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Cecal Volvulus on Incomplete Common Mesentery: A Case Report

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Abstract **Case Report**

Cecal volvulus is a rare but serious cause of closed-loop colonic obstruction. Its clinical presentation is often non-specific, whereas delayed diagnosis exposes the patient to ischemia, necrosis, and perforation. We report the case of a 46-year-old woman admitted for an obstructive syndrome evolving over four days. Abdominopelvic CT performed before and after contrast administration showed marked air-fluid distension of the cecum, displaced to the left, with a reported maximal diameter of 107 mm, collapse of the remaining colonic frame, a mesenteric whirl sign, abnormal displacement of the ileal loops to the right side, suboptimal cecal wall enhancement, parietal pneumatosis, pericecal infiltration, and a small amount of intraperitoneal fluid. The overall findings were in favor of complicated cecal volvulus, probably favored by an intestinal rotation anomaly. Surgical exploration confirmed cecal volvulus on a Ladd's band, associated with incomplete common mesentery, with an ectopic cecum and pre-perforative mural compromise. This case emphasizes the importance of a methodical CT reading, integrating direct diagnostic signs, indirect signs of closed-loop obstruction, rotational anomalies, and severity criteria.

Keywords: Cecal volvulus; mobile cecum; incomplete common mesentery; Ladd's band; CT; whirl sign; parietal pneumatosis; colonic obstruction.

INTRODUCTION

Cecal volvulus corresponds to torsion of the cecum, ascending colon, and sometimes the terminal ileum around a mesenteric axis. It is a rare cause of intestinal obstruction, classically less frequent than sigmoid volvulus, but its prognosis may rapidly deteriorate in case of delayed diagnosis [1–3].

The prerequisite anatomical condition is failure of fixation of the right colon, resulting in an abnormally mobile cecum. Triggering factors, including bands, prior surgery, pregnancy, constipation, pelvic masses, or rotational anomalies, may favor torsion. In adults, the association with intestinal malrotation or a Ladd's band is rare, but it should be sought when the topography of the bowel loops is unusual [1,4,10,11].

CT is the reference examination in the emergency setting, because it confirms obstruction, identifies the volvulated segment, visualizes the torsion point, and evaluates bowel wall viability. The most useful signs are a distended and ectopic cecum, the whirl sign, the bird-beak sign, the transition point, distal colonic collapse, and signs of ischemia [4–9].

CASE PRESENTATION

The patient was a 46-year-old woman with a history of surgery for uterine fibroid, with previous histopathological examination in favor of uterine adenomyoma and endometriosis without malignancy.

The patient was admitted for an obstructive syndrome evolving over four days, associating cessation of stool and gas passage with vomiting. Laboratory tests showed an inflammatory syndrome with CRP at 106 mg/L and white blood cell count at 15,000/mm³. In view of this acute digestive obstruction, an abdominopelvic CT scan without and then with contrast injection was performed in order to specify the level of the obstruction, its mechanism, and signs of severity.

CT Analysis

The examination demonstrated a marked contrast between, on the one hand, major air-fluid distension of the cecum and, on the other hand, a globally

flat right, transverse, left, and rectosigmoid colon. The cecum was ectopic, displaced to the left, with a maximal cecal diameter of 107 mm, consistent with severe distension.

The essential direct sign was a periumbilical whirl sign, corresponding to twisting of the mesentery and vessels around the torsion point. When associated with a distended ectopic cecum and distal colonic collapse, this sign is a very strong argument for the diagnosis of cecal volvulus [4–8]. On axial images, the whirl was visible in contact with the mesenteric root, with convergence of digestive and vascular structures (Fig. 1).

The cecal distension was air-fluid, under tension, with a large fluid level and displacement toward the left hemiabdomen. The remaining colonic frame was collapsed, which favored a mechanical closed-loop obstruction rather than diffuse colonic pseudo-obstruction. The absence of comparable dilation of the downstream colon reinforced the focal and mechanical nature of the obstruction (Fig. 2).

Measurement of distension is a practical prognostic element, because significant cecal dilatation increases the risk of mural hypoperfusion and perforation. The maximal cecal diameter described on the whole examination was 107 mm. The concomitant presence of mural thinning, suboptimal enhancement, and pneumatosis had greater value than the diameter alone.

Coronal reconstructions made it possible to understand the overall anatomy: an ascended cecum displaced to the left, mesenteric convergence, a flat distal colon, and an unusual arrangement of the ileal loops toward the right. This topography was in favor of an associated intestinal rotation anomaly, explaining the discrepancy between the expected position of the cecum and its actual position (Fig. 3 and Fig. 4).

Fig. 4 particularly demonstrates the severity semiology: markedly distended cecum, tense appearance, parietal pneumatosis, and a small amount of intraperitoneal fluid. The association of lack of enhancement, pneumatosis, and fluid should lead the volvulus to be considered complicated, even in the absence of pneumoperitoneum [12,13].

The diagnosis retained at the end of the examination was that of organic colonic obstruction due to cecal volvulus, probably favored by incomplete common mesentery, with signs of digestive suffering. This conclusion was directly useful for management: it specified the mechanism of obstruction, its complicated nature, and the probable presence of an underlying anatomical anomaly.

Intraoperative Correlation

Surgical exploration found a small amount of intra-abdominal fluid and enormous distension of the cecum and right colon upstream of a cecal volvulus. The mechanism was a Ladd's band located between the colon and the abdominal wall, associated with an intestinal rotation anomaly of the incomplete common mesentery type. The entire small bowel was located on the right side. The volvulated cecum was located in the epigastric position, with mural compromise and a ghost-wall appearance, in agreement with the CT signs of severity.

The intraoperative images confirm the macroscopic translation of the signs described on CT: major distension, ectopic cecum, fixation defect, congestion, and mural compromise (Fig. 5). The right ileocolectomy specimen shows a congestive and compromised cecocolic segment, corresponding to the enhancement abnormalities and pneumatosis observed on imaging (Fig. 6).

The procedure consisted of release of the Ladd's band, detorsion, right ileocolectomy with manual end-to-end ileotransverse anastomosis, and drainage. Management was consistent with the complicated nature of the volvulus, the suspicion of mural compromise, and the risk of perforation [2,14].

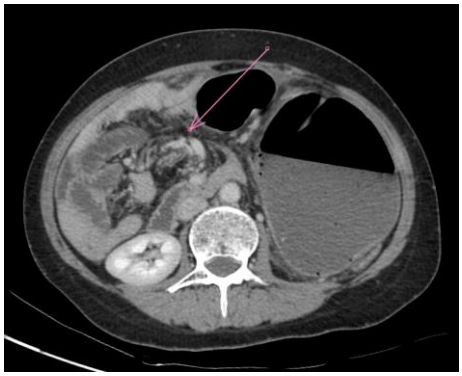

Fig. 1. Contrast-enhanced abdominopelvic CT, axial section. Periumbilical mesenteric whirl sign (arrow), reflecting twisting of mesenteric fat and vascular structures around the torsion point

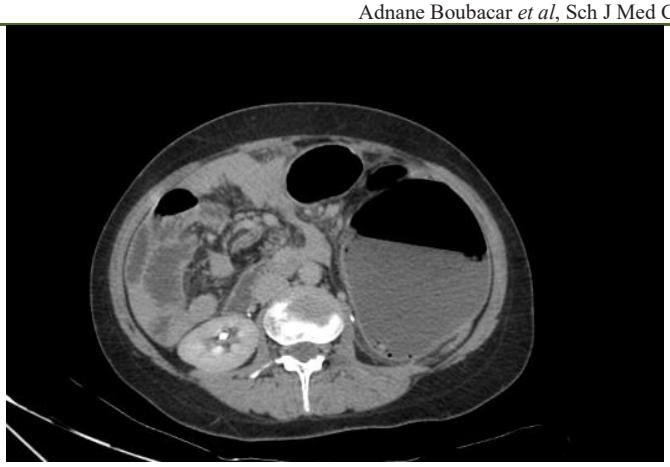

Fig. 2. Contrast-enhanced CT, axial section. Voluminous air-fluid distension of a left-sided ectopic cecum, with relative collapse of the downstream colonic segments

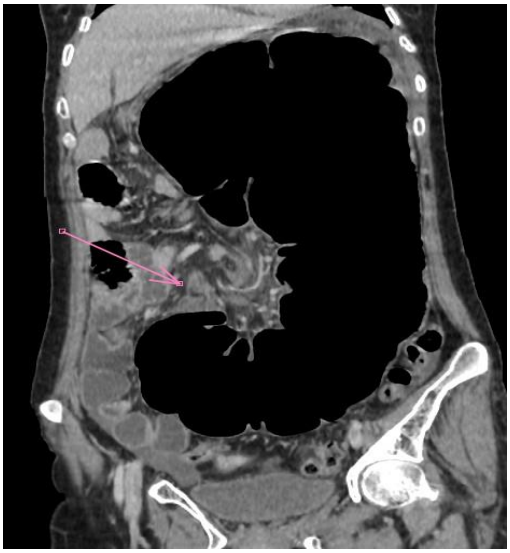

Fig. 3. Contrast-enhanced coronal reconstruction. Voluminous distended cecal loop occupying the left abdomen, with a point of mesenteric convergence and whirl sign (arrow). This plane better demonstrates the torsion axis, closed-loop distension, and collapse of the distal colon

Fig. 4: Contrast-enhanced coronal reconstruction. Very distended ectopic cecum displacing the adjacent loops, with signs of mural compromise. The absence of extraluminal air does not exclude impending perforation when the wall is thinned, hypoenhancing, or pneumatosic

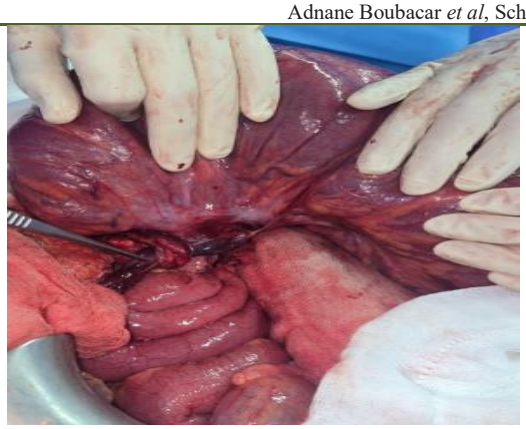

Fig. 5: Intraoperative image. Very distended, tense, and congestive cecum in an ectopic position, with fixation defect and torsion point. This view confirms the correlation between CT cecal distension, ectopia, and macroscopic mural compromise

Fig. 6: Right ileocolectomy specimen. Volvulated, congestive, and compromised cecocolic segment. The macroscopic appearance illustrates the severity of the CT signs, particularly suboptimal enhancement, pneumatosis, and reactive fluid

DISCUSSION

The clinical diagnosis of cecal volvulus is difficult, because the symptoms non-specifically combine abdominal pain, distension, cessation of stool and gas passage, nausea, or vomiting. This presentation may mimic tumor obstruction, ileus, pseudo-obstruction, or sigmoid volvulus. The main risk is therefore diagnostic delay, particularly when radiography is not typical or when the cecum is not identified as the dominant segment [1,3,14].

CT reading must first answer a simple question: which segment is the most dilated and where is it located? In our observation, the dominant segment was the cecum, but it was not in the right iliac fossa; it was displaced toward the left and the epigastrium. This cecal ectopia is a key sign. It makes it possible to differentiate cecal volvulus from left colonic obstruction, in which dilatation generally predominates upstream of a tumoral or inflammatory obstacle without a cecal mesenteric whirl [4–7].

The whirl sign is the anatomical marker of volvulus. It reflects rotation of the mesentery, fat, and vessels around the torsion axis. Its value depends on its integration with the rest of the examination: in isolation, it may be difficult to interpret; associated with an ectopic cecum, closed-loop distension, a transition point, and distal colonic collapse, it becomes highly suggestive. Recent studies evaluating several CT signs confirm the importance of combining the transition point, bird-beak sign, coffee-bean sign, and whirl sign rather than relying on a single criterion [6–9].

Multiplanar reconstructions have major practical value. Axial sections detail the wall, pneumatosis bubbles, and vascular twisting; coronal reconstructions place the cecum within the entire abdominal cavity, show ascension or lateralization of the loop, and demonstrate mesenteric convergence. In a context of malrotation, this approach is essential, because the position of the small bowel and colon may be counterintuitive. In our patient, the right-sided arrangement of the small bowel and the abnormal position of the cecum allowed correct suspicion of a rotation anomaly, which was confirmed at surgery [10,11].

Assessment of mural viability is as important as the positive diagnosis. In this case, several signs were concerning: focally suboptimal cecal enhancement, parietal pneumatosis, infiltration of the pericecal fat, and intraperitoneal fluid. Pneumatosis is not always synonymous with transmural necrosis, but in the context

of closed-loop obstruction with severe distension and enhancement abnormality, it should be considered a sign of ischemia until proven otherwise [12,13].

The differential diagnosis mainly includes sigmoid volvulus, acute colonic pseudo-obstruction, colonic tumor obstruction, reflex ileus, and some small-bowel volvuli. Sigmoid volvulus usually originates from the pelvis, with a dilated loop directed toward the upper abdomen and a mesosigmoid torsion point; cecal volvulus, in contrast, involves the cecum, which becomes ectopic and may migrate toward the left hypochondrium, epigastrium, or pelvis. In pseudo-obstruction, there is no mechanical transition point or mesenteric whirl. Recognition of the cecal segment is therefore the diagnostic pivot.

The radiologic-surgical correlation of this observation is particularly strong: CT suggested closed-loop obstruction due to cecal volvulus, a rotation anomaly, and mural compromise; surgery confirmed volvulus on a Ladd's band, incomplete common mesentery, and a pre-perforative state. In this context, the report should not be limited to the phrase "colonic obstruction." It should specify the mechanism, the location of the dominant loop, signs of torsion, clues to malrotation, signs of suffering, and the absence or presence of free perforation.

A useful formulation in practice may be as follows: "closed-loop colonic obstruction due to cecal volvulus, with ectopic cecum, whirl sign, distal colonic collapse, signs of mural compromise, and suspicion of intestinal malrotation." This synthesis immediately guides the urgency of management and avoids ambiguity with functional colonic dilatation or ileus.

CONCLUSIONS

This case illustrates the value of CT in the diagnosis, anatomical characterization, and severity assessment of cecal volvulus. The association of a massively distended ectopic cecum, a whirl sign, distal colonic collapse, abnormal arrangement of the bowel loops, and signs of mural compromise should lead to rapid diagnosis of complicated cecal volvulus. Recognition of associated incomplete common mesentery or a Ladd's band improves understanding of the mechanism and the relevance of the report.

REFERENCES

1. Consorti ET, Liu TH. Diagnosis and treatment of caecal volvulus. Postgrad Med J. 2005;81(962):772-776. doi:10.1136/pgmj.2005.035311.
2. Madiba TE, Thomson SR. The management of cecal volvulus. Dis Colon Rectum. 2002;45(2):264-267. doi:10.1007/s10350-004-6158-4.
3. Ballantyne GH, Brandner MD, Beart RW Jr, Ilstrup DM. Volvulus of the colon: incidence and mortality. Ann Surg. 1985;202(1):83-92.
4. Peterson CM, Anderson JS, Hara AK, Carenza JW, Menias CO. Volvulus of the gastrointestinal tract: appearances at multimodality imaging. Radiographics. 2009;29(5):1281-1293. doi:10.1148/rg.295095011.
5. Moore CJ, Corl FM, Fishman EK. CT of cecal volvulus: unraveling the image. AJR Am J Roentgenol. 2001;177(1):95-98. doi:10.2214/ajr.177.1.1770095.
6. Delabrousse E, Sarlième P, Sailley N, Aubry S, Kastler BA. Cecal volvulus: CT findings and correlation with pathophysiology. Emerg Radiol. 2007;14(6):411-415. doi:10.1007/s10140-007-0647-4.
7. Rosenblat JM, Rozenblit AM, Wolf EL, DuBrow RA, Den EI, Levsky JM. Findings of cecal volvulus at CT. Radiology. 2010;256(1):169-175. doi:10.1148/radiol.10092112.
8. Soliman M, Magnetta M, Salinas A, Feinn RS, Velichko YS, Miller FH, Kelahan LC. Evaluation of 18 CT signs in diagnosing cecal volvulus: a multi-reader retrospective study. Abdom Radiol (NY). 2024;49(2):357-364. doi:10.1007/s00261-023-04092-9.
9. Di Dier K, Van Dorpe J, Vanbeckevoort D. Cecal volvulus. J Belg Soc Radiol. 2022;106(1):37. doi:10.5334/jbsr.2766.
10. Ayyad MS, Alqasaby A, Rezk M, *et al.,* Cecal volvulus on top of Ladd's band: a case report and review of literature. Bull Natl Res Cent. 2025; 49:30. doi:10.1186/s42269-025-01322-6.
11. Chaker Y, Ouadi Y, Ben Rhouma S, *et al.,* A rare association of caecal volvulus and intestinal malrotation causing an acute abdomen: case report. Int J Surg Case Rep. 2021; 82:105923. doi: 10.1016/j.ijscr.2021.105923.
12. Wiesner W, Mortele KJ, Glickman JN, Ji H, Ros PR. Pneumatosis intestinalis and portomesenteric venous gas in intestinal ischemia: correlation of CT findings with severity. AJR Am J Roentgenol. 2001;177(6):1319-1323. doi:10.2214/ajr.177.6.1771319.
13. Milone M, Di Minno MN, Musella M, *et al.,* Computed tomography findings of bowel ischemia in mechanical bowel obstruction. World J Gastroenterol. 2015;21(19):5608-5615. doi:10.3748/wjg. v21.i19.5608.
14. Zabeirou AA, Belghali H, Souiki T, *et al.,* Acute cecal volvulus: a diagnostic and therapeutic challenge in emergency: a case report. Ann Med Surg (Lond). 2019; 48:69-72. doi: 10.1016/j.amsu.2019.10.021.