



Spontaneous Perforation of Sigmoid Colon: Case Study

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Abstract:

Spontaneous perforation of colon (SPC) is defined as sudden perforation of deceptively healthy colon in absence of diseases or injury. SPC is a rare clinical case which is rarely reported in literature, less than 100 cases were reported.

Case report: A 45-year-old gentleman presented to emergency room (ER) with acute renal failure, and admitted to the ICU. In the ICU, abdominal Pain started with sudden onset and then increasing intensity of pain with abdominal distention. On general examination, he was conscious, alert. His vital signs: afebrile, pulse: 106/m, B.P: 140/100, local examination showed generalized abdominal tenderness & distention with absent intestinal sounds. P.R. exam showed remnants of stool with blood stain on gloves, no masses. Computerized tomography (CT) abdomen showed perforation of viscus with abdominal collection. He was taken to operation room (OR) and Hartman procedure was done. Post-operative period was uneventful and he was discharged in good health. Three months later, he was admitted for colostomy revers.

Conclusion: SPC is a serious condition with great morbidity and mortality due to delay in diagnosis and management. We consider it is essential to call attention to the probability of spontaneous perforation in the presence of diverticulosis. In operating on patients with acute abdominal conditions, the surgeon at times discovers peritonitis without recognizable cause. Therefore, every effort should be made to make diagnosis especially in elderly and prompt surgical intervention should be done.

Keywords:

SPC-Spontaneous Colon Perforation, sigmoidal Perforation, Colon Perforation

Introduction

Spontaneous perforation of colon (SPC) is defined as sudden perforation of apparently healthy colon in absence of diseases or injury [1] [2]. SPC is an uncommon clinical entity which is seldom reported in literature, less than 100 cases were reported [3]. It is more common at the extremes of age particularly elderly & premature infants but no age is let off [4]. It is a consequence of severe peritonitis with high mortality which should be considered in differential diagnosis of acute peritonitis with free air under diaphragm, as it always necessitates laparotomy.

It was described first by Brodie in 1827, a case of middle aged women whose rectum was spontaneously ruptured.

We present a case of spontaneous perforation of colon in an adult male patient.

Case Report

A 45-year-old gentleman presented to emergency room (ER) with acute renal failure, and admitted to the ICU. In the ICU, abdominal Pain started with sudden onset and then increasing intensity of pain with abdominal distention. On general examination, he was conscious, alert. His vital signs: afebrile, pulse: 106/m, B.P: 140/100, local examination showed generalized abdominal tenderness & distention with absent intestinal sounds. P.R. exam showed remnants of stool with blood stain on gloves, no masses.

Blood works as CBC showed WBC: 22.7 HB: 9.3 gm/dl, Creatinine: 3.6 other laboratory investigation were satisfactory. X-ray chest PA view showed gas under diaphragm (**Figure 1**) while

CT scan abdomen shows pockets of gas around sigmoid with free fluid consistent with viscus perforation (**Figure 2**).

Intravenous (I.V) antibiotics in the form of cefuroxime & metronidazole were started. He was taken to operation room (OR) and Hartman procedure was done. Peritoneal lavage was performed.

Postoperatively, he made uneventful recovery. Oral feeding was commenced gradually & it was well tolerated. Histopathology report showed sigmoidal perforation with purulent yellowish discharge & fecalith, mucosa around perforation showed oedema, sub mucosal congestion with no evidence of malignancy or ischaemia. The patient had an uneventful recovery and was discharged on the 7th postoperative day. Afterward he was discharged home in good condition & followed up in the outpatient clinics.

Three months later, he was admitted for colostomy revers.

Postoperative on the 3rd day post colostomy reverse the patient became hyper thermic 39.2C , On examination, the abdomen was distended with generalized rigidity, tenderness and rebound tenderness, The patient was treated with IV fluids initially, followed by N/G tube insertion with suction and broad spectrum antibiotics (Ceftriaxone, Gentamycine & Metronidazole). Informed consent for urgent laparotomy was obtained from the patient. Laparotomy showed seropurulent fluid in the peritoneum, and revealed small intestine perforation at the ileum.

Resection anastomosis was done in addition to prophylactic loop ileostomy was done . The patient recovered uneventfully and was discharged on the 8th postoperative day.

A month later the patient was admitted to close the ileostomy and the operation went uneventful , the patient discharged on the 6th postoperative day.



Figure 1. X-ray chest AP view—gas under diaphragm.

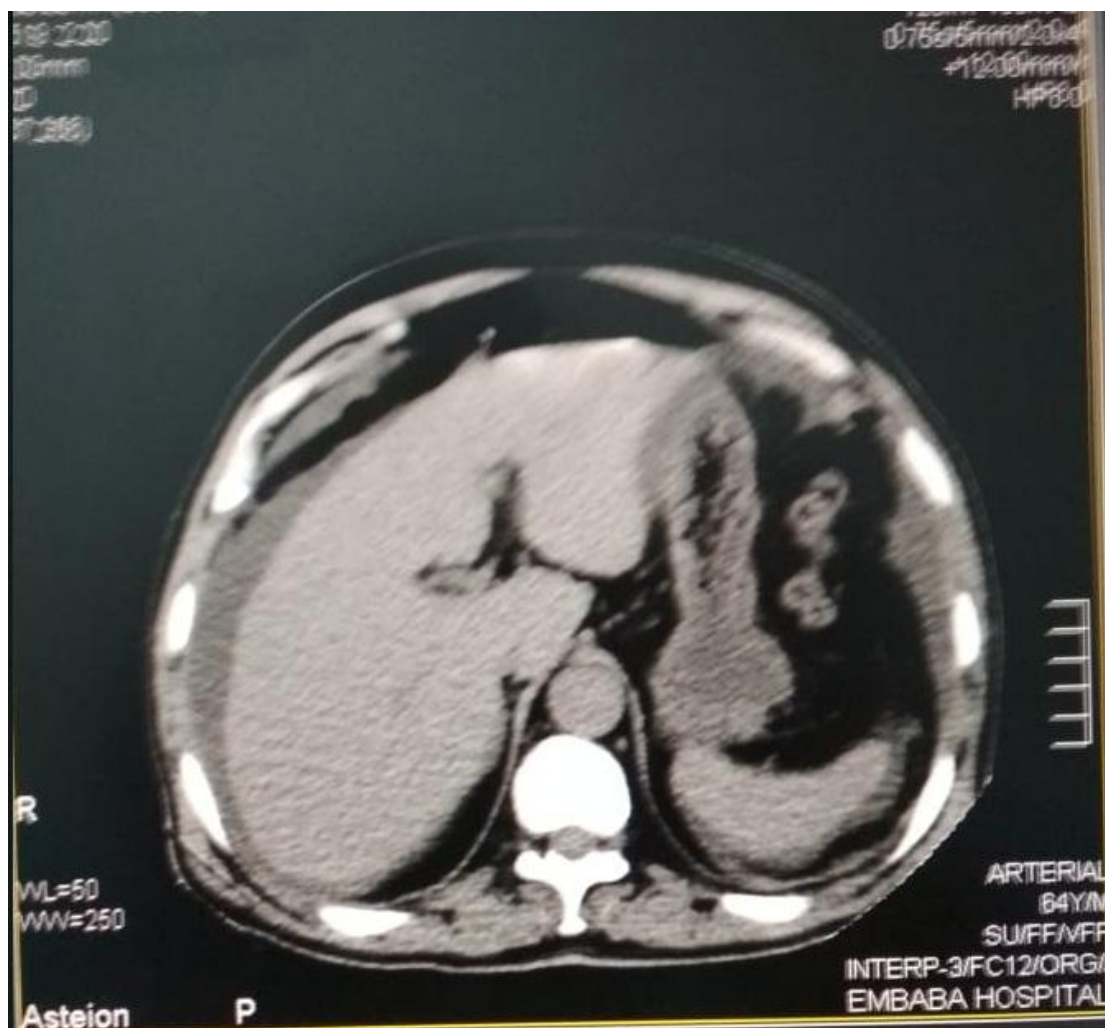


Figure 2
CT scan abdomen shows pockets of gas and free fluid consistent with viscus perforation.

Discussion

In 1919, Huntly reported a case of chronic constipation who collapsed during defecation due to a tear in the pelvic colon. The mean age in elderly cases is 65 years. Males are more susceptible to develop perforation with a ratio of elderly males to females 2:1. The anti-mesenteric border is the area of physiological ischaemia [3]. SPC is classified into 2 types, idiopathic & stercoral types. Our case based on the operative findings, histopathology report as well as the outcome of the case was of idiopathic type. The idiopathic type is less common & carries better prognosis due to minimal fecal contamination. Stercoral perforation is 1.2% of all colorectal surgical emergencies, 3.2% of all colonic perforations. Stercoral perforation is commonly seen in chronic constipation.

Maurer *et al.* have proposed the diagnostic features of Stercoral perforation as rounded, of more than 1 cm in diameter and colon is full of stool with ischemic necrosis of the surrounding mucosa & acute inflammatory reaction. 2.3% of all renal transplant patients are prone to SPC according to Wisconsin Medical College study [4]. Spontaneous perforation in young children is found as manifestation of EDS-IV (Ehlers-Danlos Syndrome-Type IV) [7]. SPC is commonly found in extreme of ages like elderly and infants [9].

Perforations occur more often in rectosigmoid, mid-sigmoid regions, cecum, transverse and descending colon.

Recto-sigmoid perforation was more documented in Yang *et al.* study as there is no ramus anastomoticus between the lower branch of sigmoid arteries & the superior rectal artery [1].

Two hypotheses have been proposed to explain idiopathic perforations: Vascular theory which suggests combination of hypoperfusion of colonic tissue & constitutional weakness of the bowel wall with increased intraluminal pressure which results from intestinal hernia, rectal prolapse, or abnormal depth of Douglas pouch [14].

Stercoral perforation is common in sigmoid, rectosigmoid regions and less commonly found in the cecum. Idiopathic perforation occurs due to asymmetrical distribution of intraluminal pressure at the pelvi-rectal angle in absence of obvious impacted stool or any identifiable cause of perforation.

Drug induced fecal impaction is becoming more prevalent which may lead to SPC and these drugs are opiates, antacids, codeine, amitriptyline, and tranquilizers.

Clinical picture may be misdiagnosed as acute appendicitis, Crohn's disease or Tuberculous (T.B) enterocolitis. Diagnosis of SPC is based mainly on exclusion of other organic causes of perforation. A contrast-enhanced computed tomography scan demonstrates segmental thickening, pericolic fat stranding, presence of fluids in addition to assessment of vascularity of the bowel. These findings were all documented in our case report. Intraoperatively, it is difficult to distinguish between types of perforation so, surgical pathological examination is necessary to make a definite diagnosis.

The principle of management of SPC is prompt surgical intervention, excision of the affected segment and extensive peritoneal lavage with antibiotics.

In case of perforation, innumerable bacteria spread from the colon into the abdominal cavity and cause acute diffuse peritonitis. Bacterial toxins are absorbed and lead to infectious shock and then multiple organ failure. So, patients should undergo surgery as soon as the disease is definitely diagnosed.

The types of surgery are different depending on the time of onset, degree of peritonitis, general physical condition and lesion of the colon. The following types of surgery are common: neoplasty, colostomy, neoplasty plus proximal colostomy, Hartmann surgery. Hartman's procedure was the treatment of choice in our case being the perforation was situated in the descending colon.

Outcome of SPC management depends on the time of onset, degree of peritoneal contamination and prompt surgical intervention as mortality rate ranges between 35% and 47%.

Idiopathic type of perforation has better prognosis than stercoral type, early surgical intervention markedly improves the outcome.

SPC can be avoided by some preventive measures such as, monitoring the bowel habits of the elderly, regular rectal examination, adjusting the regular dose, limiting the period of usage of non-steroidal anti-inflammatory drugs to smaller effective doses & manual evacuation to relieve their constipation.

Conclusion

SPC is a severe condition with great morbidity and mortality due to delay in diagnosis and management. We consider it is essential to call attention to the probability of spontaneous perforation in the presence of diverticulosis. In operating on patients with acute abdominal conditions, the surgeon at times discovers peritonitis without recognizable cause.

Therefore, every effort should be made to make diagnosis specifically in elderly and prompt surgical intervention should be done.

Overall, prevention of spontaneous perforation may be achieved by:

- Raising the awareness of the public as well as the medical community on the possibility of spontaneous perforation of the bowel occurring from long standing constipation.
- Careful monitoring of bowel habits of the debilitated, bed ridden patients, patients with mental abnormalities.

- Regular rectal and abdominal examination of bedridden patient to ensure that the rectum is not full of hard fecal matter.

Conflicts of interest:

There are no conflicts of interest.

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