatment. Resection with end to end anastomosis was done in selected cases. Stoma given to the patient with poor general condition. Early diagnosis and surgical management in majority of the patients are keys to successful management of the patients.

KEYWORDS

Small intestine, Perforation, Inflammation, Obstruction, Outcome.

INTRODUCTION

The study focuses on patients who have been admitted to tertiary care centre with acute abdomen due to small intestinal perforation. Perforation peritonitis is one of the most commonly encountered surgical emergencies on Day to day basis in an Indian hospital.^[1,2,3] Intestinal perforation, defined as a loss of continuity of the bowel wall, is a potentially devastating complication that may result from a variety of disease processes. Common causes of small bowel perforation include infection, inflammation, ischemia, obstruction, Trauma, Instrumentation and congenital. Early recognition and prompt treatment are critical to prevent the morbidity and potential mortality of peritonitis and its systemic sequelae that result from the spillage of intestinal contents.^[4,5,6,7,8,9]

A thorough history and physical examination, along with the aid of adjunctive clinical investigations can help establish the diagnosis promptly and better definitive therapy which is exploratory laparotomy in present cases. The study is conducted to determine the clinical profile of patients with small intestinal perforation, investigation results, preoperative management, pathological features, different surgical procedures, post operative management, complications and outcome.

Aims & Objectives:

To assess the different modes of clinical presentation, different surgical management influencing the outcome of small bowel perforation and its complications.

METHODOLOGY:

An Observational Prospective study was conducted among 50 patients who were diagnosed with small intestine perforation at Department of General Surgery, Sheth LG Municipal Medical College & Hospital, Ahmedabad. Paediatric age group (<18 years) and Patients presented with gastrointestinal perforation other than small intestine were excluded.

All patients presenting to OPD or casualty with acute abdomen, and fulfilled selection criteria, underwent a complete history and clinical examination. All these details were entered in a predesigned proforma which also includes demographic data, therapeutic intervention

performed, per operative findings, course in hospital and follow up.

Data entry and analysis: Data were entered into Microsoft excel sheet and analysed by using SPSS software version 26. Qualitative data were described as frequency and percentages and quantitative data were described as Mean and SD.

RESULTS

Table 1: Age group wise Distribution of Study Patients

AGE	Male	Female	PERCENTAGE
18-20	4 (66.67)	2 (33.33)	6 (12.00)
21-30	18 (90.00)	2 (10.00)	20 (40.00)
31-40	7 (70.00)	3 (30.00)	10 (20.00)
41-50	7 (87.50)	1 (12.50)	08 (16.00)
51-60	4 (80.00)	1 (20.00)	5 (10.00)
61-70	0 (0.00)	1 (100.00)	1 (2.00)
Total	40 (80.00)	10 (20.00)	50 (100.00)

Table no. 01 shows age group wise distribution of study patients. Out of total 50 patients highest were of age group 21-30 (20, 40.00 %) and from 20 patients from 21-30 year age group, 18 were male and only 2 were female. After 21-30 years age group second highest proportion is of 31-40 years age group (10, 20.00%). Among 31-40 years age group Male -Female proportion was 70-00%30.00%. only 1 patient belonged to 61-70 years age group and no any patient was of >70 years and <10 years.

Table 2: Clinical symptoms wise distribution of study patients

Clinical symptoms	n (N=50)	PERCENTAGE
Abdominal Pain	50	100.00
Vomiting	37	74.00
Fever	31	62.00
Constipation	07	14.00
Diarrhoea	07	14.00
Shock	04	8.00

As described in Table no. 02, multiple complains can be reported by patients during presentation. All patients came with complain of Abdominal pain as their chief presenting complain followed by Vomiting in 37 (74.00 %) patients. Fever was reported by 31 (62.00 %)

patients. Constipation and Diarrhoea was reported by 7 (14.00 %) patients respectively and Shock was reported in 04 (8.00 %) patients.

Table 3: Examination signs wise distribution of study patients

Signs	n (N=50)	PERCENTAGE
Tenderness	48	96.00
Guarding	35	70.00
Abdominal distension	15	30.00
Visible lump	00	0.00
Rigidity	08	16.00
Palpable lump	00	0.00
Tympanic note on percussion	15	30.00
Dull note on percussion	35	70.00
Peristalsis wave present	30	60.00

Table no 03 shows different examination findings among study patients. In Inspection findings, Abdominal distension was observed in 15 patients and in no patient visible lump was observed. In Palpation findings, tenderness in abdomen was observed in almost all patients (49, 98%), guarding was observed in 35 (70.00 %) patients and rigidity was observed in 08 (16.00 %) patients while in no single patient palpable lump was observed. On Percussion tympanic note was observed in 15 patients while in the rest of 35 patients dull note was observed.

Table 4: Type of surgical technique

	N	PERCENTAGE
Primary	35	72.91
Resection	13	27.08
Ileal Resection	08	61.53
Jejunal Resection	02	15.38
Ileal and caecal Resection	02	15.38
Meckel's diverticulum Resection	01	7.69
	48	100

As shown in table no 4, Out of 48 patients who underwent surgical procedure, in 35 (72.91 %) patients primary repair approach was considered and in 13 patients resection and anastomosis was done and among those 13 patients in 08 patients ileal resection was done followed by jejunal and ileocecal resection in 02 patients and in 1 patient meckel's diverticulum resection was done.

Table 5: Complications after surgery

	n (N=48)	PERCENTAGE
Surgical Site infection	25	52.08
Chest infection	14	29.17
Fever	9	18.75
RE exploration	8	16.67
Burst abdomen	8	16.67
Paralytic ileus	8	16.67
Anastomotic leak	7	14.58
Stoma Complication	6	12.50
Septicemia	3	6.25
Fecal Fistula	2	4.17
Death	3	6.25

Table 5 shows Post operative complications are one of important parameter for assessing success of surgery. As described in table no. 15, out of 48 patients who underwent surgery, surgical site infection was the commonest observed complication in more than half (25, 52.08 %) study patients. Second commonest was Chest infection which was observed in 14 (29.17 %) patients followed by Fever in 9 (18.75 %) patients and Burst abdomen, Re-exploration and paralytic ileus was observed in 8 (16.17 %) patients respectively. Stoma complication was observed in 6 patients and Septicaemia was observed in 3 (6.25 %) patients. In 2 (4.17 %) patients' Fecal fistula was found out as post operative complication.

DISCUSSION

In the present study, ages ranged from 18 to 65 years, with the most common group being 21-30 years (40.00%). Studies by Anuj Kumar Patel et al.^[10], Gopalakrishna K. H et al.^[11], and Bhanwar L. Yadav et al.^[12] consistently found the highest incidence in the 3rd and 4th decades, typically between 21-40 years.

In Bhanuprakash K. R. et al.'s study^[13], all patients presented with abdominal pain, 60% with vomiting, and 41% with fever. Similarly,

Bhanwar L. Yadav et al.^[12] found abdominal pain as the predominant symptom, followed by vomiting and constipation, aligning with common gastrointestinal presentations in small bowel perforation cases like enteric fever and tuberculosis.

While auscultation, peristalsis wave was found in 30 (60.0%) of patients. In both Anuj Kumar Patel et al.^[10] and Gopalakrishna K. H et al.^[11], 's studies, tenderness, guarding, and rigidity were common clinical findings in small bowel perforation cases. Abdominal distension and obliterated liver dullness were also frequently observed, while visible lumps were uncommon in these patients.

In a Study done by Anuj Kumar Patel et al.^[10] and Gopalakrishna K. H et al.,^[11] reported contrasting finding from present study as duodenal perforation more common than ileal. In line with present study Phanikumar Nekarakanti et al.,^[14] reported ileum was the commonest site (69.5 %) in small bowel perforation. One of the reasons can be because of different aetiology as mostly enteric fever ulcers occur in ileum and in present study enteric fever cases were more.

Anuj Kumar Patel et al.^[10] found that 87% of patients underwent primary repair and only 5% had resection and anastomosis, likely due to early patient presentation. Phanikumar Nekarakanti et al.^[14], however, performed resection in 38% and primary repair in 25%, reflecting a more conservative approach compared to the present study's findings.

In a study by Bhanuprakash K. R et al.^[12], mortality was 15%, with 25% developing wound infections and 22% experiencing toxemia. Gopalakrishna K. H et al.^[82] reported 18% mortality, with 27% suffering from wound infections and respiratory infections in 25% and 2 cases had burst abdomen.. Phanikumar Nekarakanti et al.^[14] found 13.3% mortality and 46.7% wound infections, with respiratory complications noted in 57.2% of patients. All of these findings suggests that overall mortality is very less in present study in comparison with different other study settings. Other common complications found in all studies were Wound infections and respiratory infections. Toxemia and burst abdomen were found in lower number in all studies.

CONCLUSION

Small intestinal perforation is the commonest surgical emergency among all cases of acute abdomen. Occurrence is more common in age group, 2nd to 3rd decade. There is a Male: Female ratio 9:1. Among the small intestinal perforation studied, Ileal perforation forms majority of cases. (68%). Typhoid disease is still rampant which is not diagnosed and treated early in the society which leads to the typhoid perforation. Hence Typhoid perforation is the commonest followed by Tuberculous perforation in this study. Closure of perforation with Primary repair and peritoneal lavage was the main stay of treatment. Resection with end to end anastomosis was done in selected cases. Stoma given to the patient with poor general condition.

Though intestinal perforation is dreaded disease, 94% of patients are survived due to rapid diagnosis, immediate operative intervention and aggressive management for post operative complications with modern supportive management

REFERENCES:

- Bailey & Love's short practice of surgery, 28TH Edition
- Sabiston textbook of surgery, 21ST Edition
- Shackelford's surgery of the alimentary tract, 8TH Edition
- Bhanuprakash KR, Aruna MS, Shetty KK. Clinical study and management of small bowel perforation in a tertiary care teaching institute. *Int Surg J* 2018;5:855-9
- Low ZX, Bonney GK, So JBY, Loh DL, Ng JJ. Laparoscopic versus open appendectomy in pediatric patients with complicated appendicitis: a meta-analysis. *Surg Endosc*. 2019 Dec;33(12):4066-4077.
- Špičák J, Kučera M, Suchánková G. Diverticular disease: diagnosis and treatment. *Vnitr Lek*. 2018 Summer;64(6):621-634.
- Kavitt RT, Lipowska AM, Anyane-Yeboah A, Gralnek IM. Diagnosis and Treatment of Peptic Ulcer Disease. *Am J Med*. 2019 Apr;132(4):447-456.
- Biffl WL, Leppaniemi A. Management guidelines for penetrating abdominal trauma. *World J Surg*. 2015 Jun;39(6):1373-80.
- Song WC, Lv WW, Gao XZ. Iatrogenic Gastrointestinal Perforation Following Therapeutic Endoscopic Procedures: Management and Outcome. *J Coll Physicians Surg Pak*. 2017 Sep;27(9):563-565.
- Patel AK, Kurakula P. A Clinical Study and Management of Small Bowel Perforation. *Int J Health Clin Res*. 2021;4(8):254-257.
- Gopalakrishna KH. Clinical study of perforations of small bowel. *J. Evolution Med. Dent. Sci*. 2016;5(60):4154-4160. DOI:10.14260/jemds/2016/949
- Yadav BL, Bansal S, Gupta S, Verma PK. Incidence and management of intestinal perforation in typhoid: a prospective, observational study. *Int Surg J* 2020;7:1570-4.
- Bhanuprakash KR, Aruna MS, Shetty KK. Clinical study and management of small bowel perforation in a tertiary care teaching institute. *Int Surg J* 2018;5:855
- Nekarakanti P, Elamurugan TP, Kate V. Spectrum of small bowel perforation in a tertiary care hospital of South India: Predictors of morbidity and mortality. *Indian J Gastroenterol*. 2014;33(6):575-577. doi:10.1007/s12664-014-00484