

Management of peritonitis in a rural tertiary care institute

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Abstract

Introduction: Peritonitis is defined as the inflammation of the peritoneal cavity. Peritonitis due to perforation of gastro intestinal hollow viscus is the common surgical emergency in India and the spectrum of disease is different from that found in the western world. **Material and Methods:** This study was done to know the various trends of management in peritonitis cases in Barabanki district of Uttar Pradesh state of India. In this study of 200 cases of peritonitis coming to Hind Institute of Medical Sciences, Barabanki, Uttar Pradesh were screened on the basis of lab investigations, X-rays (Chest & abdomen), ultrasonography, and abdominal aspiration when required. **Results:** Majority of perforation peritonitis patient presented to emergency with dyselectrolyemia, followed by septicemia, ultra-sonography showed free fluid and four quadrant aspiration s/o nature of peritoneal cavity fluid. Patients managed with initial resuscitation and surgery to correct the underlying pathology. **Conclusion:** Closure of perforation with omental patching done in stomach and duodenal perforation with peritoneal toilet. Omental patching is the commonest surgical procedure done in the peptic perforations.

Keywords: Peritonitis, Omental Patching, Peritoneal toilet, Perforation.

Introduction

Peritonitis is defined as inflammation of the serosal membrane that lines the abdominal cavity and the organs contained therein. Peritonitis due to hollow viscus perforation continues to be the one of the most common surgical emergencies confronting surgeons. Peritonitis is a common complication of peritoneal dialysis. Peritonitis is associated with significant morbidity, catheter loss, and transfer to hemodialysis, transient loss of ultrafiltration, possible permanent membrane damage and occasionally death [1, 2].

Peritonitis was a frequently associated side effect that hindered the acceptance of chronic peritoneal dialysis until an improved access catheter was developed by Henry Tenckhoff in 1968. This catheter significantly decreased the incidence of peritonitis, but initial of patients undergoing continuous ambulatory peritoneal dialysis (CAPD) with this catheter indicated peritonitis rates of more than six episodes per patient per year [3]. Peritonitis due to perforation of gastro intestinal hollow viscus is the common surgical emergency in India and the

spectrum of disease is different from that found in the western world. The advent of proton pump inhibitors and helicobacter pylori eradications in the management of chronic peptic ulcer disease has reduced the operative treatment of this condition and its complications. But yet perforated duodenal ulcer remains a major life threatening complication of chronic peptic ulcer disease. Despite advances in surgical techniques, antimicrobial therapy and intensive care support, management of peritonitis continues to be highly demanding, difficult and complex [4].

Peritonitis is frequently encountered surgical emergency in any hospital with high morbidity and mortality, which continues to be a matter of great concern to the surgeons, particularly in a tropical country like India. At the time of presentation, general condition of the patient was usually very much deteriorated and deserves skillful emergency surgical management.

Material and Methods

It was a cross-sectional study. 200 cases with provisional diagnosis of peritonitis which came to the surgical

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emergency of Hind Institute of Medical Sciences, Barabanki, Uttar Pradesh were reviewed.

The various methods of management affecting the outcome were studied. Provisional diagnosis was made from the history and clinical examination of the patient. To clinch the final diagnosis, various investigations like Hb, TLC, DLC, blood urea, blood sugar, serum creatinine, complete microscopic examination and culture sensitivity of fluid extracted by paracentesis. Radiological investigations including x-ray chest (PA view) standing including both domes of diaphragm, x-ray abdomen standing position, including both domes of diaphragm, ultrasound abdomen, CT abdomen (whenever indicated) followed by respective treatment.

Result

A total of 200 patients with provisional diagnosis of peritonitis were taken up for study. Most common cause of peritonitis was perforation (total 140 cases). The most common anatomical site for perforation was terminal ileum (68 cases); the next common site was stomach (44 cases) followed by duodenum (20 cases) and jejunum (4 cases), colon (4 cases).

Anaemia was present in 12% of cases. 22% case presented with septicaemia (TLC > 12000/mm³).

Electrolyte imbalance was seen in 40% case. Four quadrant aspiration analysis which showed that fecal matter was in aspirate in 36% cases. Clear fluid was present in 22% cases. Bilious fluid was present in 12% cases. Hemorrhagic fluid was present in 4% cases. Pus was present in 4% cases; no aspiration fluid was seen in 22% cases.

Suturing of the perforation was the most common (64 cases) surgical procedure done, omental patching with suturing in 64 cases, resection and anastomosis in the 32 cases. Appendectomy was done in 16 cases. Ileostomy was done in 28 cases. Cecopexy was done in 8 cases with provisional diagnosis of peritonitis. In 8 cases only peritoneal lavage was done and drains were inserted in not identified or sealed perforation.

Fever was the most common post-operative complication (90%), the next common post-operative complication was paralytic ileus (70%), and superficial wound infection was present in 50% cases. Other post-operative complications were anaemia/hypoproteinemia (20%), burst abdomen (2%) and chest infection (10%). Overall mortality was 12% in this study. Mortality in ileal perforation was 17.6%.

Discussion

The present study was planned to study the aids to diagnosis and management of peritonitis. In this study the most common cause of peritonitis is perforation peritonitis, various studies favour that perforation is the main cause of peritonitis.

In this study the most common site of perforation was terminal ileum (up to 30 cms proximal to ileocecal junction) present in 68 cases out of 140 cases, next most common site was stomach (44 out of 140 cases), other sites were 1st part of duodenum (20 cases), jejunum (4 cases), colon (4 cases). Similar observation were found by study of Agrawal N et al [5]. X-ray chest PA view including both domes of diaphragm in upright position is a very useful investigation to diagnose the perforation of hollow viscus by detecting pneumo-peritoneum.

In this present study X-ray abdomen was done in 200 cases, pneumo-peritoneum was detected in all cases of perforation peritonitis (140 out of 200 cases) and multiple air-fluid levels with pneumo-peritoneum was the finding in 8 cases. This study is well comparable with the study of Sofic et al [6] (x-ray abdomen showed free air in the abdominal cavity in 80% cases of gastro-intestinal perforation), whereas Dickson JAS et al [7] films in patients of terminal ileum perforation, and Aston NO et al [3] reported free peritoneal gas in 25% of abdominal x-ray films in patients of perforation.

In this study ultrasound examination of abdomen was done in 200 cases. The most common ultra-sonographic findings were free fluid in the peritoneal cavity and dilated gut loops with sluggish or absent peristalsis (92% cases), pneumo-peritoneum was detected in 100 % cases of perforation.

Findings of ultrasonography in this study are well supported by the studies at Sofic et al [6] (free fluid was detected in 90% cases).

In our study CECT of the abdomen was done only in two cases. Sofic et al [6] had observed that CT was more sensitive to the combination of liquid and minimal amount of free air which was undetectable with ultrasound and X-ray.

In the present study management was mainly surgical. Exploratory laparotomy was done in all cases after 3 to 4 hours of initial resuscitation.

Pre-operative resuscitation included I.V. fluids with electrolytes, Ryle's tube aspiration and Foley's

catheterization, maintenance of input-output balance, blood transfusion, I.V. antibiotics against Gram-positive, Gram-negative and anaerobes, Monitoring of temperature, pulse and blood pressure regularly, pre-operative intra peritoneal abdominal drain insertion to reduce toxemia, was inserted in two cases who were severely toxic and abdomen was over distended causing respiratory distress. Pneumo-peritoneum and signs of peritonitis were observed in all cases of perforation.

Foul smelling clear fluid with or without flakes in the peritoneal cavity was observed in 44 cases; foul smelling bilious fluid with or without flakes was observed in 24 cases; foul smelling fecal matter, with or without flakes were observed in 72 cases, hemorrhagic fluid was observed in 8 cases of trauma.

In 68 cases, terminal ileal perforation (upto 30 cm proximal to the ileocecal junction on anti-mesenteric border) was observed; in 44 cases gastric perforation was observed. In all the cases of gastric perforation, perforation was single and present either in the pyloric region or on the anterior surface of stomach; in 20 cases perforation was observed on the anterior wall of the 1st part of the duodenum; in 4 cases perforation was observed on the anti mesenteric border of the jejunum; colon perforation was observed in 4 cases.

The aims of surgical intervention are twofold: to drain the pus & bowel contents from peritoneal cavity and to prevent further contamination.

Minimum required operative procedure was performed. In all the cases of peptic perforation, the edges were excised & margins freshened and perforation was closed in single layer by applying non absorbable sutures. Pedicled omental patch was also applied in almost all the cases. Meticulous peritoneal toileting was done with normal saline. Abdominal drains were inserted in pelvic cavity and morrison's pouch.

In enteric perforation, simple closure of perforations was done with atraumatic needle in two layer/ single after freshening of margins. As the patients were of poor surgical risk and they tolerated minimum anaesthesia, simple closure has the advantage of being quick and easy. An alternative procedure like resection and ileo-ileal anastomosis were also done in some cases.

In some cases of enteric perforation where the gut was not healthy enough or with multiple perforations or there was excessive soiling, exteriorization of gut was done (ileostomy). Postoperatively patients were given I/V fluids, Ryle's tube aspiration, blood transfusions,

antibiotics such as 3rd generation cephalosporins & metronidazole for anaerobic organisms. This treatment was recommended by most of the previous authors. Anti-tubercular drugs were given to all patients with tuberculous peritonitis.

Aston NO et al [8] and Sweetman R et al [9] had also recommended resection of the segment of the ileum as a treatment of choice in case of tubercular peritonitis.

Gupta S et al [10] & other authors have also recommended the omental patching in gastro-duodenal perforations.

Gupta SK et al [11] had also recommended the primary closure of the traumatic perforations. Townsend MC et al [12] had also recommended the primary closure of traumatic perforations. KIM JP et al [13] recommended resection of small bowel in multiple typhoid perforations of the terminal ileum; he also recommended exteriorization of small bowel in very sick patients.

In this study fever was the most common post-operative complication which was presented in 90% of the patients.

2nd most common postoperative complication was paralytic ileus (for > 2 days) which was presented in 70% of the patients. Other postoperative complications were superficial wound infections (50%), anaemia/ hypo-proteinemia (20%), burst abdomen (2%), chest infections (10%) and anastomotic leaks (0%).

Whereas in the study of Gupta SK et al [11] common morbidity encountered was chest infection (39 cases), wound infection (12 cases), biliary leak (8 cases), intra-abdominal abscesses (6 cases), burst abdomen (6 cases), renal failure (2 cases), DIC (4 cases), jaundice and upper gastro-intestinal bleeding (1 case each).

The overall mortality in the present study is 12%. The causes of mortality in the present series are very poor general condition of the patient at the time of admission, anaemia, toxemia, dehydration and delayed reporting of the patients.

Conclusion

Laparotomy & closure of the perforation is still the commonest surgical procedure done in ileal & jejunal perforations followed by thorough peritoneal toilet with normal saline. Closure of perforation with omental patching done in stomach and duodenal perforation with peritoneal toilet that is omental patching, the commonest surgical procedure done in the peptic perforations.

Original Research Article

Peritoneal toilet & lavage with normal saline is the essential component of all the surgical procedures in perforation peritonitis.

Resection & anastomosis & ileostomy are the surgical procedures done in multiple ileal perforation and /or in case of unhealthy, edematous bowel wall.

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