



Analysis of Perforation Peritonitis in a Remote Center in Children's

KEYWORDS

perforation; bands; tuberculosis; peritonitis; surgery

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ABSTRACT

Aims and objective - Perforation peritonitis is the most common surgical emergency encountered by surgeons in India. The etiology and sites of perforation shows wide geographical variation. The aim of this study was to identify the clinical presentation, spectrum of peritonitis in northern remote area in India. **Material and methods** - This prospective study was conducted in Dept of Paed Surgery at M.M. Institute of Medical Sciences and Research, Mullana, from January 2014 to September 2015. All the patients who were diagnosed as having secondary peritonitis were included in our study. Data on different epidemiological parameters, etiological factors, and outcome variables were collected and analyzed. In our study, ultrasonography of the abdomen revealed free fluid in the peritoneal cavity. **Results** - The age ranged from 6 to 16 years with the mean age of 11 years. 84.58% of our patients were males. The most common cause of acute peritonitis was acute appendicitis. In total 80 patients, 27 (33.75%) cases of appendicitis, 21 (26.25%) of enteric perforation, 5 (6.25%) tubercular perforation, 7 (8.75%) of volvulus, 2 (2.5%) of duodenal perforation, 16 (20%) bands, and 2 (2.5%) intussusception. All the cases were operated and surgery performed successfully without any complications. **Conclusion**: the radiologist and the surgeon play a major role in peritonitis, to reach the diagnosis which helps in management. Pre-operative prompt resuscitation and surgical intervention improve the outcome. By early diagnosis and management, it helps in decreasing morbidity and mortality. In follow-up of 8 months, there were no complications seen.

Introduction - Perforation peritonitis is one of the most common emergencies encountered in the surgical emergency all over the world. The spectrum of perforation peritonitis differs in the east from its western counterparts. [1] Despite advances in the surgical technique, antimicrobial therapy and intensive care support, the management of peritonitis continues to be highly demanding, difficult and complex. [2] Although the demographic profile of the population in our part of the country is different from the rest of India in several aspects, e.g., dietary habits, the prevalence of infectious disease, etc., any robust study on peritonitis from this part of the country is lacking until date. [3] Nowadays, multidetector computed tomography (MDCT) is the new imaging technique employed in blunt trauma patients of abdomen and pelvis. It easily detects the solid organ injuries with associated bowel or mesenteric injuries and decreases the morbidity and mortality.[4,5]

Material and methods-

This prospective study was conducted in Dept of Paed Surgery at M.M. Institute of Medical Sciences and Research, Mullana, from January 2014 to September 2015 in northern remote center in India. This study was approved by the ethical committee of M.M. Institute of Medical Sciences and Research,

Mullana. All the patients included in the study diagnosed with peritonitis and underwent exploratory laparotomy for the same. The patients diagnosed with secondary peritonitis with age of 6-18 years who underwent laparotomy were included in the study. The cases of primary peritonitis, those managed by percutaneous aspiration, blunt trauma and acute pancreatitis, abdominal cocoon, conservatively managed, gynaecology pathology and adult patients were excluded from the study. All the patients presenting with generalized peritonitis underwent routine blood tests like haemoglobin, total leukocyte count, and platelet counts) and renal function tests. Straight X-ray lower chest and abdomen (in erect posture or lateral decubitus) was done in all the cases. Ultrasonography and contrast-enhanced computed tomography were done wherever considered necessary. All the patients were resuscitated with intravenous fluid, analgesics and antibiotics (third generation cephalosporin and metronidazole). Further to initial evaluation and optimization, the patients underwent laparotomy as a definitive measure. The abdomen was closed with continuous, number one non-absorbable suture material after inserting two drains one subhepatic & other pelvic. Post-operatively all patients received antibiotics initially empirically than according to the culture sensitivity reports of the peritoneal fluid.

Results- A total of 80 patients were studied. Mean age was 37.8 years (range from 6 to 18 years). Majority of patients were males (68.5%). Male: female ratio was 2.1: 1, respectively. 92% patients presented with the history of abdominal pain, 68.6% with altered bowel habit, 39.8% with nausea and vomiting, and 18% with abdominal distention. The age ranged from 6 to 16 years with the mean age of 11 years. 84.58% of our patients were males. The most common cause of acute peritonitis was acute appendicitis. In total 80 patients, 27 (33.75%) cases of appendicitis, 21 (26.25%) of enteric perforation, 5 (6.25%) tubercular perforation, 7 (8.75%) of volvulus, 2 (2.5%) of duodenal perforation, 16 (20 %) bands alongwith Meckels diverticulum and 2 (2.5%) intussusception(table-1).

In appendicitis – out of 27 patients, 18 had acute appendicitis and 9 had perforation of the appendix (4 at the base and 2 in middle and in 3 cases tip was gangrenous in colour). In all the cases appendectomy was done without encountering any complications. On histology it came as acute appendicitis.

In enteric perforation- the perforation was found commonly in ileal area in 15 cases; jejunal perforation in 2 cases, near to ileocaecal region in 2 cases. Out 21 cases, ileostomy was made in 5 cases, according the condition of the patient, due to severe peritonitis and old perforation with unhealthy areas. Tubercular perforation seen in 5 cases and managed successfully without any fistula or recurrence. In 16 cases perforation was closed primarily with vicryl 3-0. There was no malignancy found on histopathology. In follow up of 8 months patients were doing well. Bands and Meckels diverticulum occurred in 16 cases; in 12 cases band was excised (4 cases required resection and anastomosis) and tissue sent for histology which came as inflammatory pathology only. In 4 cases, Meckels diverticulum was causing peritonitis which excised and repaired (no perforation seen).

Duodenal perforation was found in 2 cases which are rarely seen in children and it was closed primarily with omental patch. Volvulus of the small intestine managed with resection and anastomosis in 4 cases and in 3 cases duration was done and fixed. Out of total patients, in 16 cases wound infection was seen mostly in enteric perforation which was managed conservatively. There was perforation leak in 2 cases in which ileostomy was made and restored after 3 months. There was no burst abdomen or wound dehiscence in any patients.

Discussion – One of the most common surgical emergencies is perforation peritonitis. [6] Peritonitis in the newborn was found to have an alarmingly high mortality rate (78 per cent) in a review of 172 cases from the Columbus Children's Hospital and was one of the major causes of death in 40 per cent of the neonates who died on the surgical service during the past several years.[7] While varying according to age, gender and geography, the three most common causes of generalized peritonitis in low-income countries are probably appendicitis, perforated duodenal ulcer and typhoid perforations, in no particular order. [8] In a study of Nigerian children 50% of patients had typhoid perforation. [9] Other diagnosis made on ultrasonography was of liver cyst, inguinal hernia, any growth in alimentary tract.[10] Neonatal peritonitis may be bacterial or chemical in origin. The majority of cases of bacterial peritonitis are due to intestinal perforations, ruptured omphalocele, or ischemic intestinal necrosis. Seventy-three babies had peritonitis secondary to intestinal perforation. Although the majority of neonatal perforations are subsequent to intestinal obstruction, many instances of unexplained perforation, possibly secondary to defects in the intestinal musculature or visceral ischemia, were found. The less common chemical peritonitis is due to prenatal intestinal perforation with extrusion of sterile meconium into the peritoneal cavity. The

two types may coexist if an antenatal perforation remains open after birth, allowing bacterial contamination of the previously sterile peritoneum.[7]

In women, the complications of pelvic inflammatory disease predominate. Abdominal trauma resulting in intestinal injury is also a significant cause of peritonitis, particularly in low-income countries. In the West appendicitis remains the most common cause of peritonitis, followed by colonic perforation, usually as a result of diverticulitis.[11] Persistent peritoneal contamination, sepsis, pneumonia, hypovolemic shock, and intestinal obstruction are the leading causes of death. The bacteriology of the neonates with peritonitis is reviewed, and a program for antibiotic management is recommended. It would appear that chloromycetin and/or tetracycline should be used in these patients.[7]

Conclusion- peritonitis in children is a life threatening and challenging condition to the paediatrician and surgeons managing in rural center. The severity and outcome are influenced by patient-related, disease-related and intervention-related factors. We successfully managed the patients without any complications. Patients were resuscitated on time and operated within time without any morbidity and mortality.

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