East African Scholars Journal of Medicine and Surgery
Abbreviated Key Title: EAS J Med Surg
ISSN: 2663-1857 (Print) & ISSN: 2663-7332 (Online)
Published By East African Scholars Publisher, Kenya

OPEN ACCESS

Volume-1 | Issue-1 | Jan -Feb-2019 |

Origional Research Article

Prospective study of spontaneous small bowel perforation in a tertiary care hospital

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Abstract: Background: Perforation of the small bowel is one of the common clinical presentations in surgical causality. Presentation may be early with features of simple severe abdominal pain or late with features of sepsis of septic shock. The aim of this study was to evaluate the clinical features, management, and postoperative care and manage any complication in follow up. **Method:** This study was conducted in the department of surgery Government Medical College Srinagar for a period of two years from March 2015 to February 2017. During this study 110 patients were admitted in surgical causality which has small bowel perforation either spontaneous of iatrogenic, site of perforation, surgical procedure performed, complications and duration of hospital stay. **Results:** Maximum number of patients had duodenal perforation 68 (61.81%), among them 64 (94.11%) had history of peptic ulcer in past. Enteric fever was the commonest cause of ileal perforation in 29/34 (85.2%) of patients. Abdominal pain was the frequent and most common symptom in all patients 110 (100%). **Conclusion:** Clinical findings and diagnosis is usually reached at the time of exploration, frequent use of NSAIDS, spicy food, smoking was the most common cause of peptic perforation in our study**.**

Keywords: peptic perforation, pneumoperitoneum, jejunum.

INTRODUCTION

Perforation of the small gut needs immediate attention to prevent complications. They are situated most frequently in the duodenum, where as the nontraumatic perforations of the small intestine are seen in countries with low hygienic standards such as typhoid ulcers, intestinal tuberculosis or parasitic disease have been well recognized (Asraf, S.M. *et al.*, 1976; Ihekwaba, F.N. 1979). Blunt traumatic small bowel perforations include those caused by fall, blow blunt objects, bicycle handlebar injuries and motor vehicle accidents (Rajagopalan, A. E., & Pickleman, J. 1982). The causes of spontaneous duodenal perforation include peptic ulcer disease due to *H. pylori* infection, chronic NSAIDS ingestion, smoking, chronic alcohol intake (Williams, N.S. *et al.*, 2013). Laparoscopic surgery, ERCP, stab injury, fish bones, and ingested foreign bodies are other common causes. Peritonitis following

Perforation may lead to multi-organ failure and death unless it is treated promptly and vigorously. Typhoid fever and tuberculosis are the common causes of small bowel perforation in the developing world, while in western countries non-infectious pathology is more common (Kimchi, N. A. *et al.*, 2002; Kapoor, V.K. *et al.*, 1985).

METHODS

This prospective study was conducted in the department of surgery Government Medical College Srinagar on 110 patients for a period of two years from March 2015 to February 2017. During this study all these patients were admitted with the features of peritonitis. On admission, all these patients had abdominal pain, from 6 hours up to 5 days duration with deranged blood profile. Plain x-ray chest PA view and x-ray abdomen AP erect showed pneumoperitoneum and Ultrasonography showed free fluid in maximum number of patients. All these patients were explored and eventually all had small

Quick Response Code

Journal homepage:
http://www.easpublisher.com/easms/

Article History
Received: 19.01.2019
Accepted: 10.02.2019
Published: 28.02.2019

DOI: 10.36349/easjms.2019.v01i01.004

bowel perforation with duodenal perforation in maximum number of patients. The site of perforation, surgical procedure performed, complications and duration of hospital stay were evaluated. Patients with past laparotomy, malignant perforation, inflammatory bowel diseases, vascular cause, were excluded from the study.

RESULTS

In our study maximum number of patients was males 84 out of 110. Duodenal perforation was seen in maximum number of patients 68 (61.81%), among them 64 (94.11%) had history of peptic ulcer in past. Enteric fever was the commonest cause of ileal perforation in 29/34 (85.2%) of patients [Table 1]. Abdominal pain was the frequent and most common symptom in all patients 110 (100%), while tenderness and distension was seen in 110 (100%) and 99 (90%) of patients [Table 2, 3]. Maximum number of patients was young in the age group of 21-30 years while only one patient was seen in the age group of 71-80 years [Table 4]. Patients with peptic perforation had single perforation in the anterior wall less than 2 cm in diameter were managed using the Cellan Jones omental patch repair, none of the patient had traumatic duodenal perforation. Ileal perforations were single in 30 patients while 3 had perforation at two places and one had multiple perforations in the anti-mesenteric border 15-25 cm from the ileo-ccal junction. Exteriorization of the ileum as loop ileostomy was done in 28 (82%) patients of enteric perforation in the background of severe fecal peritoneal contamination. In 4 (11.76%) patients of tubercular etiology, single perforation was present just above the tubercular stricture, which was operated by segmental resection and anastomosis and 2 (6.6%) cases of blunt trauma leading to minimal fecal peritoneal contamination were operated by simple primary repair. CECT abdominal with oral contrast was done was done in 5 patients of traumatic history to rule out associated solid viscera injury. In this study 8 patients had jejuna perforation which were treated with primary repair, among these 5 had history of blunt trauma abdomen. Wound site infection was seen in maximum number of patients 16 (14.54%), followed by wound dehiscence requiring secondary [Table 5]. Seven patients died due to sepsis who presented late and two patients developed incisional hernia in the follow up who underwent incisional hernia meshplasty

DISCUSSION

Spontaneous perforation of the small bowel is one of the common surgical emergencies and sometimes presents with diagnostic delay especially in rural population. The clinical presentation of spontaneous perforation is nonspecific (Wani, R. A. *et al.,* 2006). The diagnosis is usually clinical and is supplemented by radiological presence of pneumoperitoneum (Wani, R. A. *et al.,* 2006). Perforation of small gut is associated with high mortality if early management is not done including proper resuscitation, intravenous antibiotics and definitive repair not done (Noorani, M. A. *et al.,* 1997). Outcome of the patient depends patient's condition at the time of examination, number of perforations, condition of the gut and surgeons experience (Adesunkanmi, A. R., & Ajao, O. G. 1997). In our series of 110 patients abdominal pain was the most frequent symptom and abdominal tenderness was the commonest sign which was consistent with the results from study done by Shrivastava D *et al.,* (2014) and Nahar, S., & Ranjan, A. (2017). The common site of perforation was duodenum followed by ileum and jejunum in 68 (61.81%), 34 (30.90%) and 8 (7.27%) respectively. A study conducted by Seth S and Agrawal KK, showed the similar results in their study (Seth, S., & Agrawal, K. K. 2016). In our study results were different from the developed world so for as the etiology of duodenal ulcer is concerned. The indiscriminate use of NSAIDS and steroids, spicy food, alcohol intake, smoking life style modification were the main etiological factors for peptic ulcer especially in young generation (Wang, Y. R. *et al.,* 2010). Typhoid ileal perforation was the commonest cause of ileal perforation in our study and tended to occur in the third week of illness and the same was observed by Nahar S *et al.,* and Mahapatra S *et al.,* in his study (Nahar, S., & Ranjan, A. 2017; Mahapatra, S., & Panda, C. 2017). In our study 8 patients had Jejunal perforation, out of which blunt trauma was commonest cause in maximum number of patients which was in accordance with the study conducted by Goudar BV *et al.,* (2011). Omental patch technique (Cellan Jones) was done in all peptic perforation patients and 5 of the patient had suspicious ulcer for which biopsy was taken which came to be benign. Exteriorization of the ileum as loop ileostomy was done in 28 (82%) of patients which was found to be safer in those patients who had delayed presentation and severe fecal peritoneal contamination which significantly decreases the mortality as compared to other surgical procedure and the same was reported by Shah S and Gandhi JP in their study of the 'role of ileostomy in enteric perforation (Shah, S., & Gandhi, J. P. 2015). Jejuna perforation was repaired primarily in all patients as they had minimal intraperitoneal contamination as 5 of them had history of blunt trauma abdomen and they reported immediately to the hospital. In our study seven patients died due to sepsis who presented late and two patients developed incisional hernia in the follow up who underwent incisional hernia meshplasty

Results:-

Table 1: Showed anatomical distribution of perforation

Site of perforation	No. of cases	Percentage
Duodenum	68	61.81%
Jejunum	8	7.27%
Ileum	34	30.90%

Table 2: Showed symptoms with percentage

Symptoms	Frequency	Percentage
Abdominal pain	110	100%
Fever	36	32.72%
Vomiting	40	36.36%
Constipation	29	26.36%
Abdominal distension	99	90%

Table 3: Showed distribution of signs

Signs	No. of Cases	Percentage
Tachycardia	73	66.36%
Pallor	17	15.45%
Guarding	64	58.18%
Tenderness with or without rebound	110	100%
Dullness in flanks	78	70.90%
Bowel sounds sluggish or absent	74	67.27%
Obliteration of liver dullness	45	40.90%

Table 4: Showed age and sex distribution

Age (years)	Male	Female	Total	Percentage
1-10	0	0	0	0
11-20	10	2	12	10.9%
21-30	27	9	36	32.72%
31-40	19	8	27	24.54%
41-50	15	6	21	19.09%
51-60	7	0	7	6.36%
61-70	5	1	6	5.45%
71-80	1	0	1	0.90%
Total	84	26	110	100%

Table 5: Showed postoperative complications

Complications	No. of cases	Percentage
Surgical site infection	16	14.54%
Respiratory infection	3	2.72%
Wound dehiscence	7	6.36%
Fecal fistula	3	2.72%
Incisional hernia	2	1.81%

CONCLUSION

In summary the diagnosis of non traumatic perforation is a challenge. Clinical findings are usually non specific and definite diagnosis is usually reached after surgery. Indiscriminate use of analgesics, smoking, spicy food and typhoid were the common etiological factors in our study.

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