Cecal Volvulus Associated with Intestinal Malrotation Presenting as Postoperative Intestinal Obstruction

Arunandhichelavan Arulmolichelvan a Arjun Sivaraman a Ashok Muthukrishnan b
Departments of General Surgery, a Kasturba Medical College, Manipal University, Manipal, and b PSG Medical College, Coimbatore, India

Key Words
Intestinal volvulus · Intestinal obstruction · Intestinal disease · Congenital malformation · Malrotation of the gut

Abstract
Objective: To report a case of intestinal malrotation predisposing to cecal volvulus following nonabdominal surgery in an adult. Presentation and Intervention: A 23-year-old male with known anorectal malformation developed a postoperative intestinal obstruction following percutaneous nephrolithotomy for left renal calculus. Computed tomography of the abdomen revealed a grossly dilated cecum (9 cm) with ileocecal junction on the left side and small bowel loops on the right side of the abdomen. The patient underwent emergency exploratory laparotomy and retroperitonealization cecopexy. Bowel functions were normal at the follow-ups. Conclusion: This case highlights the importance of suspecting cecal volvulus even following nonabdominal surgery in the presence of predisposing factors.

Introduction
Cecal volvulus is a rare entity with incidence ranging from 2.8 to 7.1 per million people per year. It is responsible for 1–1.5% of all adult intestinal obstructions and 25–40% of all volvulus involving the colon [1] and is one of the modes of presentation of intestinal malrotation and abnormal fixation that commonly presents in early childhood. Cecal volvulus presenting as intestinal obstruction in an adult case of malrotation is rare. It is associated with significant morbidity and mortality because of the diagnostic delay as a result of rarity of the condition and altered anatomy [2]. Treatment and prognosis depends largely upon the viability of the dilated cecum. Surgery is the only definite treatment of the cecal volvulus.
Since there was no evidence of compromise to the vasculature, detorsion and retroperitonealization coecopexy was performed. The postoperative period was uneventful: the patient had a prolonged recovery period without complications. Follow-up after a month revealed normal status.

Discussion

Cecal volvulus is one of the known modes of presentation of intestinal malrotation. Mid-gut malrotation has been estimated to occur in approximately one in 500 live births [4]. Approximately 85% of malrotation cases present in the first 2 weeks of life [5]. In adulthood, intestinal malrotation is estimated to occur in 0.2–0.5% [6, 7]. A literature review by von Flue et al. [8] cites 40 cases from 1923 to 1992.

Since both cecal volvulus and intestinal malrotation are rare, diagnostic delay is common and hence complications occur. The possible etiologies of cecal volvulus in the patient of this report are malrotation and abnormal fixation of bowel and possible paralytic ileus following general anesthesia. Although the patient had a history of anorectal malformation, cecal volvulus was never considered as a possible cause of the intestinal obstruction. However, there was no diagnostic delay and imaging was done at the earliest sign of altered postoperative course.

Investigations commenced with plain X-ray of the abdomen, which usually shows a dilated large bowel segment with air fluid levels. Abdominal CT has become necessary for accurate pre-operative diagnosis of intestinal volvulus. The ‘whirl’ sign, intestinal twisting, and the clockwise or counter-clockwise direction of the volvulus have been well described in the radiology literature [9]. A CT scan will point out other associated abnormalities and features of malrotation such as the abnormal relationship between the superior mesenteric artery (SMA) and superior mesenteric vein (SMV) and pancreatic un-
derdevelopment or absence of the uncinate process, etc. can be achieved.

Surgery remains the main definite treatment for cecal volvulus. The best long-term results have been with resection and primary anastomosis. Isolated reports of emergency laparoscopic cecopexy have been described more recently [10].

The patient in our study had the classic whirlpool sign and transposition of superior mesenteric artery to the right of superior mesenteric vein on CT scan (fig. 2). Because there was no compromise of bowel vascularity and no associated anomalies, we performed a cecopexy.

**Conclusion**

This case clearly illustrated the importance of suspecting cecal volvulus even following nonabdominal surgery.

**References**