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PERFORATION PERITONITIS: A STUDY OF 300 CASES IN JNIMS IMPHAL

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ABSTRACT: To study the causes and outcome of perforation peritonitis in a newly established Medical College for a period of three years. **MATERIALS AND METHODS:** Three hundred cases of Perforation Peritonitis admitted in the General Surgery ward of JN Institute of Medical Sciences Hospital, Porompat, Imphal from January 2011 up to December 2013 who underwent exploratory laparotomy were studied. Preoperative diagnosis was done by clinical examination and investigations like Chest X ray erect, USG whole abdomen. In select doubtful cases, CECT abdomen was done. After initial resuscitation and confirmation of diagnosis, exploratory laparotomy was done. **RESULTS:** The most common site of perforation was Duodenal followed by Appendicular, Ileal, Jejunal, Gastric, Multiple site and Colorectal perforations. Primary closure of the perforation site was the commonest procedure followed by appendectomy, resection anastomosis of bowel and colostomy. The overall mortality was 5%. **CONCLUSION:** Perforation peritonitis continues to be one of the most common surgical emergencies in India, inspite of advances in diagnosis and treatment. Early diagnosis and prompt management is the key to reduce morbidity and mortality. **KEYWORDS:** Perforation, peritonitis, exploratory laparotomy, duodenum, appendix.

INTRODUCTION: Peritonitis is inflammation of the peritoneum and peritoneal cavity. It is most commonly due to localized or generalized infection. Bacterial peritonitis can be classified into Primary, Secondary and Tertiary peritonitis. Primary peritonitis is usually defined as diffuse bacterial infection of the peritoneal cavity occurring without loss of integrity of the digestive tract. Secondary peritonitis is most commonly caused by perforation or anastomotic disruption of the digestive tract.¹ about 80% of Secondary perforation peritonitis respond well to timely surgical intervention combined with appropriate antimicrobial therapy. Frequent causes of secondary peritonitis include perforated peptic ulcer, acute appendicular perforation, jejunal and ileal perforations, perforated colonic diverticulum and traumatic causes.² Other causes include Helicobacter pylori infection, non-steroidal anti-inflammatory drugs ingestion, typhoid and paratyphoid infections, alcohol, excessive smoking, coffee consumption, Crohn's disease, Ulcerative colitis, Colorectal malignancies etc.³ It remains a cause of severe morbidity and is still associated with high mortality of around 30% despite improvements in surgical techniques, introduction of potent antibiotics and advances in intensive care management. Tertiary peritonitis occurs either due to failure of the host inflammatory response or due to super infection, when the patient's body protective mechanisms are unable to contain the infection because of impaired host defense or overwhelming infection a tertiary peritonitis develops characterized by poor recovery from secondary peritonitis despite appropriate surgical and antimicrobial treatment. There is presence of occult infections with positive cultures of fungi and gram negative bacteria with low pathogenecity and impaired host defence.⁴

Despite a better understanding of the pathophysiology, advances in diagnosis, surgery, antimicrobial therapy, intensive care and support, peritonitis remains a potentially fatal affliction.

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The contamination of peritoneal cavity can thus lead to a cascade of infections, sepsis, multisystem organ failure and death if not treated in a timely manner.⁵

MATERIALS AND METHODS: This study is carried out in the Department of General Surgery, Jawaharlal Nehru Institute of Medical Sciences, Porompat, Imphal from January 2011 to December 2013. Altogether 300 cases of perforation peritonitis of any cause admitted in the General Surgery ward of the JNIMS Hospital form the study group.

INCLUSION CRITERIA: All cases found to have peritonitis as a result of perforation of any part of the Gastro intestinal tract at the time of surgery were included in the study.

EXCLUSION CRITERIA: All cases with either Primary peritonitis or Anastomotic dehiscence were excluded.

Detailed history of the patients including age, sex, signs and symptoms like pain, vomiting, distension of abdomen, bowel and micturition habits were taken. History of Acid peptic diseases, prolonged NSAID use, chronic smoking, chronic bowel disease and abdominal trauma were also taken into account.

Laboratory investigations like complete hemogram, Urine examination, Kidney function tests, ECG, X ray chest and abdominal X ray erect posture were routinely done. In selected cases, Liver function tests, USG whole abdomen, CT abdomen, Abdominal tapping etc., were also done.

After confirmation of the diagnosis through clinical, laboratory and radiological examinations and adequate resuscitation, patients underwent exploratory laparotomy.

RESULTS:

Age Group	No. of patients	Percentage
Below 15yrs.	15	5 %
15 to 40 yrs.	156	52 %
41 to 60 yrs.	105	35 %
More than 60 yrs.	24	8%

Table 1: Age distribution of the study group

Fig. 1: Bar chart diagram showing the age distribution

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Male	Female
246/300 (82%)	54/300 (18%)

Table 2 : Sex distribution of the age group

Fig. 2: Pie chart depicting sex distribution

Site of Perforation	Number of cases	%
D.U. Perforation	136	45.3 %
Appendicular Perforation	56	18.6 %
Ileal Perforation	46	15.3 %
Jejunal Perforation	14	4.6 %
Gastric Perforation	12	4 %
Colorectal Perforation	6	2 %
Multiple site Perforation	30	10 %

Table 3 : Site of Perforation

Fig. 3: Pie chart showing different cause of peritonitis

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Procedure	No. of Case
Graham's patch repair	136
Appendectomy	56
Primary repair of site of perforation	72
Resection and Anastomosis	26
Hemicolectomy	4
Gastrojejunal Anastomosis	4
Colostomy	2

Table 4: Operative procedures

Fig. 4: Different types of surgical procedure

No. complications	201	67%
Minor complications	69	28%
Major complications	15	5%
Death/Mortality	15	5%

Table 5: Post-operative Outcome

Fig. 5: Postoperative outcome

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A total of 300 patients who underwent exploratory laparotomy for perforation peritonitis from January 2011 up to December 2013 were included as the study group. Out of all the total patients studied 246(82%) were males and the remaining 54(18%) were females (Table 1 & Fig. I). The majority of the patients were in the age group of 15 to 60 years (Table 2 & Fig II). Most of the patients were operated within 24hrs of admission. The most common site of perforation in this study group was Duodenal ulcer perforation (45.3%), followed by Appendicular (18.6%), Ileal (15.3%), Jejunal (4.6%), Colorectal (2%). Multiple site perforation constitutes 10% of the cases, the causes mostly being due to trauma of various types (Table 3 & Fig. III).

In cases of traumatic perforations, the most common site involved is the Jejunum followed by Ileum. Out of the total 6 Colorectal perforations, 4 are due to trauma and 2 cases due to malignancy. The most commonly performed operation was Graham's patch repair of Duodenal Ulcer perforation which was done in 136 patients. Primary repair of the site of perforation was done in 72 cases, Appendectomy in 56 cases, Resection and anastomosis in 26 cases, Hemicolectomy in 4 cases, Gastro-jejunal anastomosis in 4 cases and Colostomy in 2 cases (Table 4 & Fig. IV).

Postoperative complications were categorized under minor and major complications. Minor complications include wound infection, fever and minor respiratory complications. Major complications include burst abdomen, anastomotic leak, jaundice, sepsis and multiorgan failure. Minor complications were observed in 69(23%) patients and major complications in 15(5%) patients (Table 5 & Fig.V). The overall mortality observed in our study is 5%. Common factors in all the deaths were late presentation, extremes of age, low pre-operative Hemoglobin and Albumin, poor cardiopulmonary risk patients, irreversible shock, Septicaemia and malignancy.

DISCUSSION: Perforation peritonitis is a frequently encountered surgical emergency in tropical countries and developing countries like India; the most commonly affected age group being the younger males. It is a common cause of morbidity and mortality and warrants early surgical intervention.³ In majority of the cases the presentation to the hospital is late with well-established generalized peritonitis with purulent fecal contamination and varying degrees of Septicaemia. For most of the cases, the signs and symptoms are typical and it is possible to make a diagnosis. Adequate resuscitation along with baseline investigations and broad spectrum antibiotics are imperative in each case. Further management depends upon the cause of peritonitis. Anatomical, Pathological and Surgical factors may favour localization of peritonitis.⁶

However, in majority of the cases peritonitis becomes diffuse when it occurs in patients with sudden anatomical disruption, extremes of age, immunodeficiency, perforation proximal to the obstruction, stimulation of peristalsis and following trauma.⁷

In our study the most common cause of perforation peritonitis was duodenal ulcer perforation. Other studies like that of Gupta et al, Rajinder Singh Jhobta et al, S Gupta et al etc., show similar findings.^{5,8} Perforation of the proximal part of the GIT were more common in our study. Aggrawal et al showed similar observations whereas studies from the west like that of Malangoni MA et al showed perforation more common in the distal portions of the Gastro intestinal tract.^{9,10,11}

Most common symptom at presentation was pain followed by vomiting, abdominal distension, fever and constipation. In our study, it is found that patients who presented to the hospital early with no co-morbid conditions had an uneventful recovery.

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The complications which occurred following surgery included wound infection, fever, cardiorespiratory complications, residual abscess, electrolyte imbalance, jaundice, sepsis and anastomotic disruptions which are all known risk factors for high mortality.¹² Overall mortality rate in our study is 5% which is comparable to other studies.¹³

CONCLUSION: Gastrointestinal perforations are the most common surgical emergency in India. The spectrum continues to be different from its western counterpart with duodenal ulcer perforation, appendicular perforations and ideal perforations more common in India rather than colorectal perforations which are more common in the west. Causative factors of Duo denal ulcer perforation and ideal perforations, if treated in time may reduce a good number of perforation peritonitis in India. Health education regarding the signs and symptoms of perforation to the general public may be able to reduce the morbidity and mortality. The increasing incidence of hollow viscus injuries due to blunt trauma abdomen warrants early recognition and prompt management to avoid major morbidity and mortality.

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