ORIGINAL ARTICLE

Perforation Peritonitis:A Two Year Experience

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Abstract

Four hundred patients who presented in the emergency of GMC Jammu as a case of perforation peritonitis over a period of two years were studied. In most of the cases diagnosis was made by clinical examination supplemented by investigations in the form of standing X-ray chest PA view with domes of diaphragm, Ultrasound abdomen and abdominal paracentesis. Contrast enhanced CT scans of abdomen were conducted on patients where the diagnosis of perforation peritonitis was doubtful. After resuscitation, Laparotomy was done in all the patients and thorough peritoneal lavage was done. A note of the site, size, type, number of perforations was made and biopsy was taken from the edge of the perforation whenever indicated. The most common cause of gastrointestinal perforation in our study was duodenal ulcer perforation, followed by appendicitis, typhoid perforation, blunt/penetrating trauma, gastric perforation, obstruction, iatrogenic, malignancy, and recurrent perforation. Primary closure of the perforation was most commonly done procedure, followed by appendectomy, resection anastomosis of the gut and exteriorization of the gut. The overall mortality was 6 % and morbidity in the form of wound infection, fever, respiratory complications, residual abscess, dyselectrolytemia, burst abdomen, jaundice, sepsis, cardiac complications, anastomotic disruption was present

Key Words

Perforation Peritonitis, Duodenal Perforation

Introduction

Gastrointestinal perforations have been surgical problem since the time immortal. Scientists have found evidence of gastrointestinal perforations in Egyptian mummies. Perforation is said to occur once a pathology which extends through the full thickness of the hollow viscus leading to peritoneal contamination with intraluminal contents. Perforation can occur anywhere in the gastrointestinal tract starting from oesophagus to the rectum. Gastrointestinal perforation in our region generally occurs as a result of chronic inflammation due to Helicobacter pylori, NSAIDs like aspirin, stress, excessive smoking, alcohol, or coffee consumption. Other causes include appendicitis, diverticulitis, typhoid, malignancy. Instrumentation and blunt / penetrating abdominal trauma also account for a large number of cases of perforation peritonitis (1). Crohn's disease and less commonly ulcerative colitis are rare causes of perforation (2). If untreated, it leads to bacteremia, generalized sepsis, multiorgan failure, shock and abdominal abscess formation. The first successful surgical management for any gastrointestinal perforation was done for perforated gastric ulcer by Ludwig Heusner in Germany in 1892 in the form of partial gastrectomy (3). Gastrointestinal perforation is a serious surgical problem in developing nations with substantial morbidity and mortality and is one of the most common cause of emergency surgery performed in GMC Jammu.

Materials and Methods

This study was undertaken in Department of Surgery, Government Medical College, and Jammu from January 2006 to February 2008. Four hundred cases of gastrointestinal perforation reporting to emergency were included in the study. All patients admitted under the study were put to detailed history taking including history of acid peptic disease, prolonged NSAIDS use, smoking, history of abdominal trauma and any other associated disease or related to cause of gastrointestinal perforation. A complete clinical examination was done. All patients were stabilized hemodynamically and broad spectrum antibiotics usually a combination of injectable third generation cephalosporin and metronidazole was administered. Blood transfusion was given whenever

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indicated. All the routine investigations were done, which included haemogram, blood grouping, kidney function tests, serum electrolytes, chest X-ray and electrocardiogram. Special investigations in the form of erect X-Ray abdomen with domes of diaphragm, Ultrasound abdomen, and abdominal paracentesis were done. Contrast enhanced CT scan of abdomen was conducted on patients where the diagnosis of perforation peritonitis was doubtful. After confirmation of diagnosis of gastrointestinal perforation patients underwent emergency exploratory laparatomy through a midline incision.

At the time of surgery, the source of contamination was sought for and appropriate procedure was performed. Further a note of the site of perforation ,size of perforation, type of perforation, number of perforations,

Amount of contamination was made. Biopsy was taken from the perforation edge whenever required. Every case was put to thorough normal saline peritoneal lavage. Two to three closed system drains were kept in every patient. All the patients were followed post-operatively by nothing per oral, nasogastric suction, intravenous fluids and antibiotic cover. Early ambulation was ensured and whenever required appropriate physiotherapy administered. In cases of moderate to severe anaemia, blood transfusion was given. Complications if occurred were vigorously managed. Patients were allowed oral diet after the return of bowel sounds, passage of flatus and /or stools. The patients were followed up in surgical OPD after discharge. The study was approved by the hospital ethical committee.

Results (*Table.1 - 5*)

This observational study was undertaken over a period of two years in the Department of Surgery, GMC Jammu from January 2006 - February 2008 and 400 patients who underwent emergency laparotomy for gastrointestinal perforation were included in the study. Out of the total patients included in the study 306 were males and 94 were females. Overall male to female ratio was 3.25: 1.

The group of patients studied appears to be a fair representative of the various demographic patterns associated with the disease. The majority of patients were in the third to sixth decade of life with the highest incidence in the fifth decade of life. Most common symptom at presentation was pain which was present in all the patients followed by vomiting in (80%) abdominal distention in (76%), fever in (20%) constipation in (14%) sepsis in (8%) and shock in (6%). In our study (26%) cases had associated co- morbid conditions. Most common associated disease was COPD followed by hypertension, cardiac abnormalities, diabetes, and tuberculosis, deranged RFT's, malignancy. Preoperative diagnosis was mainly clinical supplemented with investigations in the form of X-ray chest showing free gas under right dome of diaphragm, ultrasound, and abdominal paracentesis wherever indicated. CECT abdomen was rarely done in patients with trauma or in patients with diagnostic dilemma. In a few cases water soluble contrast study was done.

Most of the patients 60% were operated within 24 hours of perforation. 24% patients were operated between 24-48 hours of perforation, 9% between 48-72 hours and the remaining 7% after 72 hours of perforation.

The most common cause of gastrointestinal perforation in our study was duodenal ulcer perforation (44%), followed by appendicitis (24%), typhoid perforation in the ileum in (14%), blunt/penetrating trauma (7%), perforation due to obstruction in (4%), gastric perforations in (3%), perforation due to malignancy in 2%, iatrogenic perforation in (1.5%), and recurrent perforation in (0.5%). In cases of duodenal perforation all the perforations were in the anterior wall of the duodenum mostly in the first part. In cases of appendicular perforation most of the perforations were in the tip 60% and the remaining were in the body and base of the appendix. Appendicular perforation was mainly found in the extremes of age. In cases of typhoid perforations generally perforations occurred in the second week of fever and most of the times perforations were multiple (65%).

In cases of traumatic perforations the most common organ injured was jejunum (16 patients) followed by ileum (7 patients), duodenum (3 patients), and rarely large intestine (2 patients). In cases of gastric perforations a biopsy from the edge of perforation was always taken and in one case gastric perforation was associated with duodenal perforation. None of the patients had evidence of gastric malignancy in the biopsy. In cases of perforation due to obstruction 4 patients (1%) had perforation due to strangulated hernia, 4 patients (1%) had perforation due to volvulus and 8 patients (2%) had perforation due to malignancy of the large gut. In cases of iatrogenic perforation 2 patients had perforation following colonoscopy, 1 patient had perforation following suction evacuation and 3 patients had perforation following gynaecological surgery. Recurrent perforation was seen in 2 patients and in both cases the site of perforation was duodenal ulcer. No case of oesophageal, perforation was found.

The most common performed procedure was primary closure of the perforation in 360 patients (90%) and duodenal perforation was the most common to be closed primarily, followed by jejunal, gastric, ileal, and colonic.

Table-1. Age Distribution (n=400)

Age in Years	No. of patients	%
<10	15	3.75%
11-20	18	4.5%
21-30	35	8.75%
31-40	61	15.25%
41-50	76	19%
51-60	98	24.5%
61-70	70	17.5%
>70	27	6.75
TOTAL	**400**	**100%**

Table-2. Etiology of Perforation (n=400)

Cause of perforation	No. of patients	%
Duodenal ulcer	176	44%
Appendicitis	96	24%
Typhoid	56	14%
Trauma	28	6%
Obstruction	16	4%
Gastric ulcer	12	3%
Malignancy	8	2%
Iatrogenic	6	1.5%
Recurrent	2	0.5%

Table-3. Sex Profile of Patients (n=400)

Cause of perforation	Male	Female
Duodenal ulcer	120	56
Appendicitis	56	40
Typhoid	35	21
Trauma	19	9
Obstruction	10	6
Gastric ulcer	7	5
Malignancy	5	3
Iatrogenic	4	2
Recurrent	2	-

Table-4. Size of Perforation (n=400)

Size of perforation (cm)	No. of patients
0 - <0.5cm	293
0.5 - <1cm	57
1 - <2cm	35
>2cm	15

Table-5. Complications Including Morbidity & Mortality

Wound infection	64	16%
Fever	32	8%
Respiratory complications	24	6%
Residual abscess	20	5%
Dyselectrolytemia	16	4%
Burst abdomen	14	3.5%
Jaundice	12	3%
Sepsis	12	3%
Cardiac complications	12	3%
Anastomotic disruption	8	2%
Death	24	6%

Second most common procedure was appendicectomy for appendicular perforation. Third procedure performed was resection and anastomosis .Ileum was most common site where resection and anastomosis was done. In cases where there was large amount of contamination and the general condition of the patient was very poor exteriorisation of the gut in the form of ileostomy or colostomy was done.

The overall mortality observed in our study was (6%). 4 patients died intraoperatively and 8 patients died within 12 hours of surgery. 6 patients died due to pulmonary or cardiac complication and 6 patients died due to septicaemia. Common factors in all the deaths were late presentation, extremes of age, low preoperative haemoglobin, poor nutrition, associated malignancy, tuberculosis, poor cardiac risk patients, irreversible shock, and septicaemia and associated co-morbid conditions.

The most common complication observed was wound infection which occurred in (16%)of the patients followed by fever in (8%) of the cases, respiratory complications in (6%) , residual abscesses in (5%), burst abdomen in (3.5%), dyselectrolemia in (4%), jaundice in (3%) , sepsis in (3%), cardiac complications in (3%), anastomotic disruption in (2%) of the patients.

Discussion

Perforation peritonitis is one of the most common surgical conditions encountered in surgical practice and is a common cause of morbidity and mortality and warrants early surgical intervention (4). Adequate resuscitation alongwith baseline investigations and broad spectrum antibiotics are imperative in each case. Further management depends upon the cause of peritonitis. In most of the cases the peritoneal contamination is caused by mixed flora both aerobic and anaerobic. Anatomical, pathological, and surgical factors may favour localization of peritonitis (5). 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 obstruction, stimulation of peristalsis and following trauma (6). The clinical presentation of the patients depends upon the site of perforation. Patients of duodenal perforation present with a short history of pain epigastrium or upper abdomen along with generalized tenderness and guarding (4, 7). In patients of diverticulitis patients are generally of old age and past history of constipation is present along with signs of peritonitis. Appendicular perforations have a characteristic pain starting in periumblical area or right iliac fossa along with vomiting and fever (8). There are also conspicuous signs present like guarding and rebound tenderness in right iliac fossa. Ileal perforations are usually preceeded by a history of some medical disease followed by sudden onset of lower abdomen pain, vomiting, abdominal guarding and distention later on (9). In patients of trauma generalized peritoneal signs start developing after 2-3 hours of injury (2).

In our study the most common cause of perforation was duodenal ulcer. Another study conducted by Gupta & Kaushik shows the same result (10). Perforation of the proximal part of GIT were more common in our set up (11), which is in contrast to the studies from western countries where perforations are more common in the distal part (12). Perforation followed by acute appendicitis, enteric fever, trauma, obstruction, gastric ulcer perforation, malignancy, iatrogenic, recurrent in descending order. Malignancy is a rare cause of perforation peritonitis. It is seen only in 2% of our cases as compared to the western counterpart (13).

Most common symptom at presentation was pain followed by vomiting, abdominal distention, fever and constipation. In our study we found that patients who presented early after perforation and had no associated co-morbid conditions behaved very well in the postoperative period. In patients with very poor general condition and irreversible shock, drains were put under local anaesthesia and adequate resuscitation along with antibiotic cover, blood transfusion was given to the patients and were taken up for laparotomy after their general condition improved. External drainage of the peritoneal cavity was made mandatory in every case by means of closed drainage system. The major complications which occurred following surgery included wound infection, fever, respiratory complications, residual abscesses in, burst abdomen, dyselectrolemia, jaundice, sepsis, cardiac complications, and anastomotic disruption which are known risk factors for high mortality (14). The overall mortality was 6%. Two and more complications were seen in the same patient in few cases.

Conclusion

Perforation of the viscera is a common complication of acid peptic disease and typhoid. Acid peptic disease to some extent can be controlled by judicious use of NSAID as well as taking triple therapy for eradication of H-pylori. Early and primary treatment of typhoid should be undertaken on a grand scale and awareness among common practitioners should be cultivated.

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