Rectal Gangrene ; A Rare Complication of Infected Hemorrhoid

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Introduction

Rectal gangrene is very rare since the rectum has a rich blood supply. Few case reports exist in the medical literature. We report a case of rectal gangrene resulting from infected hemorrhoids complicated by pelvic cellulitis.

Case Report

A 27-year-old male was admitted to the emergency room with a seven-day history of abdominal pain, anal pain, fevers and voiding difficulties. His medical history was notable for aseptic necrosis of the right femur, a coring out operation for anal fistula, alcohol abuse, and malnutrition as a result of an extremely unbalanced diet. There was no known history of liver disease. The patient denied anal receptive intercourse, foreign body insertion or other rectal trauma.

On admission the systolic blood pressure was 70mmHg, and the body temperature was 38 °C.

Physical examination revealed rebound tenderness in the lower abdomen and diminished bowel sounds. Prolapsed swollen hemorrhoids were seen in three quadrants. The perianal soft tissue was edematous and protruding. The site of the previous operation at the 2 o'clock position was completely healed. There was a purple-colored spot on the perianal skin at the 4 o'clock position (Fig. 1). Laboratory data was as

follows : total bilirubin 6.9mg/dl, direct bilirubin 5.2 mg/dl, GOT (glutamate oxaloacetate transaminase) 350 IU/l, GPT (glutamate pyruvate transaminase) 212 IU/l. Coagulation time was prolonged. The patient was critically ill because of severe sepsis.

Ultrasonography revealed a moderate amount of ascitic fluid and normal liver and biliary tract. Paracentesis was performed with the return of brownish fluid. Microscopic examination of the ascitic fluid revealed numerous gram negative rods. Pelvic CT (computed tomography) revealed severe pelvic cellulitis with thickening of the rectal wall (Fig. 2) . There was no evidence of abscess or soft tissue gas in the perirectal tissues. The infected hemorrhoids were incised in the emergency room under local anesthesia. Old clots were evacuated and brownish fluid was drained. Intensive resuscitation including fresh plasma transfusion was initiated and antibiotics including cefoxitin and ampicillin were started to cover *Bacteroides fragilis* and *Clostridium* species. As soon as the patient was stabilized, he was taken to the operating room to evaluate for an intraperitoneal focus of infection and to drain the perirectal space. Exploration revealed accumulation of brownish fluid and swelling of rectal mesentery, retroperitoneum, and perirectal space. No septic focus was identified intraperitoneally, but pelvic cellulitis extending up to the lower retroperitoneum and preperitoneal space could be observed. The peritoneal cavity was drained of the brownish fluid, irrigated with normal saline, and the abdominal incision was closed. Two Penrose drains were placed in both perirectal spaces. Intraoperative anoscopy revealed edematous but viable rectal mucosa.

Postoperatively, the patient required continued fluid resuscitation, antibiotics, and mechanical ventilation. On the 2nd postoperative day, he developed severe hypotension refractory to vasopressors, disseminated intravascular coagulation (DIC) and adult

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Fig. 1. Anus on admission.
Lithotomy position. Markedly swollen hemorrhoids and a dark spot can be seen.

Fig. 2. Plain pelvic CT scan on admission.
Rectal wall is markedly thickened and perirectal space is inflammatory and swollen.

Fig. 3. Anus, the 2nd postoperative day.
Lithotomy position. Darkening of perianal skin can be seen.

Fig. 4. The gross specimen of rectum and anus.

respiratory distress syndrome (ARDS). This clinical deterioration occurred over a period of several hours. Progressive discoloration of the perirectal skin developed, together with crepitus which was detected on digital examination (Fig. 3).

The patient was returned to the operating room, with transfusion of fresh whole blood. An abdominoperineal resection with diverting sigmoid colostomy was performed with debridement of infected perirectal tissue (Fig. 4). Significant oozing was noted due to the underlying coagulopathy. The perineal wound could not be closed and pelvic cavity was packed with sponges which was removed two days after. With frequent postoperative dressing changes, the patient's general condition improved dramatically.

Klebsiella pneumoniae was cultured from the infected hemorrhoid tissue, rectal tissue, and ascitic fluid.

Tissue pathology revealed numerous bacteria and arterial thrombosis in the rectal wall (Fig. 5).

Discussion

Rectal gangrene is very rare because the rectum has an abundant blood supply and most cases of the rectal gangrene occur after aortic operations, especially those for ruptured aortic aneurysms. But it can occur when multiple small arteries are occluded due to thrombosis or immune complexes or when the perirectal tissue and the rectum are severely affected by infection, trauma, or toxication. Table 1 summarizes ten cases of rectal gangrene, presented by 8 authors¹⁻⁸⁾ with variety of etiologies. As with our patient, nine of these cases required surgery. A single case, reported by Mummery PL, did not undergo

Fig. 5. Microscopic specimen of rectal wall ($\times 400$, HE stain). Numerous bacteria can be seen.

Table 1. Summary of rectal gangrene.

	Year	Author	Site	Cause	Treatment	Course
1	1915	Mummery PL ¹⁾	rectum, 4 inches long	strangulated hemorrhoid	antibiotics no operation	death
2	1966	Rath H ²⁾	ileum to lower rectum	<i>E.coli</i> enterocolitis	resection and ileorectostomy	alive
3	1977	Pietsch JB ³⁾	rectum, containing sphincter	phosphate enema	debridement and colostomy	alive
4			lower rectum, 8cm long			
5	1986	Sweeney JL ⁴⁾	lower rectum	phosphate enema and complicated hemorrhoid	debridement and colostomy	death
6						
7	1986	Papa MZ ⁵⁾	entire large bowel	SLE	resection and ileostomy	alive
8	1987	Nallathambi HM ⁶⁾	ascending colon to entire rectum	sulfuric acid ingestion	resection and colostomy	alive
9	1994	Reissman P ⁷⁾	upper rectum, 5cm long	SLE	resection and colostomy	alive
10	1994	Gerber GS ⁸⁾	entire rectum	infected hemorrhoid	resection and colostomy	death

surgery and eventually died. It therefore appears that non-operative therapy is associated with a fatal outcome. Four of the nine cases that underwent surgery died, and all these patients had concomitant illness. Although the pathogenesis of rectal gangrene is still obscure, venous thrombosis or arterial occlusion either by organized thrombi or immune complexes was documented by five of the eight authors^{1, 2, 5-7)}. In this case, infected hemorrhoids complicated by pelvic cellulitis may have led to gradual vascular thrombosis and eventual rectal gangrene.

Because rectal gangrene can cause rapid clinical deterioration within a matter of hours, a high index of suspicion is necessary. A policy of aggressive debridement and resection with intensive supportive therapy should be warranted.

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ABSTRACT

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A 27-year-old male with rectal gangrene as a result of a hemorrhoid infection complicated by pelvic cellulitis is described. Management initially included an exploratory laparotomy and perirectal space drainage. The patient deteriorated acutely on the 2nd postoperative day and required emergency abdomino-perineal resection. Reviewing the medical literatures, rectal gangrene can occur as a result of variety of etiologies such as occlusion of small arteries, toxication, infection, or trauma, although most of them occur after the abdominal aortic operations. Because clinical deterioration occurs in a matter of hours, a high index of suspicion should be maintained and the emergency operation is always required to save patient's life.

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Key Words : rectal gangrene, infected hemorrhoid, soft tissue infection

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