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STUDY OF THE COMPLEXITIES AND CONSIDERATION IN NON-TRAUMATIC GASTROINTESTINAL PERFORATIONS - AN OBSERVATIONAL STUDY

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ABSTRACT

BACKGROUND: Perforation peritonitis is the most common surgical emergency in India. Despite advances in surgical techniques, antimicrobial therapy and intensive care support, management of peritonitis continues to be highly demanding, difficult and complex. The spectrum of aetiology of perforation continues to be different from that of Western countries and there is a paucity of data from India regarding its aetiology, prognostic indicators, morbidity and mortality patterns. Our study was designed to highlight the spectrum of perforation peritonitis as encountered by us at M K C G MEDICAL COLLEGE AND HOSPITAL, Berhampur, Odisha

AIM AND OBJECTIVE:

- To study epidemiology, seasonal trends, etiology and clinical presentation.
- To study the incidence of perforation in different parts of GIT.
- To study the different management techniques used.
- To study the factors influencing the outcome.
- To study morbidity and mortality.

PATIENTS AND METHODS:

An analysis of 125 patients of perforation peritonitis was done over a period of 12 months (from November 2023 to October 2024) at M K C G Medical College, Berhampur. After taking proper consent

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the cases were studied in term of clinical presentation, radiological investigations, operative findings and postoperative course. Data was collected from indoor patient records, operation theatre records and outpatient department for follow up of cases. The data were filled in preformed proforma. All patients following a clinical diagnosis of perforation peritonitis and adequate resuscitation, underwent exploratory laparotomy in emergency setting. At surgery, the source of contamination was sought for and controlled. The peritoneal cavity was irrigated with 5–6 litres of warm normal saline and the decision to insert a drain was left to the discretion of the operating surgeon. The abdomen was closed with continuous, number one non-absorbable suture material. Although all patients received appropriate perioperative broad-spectrum antibiotics, the drug regimen was not uniform.

INCLUSION CRITERIA

All cases found to have peritonitis as a result of perforation of any part of the gastrointestinal tract at the time of surgery were included in the study.

EXCLUSION CRITERIA

- cases of primary peritonitis
- oesophageal rupture or perforation
- perforation of hepatobiliary system
- iatrogenic perforations
- traumatic perforations
- peritonitis due to anastomotic leak

RESULTS: 125 cases of perforation were studied. The major cause of perforation was due to acid peptic disease. The commonest site of perforation is the duodenum(n=57). Out of 57 patients, 17 were alcoholics, 13 were smokers and 12 were NSAID users. The incidence of cases was more common in winter (January = 21 cases). Overall GIT perforation was found to be common in young adults in the age group of 20 to 29 and 30 to 39. 90 cases showed air under the diaphragm. Out of 19 cases of ileal perforation 9 cases were due to enteric fever, 5 cases were due to tuberculosis and 5 cases were due to unknown reasons, may be because of nonspecific inflammation. In our study post post-operative complications occurred in 25 patients. Out of which 16 patients had wound infection, 4 patients had burst abdomen, 1 patient had pelvic abscess, 1 patient had anastomotic leak and three patients had respiratory complications. Out of 125 cases, 11 patients died in the post-operative period. The commonest causes include septicaemia, cardiac arrest and respiratory complications.

CONCLUSION:

Duodenal ulcer perforation was the commonest cause of GIT perforation with male preponderance. More common in the third decade. More common in lower socioeconomic class. More common in winter season. Smoking and alcohol were aggravating factors. Most of the patients presents with pain abdomen, fever and vomiting. Simple closure with omental patch was very effective in the management. Next to duodenum, gastric perforation was more common. Gastric perforation was more common in fourth decade. Ileal perforation was more common in third decade. Commonest causes being typhoid and tuberculosis.

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Single ileal perforation was more common than multiple perforation. Closure in two layers was very much effective in small bowel perforation.

INTRODUCTION:

Perforation peritonitis is the most common surgical emergency in India. Despite advances in surgical techniques, antimicrobial therapy and intensive care support, management of peritonitis continues to be highly demanding, difficult and complex. The spectrum of aetiology of perforation continues to be different from that of Western countries[1] and there is a paucity of data from India regarding its aetiology, prognostic indicators, morbidity and mortality patterns[2]. Our study was designed to highlight the spectrum of perforation peritonitis as encountered by us at M K C G MEDICAL COLLEGE AND HOSPITAL, Berhampur, Odisha.

AIM AND OBJECTIVE OF THE STUDY:

- To study the epidemiology, seasonal trends, aetiology and clinical presentation.
- To study the incidence in perforation in different part of GIT.
- To study the different management techniques used.
- To study the factors influencing the outcome.
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MATERIALS & METHODS:

An analysis of 125 patients of perforation peritonitis was done over a period of 12 months (from November 2023 to October 2024) at M K C G Medical College, Berhampur. After taking proper consent the cases were studied in term of clinical presentation, radiological investigations, operative findings and postoperative course. Data was collected from indoor patient records, operation theatre records and outpatient department for follow-up of cases. The data were filled in preformed proforma. All patients following a clinical diagnosis of perforation peritonitis and adequate resuscitation, underwent exploratory laparotomy in an emergency setting. At surgery, the source of contamination was sought for and controlled. The peritoneal cavity was irrigated with 5–6 litres of warm normal saline and the decision to insert a drain was left to the discretion of the operating surgeon. Abdomen was closed with continuous, number one non-absorbable suture material. Although all patients received appropriate perioperative broad-spectrum antibiotics, the drug regimen was not uniform.

Inclusion criteria:

All cases found to have peritonitis as a result of perforation of any part of the gastrointestinal tract at the time of surgery were included in the study.

Exclusion criteria:

- cases of primary peritonitis
- oesophageal rupture or perforation

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- perforation of hepatobiliary system
- iatrogenic perforations
- traumatic perforations
- peritonitis due to anastomotic leak

RESULTS AND DATA ANALYSIS:

INCIDENCE:125 cases of perforation were studied. The major cause of perforation was due to acid peptic disease. The commonest site of perforation is duodenum(n=57).

SEASONAL TRENDS: The incidence of cases was more common in winter (January=21)

AGE DISTRIBUTION IN GIT PERFORATION:

S.NO.	AGE	TOTAL CASES	PERCENTAGE
1	0-19	10	8.0
2	20-29	41	32.8
3	30-39	32	25.6
4	40-49	21	16.8
5	50-59	11	8.8
6	>60	10	8.0
TOTAL		125	100

Overall GIT perforation was found to be common in young adults in the age group of 20 to 29 and 30 to 39.

RADIOLOGICAL SIGN: 90 cases showed air under the diaphragm.

DUODENAL ULCER PERFORATION: Total number of duodenal ulcer perforation were 57. The most common age group affected by duodenal perforation was 20- 29 i.e. young adults. This is similar to the age incidence of the overall GIT perforation**.**

S.NO.	AGE	TOTAL CASES	PERCENTAGE
1	0-19	1	1.8
2	20-29	23	40.4
3	30-39	15	26.3
4	40-49	8	14.0
5	50-59	7	12.3
6	>60	3	5.2
TOTAL		57	100

SEX DISTRIBUTION IN DUP: Total of two female patients were encountered in our study out of 57 patients of DUP. Male: female ratio was 28:1.

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ASSOCIATION WITH RISK FACTORS: Out of 57 patients, 17 were alcoholic, 13 were smokers and 12 were NSAID users. Among the risk factors alcohol consumption was found to predominate in our patients. This may be because of the lower socio-economic class, the lifestyle and the education status.

GASTRIC PERFORATION: 26 cases were gastric perforation out of 125 cases. In our study perforations were common in the age group of 30-39. Out of 26 cases, only one female patient was encountered. Three perforations were due to gastric malignancy. 7 patients were alcoholic and 10 patients were smokers. No cases had previous history of perforation or had a bout of alcohol prior to perforation. Air under the diaphragm was present in 25 patients' x-ray out of 26 i.e.96.2% Simple closure with omental patch was done in 24 cases. One malignant ulcer perforation was treated with partial gastrectomy and feeding jejunostomy. That patient died on the 10th post operative day. Another malignant perforation was treated with gastrostomy and ileostomy. There were 3 deaths. Out of which 2 were malignant perforation. The result of biopsy came as adeno carcinoma in two cases and malt lymphoma in one case. So, the major cause of gastric perforation is gastric ulcer and the next common cause is malignancy.

S.NO.	AGE	TOTAL CASES	PERCENTAGE
1	0-19	0	0
2	20-29	6	23.1
3	30-39	8	30.8
4	40-49	5	19.2
5	50-59	2	7.7
6	>60	5	19.2
TOTAL		26	100

ILEAL PERFORATION: Out of 125 cases 19 were found to have ileal perforation. The highest age incidence was between 20 – 29. No female patients with perforation of ileum were encountered. Out of 19 cases 9 cases were due to enteric fever, 5 cases were due to tuberculosis and 5 cases were due to unknown reason, may be because of nonspecific inflammation. In the total of 19 cases of ileal perforation 12 cases had history of fever for more than two weeks and 9 of them proved to be widal positive. 5 perforated patients were found to be affected by tuberculosis by both intra operative findings like thickened ileal segment around the area of perforation and enlarged and matted lymph nodes and by histopathological examination which showed the caseating granulomatous inflammation in the resected segment or biopsy. Out of 19 cases 5 cases were found to have multiple ileal perforation. All patients were taken up for surgery within 12 hours and resection of the perforated ileal segment with end-to-end anastomosis was done in 5 cases which were multiple perforations and simple closure by two layers after trimming the edges was done in other cases.

S.NO.	AGE	TOTAL CASES	PERCENTAGE
1	0-19	1	5.3
2	20-29	7	36.8
3	30-39	3	15.8
4	40-49	6	31.6
5	50-59	2	10.5
6	>60	0	0
TOTAL		19	100

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APPENDICULAR PERFORATION: Total of 19 cases out of 125. More common below the age group of 19. Male: female ratio was 11:8. The clinical presentation of these patients were mostly fever, vomiting, abdominal pain and localized guarding with rebound tenderness.

S.NO.	AGE	TOTAL CASES	PERCENTAGE
1	0-19	7	36.8
2	20-29	5	26.3
3	30-39	5	26.3
4	40-49	2	10.5
5	50-59	0	0
6	>60	0	0
TOTAL		19	100

MORBIDITY DATA: The postoperative complications i.e. morbidity in our study were wound infection, burst abdomen, intra-abdominal collections, anastomotic leak and respiratory complications. In our study post post-operative complications occurred in 25 patients. Out of which 16 patients had wound infection, 4 patients had burst abdomen, 1 patient had pelvic abscess, 1 patient had anastomotic leak and three patients had respiratory complications.

The unusually high occurrence of wound infection in our patients may be due to poor post-operative care, inadequate theatre sterilization, late presentation of our patients and their poor general hygiene. This shows the necessity of improving the post operative wound care in our hospital and the necessity of creating awareness among our people regarding seeking medical attention early.

MORTALITY: Out of 125 cases 11 patients died in the post operative period. The commonest causes include septicaemia, cardiac arrest and respiratory complications. Number of deaths in DUP were 3, GUP was 3, ileal perforation was 4 and colonic perforation was 1.

Cause of death	**Total patients**	**Percentage**
Septicaemia	7	63.3
Cardiac arrest	2	18.2
Resp. complication	2	18.2

DISCUSSION:

From the result, I conclude that gastro-intestinal perforation occurs more frequently among men than women. This is believed to be due to the lifestyles and also the risk factors that could contribute to the formation of ulcers and later the perforation of GIT. These factors include cigarette smoking, consumption of food and beverages containing caffeine, alcohol abuse and physical stress. Men are more prone to these effects as for example they smoke rather than women.

GI perforation most commonly affects young men in the prime of life as compared to the studies in the west[3]. Where the mean age is between 45-60 years. In majority of the cases the presentation to the

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hospital is late with well-established generalized peritonitis with purulent/faecal contamination and varying degree of septicaemia. The signs and symptoms are typical and it is possible to make a clinical diagnosis of peritonitis in all patients. The etiological factors show a wide geographical variation. Khana et al[4] from Varanasi studied 204 consecutive cases of gastro intestinal perforations and found that, over half (108 cases) where due to typhoid. They also had perforations due to duodenal ulcer (58), appendicitis (9), Amoebiasis (8) and Tuberculosis (4). These figures show the importance of infection and infestation in the third world, which is also reflected in the typhoid and tubercular perforation in our study and the study by Jhobta et al[5].

At the other end of the spectrum, Noon et al[6] from Texas studied 430 patients of GIT perforation and found 210 cases to be due to penetrating trauma, 92 due to appendicitis and 68 due to acid peptic disease. This shows the importance of trauma in developed countries.

There were 11 deaths (8.8%) in the immediate post operative days in our study, which is comparable with the other published series[5,7,8,9] despite delay in seeking medical attention. This was probably because of lower mean age (which is a factor determining mortality) of patients in our study. The main cause of death in the present series of patients was septicaemia (63.3%), which was comparable with other similar study[5]. Therefore, contamination is a crucial consideration in patients with peritonitis and the problem of mortality is a problem of infection. So, by early surgical intervention, we succeed in preventing further contamination by removing the source of infection though the end result will also depend upon the general host resistance and the antibiotic sensitivity of the organisms[10].

The major cause of post-operative morbidity was wound infection (64%), burst abdomen (16%). The unacceptably high incidence of burst abdomen in the present series was multi factorial due to delayed presentation, gross contamination of the peritoneal cavity, septicaemia and above all the faulty methods of abdominal closure as majority of our patients were operated by inexperienced resident doctors, who are a fleeting population and are still in the learning curve.

To conclude, the spectrum of perforation in India continues to be different from its western counterparts with DUP, GUP, typhoid perforation and TB perforation being the major causes of generalized peritonitis.

CONCLUSION:

- Duodenal ulcer perforation was the commonest cause of GIT perforation with male preponderance.
- More common in third decade.
- More common in lower socioeconomic class.
- More common in winter season.
- Smoking and alcohol were aggravating factors.
- Most of the patients presents with pain abdomen, fever and vomiting.
- Simple closure with omental patch was very effective in the management.
- Next to duodenum gastric perforation was more common.
- Gastric perforation was more common in fourth decade.
- Ileal perforation was more common in third decade.
- Commonest causes being typhoid and tuberculosis.
- Single ileal perforation was more common than multiple perforation.
- Closure in two layers was very much effective in small bowel perforation.

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- Prognostic determinant in perforation were delay in presentation to the hospital and degree of contamination.
- Conservative management increases the number of hospitals stay.
- Incidence of colonic perforation was 2.4% (3 cases) in this study.
- Most common post operative complication was wound infection.
- Deaths were due to septicaemia, cardiac arrest and respiratory complication.
- In spite of the recent advances in closing the D.U. perforation by laparoscopy and by other means, still simple closure with omental patch is widely practiced.

BIBLIOGRAPHY:

1. Jhobta, Rajender & Attri, Ashok & Kaushik, Robin & Sharma, Rajeev & Jhobta, Anupam. (2006). Spectrum of perforation peritonitis in India — Review of 504 consecutive cases. World journal of emergency surgery : WJES. 1. 26. 10.1186/1749-7922-1-26.
2. Singh R, Kumar N, Bhattacharya A, Vajifdar H. Preoperative predictors of mortality in adult patients with perforation peritonitis. Indian J Crit Care Med. 2011 Jul;15(3):157-63. doi: 10.4103/0972-5229.84897. PMID: 22013307; PMCID: PMC3190466.
3. Dharamdev D, Mascarenhas RM, Kumar A. A clinical study of the spectrum of gastro intestinal perforation peritonitis in a tertiary care centre. Int Surg J 2021;8:1486-9.
4. Khanna AK, Mishra MK. Typhoid perforation of the gut. *Postgraduate Medical Journal.* 1984;**60**:523.
5. Jhobta, R.S., Attri, A.K., Kaushik, R. *et al.* Spectrum of perforation peritonitis in India-review of 504 consecutive cases. *World J Emerg Surg* **1**, 26 (2006).
6. Noon GP, Beall AC, Jorden GL. Clinical evaluation of peritoneal irrigation with antibiotic solution. *Surgery.* 1967;**67**:73.
7. Kallely M., Panchabhai S., Nichkaode P., Rayani H., Teja J.R., Patil D. Perforation peritonitis: a clinical profile and management. *Sri Lanka J. Surg.* 2020 Apr 30;(1):38.
8. Singh SR, Jeyan M. A Single Centre Experience of Perforation Peritonitis in a Tertiary Care Hospital in North-East India: A Retrospective Study. Ann. Int. Med. Den. Res. 2019; 5(1):SG05-SG07.
9. Neupane S, Koirala DP, Kharel S, Silwal S, Yadav KK. Clinical profile and management of perforation peritonitis in Bharatpur hospital, Nepal: A prospective study. Ann Med Surg (Lond). 2022 Sep 11;82:104528.
10. Ordoñez CA, Puyana JC. Management of peritonitis in the critically ill patient. Surg Clin North Am. 2006 Dec;86(6):1323-49.