IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 22, Issue 5 Ser.4 (May. 2023), PP 32-37
www.iosrjournals.org

Clinical Profile Of Patients With Non Traumatic Intestinal Perforationin A Tertiary Care Centre

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Abstract:
Background*: Intestinal perforation is a frequently encountered surgical emergencypresenting with wide range of symptoms and etiology. Various regional variations are present with regards to etiology. This study was conducted to determine clinical profile of patients with regards to clinical presentation, symptoms, pathological features, operative findings, complication and mortality.*
Materials and Methods*: In this prospective observational study, 147 patients of non traumatic intestinal perforation of age ≥ 15 years who were admitted in Department of General Surgery, Sawai Man Singh Hospital were included. All the findings were recorded in terms of age, gender, perforation characteristics (site, number, etiology), complications and mortality.*
Results*: Most common site of perforation was Ileum followed by Gastric. Most common cause is peptic ulcer disease followed by non specific ileitis. Morbidity rate was 34.13% and mortality rate was 20.41%.*
Key Word*:Perforation peritonitis, Peptic Ulcer Disease, Non Specific Ileitis*

Date of Submission: 02-05-2023 Date of Acceptance: 12-05-2023

I. Introduction

The most frequent surgical emergency experienced by surgeons worldwide, including in India, is intestinal perforation. Intestinal perforation can be brought on by trauma, instrumentation, inflammation, infection, malignancy, ischemia, and obstruction, among other things. Infectious disorders like typhoid and tuberculosis are more prevalent in developing nations, whereas malignancy and diverticulitis are more prevalent in developed nations. [2,3] Different classes of medications have the ability to cause intestinal perforation, such as NSAIDs or corticosteroids which modify the mucosal barrier, whereas opioids and calcium channel blockers which impairs gastrointestinal motility.[4] The clinical examination, history taking and radiological imaging (computed tomography [CT] scan, ultrasonography, and flat plate abdomen erect [FPA] X-rays)[5] are necessary for the diagnosis.The patient's overall health and the risk of surgery are considered while choosing a treatment plan.[2] A surgical specimen's histopathological analysis is useful tool for determining the best course of treatment, particularly when there are infections or cancers present.[6] The prognosis of the patient can be improved by early diagnosis and treatment of the intestinal perforation's underlying cause. This study is done to determine clinical profile of patients with non traumatic intestinal perforation.

II. Material And Methods

This prospective observational study was conducted on patients admitted in Department of General Surgery at Sawai Man Singh Medical College & Attached Hospitals, Jaipur, Rajasthan, India from January 2022 to September 2022. A total of 147 patients (both male and female) of age ≥15 years were included in this study. Consent was obtained and then included in study. A thorough physical examination was properly documented. A general physical examination focused on the patient's clinical condition, particularly with regard to shock and dehydration. Build, nutrition, pallor, icterus, lymphadenopathy, edema, clubbing, cyanosis, respiratory rate, temperature, pulse rate and blood pressure were noted. Particular attention was paid to abdominal abnormalities associated with clinical symptoms of peritonitis and perforation during the systemic examination. On inspection, we looked for distension, scars, visible masses, and pulsations. On palpation, we looked for tenderness, guarding, rigidity, palpable masses, organomegaly and fluid thrill. On percussion, shifting dullness and obliteration of liver dullness were seen. Bowel sounds were recorded. Hernial sites, gentalia, and rectal examination was done. Examination of the respiratory, cardiovascular, and central nervous systems was noted. Hemogram, blood sugar, electrolytes, renal function tests, liver function tests, blood culture, Widal, urine examination, upright and supine abdomen x-ray, ultrasound, and other investigations as needed were performed

in the laboratory in accordance with clinical significance. The number, size and position of perforations were observed, along with the operating management. After surgery, analysis was conducted. Any difficulties, if any, were reported.

Inclusion criteria: All the patients admitted in SMS hospital for non traumatic bowel perforation after taking written informed consent.

Exclusion criteria:
1. Age <15 years
2. Any patient who is not fit for general anaesthesia / hemodynamically unstable
3. Any patient who expired before intervention
4. Immunocompromised patient

Statistical Analysis:

Statistical methods for analysis involved descriptive statistics such as mean, standard deviation and frequencies and inferential statistics including chi square test was used. The data was compiled in MS excel and other relevant softwares. The data has been presented in table and graphs wherever applicable. Data was analysed as per objectives P value <0.05 was considered as significant. Inferences were drawn with the help of appropriate test of significance.

III. Result

Table 1: Genderwise distribution of perforation peritonitis

Gender	Frequency	Percentage
Male	112	76
Female	35	24
Total	147	100

In our study, out of 147 patients, 112 patients were males and 35 patients were females.

Table 2: Age wise distribution of perforation peritonitis

Age group (years)	Male	Female	Frequency	Percentage
15-24	20	8	28	19.04
25-34	17	10	27	18.36
35-44	16	4	20	13.60
45-54	19	5	24	16.32
55-64	15	2	17	11.56
65-74	17	3	20	13.60
>-75	8	3	11	7.48
Mean age (	45.67+-19.43	40.11+-19.84	44.28+-19.61	

In our study, most commonly affected age group in males is 15-24 years, while in females is 25-34 years. Incidence of perforation peritonitis was 51% in <45 years and 49% in >45 years.

Table 3: Symptoms associated with perforation peritonitis

Symptoms	Frequency	Percentage
Pain abdomen	147	100
Vomiting	100	68.02
Abdominal distension	122	82.99
Fever	81	55.10

In our study, most common presenting symptoms was pain abdomen (100%) followed by abdominal distension (82.99%).

Table 4 : Mean duration of presentation

DURATION	FREQUENCY	PERCENTAGE
<48 hours	19	12.92
48 – 96 hours	84	57.14
>96 hours	44	29.93

In our study, 57.14% patients presented between 2nd to 4th day of onset of symptoms. Mean duration of symptoms was 4.75+/-3.36 days.

Table 5: Various sites of perforation peritonitis according to gender

Site	Male	Female	Total
Gastric	33	6	39
Duodenum	7	1	8
Jejunal	5	2	7
Ileum	44	14	58
Appendix	14	4	18
Colon	8	8	16
Rectum	1	0	1

In our study, most common site of perforation was Ileum in both males and females.

Table 6: Various sites of perforation peritonitis according to age group

Site	15-24	25-34	35-44	45-54	55-64	65-74	>-75
Gastric	-	5	5	11	8	6	4
Duodenum	-	-	1	2	3	2	-
Jejunal	1	1	2	-	1	1	1
Ileum	17	12	10	3	3	7	6
Appendix	6	5	2	4	-	1	-
Colon	3	4	-	4	-	1	-
Rectum	1	-	-	-	-	-	-

In our study, most common site of perforation is ileum in younger age group (<45 years), while gastric perforations are more common in older age groups (>45 years).

Table 7: Different etiologies of perforation peritonitis

Gastroduodenal			
Cause	**Gastric**	**Duodenal**	**Total (47)**
Peptic ulcer disease	37	8	45
Malignancy	2	0	2

Small intestine			
Cause	**Jejunum**	**Ileum**	**Total (65)**
Non specific inflammation	5	21	26
Tuberculosis	1	19	20
Typhoid	0	12	12
Necrosis	0	6	6
Peutz jeghers	1	0	1

Appendix	
Cause	**Total (18)**
Inflammation	14
Necrosis	3
Malignancy	1

Large intestine			
Cause	**Colon**	**Rectum**	**Total (17)**
Non specific inflammation	8	0	8
Necrosis	3	0	3
Tuberculosis	1	0	1
Amoebic	1	0	1
Malignancy	2	1	3
Hirschprung	1	0	1

Table 8: Morbidity in perforation peritonitis

Complication	**Frequency**	**Percentage (n=147)**
Wound infection	8	5.44
Wound dehiscence	5	3.4
Intraabdominal collection	1	0.68
Pneumonitis	18	12.24
Myocardial infarction	4	2.72
Acute kidney injury	1	0.68
Septicemia	13	8.84
Total	50	34.01

In our study, 34.01% patients suffered complications; out of which pneumonitis was most common in 18 cases (12.24%).

Table 9 : Mortality associated with different site of perforations

Site	**Frequency**	**Mortality**	**Percentage**
Gastric	39	7	17.95%
Duodenum	8	1	12.5%
Jejunal	7	2	28.57%
Ileum	58	12	20.69%
Appendix	18	0	0
Colon	16	8	50%
Rectum	1	0	0

Table 10: Relation of delay in treatment to mortality in perforation peritonitis

Duration of presentation	Frequency (N=147)	Mortality (n=30)	Percentage (Mortality/Frequency)
<48 hours	19	2	10.53%
48-96 hours	84	14	16.67%
>96 hours	44	14	31.82%

In our study, moratlity was higher in group who presented after 96 hours to the health care centre (31.82%) followed by group presented between 48 to 96 hours

IV. Discussion

This Study Entitled "Clinical Profile Of Patients With Non Traumatic Intestinal Perforation In A Tertiary Care Centre" Was Conducted In Department Of General Surgery, Sawai Man Singh Medical College & Attached Hospitals. In This Study We Determined The Clinical Profile Of Patients With Non Traumatic Perforation Peritonitis With Respect To Clinical Presentation, Operative Findings, Complications, Outcome And Histopathological Findings.

Gender : Out of 147 cases of perforation peritonitis, 112 patients were male and 35 patients were females. (Male : female :: 3.2:1). Higher incidence in males can be attributed to high rates of smoking, alcohol intake or drug abuse. Male predominance was also found by Srivastava R et al[82] with male to female ratio 3:1, Hameed T et al[83] with ratio 3.25:1.

Age : Age of patients ranges from 16 years to 89 years. Most common age group affected was 15-24 years (19.04%). Age group in males in our study mirrors the incidence of total population i.e. 17.85% cases distributed to 15-24 years of age, whereas in females 22.85% cases belongs to this group. Most common age group in females is 25-34 years of age with 28.57% cases. Higher incidence in younger age group in our study can be attributed to more indulging of young adults in drug abuse, smoking and adapting unhealthy lifestyle. In study conducted by Srivastava R et al[82] , most common age group affected was 20-40 years.

Mean age: Mean age of patients admitted was 44.28 years. Mean age was 45.55 years & 45.72 years in study done by Naveen P. et al[85]& Tukka VN et al[87] respectively.

Symptoms and presentation to hospitals: The most common symptom in our study was pain abdomen(100% cases) followed by abdominal distension (82.99% cases). Maximum number of patients (57.14%) presented to our health facility between 48-96 hours of onset of symptoms. This delayed presentation can be due to following factors: a) Ignorance of symptoms and seeking medical attention when symptoms not relieved/ worsened after self medication b) Lack of experienced doctors and diagnostic facility at primary health centres c) Delayed referral for definitive treatment .

Site of perforation : In our study, most common site of perforation was ileum overall and in both genders which was present in 58 out of 147 cases, 44 out of 112 cases in male and 14 out of 35 cases in female. It can be due to variety of infections occurring in developing countries due to lack of proper hygiene and clean drinking water. Similar results were found by Lohith P. et al[88] in which most common site of perforation was ileum (32%). Ileal perforations are more commoner in younger age groups (39 out of 58 cases in <45 years of age), while gastric perforations are more common in older age groups (29 out of 39 cases).

Etiology of perforation: In our study, overall most common cause of perforation was peptic ulcer disease (30.61%) followed by non specific inflammation (23.12%). In a study conducted by Hameed T et al83 , most common cause of perforation was peptic ulcer disease (52%) followed by typhoid (20%).

Morbidity: Overall morbidity was in 50 cases (34.01%) out of 147 cases with pneumonitis being the most common in 18 cases (12.24%). Morbidity is higher in groups with delayed presentation to hospital who already entered in decompensated state. Similar results were obtained by Jhobta RS et al[89], overall morbidity was in 50% cases with pneumonitis being the most common (28%).

Mortality: Overall mortality was in 30 cases (20.41%). Mortality was more commonly observed in large intestinal perforation (8 out of 17 cases i.e. 47.06%) and in those who presented late due to following reasons:- a) Delayed presentation of symptoms b) More contamination c) High bacterial load.

In study conducted by Ajaz et al[91], mortality rate was 16.8%. in another study conducted by Notash et al[92], mortality rate was 17.5%.

V. Conclusion

Spectrum of cases of perforation peritonitis is different in developing and developed countries in terms of site, cause, age. According to western litrerature, common causes of perforation peritonitis includes foreign body, malignancy, diverticulitis which usually affects older patients and more commonly involves lower gastrointestinal tract. While in developing countries, it consists of inflammation, infectious cause which usually affects younger patients and involves upper gastrointestinal tract mainly. Morbidity and mortality associated with perforation peritonitis is directly proportional to the presentation to hospital after onset of symptoms. It is higher in cases of conservative management, moribund patients. Early diagnosis, proper resuscitation and urgent surgical intervention are the main cornerstones of treating perforation peritonitis. This study again indicates that spectrum of perforation peritonitis in India is different from western world.

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