e-ISSN: 0976-822X, p-ISSN:2961-6042

Available online on http://www.ijcpr.com/

International Journal of Current Pharmaceutical Review and Research 2024; 16(3); 769-772

Original Research Article

Study to Evaluate the Clinical Characteristics and Surgical Results of Perforative Peritonitis

Prabhat Kumar[1], Upendra Kumar[2], K.K. Sinha[3], Anup Kumar[4]

[1]Senior Resident, Department of General Surgery, Anugrah Narayan Magadh Medical College and Hospital, Gaya, Bihar, India

[2]Senior Resident, Department of General Surgery, Anugrah Narayan Magadh Medical College and Hospital, Gaya, Bihar, India

[3]Professor, Department of General Surgery, Anugrah Narayan Magadh Medical College and Hospital, Gaya, Bihar, India

[4]PG -Student, Department of General Surgery, Anugrah Narayan Magadh Medical College and Hospital, Gaya, Bihar, India

Received: 11-01-2024 / Revised: 15-02-2024 / Accepted: 23-03-2024
Corresponding Author: Dr. Upendra Kumar
Conflict of interest: Nil

Abstract

Aim: The aim of the present study was to assess the clinical profile, management of perforative peritonitis and its surgical outcomes.

Methods: The study was carried out in the Department of General Surgery, ANMMCH Gaya, Bihar, India. All patients admitted with perforative peritonitis were included in the study. A total of 200 patients with perforative peritonitis were included in the study.

Results: The underlying etiology of the perforative peritonitis among the patients was evaluated and it was observed that acid peptic disease was the common cause accounting for 35% of the patients, followed by typhoid (16%), trauma (13%), obstruction (11%) and tuberculosis (6%). In about 15% of the cases the etiology was not defined. The commonest site of perforation was found to be duodenum accounting for 36% of the cases followed by appendicular (20%), Ileum (16%), Jejunal (13%), large bowel (11%) and gastric (4%). All the patients were followed up for a period of 6 months and the surgical outcome of the patients was assessed where in the mortality rate among the patients was at 10% and the rate of complication was at 48% and remaining 42% of the patients recovered completely. Among the complications wound infection (32%) and respiratory complication (23%) were common, followed by abdominal collection (10%), Obstruction (14%), dyselectrolemia (8%), burst abdomen (5%) and anostomotic leak (5%).

Conclusion: GI perforations are one of the most common surgical emergencies. Duodenal perforations are most common. Ileal perforations have the highest morbidity and mortality. Mortality depends on the age and general condition of the patient, associated pre-operative co- morbidities, site of perforation and etiology.

Keywords: Perforative peritonitis, surgical outcome, etiology, complication, mortality

Introduction

The identification of peritonitis as a distinct illness was first made in 1802 by the French surgeon Bichat, and later confirmed by Laennec. [1] Peritonitis was formerly treated with opium or cathartics. [2] In 1881, Mikulicz, an assistant of Billroth, recommended performing laparotomy promptly for cases of peritonitis. [3] At the beginning of the 20th century, surgeons had a pretty well-defined understanding of the immune response inside the peritoneal cavity. [4] Veillon and Zuber (1893) demonstrated the presence of many types of microorganisms in cases of peritonitis. [5] In 1907, Pawlowsky documented the phenomenon of bacterial translocation from the intestines. [6] In 1922, Weinberg was the first to publish the precise bacteriology of peritonitis. [7] Murphy JB recommended doing the procedure promptly, without using sponging or irrigation, and closing it with drainage and rectal infusion (Murphy drip). [8] In 1926, Kirschner outlined the fundamental principles of peritonitis treatment, resulting in a significant decrease in mortality rates. Specifically, the mortality rate for peritonitis caused by a perforated appendix decreased from 83% to 21%, while the mortality rate for perforation-related cases decreased from 100% to 24%. Additionally, the

mortality rate for peritonitis caused by small and large bowel perforation decreased from 100% to 50%. [9] Peritonitis has been characterized using new scoring systems. [10,11] Verma and colleagues conducted a comparative analysis of prognostic variables in peritonitis caused by trauma at PGI in Chandigarh. [12] Fungal pathogens were seldom identified in cases of peritonitis. [13] In a research conducted by WaniR, ParrayF, et al, the causes of non-traumatic terminal ileal perforation in 79 instances were enteric fever (62%), nonspecific inflammation (26%), obstruction (6%), TB (4%), and radiation enteritis (1%). [14] In a study conducted by JhobtaRS, Attri AK, and their colleagues, a total of 504 consecutive cases in India were examined. The study focused on the occurrence of perforated duodenal ulcer, with 289 cases, and appendicitis, with 59 instances. [15] A research conducted in Pakistan on perforation peritonitis revealed an overall mortality rate of 10.6%. [16] Chakma S et al. examined 490 instances of perforation peritonitis and observed a morbidity rate of 52.24% and a death rate of 10%.

The objective of this research was to evaluate the clinical characteristics, treatment approaches, and surgical results of perforative peritonitis.

Materials and Methods

The study was carried out in the Department of General Surgery, ANMMCH Gaya, Bihar, India for one year. All patients admitted with perforative peritonitis were included in the study. The research comprised a cohort of 200 patients diagnosed with perforative The study recorded the socio-demographic profile, clinical profile, surgical treatments performed, and the result, including any problems, of the chosen patient. The patients were monitored for a duration of 12 months. The data acquired for different factors was inputted into an Excel spreadsheet. After applying suitable data filtering, the data was transferred and analyzed using SPSS version 22.

Results

Table 1: Clinical profile of the patients

Parameter		Frequency	Percent
Aetiology			
	Acid peptic disease	70	35
	Trauma	26	13
	Malignancy	6	3
	Obstruction	22	11
	Typhoid	32	16
	Tuberculosis	12	6
	Not defined	32	16
Perforation site			
	Gastric	8	4
	Duodenal	72	36
	Jejunal	26	13
	Ileal	32	16
	Appendicular	40	20
	Large bowel	22	11
Investigative findings			
	Pneumoperitoneum on x-ray	186	93
	Air fluid level on x-ray(>4)	34	17
	Dyselectrolytemia	92	47
	Raised leucocyte count >14k	166	83
	Raised renal function tests	82	41
	Low haemoglobin	24	12

The underlying aetiology of the perforative peritonitis among the patients was evaluated and it was observed that acid peptic disease was the common cause accounting for 35% of the patients, followed by typhoid (16%), trauma (13%), obstruction (11%) and tuberculosis (6%). In about 15% of the cases the aetiology was not defined. The commonest site of perforation was found to be duodenum accounting for 36% of the cases followed by appendicular (20%), Ileum (16%), Jejunal (13%), large bowel (11%) and gastric (4%).

Table 2: Outcome among the patients

Outcome	Frequency	Percent
Complication	96	48
Mortality	20	10
Recovered	84	42

All the patients were followed up for a period of 6 months and the surgical outcome of the patients was assessed where in the mortality rate among the patients was at 10% and the rate of complication was at 48% and remaining 42% of the patients recovered completely.

Table 3: distribution of complications

Type of complication	Frequency	Percent
Wound infection	64	32
Dyselectrolemia	16	8
Respiratory complication	46	23
Abdominal collection	20	10
Obstruction	28	14
Burst abdomen	10	5
Anastomotic leak	10	5

Among the complications wound infection (32%) and respiratory complication (23%) were common, followed by abdominal collection (10%), Obstruction (14%), dyselectrolemia (8%), burst abdomen (5%) and anostomotic leak (5%).

Discussion

The presence of a multimicrobial infection in peritonitis was shown by Veillon and Zuber (1893). [18] Pawlowsky first characterized the process of bacterial translocation from the intestine in the year 1907. [19] The precise bacteriology of peritonitis was originally documented by Weinberg in 1922. [20,21]

During the evaluation of the underlying etiology of the perforative peritonitis among the patients, it was discovered that acid peptic illness was the most prevalent cause, accounting for 35% of the patients. This was followed by typhoid fever (16%), trauma (13%), blockage (11%), and TB (6%). The cause was not determined in around fifteen percent of the cases. According to research conducted in western nations, perforations are more often seen in the distal section of the gastrointestinal tract. [22,23] This is in contrast to the fact that the proximal region of the gastrointestinal system is the most typically affected by perforations. [24,25] There is also a significant amount of regional diversity in etiological variables. Perforation peritonitis was shown to be caused by infections the majority of the time, according to research that was conducted in India. [26] Furthermore, in contrast to this, Noon et al. [8] from Texas revealed that infections were responsible for just 2.7% of the cases in their research. [27],

The duodenum was found to be the most prevalent site of perforation, accounting for 34 percent of the cases. This was followed by the appendix (20 percent), the ileum (16 percent), the jejunal (13 percent), the large intestine (11 percent), and the stomach (four percent). All of the patients were monitored for a period of six months, and the surgical outcomes of the patients were evaluated. The death rate among the patients was found to be 10%, and the rate of complications was found to be 48%. The remaining 42% of the patients recovered fully after the operation. Wound infection (32%) and respiratory complication (23%) were the most frequent consequences. On the other hand, abdominal collection (10%), obstruction (14%), dyselectrolemia (8%), ruptured abdomen (5%) and anostomotic leak (5%) were the next most common issues. Chaiya et al. conducted a study that found that the incidence of surgical site infections was 48 percent. [28]

Conclusion

GI perforations are one of the most common surgical emergencies. Duodenal perforations are most common. Ileal perforations have the highest morbidity and mortality. Mortality depends on the age and general condition of the patient, associated pre-operative co- morbidities, site of perforation and etiology.

References

1. Carson H. The evolution of the modern treatment of septic peritonitis. Lancet. 1923; 20 1(5203):1035-8.
2. Price M. Peritonitis, from a surgical stan dpoint. J Am Med Assoc. 891;17(5):173-6.
3. CurtisBF. The surgical treatment of peritonitis. Ann Surg. 1887; 5:22-31.
4. Durham HE. The mechanism of reaction to peritoneal infection. J Pathol. 1897; 4(3):338-82.

5. Steinberg B. Peritoneal exudate: a guide for the diagnosis and prognosis of perito neal conditions. JAMA. 1941;116 (7):57 2-8.
6. Pawlowsky AD. The fate of some pathogenic (primarily pyogenic) microbes when they enter the animal organism from the joints, the pleura, the eye, the oral cavity, the intestinal canal and the vagina. Medical Microbiol Immunol. 1909;62(1):433-52.
7. Weinberg M, Prevot AR, Davesne J, Renard C. Research on the bacteriology and serotherapy of acute appendicitis. Ann Int Pastor. 1928; 42:1167-241.
8. Murphy JB. IVtreatment of perforative peritonitis: general free suppurative. Ann Surg. 1908;47(6):870.
9. Kirschner M. The treatment of acute purulent free peritonitis. Arch Klin Chir. 1926; 142:253-311.
10. KnausWA, Draper EA, Wagner DP, Zimmerman JE. APACHE II: a severity of disease classification system. Critical Care Med. 1985;13(10):818-29.
11. Ohmann C, Yang Q, Hau T, Wacha H. Prognostic modeling in peritonitis. Peritonitis Study Group of the Surgical Infection Society Europe. Eu JSurg.1997; 163 (1):53-60.
12. Verma GR. Gastrointestinal injuries in abdominal trauma. Trop Gastroenterol 1990;11 (4):206-10.
13. Salvaggio MR, Pappas PG. Current concepts in the management of fungal peritonitis. Current infectious disease reports. 2003;5(2):120-4.
14. Wani RA, Parray FQ, Bhat NA, Wani MA, Bhat TH, Farzana F. Nontraumatic terminal ileal perforation. World J Emerg Surg. 2006;1(1):7
15. Jhobta RS, Attri AK, Kaushik R, Sharma R, Jhobta A. Spectrum of perforation peritonitis in India-review of 504 consecutive cases. World J Emerg Surg. 2006;1(1):26.
16. Afridi S, Malik P, Ur-Rahman S, Shamim S, Samo K. Spectrum of perforation peritonitis in Pakistan: 300 cases Eastern experience. World J Emerg Surg. 2008;3 (1): 31.
17. Chakma SM, Singh RL, Parmekar MV, Singh KG, Kapa B, Sharatchandra KH, Longkumer AT. Spectrum of perforation peritonitis. J Clin Diagnostic Res: JCDR. 2013 ;7(11):2518-20.
18. Steinberg B. Peritoneal exudate: a guide for the diagnosis and prognosis of peritoneal conditions. JAMA. 1941;116(7):572-8.
19. Pawlowsky AD. The fate of some pathogenic (primarily pyogenic) microbes when they enter the animal organism from the joints, the pleura, the eye, the oral cavity, the intestinal canal and the vagina. Medical Microbiol Immunol. 1909;62(1):433-52.
20. Weinberg M, Prevot AR, Davesne J, Renard C. Research on the bacteriology and serotherapy of acute appendicitis. Ann Int Pastor. 1928; 42:1167-241.
21. Murphy JB. IV treatment of perforative peritonitis: general free suppurative. Ann Surg. 1908;47(6):870.
22. N. Agarwal, S. Saha, A. Srivastava, S. Chumber, Dhar, and S.Garg. Peritonitis: 10 years' experience in a single surgical unit. Tropical Gastroenterology, 2007; 28(3): 117–120.
23. M. A.Malangoni and T. Inui. Peritonitis—theWestern experience. World Journal of Emergency Surgery, 2006; 1 (1): article 25.
24. S. Gupta, R. Kaushik, R. Sharma, and A. Attri. The management of large perforations of duodenal ulcers. BMC Surgery, 2005; 5: article 15.
25. B. di Venere, M. Testini, S. Miniello et al. Rectal perforations. Personal experience and literature review. Minerva Chirurgica, 2002; 57(3): 357–362.
26. A.K. Khanna and M.K. Misra. Typhoid perforation of the gut. Postgraduate Medical Journal, 1984; 60: 523–525.
27. G. P. Noon, A. C. Beall, and G. L. Jorden. Clinical evaluation of peritoneal irrigation with antibiotic solution. Surgery, 1967. 67: 73–78.
28. Chalya P, Mabula J, Koy M, Mchembe M, Jaka H, Kabangila R, et al. Clinical profile and outcome of surgical treatment of perforated peptic ulcers in northwestern tanzania: a tertiary hospital experience. World J Emerg Surg. 2011;6(1):31.