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WisdomGale

CASE REPORT

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Case report: Intestinal obstruction due to a primitive band

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ABSTRACT

We report the case of a 56-year-old woman with no significant medical or surgical history, who presented to the emergency department with diffuse abdominal pain, vomiting, and an inability to pass stool or gas. On physical examination, abdominal distension, tenderness, and decreased hydroaeric sounds were noted. Abdominal Computed Tomography scan revealed significant jejunal distension, a "beak sign," and a fat notch, which was indicative of mechanical small bowel obstruction (SBO) due to a congenital fibrous band. A laparotomy confirmed the diagnosis of intestinal strangulation caused by the fibrous band, which was subsequently resected. The patient had an uneventful postoperative course. This case is unique due to the absence of any prior surgical history, highlighting that congenital fibrous bands can cause SBO even in adults without previous abdominal surgery. The key takeaway for clinicians is the importance of considering congenital fibrous bands in the differential diagnosis of SBO, particularly in patients without a history of abdominal surgery. Early diagnosis via imaging and timely surgical intervention are essential to prevent severe complications, such as intestinal necrosis.

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Introduction

Mechanical bowel obstruction is a frequent reason for emergency room visits. Adhesions, often resulting from inflammation or surgery, account for 80% of small bowel obstructions (SBOs) [1].

A congenital fibrous band, a rare condition [2], can also lead to SBO due to abnormal adhesion of the peritoneal layer [3].

This condition typically affects individuals who have never had surgery and, if untreated, may cause intestinal necrosis, posing a major diagnostic challenge.

We present the case of a patient whose bowel obstruction was caused by a congenital fibrous band.

Case Report

A 56-year-old woman, with no notable medical history and never having undergone surgery, presented to the emergency department with diffuse abdominal pain associated with vomiting and an inability to pass stool and gas. During the clinical examination, the patient presented with abdominal distension and tenderness, without the mass syndrome, a decrease in hydroaeric sounds, and an empty rectal ampoule upon palpation. A complete blood count was performed and was found to be normal. An urgent abdominal Computed Tomography (CT) scan with intravenous contrast was performed using a 16-slice multidetector scanner. Imaging was acquired in both the arterial and portal venous phases to evaluate the presence and cause of bowel obstruction. All images were de-identified and accurately labeled before being included in the manuscript. Imaging revealed a disparity in intestinal caliber, with significant distension of certain jejunal loops measuring up to 45 mm in maximum diameter, accompanied by hydroaeric levels, as well as a collapsed colon and terminal ileal loop (Fig. 1). This distension was located upstream of a tapered area of the intestine, creating a "beak" appearance with the presence of an adjacent fat notch. A small amount of intraperitoneal effusion was also noted (Fig. 2), without any defect in parietal enhancement or deep infiltration of the mesentery.

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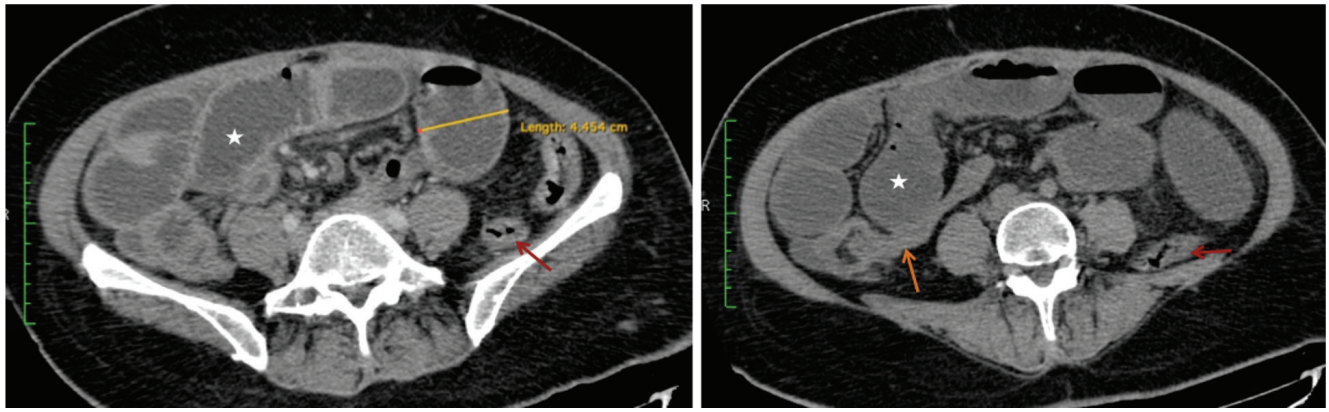


Figure 1. Abdominal CT scan, portal phase axial section demonstrating distention of the small bowel loops (white stars), with a diameter of 45 mm, showing hydroaeric levels, in contrast with a collapsed terminal ileal loop (orange arrow) and a flattened colon (red arrow).

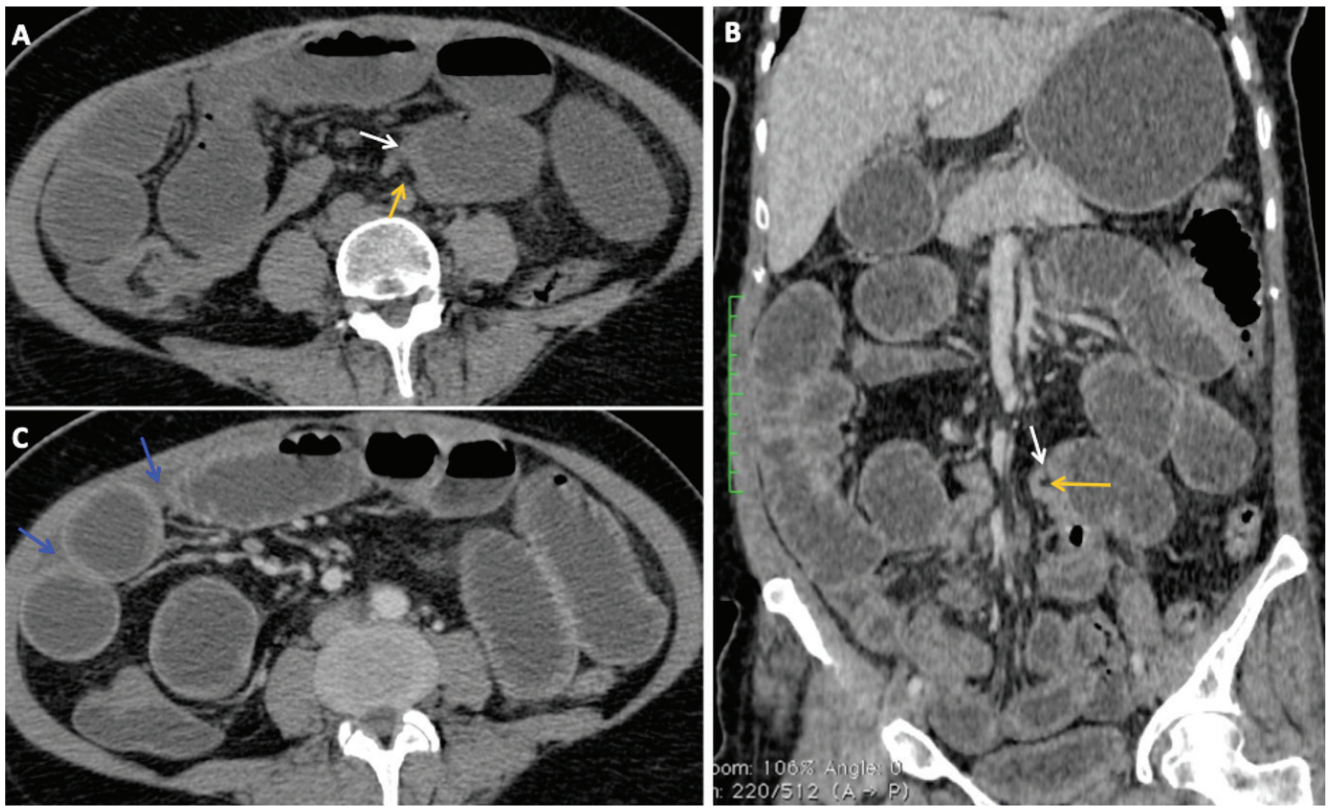


Figure 2. Abdominal CT scan in the portal phase, axial sections (A and C), and coronal section (B) showing at the transitional zone a tapered appearance of the intestinal loop forming the "beak sign" (white arrows), with the presence of a fat notch (yellow arrows). A small amount of peritoneal effusion is also noted (blue arrows).

The diagnosis of a mechanical SBO, likely due to a congenital fibrous band, was made. The "beak" appearance and the adjacent fat notch observed on the CT scan strongly suggested a mechanical SBO, likely due to a congenital fibrous band. However, other conditions, such as adhesions or internal hernias, could also present with similar features. By excluding these possibilities, particularly in the absence of mesenteric ischemia or a hernia defect on imaging, the diagnosis of a congenital fibrous band causing the obstruction was confirmed. These imaging findings, in conjunction with the patient's clinical presentation, were key to reaching the correct diagnosis. The patient underwent a laparotomy, which confirmed the presence of a fibrous cord responsible for intestinal strangulation, with signs of intestinal

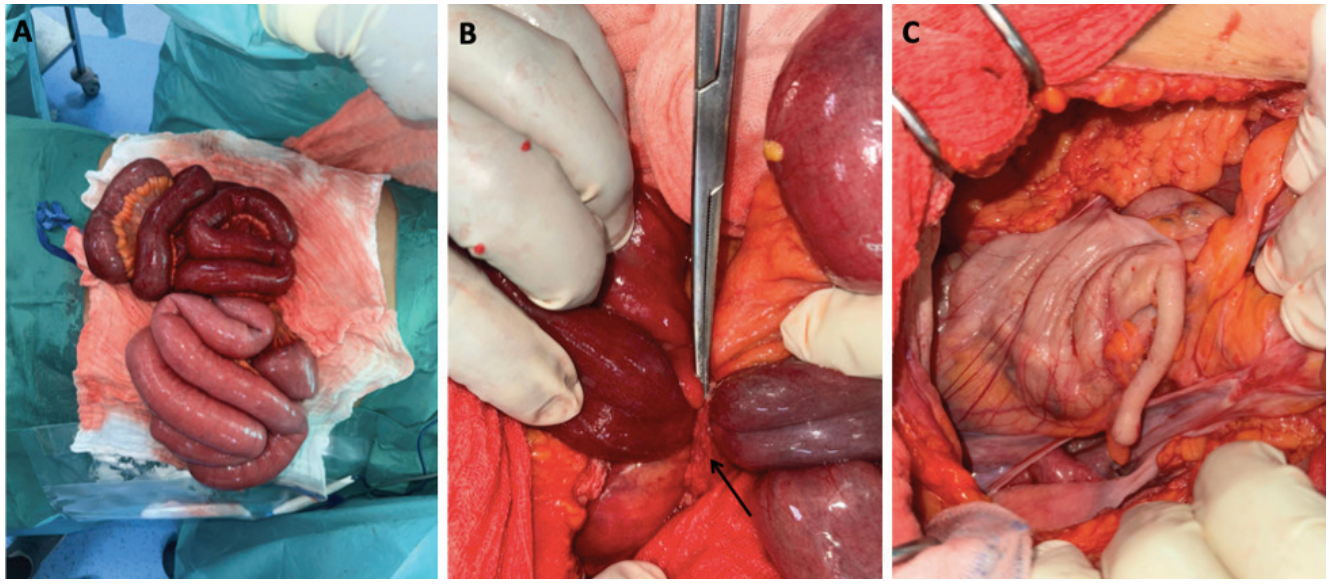


Figure 3. Intraoperative images showing a distressed small bowel (image A) upstream of a fibrous band (black arrow – image B), with a normal appearance of the cecum (image C).

distress (Fig. 3). The band was ligated and sectioned, and the postoperative course was uneventful.

Discussion

Acute intestinal obstruction, which can be either mechanical or functional in nature, is characterized by an abrupt and total cessation of the passage of gas and contents. When there is a transitional point between flattened distal bowel loops and dilated proximal loops, it is categorized as mechanical [4].

This represents a major public health concern, with over 300,000 hospitalizations and medical costs exceeding $3 billion annually in the United States [5].

Adhesions are responsible for up to 80% of SBOs and are most commonly seen in patients with a history of abdominal surgery or inflammation [1]. While rarer, they can also arise from a congenital fibrous band, a condition that is more commonly found in children than in adults [3].

This results from a failure of the peritoneal layers to fuse during embryogenesis [3,6].

This anomaly can lead to strangulation, volvulus, or obstruction due to a kink in the small intestine. It can also present as recurrent abdominal pain, often misdiagnosed as a functional pathology [2].

The clinical presentation of obstructions is primarily characterized by the "Mondor's square": vomiting, cessation of stool and gas passage, as well as abdominal pain and distension. These signs are critical in diagnosing obstructive syndrome, enabling the clinician to promptly suspect this condition. They are most commonly observed in older children or adolescents, particularly in cases of mechanical obstructions, which typically manifest with rapid onset of symptoms within a few hours.

In imaging, mechanical SBO is characterized by distension of the small intestine greater than 25 mm upstream of a transition zone, with an ileal loop downstream and a flattened colon. Identifying this transition zone is crucial for the diagnosis. To facilitate its detection, it is necessary to examine the different planes (axial, coronal, sagittal) or, when available, to look for the feces sign, which corresponds to a stony fecal mass within a dilated loop. It is essential that the loop be truly dilated for it to be considered a genuine feces sign [7]. At the level of this transition zone, the appearance of a tapered loop forming the "beak sign" is strongly suggestive of a bridle obstruction. This sign is frequently accompanied by the visualization of the loop being compressed by the bridle, leading to the formation of a fat notch, another characteristic sign of this type of obstruction [8].

Bridle occlusions represent the leading cause of digestive ischemia. For a long time, various clinical and radiological signs have been considered predictive indicators of ischemia, including wall thickening (>3 mm), mesenteric infiltration, peritoneal effusion, abnormal wall enhancement, occlusion of mesenteric vessels, mesenteric venous congestion, whirlpool sign, volvulus, closed loop, pneumatosis intestinalis, aeromesenteric fluid, and aeroperitoneum [9].

However, more recent research has shown that the combination of at least two of the following

three signs is sufficient to predict digestive ischemia and warrant urgent surgical intervention, due to their significantly higher sensitivity and specificity: absence of wall enhancement, deep mesenteric infiltration (mesenteric fluid), and closed loop obstruction [10].

It is also important to note that pneumatosis is no longer considered a reliable sign of ischemia in mechanical obstructions, due to its low sensitivity and a negative predictive value of less than 50%. In fact, this pneumatosis is often secondary to muscle tearing caused by significant intestinal distention [11].

Laparoscopic treatment is possible when the patient's general condition allows it. However, conversion to laparotomy may be required if exploration of the peritoneal cavity cannot be performed under optimal conditions, in the case of significant small bowel distension or intestinal necrosis. The surgical procedure, whether performed laparoscopically or via laparotomy, involves resecting the fibrous band and, if necessary, excising the necrotic small bowel loop [2].

Although this case clearly illustrates a rare but important etiology of SBO, it is not without limitations. Histological confirmation of the fibrous band was not obtained, which could have provided additional diagnostic certainty. Moreover, while congenital fibrous bands are rare in adults, this case emphasizes the need to include them in the differential diagnosis, especially in patients with no prior surgical history. Therefore, this case has broader clinical relevance and educational value, reminding clinicians to maintain a high index of suspicion for congenital anomalies even in adult presentations. A better understanding and early recognition of such rare causes can significantly influence patient outcomes.

Conclusion

This case emphasizes the rarity of congenital fibrous bands causing intestinal obstruction, especially in adults without a surgical history. Although more common in children, these bands can lead to serious complications in adults, including strangulation, obstruction, and necrosis, if untreated. Radiological imaging, particularly CT scans, is key in identifying characteristic signs like the "beak sign" and "fat notch," which help distinguish it from other causes of obstruction. Early diagnosis allows for prompt surgical intervention, preventing complications such as intestinal ischemia. Surgical treatment involves resecting the fibrous band and removing any necrotic bowel. This case highlights the need to consider congenital fibrous bands in the differential diagnosis of intestinal obstructions, particularly in adults without prior surgeries.

Conflict of interest

No conflict of interest is to be disclosed.

Informed consent

Written informed consent was obtained from the patient for publication of this case report and the accompanying images.

References

1. Santillan CS. Computed tomography of small bowel obstruction. Radiol Clin North Am 2013; 51(1):17–7.
2. Habib E, Elhadad A. Occlusion de l'intestin grêle sur bride congénitale chez 16 adultes. Ann Chir 2003; 128(2):94–7.
3. Akgür FM, Cahit Tanyel F, Büyükpamukçu N, Hiçsönmez A. Anomalous congenital bands causing intestinal obstruction in children. J Pediatr Surg 1992; 27(4):471–3.
4. Taourel P, Hoa D, Bruel JM. Bowel obstruction. In: Taourel P (ed.). CT of the acute abdomen [Internet], Springer, Berlin, Heidelberg, pp 273–308, 2010.
5. Scott FI, Osterman MT, Mahmoud NN, Lewis JD. Secular trends in small-bowel obstruction and adhesiolysis in the United States: 1988–2007. Am J Surg 2012; 204(3):315–20.
6. Puppala AR, Mustafa SG, Moorman RH, Howard CH. Small bowel obstruction due to disease of epiploic appendage. Am J Gastroenterol 1981; 75(5):382–3.
7. Vanderbecq Q, Ardon R, De Reviers A, Ruppli C, Dallongeville A, Boulay-Coletta I, et al. Adhesion-related small bowel obstruction: deep learning for automatic transition-zone detection by CT. Insights Imaging 2022; 13(1):13.
8. Zins M, Millet I, Taourel P. Occlusions digestives. Société Française de Radiologie, Paris, France, 2018–2019.
9. Paulson EK, Thompson WM. Review of small-bowel obstruction: the diagnosis and when to worry. Radiology 2015; 275(2):332–42.
10. Millet I, Ruyer A, Alili C, Curros Doyon F, Molinari N, Pages E, et al. Adhesive small-bowel obstruction: value of CT in identifying findings associated with the effectiveness of nonsurgical treatment. Radiology 2014; 273(2):425–32.
11. Lebert P, Ernst O, Zins M, Lanchou M, Nzamushe JR, Vermersch M. Pneumatosis intestinalis and portal venous gas in mechanical small bowel obstruction: is it worrisome? Diagn Interv Imaging 2021; 102(9):545–51.