ETIOLOGICAL SPECTRUM OF PERFORATION PERITONITIS

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ABSTRACT

Objective: To determine the etiological spectrum of perforation peritonitis in patients undergoing laparotomy at Military Hospital Rawalpindi.

Study Design: Descriptive Study.

Place and Duration of Study: Surgical department, Military Hospital, Rawalpindi from Jun 2011 to Jan 2014, over a period of about 2.5 year.

Material and Methods: A total of 150 patients with perforation peritonitis who underwent laparotomy were included in our study while those in which peritonitis was result of complication of previous treatment such as anastomotic dehiscence were excluded from the study. All the patients were selected by consecutive sampling technique. Patients' demographic data, pre-op data, operative findings and post-op data were recorded and finally analyzed by using SPSS version 21.

Results: Out of 150 patients 128 were females while remaining 22 were males, with male to female ratio of 1:5.81. Age range of patients was 20-70 with mean age of 30 ± 10. Major presenting complaints were acute abdomen, vomiting, abdominal distension, fever and altered bowel habits. Seven percent patients gave positive history of use of NSAIDs. Operative findings include typhoid in 33 (22%), tuberculosis in 25 (16.6%), duodenal ulcer perforation in 22 (14.6%), appendicitis in 20 (13.3%), traumatic perforation in 18(12%), malignancy in 16 (10.6%), strangulation of bowel in 6(4%), gastric ulcer in 5 (3.3%), volvulus in 3(2%), Meckels diverticulum in 1(0.6%) and CMV(Cytomegalovirus) ileal perforation in 1(0.6%) patients. Small bowel was the most common site of perforation. Post-op complications include wound infection, fever, wound dehiscence, burst abdomen, anastomosis leak, sepsis and cardiac and respiratory complications.

Conclusion: Enteric fever is the commonest cause of perforation peritonitis in our setup followed by intestinal tuberculosis as the second most common cause. Small bowel is the most common site of perforation.

Keywords: Etiological spectrum, Perforation peritonitis, Typhoid, Tuberculosis.

INTRODUCTION

Perforation peritonitis is one of the most encountered surgical emergency in which patient presents with acute abdomen. It is the most common surgical emergency in India[1] and according to Ramakrishnan et al it is the most common surgical emergency in the world[2].

Perforation means any break in the continuity of hollow viscera leading to contamination of peritoneal cavity with intraluminal contents and peritonitis is the inflammation of peritoneum resulting from perforation causing bacterial contamination. Patients usually present with abdominal pain, guarding or rigidity, distension, diminished bowel sounds, fever, tachycardia, tachypnea, oliguria and ultimately shock[3]. Peritonitis may be primary or secondary. Primary is due to infection by single organism while secondary is due to lesion or injury to gastrointestinal tract, urinary tract or biliary system. GIT perforation usually occurs due to chronic infection by *Helicobacter pylori*, stress, smoking, alcohol, typhoid, tuberculosis, gut malignancies. Crohns disease

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Received: 13 May 2014; revised received: 05 Dec 2014; accepted: 13 Jun 2015

and ulcerative colitis are rare causes of perforation peritonitis[4,5].

Perforation peritonitis is highly dangerous condition and is associated with high risk of mortality and morbidity. Majority of the patients present late, with purulent peritonitis and septicemia[6]. However early detection and treatment has greatly reduced the mortality. Surgical treatment for perforation peritonitis is highly recommended, and it along with anti-microbial and intensive care has produced fruitful results[7]. The first successful surgical management of perforation peritonitis was done by German surgeon Ludwig in 1892 for perforated gastric ulcer in the form of partial gastrectomy[8]. Endoscopy and laparoscopic assisted procedures are progressively used instead of conventional laparotomies[9].

Spectrum of perforation peritonitis varies from region to region. Therefore we conducted this study which highlights the etiological spectrum of perforation peritonitis in our clinical setup.

MATERIAL AND METHODS

This descriptive study was conducted at surgical department Military Hospital Rawalpindi from Jun 2011 to Jan 2014 over a period of 2.5 years. Patients who presented to surgical department with perforation peritonitis and underwent exploratory laparotomy were enrolled in our study. While patients in which peritonitis was result of complication of previous treatment such as anastomotic dehiscence were not included in the study. Total 150 patients were selected by non-probability consecutive sampling technique.

Diagnosis of perforation peritonitis was made on the basis of clinical features, clinical examination, lab investigations and radiological findings. Most of the patients presented with acute abdomen, abdominal distension, fever, nausea vomiting and altered bowel habits. All the suspected patients were first resuscitated and then diagnostic work was done to ratify diagnosis. Presence of pneumoperitoneum was confirmed by X –ray abdomen in erect position. Ultrasound abdomen was also done to confirm diagnosis. In doubtful cases CT abdomen was carried out and even in some cases contrast enhanced CT scan was also done.

After establishing diagnosis exploratory laparotomy was planned and informed written consent was taken from each patient. Pre-op investigations for fitness of anesthesia were done which include blood CP, electrolyte, creatinine, LFTs, RFTs, Hep B & C, chest X-ray and ECG. Prophylactic antibiotic was given and general anesthesia was administered. A midline surgical incision was made and peritoneal cavity explored. Surgical procedure was carried out depending on etiology, site and pathology of perforation. Peritoneal cavity was thoroughly washed and drain was left in peritoneal cavity depending on amount of contamination. Biopsy specimens were taken where needed and sent for histopathological examination.

Patients demographic data, pre-op data, operative findings and post-op data were recorded. Data has been analyzed by using SPSS version 21.

RESULTS

Out of 150 patients 128 (85.3%) were females while remaining 22 (14.7%) were male with male to female ratio of 1:5.81. Age range of patients was 20-70 years with mean age of 30 ± 10 years. Majority of the patients presented with acute abdomen 95%, vomiting in 52%, abdominal distension in 41%, fever in 19% and altered bowel habits in 16% patients. 7% patients give positive history of use of NSAIDs (table-I). Operative findings included typhoid in 33 (22%), tuberculosis in 25 (16.6%), duodenal ulcer perforation in 22 (14.6%), appendicitis in 20 (13.3%), traumatic perforation in 18 (12%), malignancy in 16 (10.6%), strangulation of bowel in 6 (4%), gastric ulcer in 5 (3.3%), volvulus in 3 (2%), Meckel's diverticulum in 1 (0.6%) and CMV ileal perforation in 1 (0.6%)patients (table-II). The most common site of perforation was small gut. Primary closure of the perforation,

appendectomy, resection and anastomosis, gastrectomy, omental patch, hemicolectomy, colostomy and Hartman were the most frequently performed surgical procedures. Post-op complications included wound infection in 12% patients, fever in 18%, wound dehiscence in 8%, burst abdomen in 4%, anastomosis leak in 3%, sepsis in 4% and cardiac and respiratory complications in 3% cases.

DISCUSSION

Perforation peritonitis is the most common surgical problem faced by surgeons usually at tropical countries with increased incidence at young age[10]. Late presentation often leads to generalized peritonitis and septicemia which is associated with high morbidity and mortality[11]. In most cases there is predominance of males presenting with this illness[12,13]. However in our study most of the patients were females because this study was conducted at female surgical unit military hospital Rawalpindi. The mean age range of the patients was 30 ± 10 years which is consistent with data available from other studies. Patel et al[14] and Sina et al[15] also reported similar age groups in their studies.

The most common site of perforation in our study was small bowel (ileum). Nitin et al[16] also in his study stated ileum as most common site of perforation. Similarly Sujit et al[17] and Rajender et al[18] also found small bowel as most common site of perforation. However in most of the western studies the most common site of perforation was distal GIT.

Enteric fever perforation was the most common cause of perforation peritonitis in our study. In our study 22% patients had enteric fever

Table-I: Description of the presenting sign & symptoms of the patients n=150.

	Number (%)
Abdominal pain	143 (95.3%)
Nausea & vomiting	78 (52%)
Fever	28 (18.7%)
Abdominal distension	61 (40.7%)
Altered bowel movements	24 (16%)
Positive H/O use of NSAIDs	10 (6.7%)

Table-II: Description of operative findings of the patients.

Etiology	**Number (percentage)**
Gastro duodenal	
Duodenal ulcer	22 (14.6%)
Gastric ulcer	5 (3.3%)
Traumatic	4 (2.6%)
Malignancy	5 (3.3%)
Small bowel	
Enteric	33 (22%)
Tuberculosis	25 (16.7%)
Trauma	8 (5.3%)
Malignancy	3 (2%)
Strangulation of bowel	6(4%)
Large bowel	
Malignancy	8 (5.3%)
Trauma	6 (4%)
Sigmoid volvulus	3(2%)
Appendicitis	20 (13.3%)
Misc	
Meckels diverticulum	1 (0.7%)
CMV ileal perforation	1 (0.7%)

perforation. Similarly in study performed by Nitin et al[16] the most common cause of perforation peritonitis was enteric fever. Similarly, Khanna et al[21] found that over half of the cases in their study were due to enteric fever. In most cases distal ileum is mostly involved and it is a serious abdominal complication. The incidence of typhoid ileal perforation ranges from 0.9-39%[22]. Although worldwide prevalence of enteric fever perforation is decreasing, it is still endemic in developing countries[23]. Enteric fever is best managed by surgical intervention of intestinal bleeding cases[24].

Intestinal TB was the second leading cause of perforation peritonitis in our study with incidence of 16.7%. Abdomen is the second most common site of TB with ileum and cecal involvement in about 75% of the cases[25]. Acid fast staining for organism is usually negative for patient with abdominal TB with only 3% positive yield in TB peritonitis[26]. Duodenal ulcer perforation was not the most common cause of perforation peritonitis in our study as reported by Gupta et al[1] and Afridi et al[20] . The incidence of perforation peritonitis due to peptic ulcer disease is decreasing because of better therapeutics for peptic ulcer disease like proton pump inhibitors. There is strong association between the use of NSAIDs and gastric perforation[16]. In our study only 9% patients were using NSAIDs while in a study by Shahida et al 15% patients had history of use of NSAIDs.

The overall complication rate was 24% in our study which is comparable to complication rate shown by Edino et al[27] and Budhraja et al[28]. Wound infection was commonest post-op complication in our study. Budhraj et al found wound infection as the most commonest post-op complication[28].

CONCLUSION

In our setup enteric fever is the most common cause of peritonitis followed by intestinal tuberculosis. Small gut is the most common site of perforation.

CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

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