

# Non-operative treatment for bowel obstruction in a 37-year-old woman with common mesentery: a case report

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## Abstract

Common mesentery is a rare congenital anomaly caused by abnormal rotation of the omphalomesenteric loop during embryonic development. We report the case of a 37-year-old woman who presented with lower abdominal pain and fever. Physical examination revealed localized tenderness, and laboratory tests showed elevated inflammatory markers. Computed tomography revealed common mesentery with small bowel obstruction, and abnormal cecal positioning. There were no signs of ischemia or perforation. Conservative treatment was initiated, including nasogastric decompression, Gastrografin challenge, intravenous fluids, analgesics, and antiemetics. The patient improved clinically, tolerated

refeeding, and was discharged on day five. At three-month follow-up, she remained asymptomatic. Magnetic resonance imaging confirmed the congenital anomaly and excluded other pathological findings. This case demonstrates that non-operative management may be an effective option in stable adult patients with bowel obstruction due to common mesentery.

## Introduction

The common mesentery is a rare congenital anomaly resulting from incomplete or abnormal rotation of the primitive intestinal loop (omphalomesenteric loop) during embryonic development. While it is not always symptomatic, it can occasionally present clinically as acute bowel obstruction caused by a fibrous band or volvulus.<sup>1,2</sup> The condition is typically diagnosed with imaging studies such as Computed Tomography (CT) or Magnetic Resonance Imaging (MRI), revealing anatomical anomalies like abnormal positioning of the cecum or inversion of the mesenteric vessels.<sup>3</sup> We present a case of a patient with common mesentery who was admitted for bowel obstruction and successfully managed with non-operative treatment.

## Case Report

### Patient information

A 37-year-old woman presented to the emergency department with acute abdominal pain localized to the lower quadrants and fever. She reported progressive lower abdominal pain over the previous 48 hours, described as cramping and intermittent. The pain was not related to food intake, bowel movements, or menstruation, and she denied any associated gynecological symptoms such as abnormal vaginal bleeding or discharge. She also denied nausea, vomiting, or urinary symptoms. Her medical history was unremarkable, and she had no prior abdominal surgeries. There was no family history of inflammatory bowel disease, gastrointestinal disorders, or congenital anomalies.

### Clinical findings

On physical examination, the patient was afebrile, hemodynamically stable, and alert. Abdominal examination revealed diffuse tenderness in the lower quadrants without signs of peritonitis. Laboratory findings included: elevated C-Reactive Protein (CRP) (20.3 mg/L); normal White blood cell count ( $8.97 \times 10^3/\mu\text{L}$ ), Hemoglobin (13.1 g/dL), Creatinine (0.75 mg/dL), and International Normalized Ratio (INR) (1.09). Other parameters, including liver and kidney function tests, were within normal limits. Additional laboratory tests were performed to exclude metabolic or gynecological causes. Lactate levels were within normal limits, as well as arterial blood pH. A urine dipstick was unremarkable.

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Availability of data and materials: all data underlying the findings are fully available.

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able, with no signs of infection or hematuria. Serum  $\beta$ -hCG test was negative, excluding pregnancy (Table 1).

### Diagnostic assessment

Considering the negative serum  $\beta$ -hCG test, the patient had a contraindication to undergo a contrast-enhanced CT scan of the abdomen and pelvis as the first-line imaging modality. The CT showed incomplete common mesentery with the cecum positioned in the upper right quadrant. The superior mesenteric vein was located to the left of the artery, consistent with vascular inversion (Figure 1). Distension of small bowel loops suggested obstruction. No signs of ischemia, perforation, or thickened bowel walls were noted.

### Therapeutic intervention

Upon admission, a nasogastric tube was placed for decompression, intravenous fluids were administered, and a Gastrografin challenge was performed. Eight hours after Gastrografin administration, an abdominal X-ray was performed but the Gastrografin had not yet opacified all bowel loops. However, since the patient's symptoms had improved, in the absence of concerning blood test results, a decision was made to continue with conservative management. The following day, the patient passed stool, therefore, the nasogastric tube was removed, and oral feeding was gradually reintroduced as tolerated.

### Follow-up and outcomes

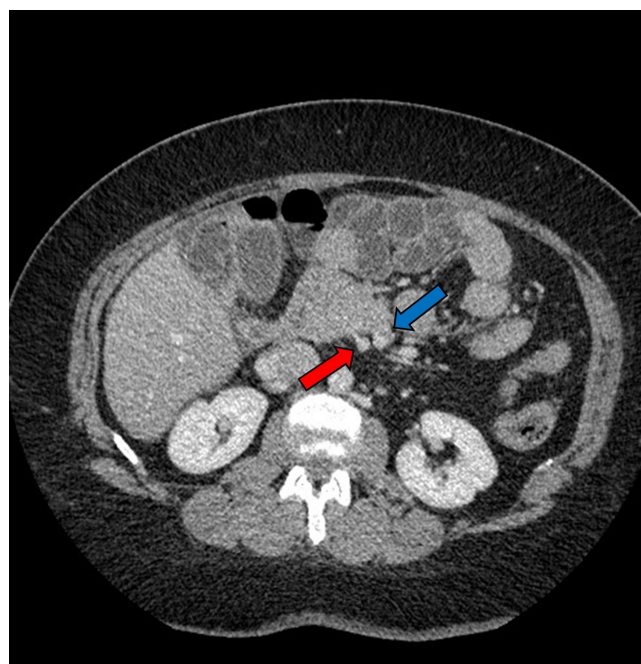
The patient was discharged after 5 days. At three-month follow-up visit, she tolerated the diet well and reported no pain or gastrointestinal problems. She remains asymptomatic with no recurrence of bowel obstruction. A digestive tract MRI confirmed incomplete common mesentery. No significant bowel thickening or pathological findings were observed. Minimal free fluid in the pelvis was deemed physiological. The study also confirmed mesenteric vessel inversion and abnormal positioning of the duodenum.

### Discussion

This case highlights the rare presentation of bowel obstruction due to common mesentery in adulthood.

The significance of this case lies in its rarity and the successful conservative management of a condition that typically requires surgical intervention.<sup>4</sup> This congenital anomaly can occasionally result in bowel obstruction or volvulus, as observed in this case. While the condition is often asymptomatic and undiagnosed, its

clinical manifestation in adulthood is exceedingly rare, with an estimated prevalence of 0.2% to 0.5%.<sup>1,5-7</sup> The clinical presentation can be highly variable, ranging from incidental findings in asymptomatic individuals to acute surgical emergencies. While many individuals remain asymptomatic and the anomaly is discovered incidentally, others may present with acute or chronic abdominal symptoms. Possible presentations include intermittent abdominal pain, symptoms of partial or complete bowel obstruction, and, in more severe cases, volvulus with signs of peritonitis.<sup>8-12</sup> This variability is due to the altered anatomical configuration, which can lead to atypical positioning of the bowel and mesenteric vessels, complicating the clinical picture.<sup>13</sup> The presence of associated anomalies, such as Ladd's bands or Meckel's diverticulum, can further obscure the diagnosis. For this reason, in patients with unexplained abdominal pain, especially when imaging reveals



**Figure 1.** Axial section of contrast-enhanced computed tomography (CT) scan of the abdomen. The image shows distended small bowel loops, suggestive of obstruction, and vascular inversion: the superior mesenteric vein (blue arrow) is located to the left of the superior mesenteric artery (red arrow), which is consistent with common mesentery. No signs of bowel ischemia, wall thickening, or perforation are visible.

**Table 1.** Laboratory values at admission and at discharge.

Parameter	At admission	At discharge	Reference range
White blood cells	8.97 x10 <sup>3</sup> / $\mu$ L	7.82 x10 <sup>3</sup> / $\mu$ L	4.0-11.0 x10 <sup>3</sup> / $\mu$ L
Hemoglobin	13.1 g/dL	13.2 g/dL	12.0-16.0 g/dL
C-Reactive Protein	20.3 mg/L	3.5 mg/L	<5.0 mg/L
Creatinine	0.75 mg/dL	0.70 mg/dL	0.5-1.0 mg/dL
INR	1.09	1.02	0.8-1.2
Lactate	1.3 mmol/L	-	0.5-2.2 mmol/L
Arterial pH	7.4	-	7.35-7.45
Urine dipstick	Negative	-	-
$\beta$ -hCG (serum)	Negative	-	Negative (non-pregnant)

abnormal bowel positioning or vascular inversion, congenital anomalies like common mesentery should be considered.<sup>14</sup> Cross-sectional imaging plays a crucial role in identifying these conditions early and guiding appropriate management.

The patient's presentation of acute bowel obstruction without signs of ischemia or perforation posed a diagnostic and therapeutic challenge. Imaging studies played a crucial role in identifying the anomaly. Contrast-enhanced CT revealed hallmark features of common mesentery, such as abnormal cecal positioning and mesenteric vessel inversion. It also showed signs of small bowel obstruction, without evidence of ischemia. This aligns with the importance of CT as the gold standard for diagnosing intestinal malrotation and related complications.<sup>1,15-17</sup>

Conservative management was chosen based on the patient's stable clinical condition, absence of alarming findings on imaging, and her progressive symptomatic improvement. Nasogastric decompression, intravenous fluid resuscitation, and a Gastrografin challenge were employed, allowing for symptom resolution without surgical intervention. This outcome underscores the potential of Non-Operative Management (NOM) in carefully selected cases, despite the rarity of such an approach in adult patients with common mesentery. Most reported cases in adults have required surgical correction, often involving the Ladd procedure to address volvulus and anatomical anomalies.<sup>1,3,15,18,19</sup>

The decision to pursue conservative management was supported by clinical improvement and the lack of laboratory or imaging evidence suggesting bowel ischemia. Symptom resolution and absence of recurrence at follow-up support the appropriateness of this approach. However, it is critical to note that conservative management should only be considered when there is no evidence of bowel compromise, as delayed treatment in cases of ischemia or total volvulus can lead to catastrophic outcomes.

From an anatomical perspective, this case illustrates the characteristic features of incomplete common mesentery, including a shortened mesenteric root and mesenteric vessel inversion, which predispose patients to complications like volvulus. While surgical intervention remains the standard of care in most cases of small bowel volvulus associated with common mesentery,<sup>15,18,20</sup> this case demonstrates that NOM can be a viable alternative in selected patients.

This case emphasizes the importance of individualized patient management and highlights the potential for successful conservative treatment in rare and complex conditions like incomplete common mesentery with bowel obstruction. It also underscores the need for awareness of this anomaly and its possible complications, even in adults, to avoid delays in diagnosis and treatment. Further studies and case reports may help refine criteria for selecting patients who can benefit from NOM, potentially reducing the need for surgical intervention in similar scenarios.

## Conclusions

Bowel obstruction due to common mesentery is a rare clinical entity in adults. This case underlines the critical role of cross-sectional imaging in both diagnosis and treatment planning, and highlights how individualized, patient-centered management can successfully avoid surgical intervention in selected cases. Advanced imaging modalities such as CT and MRI are invaluable in diagnosing and guiding the management of this condition. A multidisciplinary approach and patient-centered decision-making are essential for optimal outcomes.

## Patient perspective

The patient expressed relief and satisfaction with the conservative approach, particularly the avoidance of surgery. She appreciated the clarity of communication regarding her condition and the collaborative decision-making process.

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