

Clinical Study on Etiopathogenesis and Clinical Features of Peritonitis in a Tertiary Care Hospital

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ABSTRACT

Background: Peritonitis is due to inflammation of the peritoneum. It is divided into primary and secondary peritonitis, and tertiary peritonitis is called when secondary peritonitis persists for more than 48 hours after an attempt at surgical source control. Secondary peritonitis accounts for 2% of emergency admissions and is the second leading cause of sepsis in patients in intensive care units worldwide. Peritonitis is one of the common surgical emergencies. Peritonitis is a significant cause of morbidity and mortality in surgical settings. The most common cause of acute peritonitis is duodenal perforation.

Aim of the Study: To know the Etiology, clinical features of peritonitis in a teaching hospital.

Materials and Methods: This study has been conducted in Gouridevi Medical College for 6 months from February 2022 to August 2022 in the department of General Surgery. We have included 46 total number of patients in this study.

Results: We have included total number of 46 patients in this study, out of these patients 24 are Males, 13 are Female

patients and 9 are children. The common age group involved is between 20 years and 70 years in adults and in children 6 to 14 years. 8 patients died during the hospital stay.

Keywords: Peritonitis, Pain Abdomen, Perforation, Mortality, Peritoneum.


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INTRODUCTION

Generalized peritonitis is common surgical emergency in India and world-wide also. The tropical spectrum of generalized peritonitis being different from the western spectrum. The most common cause of peritonitis in India and tropical countries is peptic ulcer perforation, while typhoid perforation is second most common cause.¹

The diagnosis was supported by operative findings of a terminal ileal perforation while clinical supported by operative findings of a terminal ileal perforation while bacteriological, serological, histopathological, bacteriological confirmation was retrospective. Appendicular perforation is very common in western countries than tropical countries. But the clinical picture is similar in all the areas. Tubercular perforation is also common in some parts of the world, with a previous history of sub-acute intestinal obstruction and evidence of tuberculosis an x-ray chest suggesting the diagnosis.²

Peritonitis is defined as an inflammation of the peritoneum the serosal membranes that lines that abdominal cavity and visceral organ within. Peritonitis usually presents acutely as a localized, or

a generalized process and usually is the result of an infectious (bacterial or fungal) process, though may be a of non-infectious origin, caused by chemical irritant like pancreatic enzymes, gastric acid. There are four types of peritonitis: primary, secondary, tertiary, peritoneal dialysis related peritonitis. Primary peritonitis results from bacterial translocation, hematogenous spread or the iatrogenic contamination of the abdomen without a macroscopic defect in the gastrointestinal tract. The secondary peritonitis results from the direct contamination of the peritoneum by spillage from the gastrointestinal or urogenital tracts or their associated solid organs. Tertiary peritonitis refers to secondary peritonitis that persists for more than 48 hours after an attempt at surgical source control.³

Primary peritonitis is usually a monomicrobial aerobic infection, secondary peritonitis is influenced by the site of perforation and by host factors including whether the perforation is community acquired or has occurred in a postoperative patient and usually polymicrobial. Almost 81% nosocomial infections occurred in post operative patients, more than 98% of these are the results of

anastomotic leak, 41% results from colorectal leaks, 31% from gastroduodenal leaks, 1.5% from urinary leaks. The major clinical features are pain abdomen, distention of abdomen, rigidity, fever, dehydration rapid pulse, vomiting, decreased urine output. The spectrum of Etiology of perforation is different between developing and developed countries, and there is a paucity of data from India regarding its Etiology, prognostic indicators, morbidity, and mortality patterns.⁴

The signs and symptoms of almost all cases of perforation peritonitis are typical and clinical diagnosis of peritonitis can be made in all patients. X-ray chest and abdomen, ultrasound whole abdomen and CT scan are the investigations that can confirm the diagnosis. Peritonitis usually presents as an acute abdomen. Local findings include generalised abdominal tenderness, guarding, rigidity, abdominal distension, decreased bowel sounds. Systemic findings include fever with chills or rigor, restlessness, tachycardia, tachypnoea, dehydration, oliguria, disorientation and ultimately shock. Prognosis affecting factors are age, vitals, metabolic acidosis, malnutrition, personal habits of smoking, alcoholism and drug abuse, preoperative status, serum albumin, cause of perforation, site of origin of peritonitis, contamination in peritoneal cavity. In majority, cases present late to the hospital with well-established generalized peritonitis with purulent or fecal contamination and septicaemia of varying degree. Thus, surgical management of perforation peritonitis becomes highly demanding and more complex. A combination of anti-microbial therapy improved surgical technique, and intensive care support may improve the outcome of such cases.

MATERIALS AND METHODS

This study has been conducted for 6 months from February 2022 to August 2022, in Gowridevi Medical College, Durgapur, in the department of General surgery in coordination with department of emergency medicine.

We have obtained the consent from their relatives by giving consent forms in their local language. After taking complete history, we have examined all the patient's in detail and advised investigations like complete blood picture, random blood sugar, blood urea, serum creatinine, serum electrolytes, blood culture and sensitivity, x-ray erect abdomen, ultrasound abdomen, blood grouping and cross matching and CT scan abdomen. After collecting data, we have compiled it and computerized by using MS office.

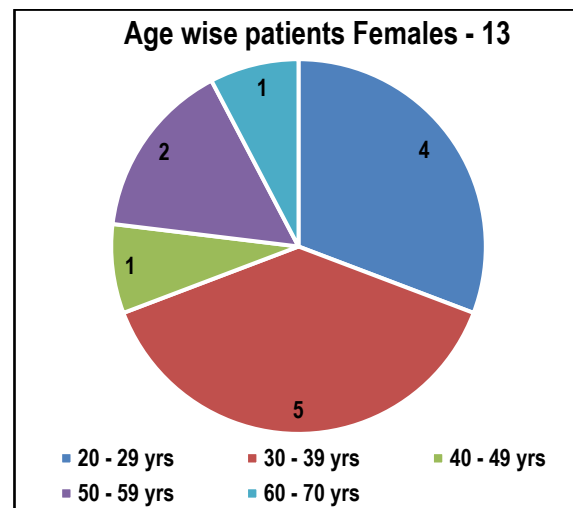
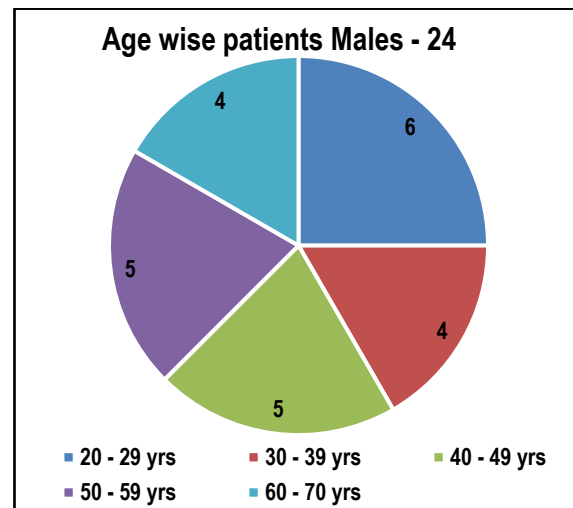
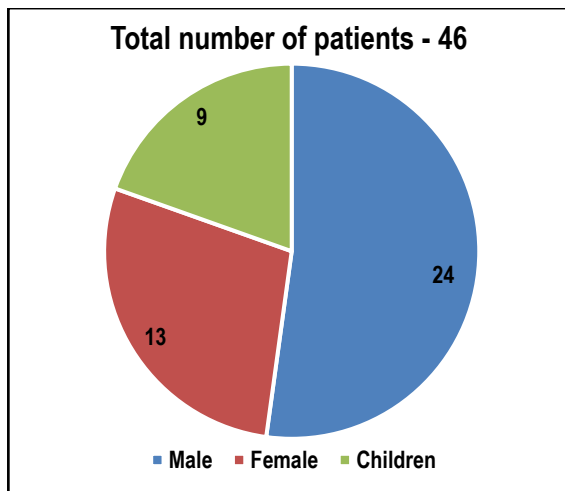


Table 1: Different Age Groups in Adults

S.No	Age Group is Yr	No. of Patients Males (24)	No. of Patients Females (13)
1	20 – 29 yr	6 (25.0%)	4 (30.7%)
2	30 – 39 yr	4 (16.6%)	5 (38.4%)
3	40 – 49 yr	5 (20.8%)	1 (7.69%)
4	50 – 59 yr	5 (20.8%)	2 (15.38%)
5	60 – 70 yr	4 (16.6%)	1 (7.69%)

Table 2: Different Age Groups in Children

S.No	Age in Years	No. of Patients in Children (9)
1	4 – 8 yr	4 (44.5%)
2	9 – 12 yr	3 (33.3%)
3	>12 yr	2 (22.2%)

Table 3: Different Causes of Peritonitis

S.No	CAUSES	Total no. of patients (M)	Total no. of patients (13)
1	Perforated Peptic Ulcer	9 (37.5%)	6 (46.5%)
2	Penetration Injuries	8 (33.3%)	3 (23.7%)
3	Perforated Appendix	5 (20.8%)	2 (15.3%)
4	Others	1 (4.6%)	2 (15.3%)

Table 4: Different Clinical Features

S.No	Clinical Features	No. of Patients (M)	No. of Patients (F)
		24	13
1	Pain abdomen	19 (79.8%)	10 (79.2%)
2	Distention	17 (70.2%)	8 (61.5%)
3	Fever	19 (79.8%)	8 (61.5%)
4	Vomiting and Other	16 (66.6%)	7 (53.8%)

RESULTS AND DISCUSSION

We have included total 46 number of patients out of these 46, 24 are male patients and 13 are female patients, and 9 patients are in paediatrics age group. Because peritonitis is also common in children affected than female patients. According to some studies conducted by Jhobta RS, Attri AK, et al shows that peritonitis is very common in children below 8 years.⁵ The common causes of peritonitis, in our study are perforated peptic ulcer 37.5% in males and 46.5% in females; peritonitis due to perforating injuries are seen in 33.3% of Males and 23.7% in female patients. The other causes are perforated appendix and spontaneous bacterial peritonitis (which is due to cirrhosis of liver).

The study conducted by et al shows Sharma L, Gupta S that peptic ulcer perforation causes 43.5% of Male patients and penetrating injuries are causing 39% of peritonitis. The common clinical features in our study are pain abdomen (79.9% in Males and 79.2% in females); distention of abdomen (70.2% in males and 61.5% in female); fever and vomiting are seen in 79.9% in males and 69.2% in female patients. The study conducted by et al shows Doherty GM That pain abdomen was noticed in 82.5% patients' fever is in 85.4% patients and distraction is in 72.5% of patients.⁷ 8 patients (22.3%) died during hospital stay. The common causes are septic shock with multi organ failure 3 patients: diabetes and coronary artery disease in 4 patients and renal failure in 2 patients.

Peritonitis is inflammation of the peritoneum and is a life threatening acute surgical emergency. It presents with abdominal pain, distention, and fever. Mortality is ranges from 12% to 61% in surgical practice. Many studies shows that causes of peritonitis varies by geographic locations and local environmental factors with genetic predisposition. The prevalence of peritonitis due to perforation of peptic ulcer and appendicitis perforation are 42.1% and 34.6% respectively.⁸ Aggressive fluid resuscitation and early surgical intervention are the main stay of therapy of peritonitis. Enterocutaneous fistulas, surgical site infection, sepsis and multiorgan failure are commonest complications in surgical practice. Despite the rapid advancement in surgical techniques, modified antimicrobial therapies and intensive care support, the management of peritonitis, constitutes to be more demanding, challenging, and complex.⁹ The present study demonstrated that peritonitis was significantly more prevalent in males with peak age group of 21 – 40 years. Post operative morbidity rate was 32.6%, dehydration is most common complication followed by septicaemia and paralytic ileus. The findings of present study are supported by a study conducted by Chon et al.¹⁰

Perforation peritonitis is one of the most common surgical emergencies in developing nations like India. In our study, maximum number of patients (19.64%) belong to age group 21 to 30 years which is supporting the fact that patients of this age

group are involved in heavy alcohol consumption, smoking and analgesic drug abuse. Maximum cases of perforation peritonitis are male (83.57%) as some behaviours, such as tobacco chewing, smoking, drinking alcohol and outdoor work are more frequent among men, thus increasing the risk of PUD and perforation and traumatic perforation, especially in young adults. Most consistent feature is the pain, and it is present in almost all the patients. In the present study all the patients had pain abdomen (80%), followed by abdomen distension (75%), constipation (65%) and vomiting were present in 22.85% cases. Vomiting was more common in appendicular perforation. Fever was significantly more commonly observed in appendicular and enteric perforations.

According to the site, gastric and prepyloric perforations comprised (16.43%) cases, while duodenal perforation was the most common type (35%), which were mainly due to acid peptic disease (48.92%) caused by either inadvertent drug (NSAIDS) intake or *H. pylori* infection followed by trauma and malignancy.

Jejunal and ileal perforations (34.95%) were due to typhoid (13.21%), tuberculosis and trauma. Appendicular perforations (10.36%) were the result of acute appendicitis and large bowel (3.21%) perforations can be due to malignancy or trauma. Similar observations were noted by Jhobta et al in their study on 504 patients.

In our study, a variety of operative procedures were performed depending on the patient's general condition, peritoneal contamination, site of perforation, gut viability, and surgeon's decision. All gastroduodenal perforations were managed with omentopexy, primary closure with omentopexy, primary closure with omentopexy with gastrojejunostomy with or without feeding jejunostomy¹¹, GJ or FJ were done in cases of large perforations or in patients with poor general condition to avoid the risk of post-operative leak.¹²

CONCLUSION

Perforated peritonitis is a disease of young and middle-aged adults. More commonly affects males than females. typhoid, trauma, tobacco chewing, smoking, alcohol, inadvertent use of analgesics are most common predisposing factors for perforated peritonitis and patients' inability to get proper and complete treatment is responsible for perforation. Delay in hospitalization due to initial treatment by homemade medicines and non-availability of essential surgical care further complicates the perforation in this region.

REFERENCES

1. Ramakrishnan K, Salinas RC. Peptic ulcer disease. *Am Fam Physician*. 2007;76:1005-12.
2. Agarwal N, Saha S, Srivastava A, Chumber S, Dhar A, Garg S. Peritonitis: 10 years' experience in a single surgical unit. *Trop Gastroenterol*. 2007;28:117-20.
3. Gupta S, Kaushik R. Peritonitis- The Eastern experience. *World J Emerg Surg*. 2006;1:13.
4. Dorairajan LN, Gupta S, Deo SV, Chumber S, Sharma LK. Peritonitis in India – A decade's experience. *Trop Gastroenterol*. 1995;16:33-8.
5. 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;1:26.

6. Sharma L, Gupta S, Soin AS, Sikora S, Kapoor V. Generalized peritonitis in India – The tropical spectrum. *Jpn J Surg.* 1991;21:272-7.
7. Doherty GM, Editor. Current diagnosis and treatment, Surgery. 13th edition. New York: The McGraw-Hill Companies, Inc.; 2010: 464-468.
8. Malangoni MA, Inui T. Peritonitis – the Western experience. *World J Emerg Surg.* 2006;1:25.
9. Agarwall N, Saha N, Srivastava A, Chumber S, Dhar A, Garg S. Peritonitis 10 years experience in a simple surgical unit. *Trop Gastroenterol.* 2007;28(3):117–20.
10. Afridi SP, Malik F, Ur-Rahman S, Shamim S, Samo KA. Spectrum of perforation peritonitis in Pakistan: ses Eastern experience. *World J Emerg Surg.* 2008;3:31.
11. Ghooi AM, Punjwani S. Acute abdominal emergencies: Clinical overview. *Ind J Surg.* 1978;140:182-9.
12. Chalya P, Mabula JB, Koy M, Mchembe MD, Jaka HM, 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;6:31.

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