

Original research article**Role of ileostomy in outcome of patients of ileal perforation****¹Dr. Manbahadur Rajpoot, ²Dr. Neeti Agarwal, ³Dr. Shilpa Agarwal**¹Assistant Professor, Department of Community Medicine, SRVS Medical College, Shivpuri, Madhya Pradesh, India²Assistant Professor, Department of Surgery, SRVS Medical College, Shivpuri, Madhya Pradesh, India³Assistant Professor, Department of Anaesthesiology, SRVS Medical College, Shivpuri, Madhya Pradesh, India**Corresponding Author:**

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Abstract

Background: Ileal perforation peritonitis is a frequently encountered surgical emergency in the developing countries lead to high morbidity and mortality. The nature of the disease itself predisposes to a number of complications including wound infections, faecal fistulas and complications associated with a stoma.

Aim: To evaluate the role of ileostomy in patients with ileal perforation

Materials and Methods: The present descriptive study included 80 patients with ileal perforation admitted at the department of surgery. Patients were studied for etiology, site, operative technique, appliance used and complications if any. All the data was presented in the observation tables, analysed and interpretation was done

Results: Most of the patients (47.5%) were 21-40 years age group with male preponderance. Abdominal pain (100%) and tenderness (97.5%) were the common clinical presentation. Single perforation was commoner (66.3%) than multiple perforations. It was caused by typhoid in 48.7% followed by tuberculosis in 18.7%, cases. Surgical site infection and skin excoriation were the commonest complication. Mortality rate was high in primary closure with ileostomy group.

Conclusion: Ileal perforation is caused by typhoid in majority of the cases and presents with pain abdomen and tenderness. Morbidity, mortality and complication were higher in ileostomy with primary closure cases.

Keywords: Ileal perforation, ileostomy, Primary closure, complications

Introduction

Ileal perforation is a frequently encountered surgical emergency in developing countries. Among cases of hollow viscus perforation, duodenal and gastric perforation account for most of the cases (60-80%) in some series, followed by ileal, appendicular and large bowel ^[1]. Ileal perforation is due to many causes, Typhoid is the most common cause for ileal perforation encountered in developing countries followed by Tuberculosis, obstruction, non-specific enteritis and trauma continues to be the most frequent reason for high morbidity and mortality ^[2-3]. In developed countries most common etiology remains vascular strangulation, foreign bodies ingestion, diverticular disease of the small bowel, Meckel's diverticulum, Crohn's disease, malignant disease, post radiation and iatrogenic ^[4]. Most case of typhoid perforation belong to poor socioeconomic people of rural area ^[2] where unavailability of hygienic food and water and reluctant nature of patients delay the diagnosis and management of the disease ^[5]. Despite the availability of modern diagnostic facilities and advances in treatment regimes, this disease has an abrupt onset and a rapid downhill course with a high mortality if not treated ^[6]. Various operative procedures were advocated for ileal perforation, such as the following: simple primary repair of perforation, repair of perforation with ileo transverse colostomy primary ileostomy single layer repair with an omental patch, resection and anastomosis ^[7-8]. A multitude of factors come into play when a decision is to be made regarding the procedure to be done on the operating table. These include the age and general condition of the patient, the time interval between onset of symptoms and surgery, the contamination of the peritoneal cavity, the number of perforations, distance of the perforation from the ileocaecal valve and the presence of grossly unhealthy bowel ^[9-10]. The ileostomy serves the purpose of diversion, decompression and exteriorization. A primary ileostomy has been found to be useful in decreasing the morbidity and mortality especially in moribund patients or those with delayed presentation, where it has proved to be a lifesaving procedure ^[11]. However, ileostomies may result in a significant number of complications as well. The most common complication of ileostomy is peristomal skin irritation leading to skin

excoriation, followed by fluid and electrolyte imbalance and nutritional depletion ^[12].

Aims & Objectives

The present study is aimed at evaluating the role of ileostomy in outcome of patient of ileal perforation peritonitis

Material and Methods

The present study was a descriptive cross-sectional in nature conducted at the Department of Surgery, in a medical college and associated hospital, central India, over a period of two years. All the patients presenting in an emergency with a clinical picture suggestive of perforation peritonitis during study period were included in the study.

Inclusion criteria

- All cases irrespective of their age or sex presenting to surgical emergency with acute abdomen, proven to be a case of ileal perforation (due to any cause), on basis of operative finding only were included in the study.

Exclusion criteria

- Cases in which resection and anastomosis was done for ileal perforation are excluded from this study
- Cases of peritonitis other than ileal perforation are excluded from the study.

The data was collected from the patients of all ages and both sex. Patients who underwent laparotomy and proven to be ileal perforation intra-operatively 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 laparotomy and those cases with ileal perforation alone were included in the study and the rest were excluded. The data was entered into proforma 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.

All the patients included in the study underwent the following investigations: Hb, BT, CT, RBS, blood urea, serum creatinine, blood grouping and cross matching, erect X ray abdomen, ECG, ultrasound abdomen and pelvis and Widal test.

All patients received an explanation about the procedure and written consent was taken regarding the stoma formation.

Statistical analysis

The collected data entry was done in Microsoft Excel 2007 and analyzed using SPSS software version 22. The level of significance was considered as p-value ≤ 0.05.

Results

Table 1: Showing profile of ileal perforation cases

Characteristic	Frequency (N=80)	Percentage (%)
Age groups (in years)	< 20	11.2%
	21-30	21.2%
	31-40	26.3%
	41-50	18.8%
	51-60	16.2%
	>60	6.3%
Gender	Male	81.2%
	Female	18.8%
Socio-economic status	Lower	52.5%
	Middle	31.3%
	Upper	16.2%
Time of presentation	Early presenters (<72 hrs)	70%
	Late presenters (>72 hrs)	30%
No. of perforations	Single	66.3%
	Multiple	33.7%

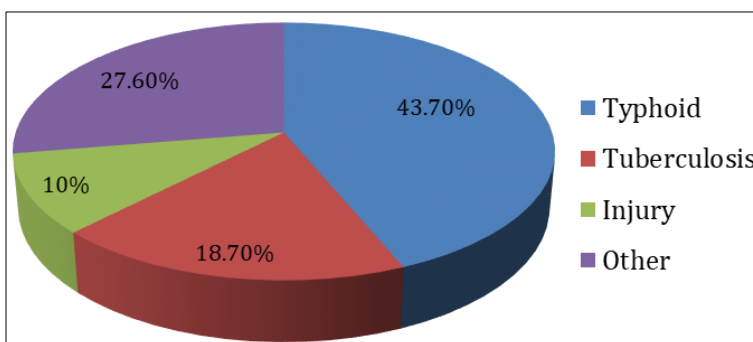


Fig 1: Etiology of ileal perforation

Table 2: Clinical presentation of ileal perforation cases

Clinical presentation	Number of cases (N=80)	Percentage (%)
Pain abdomen	80	100%
Fever	68	85%
Vomiting	40	50%
Constipation	22	27.5%
Diarrhoea	15	18.8%
Dehydration	20	25%
Abdominal tenderness	78	97.5%
Guarding/Rigidity	70	87.5%
Abdominal distension	38	47.5%
Obliteration of liver dullness	30	37.5%
Absent bowel sound	43	53.8%

Table 3: Postoperative complications in both primary closure and ileostomy patients

Complication	Ileostomy (N=55)	Primary repair (N=35)
Wound infection	29 (52.7%)	17 (48.6%)
Respiratory complications	15 (27.3%)	14 (40%)
Anastomotic leak	10 (18.2%)	4 (11.4%)
Intraabdominal abscess	7 (12.7%)	10 (28.6%)
Wound dehiscence	5 (9.1%)	9 (25.7%)
Skin excoriation	39 (70.9%)	1 (2.9%)
Ileostomy prolapse	4 (7.3%)	0 (0%)
Electrolyte imbalance	11 (20%)	2 (5.7%)
Faecal fistula	4 (7.3%)	1 (2.9%)
Mortality	3 (5.5%)	5 (14.3%)

Table 4: Outcome of various operative procedures

Type of procedure	No. of cases	No. of deaths	Percentage (%)
Primary closure without ileostomy	35	5	14.3%
Ileostomy with primary repair	45	3	6.7%

Discussion

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 [13].

The predominant cause of ileal perforation was typhoid followed by tubercular aetiology in current study, similar observation was found study conducted by Muneer A *et al.* [14] and Siddique *et al.* [15].

In our study maximum number of cases in 31-40 years of age group, concordance finding also reported by Singh *et al.* [16] and Rohit *et al.* [17].

Present study found male preponderance; this has been corroborated by other studies like Hussain T *et al.* [18] and Khanna *et al.* [19]. This is probably due to the fact that compared to women; more men work outdoors and are more prone to consume unhygienic food and water which is the main cause of typhoid infection and consequent perforation.

Current study reported most of the patients were belong to lower socioeconomic class, consistent to the Agrawal P *et al.* [20].

Our study found that maximum patients had single perforation comparable with the Tripathi A *et al.* [21] and A patel *et al.* [22].

Present study observed abdominal pain as the most common presenting symptom followed by fever and

vomiting in cases of ileal perforation, similar to the many other studies, Khalilur RA *et al.* [23] and Kella N, *et al.* [24].

Abdominal tenderness, rigidity and guarding most common observed sign in the current study subjects which was consistent with the Verma H *et al.* [25] and PS Sahu *et al.* [26].

The best procedure to be performed in a case of enteric perforation is controversial. In our study the decision regarding the type of procedure was based on multiple factors as described earlier. The most commonly performed procedure was debridement with primary closure with ileostomy in about 56.3% patients, concordance finding reported by S Jain *et al.* [27] and Tade AO *et al.* [28].

Skin excoriation and wound infection were the most common post-operative complications of ileostomy in our study. These were controlled with the application of a sealant paste and frequent changes of the stoma bag. Our findings are correlated with RG babu *et al.* [29] and Khan AA *et al.* [30].

The rate of postoperative complications was higher in primary closure with ileostomy as compared to primary closure without ileostomy, accordance to the P Ranjan *et al.* [31].

Patients with ileostomy have shown higher mortality than in patients with primary repair without ileostomy, similar observation reported by Naik *et al.* [32] and Sumit R *et al.* [33].

Conclusion

Typhoid fever leading to enteric perforation is still common in India and is associated with high morbidity and mortality. Post-operative complications and mortality is higher in ileostomy with primary closure group. Early surgery and adequate resuscitation are the important factors for successful management of patients with ileal perforation. Surgical site infection and skin excoriation are the most common complication observed.

Conflicts of interest

None declared

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