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Coecal Volvulus: Case Report and Review of Literature

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Abstract | **Case Report**

***Introduction and Importance*:** Cecal volvulus is a rare cause of intestinal obstruction occurring when the ascending colon and terminal ileum are twisted around the mesenteric pedicle, resulting in obstruction and possible vascular compromise. ***Case Presentation*:** A 50-year-old man was admitted on an emergency basis after a presentation of an acute intestinal obstruction necessitating emergency laparotomy. At laparotomy, a twisted cecum with ileal knotting and necrosis of its anterior portion was found, which resulted in resection of the cecum with the terminal ileum, followed by an end-to-end anastomosis of the ileum to the ascending colon. ***Clinical Discussion*:** Cecal volvulus is relatively uncommon, the incidence varying from 2.8 to 7.1 cases per million population every year. Diagnosis delay can lead to necrosis and perforation of the cecum leading to significant morbidity and mortality. ***Conclusion*:** This case demonstrates a rare instance of cecal volvulus in a 50-year-old male with cecal necrosis but without perforation. Effective and timely recognition and surgical treatment are effective in prevention against perforation and reassure other complications of this condition.

Keywords: Cecal Volvulus, Intestinal Obstruction, Cecal Necrosis, Emergency Laparotomy, Ileal Knotting.

INTRODUCTION

Cecal volvulus refers to the twisting of the cecum along its axis, involving the terminal ileum and ascending colon, due to the absence of adequate cecal fixation [1].

The initial account of cecal volvulus was given by Rokitansky in 1837 [2]. It represents to 25%–40% of all colonic volvuli in adults and ranks as the second most commonly affected region of the colon after the sigmoid colon [3].

The clinical features of cecal volvulus are generally vague, making it challenging to distinguish from other types of intestinal obstruction [4].

This often results in delays in diagnosis, allowing acute cecal volvulus to progress to cecal gangrene and perforation, which may lead to acute peritonitis.

Abdominal radiography and computed tomography scanning are the primary diagnostic tools for identifying cecal volvulus [5].

Surgical treatment remains the sole definitive approach to managing this condition [6].

CASE PRESENTATION

A 50-year-old male presented at emergency department of a referral hospital with four days history of colicky abdominal pain associated with obstipation, not passing stool and flatus for the past three days. He also complained of nausea, hiccups and two episodes of bilious vomiting for the past two days before admission. During his examination, the vital signs were found to be within normal range. He was hemodynamically stable, and had a soft but distended abdomen with slight pain to palpation attributable to prior administration of IV analgesics. During her emergency department stay, a nasogastric tube was placed and IV fluids were administered.

The biological workup revealed an HB 12,5g/d; hyperleukocytosis with predominantly PNN at 16 300 elements/mm3, CRP was elevated to 95 mg/l, renal function and blood ionogram were normal. Plain radiography showed dilated gas-filled segment of the colon in the left side of abdomen. An abdominal computed tomography showed an axial twisting of the

ascending colon and terminal ileum resulting in closed loop obstruction of the caecum (Fig.).

Fig: Axial computed tomography scan shows cecal volvulus "Whirl sign" (red arrow)

A pre-operative resuscitation, antibiotic prophylaxis followed by an emergency laparotomy were done. Surgical exploration revealed that the right iliac fossa was empty; and cecal volvulus involving cecum and terminal ileum. The anterior cecal wall was necrotic without perforation. A resection of cecum and terminal ilium and end to end anastomosis of ileum to ascending colon were performed. The patient was discharged on the 5th postoperative day. A follow up was done a month post discharge and reported no complications.

DISCUSSION

Volvulus is a disorder in which bowel becomes twisted around its mesenteric axis which can lead to partial or complete obstruction of intestinal lumen and a variable degree of impairment of its blood supply [7]. Cecal volvulus is a torsion, usually of 360◦, of a segment of the colon on its mesenteric axis, which causes strangulation, hence, an occlusion of the two ends of the volvulated segment compromising its blood supply, which causes an obstruction in a closed loop [8–9]. During embryogenesis, the cecum rotates counterclockwise from the left to the right lower quadrant which will lead its mesenteric artery to be fixed to the retroperitoneal structures [10]. With no predisposition related to sex, the disease predominantly affects female patients of 40–62 years of age [11]. Sufficient cecal mobility, bascule formation, adhesions from abdominal surgery, chronic constipation, pregnancy or prolonged immobility have been identified to be the main cause of occurrence of cecal volvulus [12].

Regarding clinical symptoms, patients may often present with intense abdominal pain, distension, constipation, nausea, and vomiting that even could cause hypovolemic shock [13]. On clinical examination, a distended abdomen could be observed, generalized tympany perceived, and a hypoactive or absence of peristaltic sounds found. On the other hand, if perforation or gangrene occurs, a patient will present with clinical findings of severe abdominal pain, with signs of peritoneal irritation and hemodynamic instability [14].

In contrast to sigmoid volvulus, for cecal volvulus, abdominal X-ray imaging has limited value, identifying in some cases air fluid levels and predominant cecum dilation, while in fewer cases the cecum is displaced into the right upper quadrant; hence, surgeons must decide whether an additional imaging study or an urgente surgical intervention is needed. Computed tomography scanning nowadays has an important role, with a sensibility as high as 90% for cecal volvulus; a swirl of mesenteric soft tissue and fat attenuation with adjacent loops of bowel surrounding rotated intestinal vessels, known as the "whirl sign," is almost diagnostic. Nevertheless, it is only present in few cases of classic volvulus. Regarding cecal bascule, Computed tomography scanning has a lower sensibility, and at least 50% of bascule diagnoses are made during exploratory laparotomy [15]. Although abdominal computed tomography scan is more reliable than abdominal radiography [16], in some cases, with the initial radiologic findings, patients could undergo emergency surgery [17].

Many researchers have documented successful colonoscopic reduction of cecal volvulus [18]. The success rate for colonoscopic reduction of cecal volvulus is only 30% and given the risk of colonic perforation colonoscopy is not recommended in the treatment of cecal volvulus. It is widely accepted that the only successful therapy for cecal volvulus is surgical intervention. Surgical options include manual

untwisting, caecopexy, caecostomy, and right colectomy by open or laparoscopic approaches [6]. If intestinal gangrenous and perforations are encountered, the non-viable bowel should be resected. In the presence of a viable bowel, detorsion and Caecopexy has been suggested as a relatively safe procedure, but it has also been associated with a elevated recurrence rate [19]. Laparoscopic techniques are being more frequently utilized to manage cecal volvulus. Several studies of laparoscopic treatment of cecal volvulus were documented [6].

CONCLUSION

Cecal volvulus should be carefully considered and ruled out in all patients exhibiting symptoms of bowel obstruction. Timely recognition and rapid management of intestinal obstruction are critical to preventing the development of peritonitis due to cecal rupture.

Informed Consent: The patient has provided informed consent.

Conflicts of Interest: The authors declare no conflicts of interest regarding the publication of this paper.

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