

Idiopathic Spontaneous Perforation of the Rectum: A Case Report and Review of the Literature

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Abstract: Spontaneous perforation of colon (SPC) is defined as sudden perforation of apparently healthy colon in absence of diseases or injury. SPC is an uncommon clinical entity which is seldom reported in literature, less than 100 cases were reported. We report the case of a young male who underwent an urgent laparotomy due to rectal perforation, which was registered as an idiopathic spontaneous perforation.

Key-words: Spontaneous, Rectum, Perforation

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I. Introduction

Perforation of the colon or rectum mainly occurs as a complication of pathological conditions such as diverticular diseases, carcinoma, colitis, blunt or penetrating trauma and intraluminal injury from faulty instrumentation.¹ Very rarely rupture of the rectum occurs spontaneously in a normal bowel without an apparent underlying cause. To the best of our knowledge fewer than 100 cases of spontaneous rupture of the colon and rectum have been reported in the literature. We report one such rare case of peritonitis due to spontaneous rectal perforation which was successfully managed surgically.

II. Case Report

A 19 year old male was admitted in our emergency department with physical signs of peritonitis. There was complaint of pain in abdomen for one day. He had no history of constipation, straining at stool, abdominal or perennial trauma and abdominal surgery. He was dehydrated with following vitals pulse rate -104/min., B.P. 100/60 mmhg. Temp 100°F. The whole abdomen was rigid and tender, bowel sounds were absent. Rectum was empty and there were no signs of external trauma to the perianal region, tone was normal. There was no family history of similar complaints or gastrointestinal cancers. Chest x-ray showed gas under both dome of diaphragm. Total leukocyte count was markedly high. Emergency laparotomy was performed after initial resuscitation. Intraoperatively about 1 liter of purulent fluid with some fecal sediment was found in the lower abdomen and a vertical perforation was found in the anterior rectal wall just above the peritoneal reflection. Rest of the large bowel and small bowel looked normal and there was no foreign body or fecolith in the rectum or peritoneal contamination. The perforation was closed in two layers and a loop transverse colostomy was constructed after drainage of the peritoneal cavity. Postoperative period was uneventful. On repeated questioning the patient denied constipation, straining at stool, lifting heavy objects, trauma, rectal instrumentation or homosexual activity before the acute episode. Histological examination of a rectal specimen taken at the time of operation was normal. In the follow up both colonoscopy and gastrograffin studies were performed which did not reveal any pathology and the colostomy was successfully closed after a period of three months.

III. Discussion

Spontaneous rupture of the rectum and pelvic colon is a rare condition. The exact etiology of spontaneous rupture of the rectum and colon is not clear. In 1827, Brodie described the case of middle aged women whose rectum suddenly ruptured apparently spontaneously¹, since then there have been about 78

published cases of spontaneous rupture of the colon and rectum and isolated spontaneous perforation was present only in 15 patients.

The perforation is often associated with intraluminal pressure during defecation with a preexisting pathology such as diverticulosis, colitis, ulceration, malignancy, adhesions, irradiation, rectal and uterine prolapse, or as a consequence of iatrogenic injuries and blunt trauma to abdomen.¹ It has also been occurred during sleep.² However there are instances where no history of any form of strain is available as in our case. Chronic straining due to preexisting diseases causes progressive deepening of rectovesical and recto uterine pouches leading to thinning of the rectal wall. Contraction of abdominal musculature during straining increase the intra-colonic pressure and spontaneous rupture occurs through this thinned out area generally at the antimesenteric border where the blood supply is poorest.

The perforation occurs almost always in the distal part of the colon because of the physiological characteristics of recto sigmoid colon such as lower water content of the stool, relatively poor blood supply and high pressure due to the narrowed intraluminal diameter and it involves the anterior wall of the rectum just proximal to the peritoneal reflection at the anti mesenteric border of the recto sigmoid junction. Maurer et al. reported that 64% of feculent perforations occur in recto sigmoid, mid-sigmoid regions, cecum, transverse and descending colon.³

In 1984 J.A.Berry classified spontaneous perforation into stercoral and idiopathic perforation on the basis of etio-pathological causes of lesions.⁴ Our case based on the operative findings, histopathology report as well as the outcome of the case was of idiopathic type. Patients with stercoral perforations suffer from chronic constipation and experience hard stools that become lodged and cause ischemic lesions that extend from the mucosa to the muscular layer and perforate the colon.⁵ Patients with idiopathic spontaneous perforation of the large bowel typically have linear perforations situated on the anti mesenteric side of the colon and no identifiable cause of perforation.⁵ Kasahara et al. mentioned that these perforations are linear, with clear edges and with no microscopic evidence of ischemia.⁶ Recto-sigmoid perforations was more documented in Yang et al. study as there is no ramus anastomoticus between the lower branch of sigmoid arteries and the superior rectal artery.⁷

The exact cause of spontaneous perforation of colon is unclear, however some conditions like hypothyroidism, intestinal hypomotility, chronic constipation and fecal impaction are associated with it.⁸ 2.3% of all renal transplant patients are prone to spontaneous perforation of colon according to Wisconsin Medical College study.⁹ Spontaneous perforation in young children is found as manifestation of Ehlers-Danlos syndrome Type 4.¹⁰ Patients on antacids, codeine containing drugs, narcotics, NSAIDs, major Tranquilizers and tricyclic anti-depressants have been reported as being at higher risk of perforation.¹¹ It can occur in all age groups the youngest one reported was six year old and oldest being ninety six year old.² There are anatomical vulnerable points in the colonic vasculature that have been termed as "water shed areas", like splenic flexure (Griffith's point), rectosigmoid region (Sudeck's point) and ileocaecal region.⁶ Two hypotheses have been proposed to explain idiopathic perforations: Vascular theory which suggests combination of hypo perfusion of colonic tissue and constitutional weakness of the bowel wall with increased intra luminal pressure which results from intestinal hernia, rectal prolapsed, or abnormal depth of Douglas pouch.¹²

The treatment is not different from cases with recto sigmoid perforation from other causes. If diagnosed early, simple suture will suffice; however when diagnosed late and associated with fecal peritonitis a diversion or exteriorization procedure is mandatory. Idiopathic perforation has better prognosis than stercoral type, early surgical intervention markedly improves the outcome.

IV. Conclusion

Spontaneous perforation of the colon is a rare condition with high morbidity and mortality due to delay in diagnosis, however diagnosis can be delayed but early surgical intervention is important in order to reduce morbidity and mortality. In the follow up period patients should be investigated to detect exact etiology and cause specific management will prevent recurrence and complications.

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