

Mortality and Morbidity of Patients Presenting with Hollow Viscus Perforation Attending Tertiary Care Hospital

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Abstract

Introduction: Perforation of gas containing hollow viscus organs usually gives rise to a life threatening emergency which is most commonly managed by general surgeons. *Methodology:* This was a descriptive clinical study carried out at a Tertiary care hospital. Preoperative resuscitation of patients was done by fluids and electrolyte imbalance was corrected. Antibiotics like 3rd generation cephalosporins and metronidazole were used initially, later shifted according to culture and sensitivity. *Results:* In this study two patients expired, one patient of ileal (typhoid) perforation developed septicemia and expired on the day of surgery. Another patient of colonic carcinoma perforation had developed septic shock expired on post-operative day 3. *Conclusion:* Factors contributing to the high mortality and post-operative complications are advanced age, late presentation, delay in the treatment, septicaemia, and associated co-morbidity.

Keywords: Hollow Viscus; Perforation; Morbidity.

Introduction

Gastrointestinal (GI) tract perforations can occur due to various causes, and most of these perforations are emergency conditions of the abdomen that require early recognition and timely surgical treatment [1]. The mainstay of treatment for bowel perforation is surgery. Endoscopic, laparoscopic and laparoscopic-assisted procedures are now being increasingly

performed instead of conventional laparotomy [2,3].

Patients of hollow viscus perforation will present with acute onset of abdominal pain, Vomiting, Fever, Abdominal distension and Shock. Patient's presentation may differ with underlying cause for perforation. The signs and symptoms produced by the perforation vary according to the time that has elapsed since the rupture occurred.

Abdominal Pain

severe pain which is exacerbated by movements, initially pain localized to quadrant of related organ perforation and later pain all over abdomen. Pain in patients with perforated peptic ulcer initially felt in upper abdomen, referred pain to the shoulder area associated with difficulty in breathing. Pain in perforated appendix have similar to appendicitis initially in periumbilical region and right iliac fossa, as time passes pain spreads all over abdomen depending on peritonitis [4].

Bacteremic/Endotoxic Shock

It is due to large amount of exudation from the inflamed peritoneum into the peritoneal cavity, vomiting and paralytic ileus, where the absorbing function of bowels is lost. It depends on the microbial infection in severity. Gram-negative septicemic shock is common in enteric and large bowel perforation.

Bronchopneumonia/Respiratory Failure

This occurs in early stage of peritonitis, which is severe. Hurried breathing in early stages is due to under-ventilation, which is because of abdominal distension causing restriction of diaphragmatic and intercostal muscle movement.

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Renal Failure

Hypovolemia decreased cardiac output, increased secretion of ADH and aldosterone and raised intra-abdominal pressure act together in peritonitis, on the kidney. This is especially true in septic shock. Acute tubular necrosis can occur because of decreased flow and will lead to oliguria and metabolic acidosis.

The adhesions, when fine and minimal, are absorbed, but when dense cause intestinal obstruction at a later date. They manifest with all signs of obstruction. Failure of conservative treatment necessitates surgery, to divide the adhesions and relieve the obstruction.

Paralytic Ileus

Neurogenic Obstruction

The bacterial toxins act on neuromuscular junctions and smooth muscle of bowel producing paralytic ileus. It is beneficial as it avoids spreading of the peritoneal contents from perforated viscous to other regions but prolonged paralytic ileus may prove to be a serious setback because fluid loss from the intestine into the lumen may play a large part in protein, water and electrolyte depletion.

Abscess

Presentation may be very vague and consist of nothing more than a lassitude, anorexia, pyrexia (often low-grade), tachycardia, leukocytosis and localized tenderness. Later on a palpable mass may develop. When palpable, an intra-peritoneal abscess should be monitored by marking out its limitations on the abdominal wall and meticulous examination. Abdominal ultrasound has been a popular method for the diagnosis of intra-abdominal abscess. The diagnostic method of choice for abdominal abscesses is CT scan. The CT scan provides remarkable anatomic resolution of normal structures and of abnormal collections of fluids and pus. The use of intraluminal and in some cases, intravascular contrast agents permits differentiation of intraluminal and extraluminal collections. Abscess cavities commonly have air bubbles that augment the judgment that any fluid collection may be an abscess. The accuracy of the CT scan in the diagnosis approaches 90%. In the majority of the patients, with the aid of antibiotic treatment the abscess or mass becomes smaller and smaller and finally is undetectable. In others, the abscess fails to resolve or becomes larger, in the event of which it must be drained. In many situations, the abscess becomes adherent to the abdominal wall, so that it can be

drained without opening the general peritoneal cavity. Other modes of treatment are percutaneous drainage and open drainage of the abscess. Septic patients with evidence of severe clinical infection will usually require open laparotomy and drainage. A persistent septic response with hyperglycaemia, gastrointestinal ileus, blood culture positive for anaerobic and enteric pathogens and early evidence of respiratory failure as the initial expression of multiorgan failure cascade, mean that a source of clinical infection must be identified and treated⁵.

Methodology

This was a descriptive clinical study carried out at a Tertiary care hospital. Preoperative resuscitation of patients was done by fluids and electrolyte imbalance was corrected. Antibiotics like 3rd generation cephalosporins and metronidazole were used initially, later shifted according to culture and sensitivity. Exploratory laparotomy was done under general anaesthesia. Midline incision either upper or lower or right paramedian incision was made depending on the suspected site of perforation.

Viscera was inspected carefully, the site of perforation noted and appropriate surgical procedure like closure of perforation by omentopexy or closure in two layers done and definitive procedure like bilateral truncal vagotomy with pyloroplasty, resection and end to end anastomosis was performed if required. Peritoneal lavage with normal saline done and peritoneal cavity was drained. Post operatively patients were put on continuous nasogastric aspiration, intravenous fluids, analgesics and antibiotics. Vitals, input/output of fluids, biochemical parameters were monitored in postoperative period. Postoperative complications noted, treated accordingly. Patients were discharged on recovery. Patients were followed upto 3 months but few patients didn't turn up after discharge.

Results

In this study there were 12 patients with duodenal perforation, one was by blunt trauma, rest all was non traumatic due to acid peptic disease. Most patients presented with pain abdomen followed by fever, vomiting and constipation. In most cases pain started in upper abdomen in epigastric region and right hypochondrium, then it was generalised.

In duodenal ulcer perforation cases, 7 had tachycardia and hypotension, 2 had distension, 9

patients had guarding and rigidity, and 8 patients had obliteration of liver dullness. Most of the patients were smokers and alcoholics (72.7%).

Only one patient had antral perforation, presented with pain in epigastric region radiating to right shoulder. On examination, had guarding and rigidity, liver dullness was obliterated and no bowel sounds heard.

In this study 5 patients had typhoid perforation; all the 5 had fever prior to onset of perforation. The duration of onset of fever and pain abdomen presenting to hospital varied from 1-7 days. Pain abdomen was present in all patients, initially started in centre of abdomen later became generalised. Distension was present in 4 patients, guarding and rigidity in all patients, liver dullness obliterated in 3 cases, free fluid in abdomen was present in 2 patients and bowel sounds were absent in 5 patients. Widal test was positive in all 5 cases.

In this study only one patient had tubercular perforation. Patient presented to hospital for first time with fever, loss of weight, on examination there was mass in right iliac fossa, after evaluating he was diagnosed to have tuberculosis of ileum and started with antitubercular treatment. After one week of diagnosis, he presented with pain abdomen, vomiting, distension, on examination had distension,

guarding, and free fluid and absent bowel sounds. After suspecting peritonitis patient was treated surgically.

All the 16 cases of appendicular perforation presented with classical symptoms of abdominal pain, vomiting and fever. Three patients had absent bowel sounds. One patient had obliteration of liver dullness.

Three cases of traumatic perforation in that each case of duodenal perforation, ileal perforation, intraperitoneal rectal perforation. Out of 3 cases 2 had history of blunt trauma and 1 had penetrating injury to rectum. All three had tachycardia and hypotension, 2 patients had guarding and rigidity, one had distension, bowel sounds absent in all three and free fluid in one patient.

One female patient had descending colon perforation due to growth, patient presented with pain abdomen, distension. On examining the patient had guarding, free fluid, absent bowel sounds.

Complications in post-operative period noted and treated accordingly. After discharging patients were advice to take multivitamins, analgesics if required, protein supplements and they were followed after a week and few after one month. Most patients didn't turn up after one month.

Table 1: Complications

Etiology	Mortality	WI	LRTI	IH	Intestinal obstruction	Hypo Tension	Pelvic abscess	Septicemia
DUP	0	3	1	0	0	0	0	0
GUP	0	0	1	0	0	0	0	0
IP	1	3	0	2	0	0	0	0
TR P	0	0	0	0	0	0	1	2
TU P	0	0	1	0	0	0	0	0
SBG	0	0	1	0	0	2	0	0
AP	0	4	5	0	0	0	0	0
CP	1	0	0	0	0	0	0	0
Total	2	10	9	2	0	2	1	2
Percentage	5	25	22.5	5	0	5	2.5	5

Morbidity

Morbidity of hollow viscus perforation patient in the form of wound infection in 10(25%) patients, LRTI in 9(22.5%) patients, Incisional hernia in 2 patients (5%), hypotension in 2(5%) patients, pelvic abscess in one patient, and septicaemia in 2(5%) patients.

In this study the most common post-operative complication was wound infection which was present in 25% of cases and the patients manifested with pain at wound site and discharge. The pus was drained and antibiotics administered

The next most common complication observed was

lower respiratory tract infection (LRTI) and the LRTI patients presented with fever, cough with expectoration and the chest X-ray showing consolidation changes.

One patient who was operated for traumatic duodenal perforation developed pelvic abscess.

Two patients who were having ileal typhoid perforation developed wound dehiscence later incisional hernia.

Mortality

In this study two patients expired, one patient of ileal (typhoid) perforation developed septicemia and

expired on the day of surgery. Another patient of colonic carcinoma perforation had developed septic shock expired on post-operative day 3.

Discussion

Morbidity in the form of wound infection in 10 (25%) patients, LRTI in 9 (22.5%) patients, Incisional hernia in 2 patients (5%), hypotension in 2(5%) patients, pelvic abscess in one patient, and septicaemia in 2 patients. In the present study, the postoperative morbidity was towards higher side

because of late presentation to the hospital, poor build and malnourishment, associated anaemia and dehydration at presentation. Most common complication developed by patients was wound infection which may be sustained by the fact that surgical incision site gets contaminated and most of the patients are malnourished and anemic.

In this study mortality was low (5%) compared to other studies. High mortality depends on the site and cause of perforation. Factors contributing to the high mortality and post-operative complications are advanced age, late presentation, delay in the treatment, septicaemia, and associated co-morbidity.

Table 2: Comparison of complications

S. No	Complications	Dinesh et al ⁶ 2011(77)	Present study 2014(40)
1	Wound infection	15(19.5%)	10(25%)
2	Wound dehiscence	3(3.9%)	2(5%)
3	Respiratory complication	6(7.8%)	9(22.5%)
4	Septicaemia	4(5.2%)	2(5%)
5	Abdominal collection	3(3.9%)	1(2.5%)
6	Anastomosis leak	3(3.9%)	0
7	mortality	10(13%)	2(5%)

Conclusion

In this study mortality was low compared to other studies. High mortality depends on the site and cause of perforation

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