

## Cecal Volvulus in Elderly Patients: Diagnostic Challenges and Surgical Management. A Report of Two Cases and Review of the Literature

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### Abstract

### Case Report

Cecal volvulus is a rare cause of large bowel obstruction resulting from axial twisting of the cecum around its mesentery. Its clinical presentation is often nonspecific, which may lead to delayed diagnosis and an increased risk of bowel ischemia. We report two cases of cecal volvulus occurring in elderly female patients. The first patient presented with acute abdominal pain and biological signs suggestive of ischemia. Computed tomography revealed a cecal volvulus with features of bowel compromise, and emergency surgery confirmed cecal necrosis. The second patient initially presented with nonspecific symptoms and was treated symptomatically, leading to a delay in diagnosis. Subsequent imaging demonstrated a typical whirl sign consistent with cecal volvulus. In the first case, surgical exploration revealed a mobile cecum associated with abnormal mesenteric fixation. A right hemicolectomy with primary ileocolic anastomosis was performed in both of cases. Postoperative outcomes were favorable. Cecal volvulus remains a diagnostic challenge due to its nonspecific presentation. Computed tomography is the gold standard for diagnosis. Surgical resection is the treatment of choice, and primary anastomosis can be safely performed in selected patients, including the elderly.

**Keywords:** Cecal volvulus, right hemicolectomy, colonic torsion, laparotomy.

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## INTRODUCTION

Colonic volvulus refers to the axial torsion of the colon around its mesenteric axis, causing an intestinal obstruction that can progress to bowel ischemia [1,2]. It represents a surgical emergency whose prognosis heavily relies on prompt diagnosis and rapid management.

Cecal volvulus is a rarer entity, accounting for approximately 15% to 40% of colonic volvulus cases and 1% to 4% of all large bowel obstructions [3–5]. Classically described in younger female patients, it is increasingly reported in the elderly, often burdened with significant comorbidities [6–8].

Its pathophysiology stems from an anomaly in right colon fixation, most commonly secondary to a congenital failure of the ascending mesocolon to fuse with the posterior parietal peritoneum, thereby imparting excessive mobility to the cecum [9,10]. This anatomical predisposition may remain asymptomatic for extended periods, only manifesting when precipitated by triggers such as chronic constipation, neurological disorders, or certain iatrogenic interventions [8,11].

The clinical presentation is frequently non-specific, routinely mimicking a small bowel obstruction, which predisposes to delayed diagnosis and an increased risk of intestinal necrosis [9,10]. In this context, imaging—particularly computed tomography (CT)—plays a pivotal role, enabling a rapid and reliable diagnosis through characteristic radiological findings such as the "whirl sign" [2,12].

The management of cecal volvulus is essentially surgical; endoscopic reduction is largely ineffective and potentially hazardous [1,13]. Right hemicolectomy with primary anastomosis is currently considered the gold standard treatment [1,14].

Through two case reports of elderly female patients managed for cecal volvulus, this study aims to illustrate the diagnostic challenges, analyze predisposing factors, and discuss therapeutic strategies in light of recent literature data.

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## CASE PRESENTATIONS

### Case 1

A 71-year-old female patient, with a notable surgical history of anal prolapse repair in 2001, presented to the emergency department with acute-onset abdominal pain evolving over approximately 12 hours. Initially localized to the periumbilical region, the pain had rapidly radiated to the epigastrium. It was associated with vomiting and abdominal distension, with no initial reports of fever or altered bowel habits.

Upon clinical examination, the patient was tachycardic with marked abdominal tenderness predominantly in the epigastrium and right hypochondrium, accompanied by localized guarding. The abdomen was distended and tympanic, particularly in the supramesocolic regions.

Laboratory investigations revealed a biological inflammatory syndrome and a serum lactate level exceeding 2 mmol/L, suggesting tissue hypoperfusion.

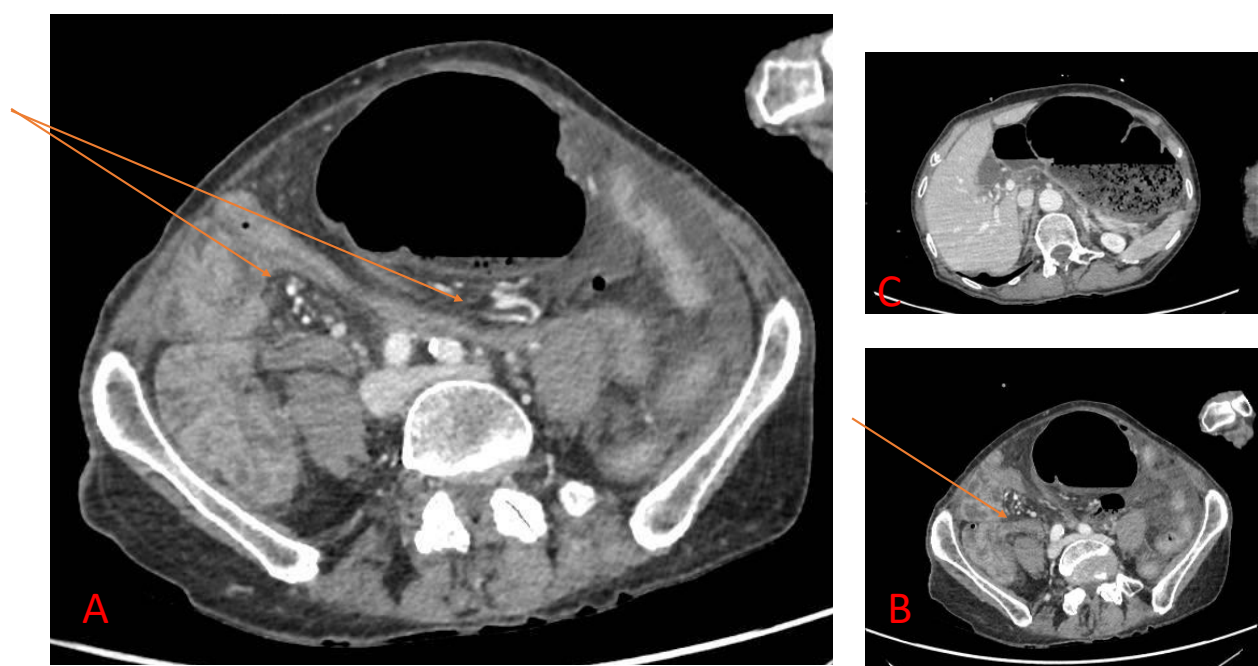
An emergent abdominopelvic CT scan demonstrated severe cecal distension (measuring 10 cm in diameter) with features highly suggestive of a volvulus complicating a mesenteric fixation anomaly. Indirect

signs of bowel wall compromise, notably mesenteric fat stranding, were present, although there was no definitive radiological evidence of frank gastrointestinal perforation (Figure 1).

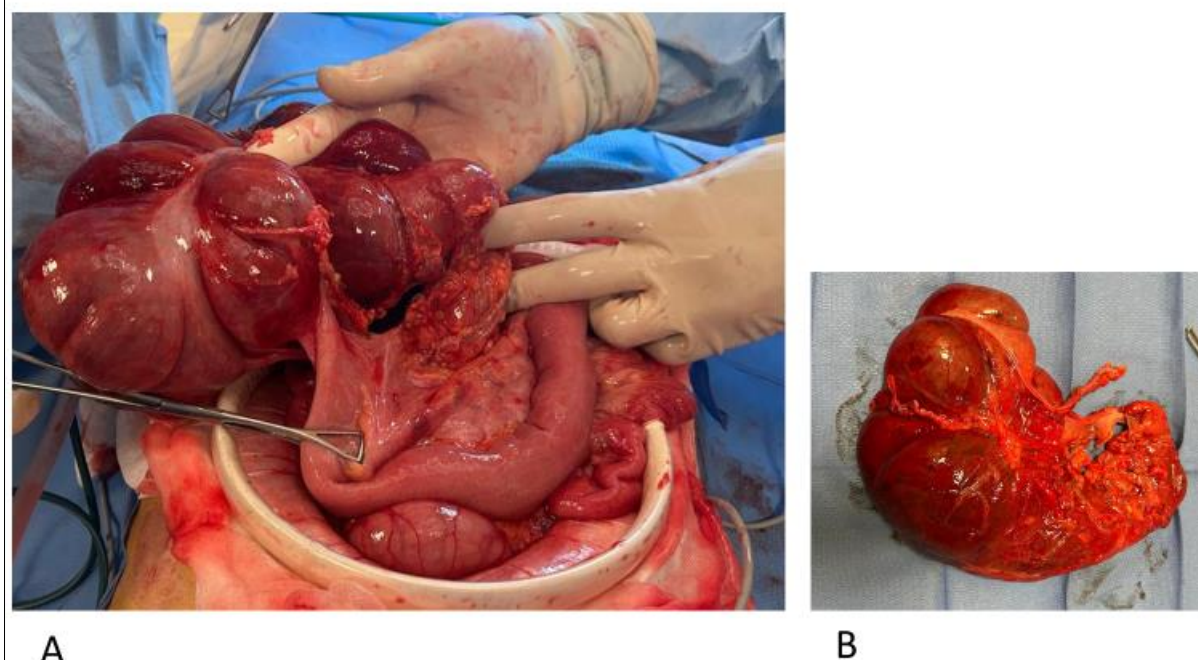
The patient underwent emergent surgical intervention via laparotomy. Intraoperative exploration revealed a moderate hemoperitoneum (estimated at 300 mL) and an ectopically positioned epigastric cecal volvulus. The cecum exhibited macroscopic signs of transmural necrosis. Following detorsion, the ascending colon appeared ischemic, whereas the remainder of the colonic frame was viable. Furthermore, an anatomical anomaly consistent with an incomplete common mesentery was identified, characterized by a short right mesocolon and hypermobile colon (Figure 2).

Given these findings, a right hemicolectomy incorporating approximately 15 cm of the terminal ileum was performed, followed by a side-to-side transverse ileocolic anastomosis achieved under satisfactory conditions.

The postoperative course was unremarkable following a brief stay in the intensive care unit. Bowel function returned within standard timeframes, allowing for safe discharge on postoperative day 7.



**Figure 1: Computed tomography (CT) evaluation of the cecal volvulus. (A and B) Axial CT images demonstrating a prominent, solitary colonic air-fluid level accompanied by the characteristic "whirl sign" (arrows). (C) Axial CT image revealing a markedly distended colon with severe wall thinning**



**Figure 2: Intraoperative findings and gross surgical specimen (Case 1). (A) Intraoperative photograph displaying a severely distended and ischemic cecum and ascending colon. (B) Macroscopic appearance of the resected right hemicolectomy specimen**

## Case 2

An 80-year-old female patient, with a medical history of Parkinson's disease and chronic heart failure, initially presented to the emergency department complaining of moderate, progressive abdominal pain over 12 hours, localized to the periumbilical and epigastric regions. The pain was associated with recent-onset constipation.

Symptomatic treatment comprising a rectal enema (Normacol®) was administered, after which the patient was discharged home.

Due to the persistence of pain and clinical deterioration—marked by the onset of obstipation, vomiting, and worsening abdominal distension—the patient represented 24 hours later.

Upon admission, clinical examination revealed tachycardia, no fever, and diffuse abdominal distension with predominant tympany. Abdominal guarding was noted in the epigastrium and right flank.

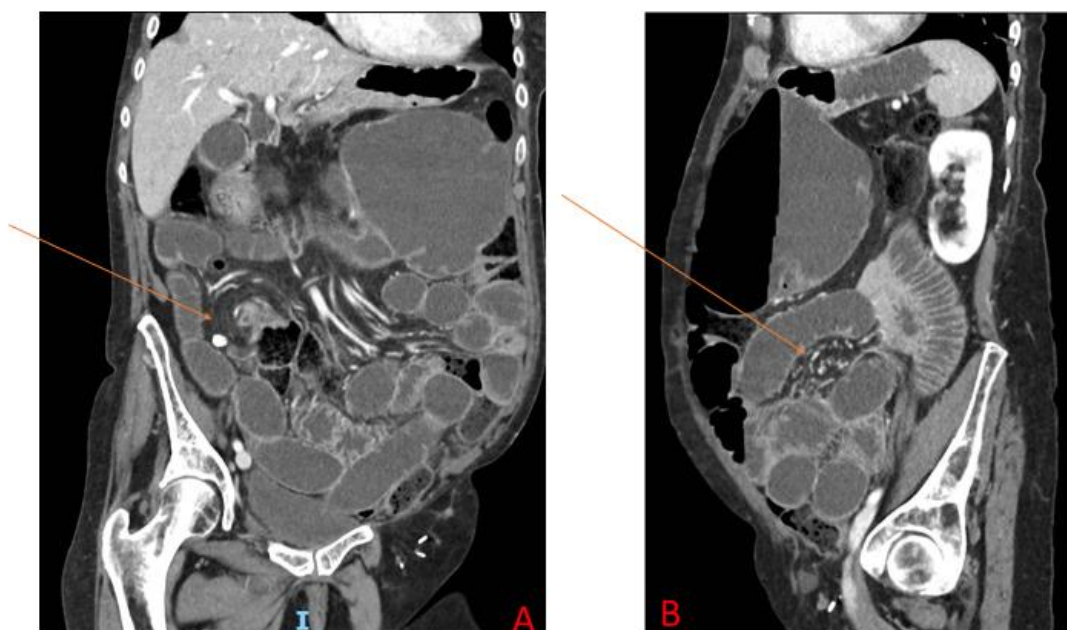
Laboratory tests confirmed an inflammatory syndrome without major metabolic derangements.

The abdominopelvic CT scan demonstrated a cecal volvulus characterized by a classic "whirl sign" at the ileocecoappendicular pedicle. Significant upstream distension of the cecum and small bowel loops was noted, with no definitive signs of necrosis or perforation (Figure 3).

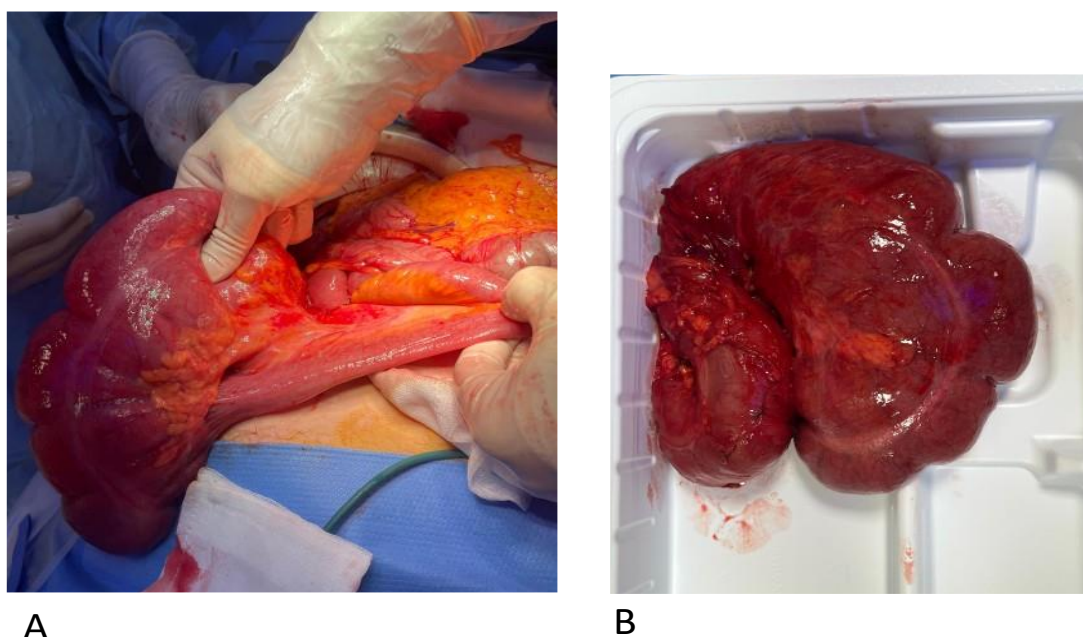
Emergent surgical intervention was indicated. Laparotomy confirmed the cecal volvulus, associated with right colonic distension and signs of moderate vascular compromise presenting as venous stasis. A small pelvic effusion was noted in the pouch of Douglas. Additionally, substantial stercoral stasis was observed, likely exacerbated by the previously administered enema (Figure 4).

Following detorsion, colonic reperfusion appeared incomplete, prompting the decision to perform a right hemicolectomy encompassing approximately 10 cm of the terminal ileum. A side-to-side transverse ileocolic anastomosis was fashioned under satisfactory conditions.

The postoperative course was favorable, with a gradual return of bowel function and discharge on postoperative day 10.



**Figure 3 : Computed tomography (CT) assessment of the cecal volvulus (Case 2). (A) Coronal CT image demonstrating a dilated and ectopically positioned right colon (located in the epigastrium, exerting a mass effect on the stomach) along with a "whirl sign" in the right flank (arrow). (B) Sagittal CT image revealing a large, singular colonic air-fluid level and the corresponding "whirl sign" (arrow)**



**Figure 4: Intraoperative findings and macroscopic specimen (Case 2). (A) Intraoperative photograph showing the massively distended cecum and ascending colon prior to resection. (B) Macroscopic appearance of the resected right hemicolectomy specimen**

## DISCUSSION

Cecal volvulus is a rare but potentially life-threatening cause of intestinal obstruction, the pathophysiology of which hinges on the interplay between an anatomical predisposition and precipitating factors. The fundamental underlying defect is the failure of the right mesocolon to fuse with the posterior parietal

peritoneum, granting excessive mobility to the cecum and ascending colon [9,10]. This anomaly, most commonly congenital, can be part of an incomplete common mesentery spectrum, as demonstrated in our first case [11–13].

However, this anatomical predisposition alone is insufficient to trigger a volvulus. Several precipitating

factors contribute to the acute torsion. Among these, chronic constipation and bowel motility disorders play a major role by increasing intraluminal pressure. Neurological conditions, such as Parkinson's disease or dementia syndromes, are similarly implicated due to their deleterious impact on intestinal motility. Finally, certain iatrogenic factors, notably the administration of laxatives or enemas, can precipitate an acute episode [8,14,15]. In this regard, our second observation starkly illustrates the potential role of an enema in clinical decompensation—a precipitant that remains insufficiently emphasized in current literature.

Clinically, diagnosing a cecal volvulus remains challenging due to the non-specific nature of the symptoms. Patients typically present with a bowel obstruction syndrome—comprising abdominal pain, vomiting, and distension—that frequently mimics a small bowel obstruction [9,10]. This deceptive presentation leads to substantial diagnostic delays, which can severely worsen the prognosis by promoting the progression toward ischemia and intestinal necrosis.

In this setting, imaging is paramount. While plain abdominal radiography is often obtained initially, it lacks specificity and frequently fails to provide a definitive diagnosis [7,16]. Conversely, computed tomography is universally considered the gold standard imaging modality owing to its high sensitivity and specificity [2,17,18]. It not only confirms the diagnosis but also assesses the severity of the bowel ischemia. The most characteristic radiological feature is the "whirl sign," representing the twisting of the mesenteric vascular pedicle, which serves as a diagnostic hallmark [17–19]. Other associated findings may include severe, often ectopic cecal distension, distal colonic decompression, and altered bowel wall enhancement indicative of ischemic compromise. In both our cases, the CT scan provided a rapid and accurate diagnosis, immediately guiding surgical management. Furthermore, the elevated serum lactate level observed in the first case provided an additional surrogate marker for bowel ischemia, reinforcing the indication for emergent surgery [17].

Unlike sigmoid volvulus, where endoscopic decompression can be proposed as a first-line maneuver, the management of cecal volvulus is essentially surgical. Indeed, endoscopic reduction is associated with a low success rate and a significant risk of iatrogenic perforation, severely restricting its indications [1,15,20]. Consequently, the cornerstone of management remains emergent surgical intervention.

The choice of the operative strategy depends on several variables, including bowel viability, the patient's hemodynamic stability, baseline comorbidities, and the degree of peritoneal contamination. Conservative surgical techniques, such as cecopexy or cecostomy, have been largely abandoned due to unacceptably high

recurrence and complication rates [20]. Currently, a right hemicolectomy with primary anastomosis is recognized as the gold standard, as it concurrently treats the acute complication and permanently prevents recurrence [1,10,20].

In both our observations, a right hemicolectomy with primary anastomosis was elected despite the advanced age of the patients. This therapeutic decision was driven by several favorable intraoperative factors, notably hemodynamic stability, the absence of diffuse stercoral peritonitis, and satisfactory local tissue conditions permitting a safe anastomosis. These outcomes align with recent literature guidelines, which suggest that a primary anastomosis can be safely performed in carefully selected patients, including the elderly, provided a rigorous assessment of operative risk is conducted [1,10]. Conversely, in cases characterized by severe sepsis, hemodynamic instability, or questionable bowel viability, a more damage-control-oriented strategy—involving stoma creation or a two-stage procedure—must be strongly considered.

Finally, our case reports provide several salient clinical takeaways. They confirm that cecal volvulus can occur in elderly and polymorbid patients, contrasting with classical textbook descriptions. They also underscore the potential role of iatrogenic factors in precipitating an acute episode. Furthermore, they highlight the critical importance of early CT imaging in the evaluation of any atypical bowel obstruction. Ultimately, they illustrate the feasibility and safety of right hemicolectomy with primary anastomosis under well-selected clinical conditions.

## CONCLUSION

Cecal volvulus is a rare surgical emergency frequently plagued by diagnostic delays owing to its non-specific clinical presentation. An abdominopelvic CT scan must be performed promptly in any patient presenting with an atypical intestinal obstruction, facilitating a rapid diagnosis via pathognomonic features such as the "whirl sign."

Management hinges on upfront surgical resection, most commonly a right hemicolectomy. A primary anastomosis can be safely fashioned in carefully selected patients, even of advanced age, provided there is strict hemodynamic stability and an absence of severe peritoneal contamination.

Heightened clinical awareness of predisposing factors—particularly iatrogenic triggers—coupled with the early utilization of cross-sectional imaging, could significantly reduce diagnostic delays and ultimately improve patient prognosis.

## HIGHLIGHTS

- Cecal volvulus is a rare and potentially life-threatening cause of bowel obstruction
- Clinical presentation is often nonspecific, leading to diagnostic delay
- CT scan is essential for diagnosis, especially with the whirl sign
- Right hemicolectomy is the treatment of choice
- Primary anastomosis is feasible in selected elderly patients

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