

A Prospective Study of Perforation Peritonitis in a Tertiary Health Care Centre of Central India.

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ABSTRACT

Background: Perforation peritonitis is one of the commonest emergencies encountered in surgical patients in India. The etiology of this condition in tropical countries is different than those from the western countries. Presents study highlights the spectrum of perforation peritonitis seen in the department of general surgery in Index medical college, Indore (M.P.). **Methods:** A prospective cum retrospective study was performed on 227 patients of perforation peritonitis over a period of 3 years in the department of general surgery in Index medical college, Indore (M.P.). Cases were reviewed in terms of clinical presentation, operative findings and post-operative course. **Results:** The commonest cause of perforation peritonitis in our series was acid peptic disease, followed by appendicular, enteric, traumatic and tubercular perforations. The overall mortality rate 8% was comparable to the mortality rates of other published series. **Conclusion:** Upper gastrointestinal perforation continues to be the commonest cause of perforation peritonitis, which is in contrast to the western world where lower gastrointestinal perforations are more common. Besides, a significant number of traumatic perforations are due to increase in the number of high speed motor vehicle accident cases in last few decades.

Keywords: Perforation peritonitis, Appendicular perforation, Enteric, Tubercular, Acid peptic disease.

INTRODUCTION

Perforation peritonitis is one of the commonest surgical emergencies in India. Despite of advancement of surgical techniques, antibiotic therapy and improved pre and post-operative care, its management is complex and leads to high morbidity and mortality. Etiological factors and spectrum are different from western countries.^[1] Also, there is a paucity of data related to its etiology, morbidity and mortality from our country ². Present study is focused on multiple pre and post-operative factor related to the patients of perforation peritonitis, as observed by us in Index medical college hospital and research center, Indore (M.P.).

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MATERIALS AND METHODS

Present study was done on total 227 cases of perforation peritonitis, which were admitted in the department of general surgery of Index medical college hospital and research centre, Indore (M.P.) in a period of 3 years, between December 2013 to November 2016.

It included all cases which were found to have peritonitis due to perforation of any part of gastrointestinal tract. The cases of primary peritonitis and those which had peritonitis due to anastomotic dehiscence were excluded from this study.

All cases of this series were studied in terms of clinical presentation, radiological findings, biochemical investigations, operative findings and post-operative course.

After receiving adequate resuscitation, all patients of this series underwent exploratory laparotomy in emergency setting. During surgery, the source of contamination was found and was managed by appropriate surgical procedure. Before closing the abdomen, peritoneal cavity was irrigated by 5-6 liters of warm normal saline with povidone-iodine solution. Abdomen was closed by non-absorbable continuous suture in single layer, after inserting abdominal tube drains. All patients had received broad spectrum antibiotics regimens in post-operative period. Appropriate antibiotic or antitubercular treatment was started post-operatively, depending upon the pathology and cause of perforation.

RESULTS

Total 227 cases of perforation peritonitis were included in this study. Age of the patients ranged from 16 years to 88 years, and 118 (52 %) patients

were of more than 50 years of age. 72 (32 %) patients of this study were having one or more pre-existing medical illness like respiratory disease, diabetes, hypertension etc. Majority of patients in this study were males (78%).

82 (36%) patients had arrived to the hospital in less than 24 hours of onset of symptoms, while the remaining patients had presented at variable times beyond 24 hours of onset of symptoms. Time taken for pre-operative resuscitation was variable, as it depended on the presenting condition of the patients. In 198 (87%) patients, initial resuscitation, investigations and pre-operative preparation were done in less than 12 hours.

The clinical presentation at the time of admission of the patients varied according to the site of perforation. Abdominal pain was the most common symptom (227 patients, 100%), followed by abdominal distension (200 patients, 88%), constipation (191 patients, 84%), vomiting (145 patients, 64%), and fever (77 patients, 34%).

Most common site of perforation was found to be in duodenum (45%), followed by small bowel, appendix, pre-pyloric and colon [Table 1]. Patients with the perforation of duodenal ulcer (103) usually presented with a short history of pain in epigastric region and had generalized guarding and tenderness on presentation. 18% (19/103) of these patients had a positive history of consumption of NSAID, while 27% (28/103) patients were chronic alcoholics.

Table 1: Site of perforation

Site of perforation	No. of cases (n=227)
Duodenal	103(45%)
Pre-pyloric (Gastric)	26 (12%)
Small bowel	48(21%)
Appendicular	41(18%)
Colon	9(4%)

In contrast, patients with small bowel perforation (48) usually presented with long history of fever followed by onset of lower abdominal pain.

Patients with appendicular perforation (41) had presented with history of periumbilical or right iliac fossa pain, along with vomiting and fever. 76 % (31/41) of these patients had guarding and/or rebound tenderness in right iliac fossa region. 64 % (24/41) of patients with appendicular perforation had tenderness on per-rectal examination.

After initial stabilization of patients, routine radiological and biochemical investigations were performed. X-ray chest and scout abdomen were done in erect position in all cases. Pneumoperitoneum was seen in erect chest X-ray of 82% patients. None of the patients with Appendicular perforation had showed any evidence of gas under diaphragm in chest X-ray.

All patients underwent surgical exploration in emergency setting under general or spinal anaesthesia. Peritonitis was generalized in majority of cases. Acid peptic disease was the most common

of gastroduodenal perforation (57%), while typhoid (13%) and tuberculosis (4%) were the commonest causes of small bowel perforation [Table 2].

Table 2: Etiology of perforation peritonitis

Etiology of perforation	No. of cases (n=227)
Acid peptic disease	129 (57%)
Appendicular	41(18%)
Enteric	29(13%)
Traumatic	16(7%)
Tubercular	9(4%)
Strangulation	3(1%)

The definitive surgical procedure varied according to the site and size of perforation, and also on the severity of contamination and inflammation [Table 3]. 69% cases were managed by simple closure of the perforation, while resection and anastomosis of bowel was required in 8% patients. In 5% cases, resection was done without anastomosis, and ileostomy, colostomy or Hartman's procedure were performed. All cases of appendicular perforation were managed by appendectomy (18%). In post-operative period, 48% patients of our series had experienced some major or minor complication [Table 4]. These post-operative complications were more commonly seen in patients with intestinal perforation (66 %) than in patients of gastroduodenal perforation (52 %).

Table 3: Definitive procedures performed

Definitive Procedure	No. of cases (n=227)
Primary closure	157(69%)
Appendectomy	41 (18%)
Resection and anastomosis	19(8%)
Resection without anastomosis	10(5%)

Table 4: Post-operative complications

Post-operative complications	No. of cases (n=227)
Wound infection	64 (28%)
Anastomotic leak	7 (3%)
Burst abdomen	25 (10%)
Abdominal collection	18 (8%)
Pneumonia	55 (24%)
Septicemia	21 (9%)
Acute renal failure	16 (7%)
Morbidity (Overall)	109 (48%)
Mortality	18 (8%)

Overall mortality in this study was 8 %, with multiple organ dysfunction syndrome (MODS) being the commonest cause of death (61%). Advanced age, late presentation and associated medical illness were some of the major factors contributing to the mortality.

DISCUSSION

Perforation peritonitis is a commonly encountered surgical emergencies in tropical countries like India. The majority of patients in our country are of younger age group, as compared to the western countries^[3], where it is more commonly seen in

people of 45-60 years of age. The signs and symptoms are typical and it is possible to strongly suspect the peritonitis during clinical examination of the patients. Besides, majority of illiterate and low socio-economic class patients present late to the hospital, with well established generalized peritonitis and septicemia.

In our country, perforations of proximal gastrointestinal tract were found to be 6 times more common than the perforations of distal gastrointestinal tract.^[1] This observation is in contrast to the observations of studies from United state^[4], Greece^[5] and Japan^[6], where perforations of distal gastrointestinal tracts are more common.

In their study on 204 cases, Khanna et al^[7] from Varanasi, India have reported that more than half of the case (108 cases) were due to typhoid and perforation of duodenal ulcer was the second commonest cause of peritonitis (58 cases). On the other hand, Noon et al^[8] from Texas reported as series of 430 cases, in which penetrating trauma was the commonest cause of perforation (210 cases), followed by appendicitis (92 cases) and peptic ulcer (68 cases). These figures show the importance of infection and infestations in developing countries, which is also reflected in our study in form of high incidence of perforation peritonitis due to typhoid and tuberculosis. Besides, it also shows the high incidence and importance of trauma in developed countries. In our study, acid peptic disease was found to be the commonest cause of perforation peritonitis (57%).

In gastro-duodenal perforations, the ratio of duodenal to gastric ulcer was reported as 7:1 by Jhobta et al^[9], 15:1 by Dorairajan et al^[11], but was found to be 4:1 from studies from UK^[10] and United states^[11]. In our series, this ratio was found to be 4:1.

CONCLUSION

Upper gastrointestinal perforation continues to be the commonest cause of perforation peritonitis, which is in contrast to the western world where lower gastrointestinal perforations are more common. Besides, a significant number of traumatic perforations are due to increase in the number of

high speed motor vehicle accident cases in last few decades.

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