

Spectrum of Perforation peritonitis in Bhopal with special reference to NSAID induced GI perforations

Pradeep Balmiki¹, Nitin Garg², Bhupendra Nalge³

1 Assistant Professor, Department of General Surgery, PCMS and RC, Bhopal, India

2 Associate Professor, Department of General Surgery, PCMS and RC, Bhopal, India

3 Senior Resident, Department of General Surgery, PCMS and RC, Bhopal, India

Corresponding Author Pradeep Balmiki, dr.pradeepkumar2011@gmail.com

Abstract:

Background: Perforation peritonitis is the most common surgical emergency encountered by surgeons all over the world. The aim of this study is to provide an overview of the spectrum of perforation peritonitis managed in People's hospital of PCMS & RC, Bhopal along with NSAD induced GI perforations.

Method: This retrospective study conducted at People's hospital of People's college of medical sciences & Research centre, Bhopal between July 2010 and January 29, 2015. It included 300 patients of perforation peritonitis who underwent exploratory laparotomy were studied in terms of clinical presentations, causes, site of perforation, surgical treatment, postoperative complications, outcome, history of addiction, income group, co morbid condition, history of NSAID intake.

Results: The commonest cause of perforation peritonitis was peptic ulcer disease 110 cases (75 duodenal ulcers and 35 gastric ulcers) followed by appendicitis (82 cases), typhoid fever (48 cases), tuberculosis (42 cases), and trauma (15). The overall mortality was 4.33%. **Conclusions:** Perforation peritonitis in India has a different spectrum as compared to western countries. The most common cause of perforation peritonitis was peptic ulcer disease followed by perforated appendicular perforations and small bowel typhoid perforation. Aggressive resuscitation with correction of electrolyte imbalance followed by early surgical intervention under the cover of broad spectrum antibiotics is the key for good outcome. NSAID induced GI perforations can be prevented by patient education and following the dictum of prescribing the correct drug in the minimum effective dose.

I. Introduction

Peritonitis due to perforation of the gastrointestinal tract is the most common surgical emergency all over the world¹. The spectrum of etiology of perforation differs from its western counterpart². The highest number of perforations was noticed in the upper part of the gastrointestinal tract as compared to the western countries³. The majority of patients present late, with purulent peritonitis, septicemia and shock⁴. Surgical treatment for perforation peritonitis is highly demanding and very complex. The combination of improved surgical technique, antimicrobial therapy, and intensive care support has improved the outcome of such cases. Objective of this study was to highlight the clinical presentation, clinical presentations, causes, site of perforation, surgical treatment, postoperative complications, outcome, history of addiction, income group, co morbid condition, history of NSAID intake and NSAID induced GI perforations at People's Hospital PCMS & RC Bhopal.

Patients and methods

This retrospective study included 300 consecutive patients of perforation peritonitis, conducted in Department of General Surgery, People's Hospital, Bhopal, India, from July 1, 2010 to January 31, 2015.

Cases were studied in terms of clinical presentations, causes, site of perforation, surgical treatment, postoperative complications, outcome, history of addiction, income group, co morbid condition, history of NSAID intake.

Inclusion Criteria All cases of peritonitis due to perforation of the gastrointestinal tract who underwent exploratory laparotomy were included in this study.

Exclusion Criteria All cases of primary peritonitis were excluded from the study.

II. Results

Preoperative Data

A total of 300 patients were studied. Mean age was 34 years (range from 12 to 85 years). Majority of patients were males (61%). Male: female ratio was 1.5: 1, respectively. 96% patients presented with the history

of abdominal pain, 55% with nausea and vomiting, and 40% with abdominal distention. 40% patients had positive history of NSAID intake for more than 6 months. In our study, 15% cases had associated co morbid conditions. The commonly associated co morbidity was chronic obstructive pulmonary disease followed by, diabetes, arthritis, hypertension and renal disease. 90% patients belong to low socio-economic status.

Operative Data

Perforated duodenal and gastric ulcer due to acid-peptic disease(36.66%) and perforated appendicitis(27.33%) were the most common causes of perforation peritonitis , followed by typhoid fever (27%), tuberculosis (14%), and trauma (5%). The highest number of perforations was noticed in the small bowel—ileum 28.6 % , appendix 27.33%, duodenum 21.66 % , stomach 15 % jejunum 2.33% , large bowel perforations, colon 2 % , cecum 0.66 % gall bladder perforations was 1.33% and 0.33% rectal perforation . The most commonly performed procedure was omental pedicle closure of peptic ulcer perforation (36.66%), followed by appendectomy27.33%, resection anastomosis 15.33%, exteriorization of the gut in the form of ileostomy or colostomy (10%). was the third most common procedure.

Postoperative Complications

The most common complication was wound infection 30% followed by electrolyte imbalance 20%, and respiratory complications 18.33%.

The overall mortality rate was 4.33%. Factors involved in death included septicemia, late presentation, and respiratory complications.

III. Discussion

Perforation peritonitis is one of the most common surgical emergencies ¹. It is commonly seen in a younger age group in the tropical countries (mean age in our study was 35 years) as compared to the studies in the West ⁵⁻⁷. The majority of patients in our study were males (males 61 % and female 39 %). Perforation of the proximal part of the gastrointestinal tract was more common which is in contrast to the studies from western countries where perforations are common in the distal part ³. Gastro- duodenal ulcer perforation and ileal typhoid perforation were the most common perforation noticed in our study. It is noticed in our study that proper hydration, good antibiotic cover, and simple closure of the perforation using an omental patch significantly decrease mortality rate.

Causes of ileal perforations noticed in our study were tuberculosis and typhoid. Primary intestinal tuberculosis is uncommon in European and North American countries today ⁸.

Etiological factors also show a wide geographical variation. According to a study from India, infections formed the most common cause of perforation peritonitis ⁹, in our study 30% of the cases were due to typhoid and tuberculosis. In contrast to this, Noon et al.¹⁰ from Texas in their study reported only 2.7% cases due to infections. Also studies from the west have shown that around 15–20% cases are due to malignancy ^{11,12}, in our study malignancy was the cause of perforation peritonitis in only 2% of the cases. This shows that malignancy is not a common cause of perforation peritonitis in our setup as compared to our western counterparts.

Gastric and duodenal perforations are related to the widespread use of NSAIDs ⁴. As seen in our study, 40 % patients have positive history of NSAIDs. Factors such as age, gender, history of previous GI ulceration, smoking, alcohol use, concomitant medication and Helicobacter pylori infection are associated with a greater risk of GI damage.¹³ Higher incidence of gastric perforation as compared to duodenal perforation has been observed with increase in age. Also, pyloric perforation is more frequent compared to duodenal in women¹⁴. Secondary ulcers have acute presentations more frequently compared to primary ulcers. According to a survey, 81% of patients hospitalized with serious NSAID-induced complications had no previous gastrointestinal symptoms.¹⁵ They tend to present with complications such as haemorrhage or perforation .NSAIDs with low risk of GI damage include ibuprofen, diclofenac and etodolac.¹⁶

IV. Conclusion

In India Perforation peritonitis has a different spectrum as compared to the western countries. Peptic ulcer perforation, typhoid, and tubercular perforations and perforated appendicitis are the major causes of gastrointestinal perforations. Correction of electrolyte imbalances followed by an early surgical intervention under the cover of broad spectrum antibiotic is imperative for good outcomes minimizing morbidity and mortality

Prevention of gastrointestinal adverse events related to NSAID use can be achieved by advising patients to take the drug after meals and the concomitant prescription of anti ulcer medication. Data suggests that the fixed combination of misoprostol and diclofenac is one of the safest formulations. ¹⁷ The availability of some NSAIDs as over-the-counter medication, its widespread use and self medication has resulted in frequent adverse drug effects of relatively safe medication. This can be prevented by patient education and following the dictum of

prescribing the correct drug in the minimum effective dose. A patient who has sustained a GI ulcer secondary to NSAID use should avoid further use of them. A follow- up upper gastrointestinal endoscopy is desirable post-surgery to rule out concomitant gastric mucosa pathology.

References

- [1]. K. Ramakrishnan and R. C. Salinas, "Peptic ulcer disease," *The American Family Physician*, vol. 76, no. 7, pp. 1005–1013, 2007.
- [2]. L. Sharma, S. Gupta, A. S. Soin, S. Sikora, and V. Kapoor, "Generalized peritonitis in India—the tropical spectrum," *Japanese Journal of Surgery*, vol. 21, no. 3, pp. 272–277, 1991.
- [3]. Rajandeep Singh Bali, Sushant Verma, P. N. Agarwal, Rajdeep Singh, and Nikhil Talwar Perforation Peritonitis and the Developing World, *ISRN surgery Vol 2014 Article id 105492*, 4 pages, 2014, doi 10.1155/2014/105492
- [4]. Dinesh Yadav & Puneet K. Garg, Spectrum of Perforation Peritonitis in Delhi: 77 Cases Experience, *Indian J Surg (March–April 2013) 75(2):133–137*
- [5]. C. Svanes, H. Salvesen, B. Espehaug, O. Soreide, and K. Svanes, "A multifactorial analysis of factors related to lethality after treatment of perforated gastroduodenal ulcer 1935–1985," *Annals of Surgery*, vol. 209, no. 4, pp. 418–423, 1989
- [6]. R. M. Watkins, A. R. Dennison, and J. Collin, "What has happened to perforated peptic ulcer?" *British Journal of Surgery*, vol. 71, no. 10, pp. 774–776, 1984.
- [7]. Uccheddu A, Floris G, Altana ML, Pisanu A, Cois A, Farci SL (2003) Surgery for perforated peptic ulcer in the elderly, Evaluation of factors influencing prognosis. *Hepatogastroenterology* 50 (54):1956–1958
- [8]. Sefr R, Rotterova P, Konecny J (2001) Perforation peritonitis in primary intestinal tuberculosis. Case report. *Dig Surg* 18(6):475–479
- [9]. A. K. Khanna and M. K. Misra, "Typhoid perforation of the gut," *Postgraduate Medical Journal*, vol. 60, no. 706, pp. 523–525, 1984.
- [10]. G. P. Noon, A. C. Beall, and G. L. Jordan, "Clinical evaluation of peritoneal irrigation with antibiotic solution," *Surgery*, vol. 67, pp. 73–78, 1967.
- [11]. S. Breitenstein, A. Kraus, D. Hahnloser, M. Decurtins, P. A. Clavien, and N. Demartines, "Emergency left colon resection for acute perforation. Primary anastomosis or Hartmann's procedure? A case-matched control study," *World Journal of Surgery*, vol. 31, no. 11, pp. 2117–2124, 2007.
- [12]. F. Roviello, S. Rossi, D. Marrelli et al., "Perforated gastric carcinoma: a report of 10 cases and review of the literature," *World Journal of Surgical Oncology*, vol. 4, article 19, 2006.
- [13]. Russell RI. Defining patients for non steroidal anti inflammatory drug gastropathy. *Ital J Gastroenterol Hepatol* 1999;31:14-8.
- [14]. Svanes C, Salvesen H, Stangeland L, Svanes K, Soreide O. Perforated peptic ulcer over 56 years. Time trends in patients and disease characteristics. *Gut* 1993;34:1661-73.
- [15]. Singh G, Triadafilopoulos G. Epidemiology of NSAID induced gastrointestinal complications *J Rheumatol* 1999;26:18-24.
- [16]. Hitesh S Chandwani, Neeti M Kanodra, Vinaykumar B Thapar, Nithya J Gogtay *JAPI* JUNE 2009 VOL. 57, 487
- [17]. Abraham NS, Graham DY. NSAIDs and gastrointestinal complications: new clinical challenges. *Expert Opin Pharmacother* 2005; 6: 2681-9

Table 1: Preoperative data [sex, co morbid conditions, signs symptoms].

Sex	Male	183
	Female	117
Co morbid condition	Respiratory disease	50
	Renal disease	32
	Arthritis	30
	Diabetes	15
	Hypertension	15
Symptoms	Abdominal pain	294
	Abdominal distention	105
	Nausea and vomiting	100
	Fever	80
Socioeconomic condition	Low	270
	Middle	30

Table 2 etiology and site of perforation

Cause of perforation	Acid peptic disease	109
	Appendix	82
	Typhoid	40
	Tuberculosis	42
	Trauma	15
	Malignancies	6
	Bowel obstruction/strangulation	6
Site of perforation	Duodenal	95
	Ileal	86
	Appendix	82
	Stomach	15
	Jejunum	7
	cecum	6

	Transverse colon	3
	Sigmoid colon	3
	Descending colon	3
Surgical procedure	Omental patch	109
	Appendectomy	82
	Primary repair	48
	Stoma	16
	Resection anastomosis	36
	Ilioascending anastomosis	6
	Right hemicolectomy	3

Table 3 post operative complications

Wound infection	90	30%
Electrolyte imbalance	60	20%
Abdominal collection	25	8.33%
Respiratory complication	55	18.33%
Burst abdomen	18	6%
Anastomotic leak	04	1.33%
Mortality	13	4.33%