ZDRUŽENJE RADIOLOGOV SLOVENIJE
SLOVENIAN ASSOCIATION OF RADIOLOGY

Appendiceal Intussusception as Initial Manifestation of Crohn's Disease: A Case Report

Sebastijan Krajnc, MD[1], Igor Košutić, MD, EDiR[1]

[1] *Department of Diagnostic and Interventional Radiology, General Hospital Slovenj Gradec*

ODDELEK ZA DIAGNOSTIČNO IN INTERVENCIJSKO RADIOLOGIJO

SPLOŠNA BOLNIŠNICA SLOVENJ GRADEC

INTRODUCTION

Appendiceal intussusception (or appendiceal inversion) occurs when the appendix invaginates into itself or the cecal lumen. It is an extremely rare clinical entity with an estimated incidence of 0.01% to 0.1% [1,2]. This rare condition can mimic various acute and chronic abdominal pathologies and is an important entity to recognize as it may be mistaken for a cecal neoplasm [1,3]. In adults, common pathological causes include inflammatory conditions, neoplasms, and endometriosis [2]. Its association with Crohn's disease as an initial presentation is exceptionally uncommon.

CASE DESCRIPTION

A 41-year old male patient presented to the emergency department with lower abdominal pain and vomiting. Laboratory findings demonstrated mild leukocytosis and elevated C-reactive protein levels. Abdominal ultrasound was initially performed and revealed signs of mechanical small bowel obstruction and a tubular structure inside the cecal lumen. CT confirmed small bowel obstruction with a transition point in the ileocecal region, marked wall thickening and hyperemia of the terminal ileum, and a tubular hypervascular structure within the cecal lumen consistent with appendiceal intussusception. The characteristic target sign and non-visualization of the normal appendix outside the cecal lumen represented key diagnostic findings [4,5]. Additional segmental inflammatory changes involving the small and large bowel raised suspicion for Crohn's disease.

MANAGEMENT

The patient was managed conservatively with intravenous fluids, analgesics, antibiotics, and thromboprophylaxis for small bowel obstruction secondary to ileocecal inflammation. Colonoscopy revealed severely inflamed cecal mucosa with an inverted appendix, deep erosions, and marked mural induration; the lesion endoscopically mimicked an inflammatory pseudopolyp or cecal mass. Histopathological analysis confirmed Crohn's disease of the ileocecal region without evidence of malignancy. Clinical symptoms and inflammatory markers improved without surgery. The patient was discharged with outpatient gastroenterology follow-up for further management of newly diagnosed Crohn's disease.

IMAGING FINDINGS

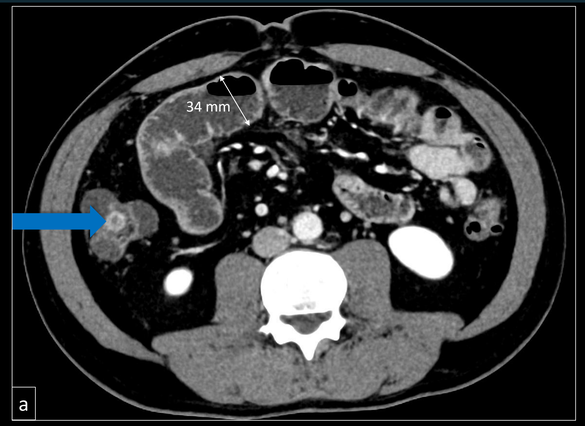
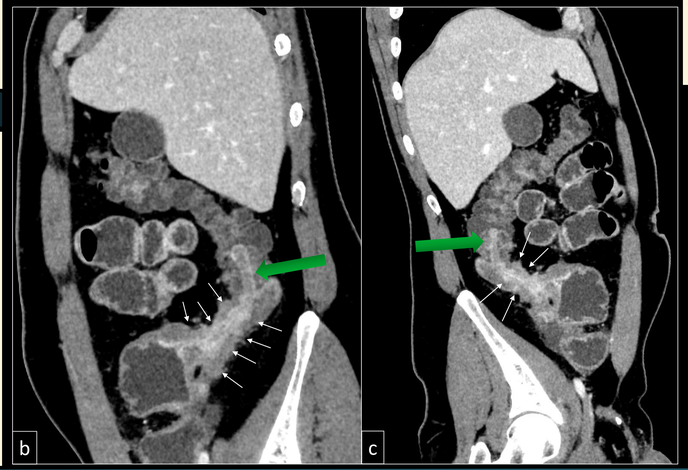


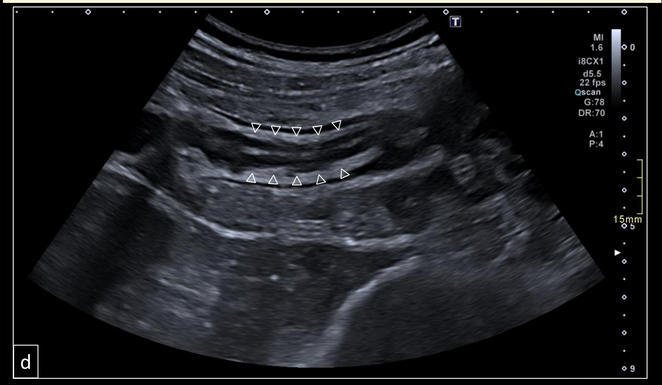
Figure 1 (a-d): Contrast-enhanced CT of the abdomen in portal venous phase axial view (a) and sagittal oblique MPR reconstructions (b and c) showing small bowel obstruction (a, white double-headed arrow), intussusception of appendix with target sign (a, blue arrow), and a tubular hypervascular structure in the cecal lumen (b, c; green arrow), as well as inflammatory changes of the small and large intestine (b, c; white single-headed arrows). Initial ultrasound demonstrated a tubular structure in the cecal lumen (d, white arrowheads).



DISCUSSION

In a comprehensive review of 191 cases, Chaar et al. found that appendiceal intussusception is more common in adults (76%) than children, with approximately 49% of patients requiring partial colectomy, underscoring the importance of excluding malignancy [2]. Its association with Crohn's disease as an initial presentation is exceedingly rare; appendiceal mucosal inflammation has been identified in only 6% of ileocolic resection specimens from Crohn's disease patients [9]. The mechanism likely involves abnormal peristalsis triggered by transmural inflammation and edema, combined with anatomical factors such as a mobile mesoappendix [1]. CT remains the most sensitive imaging modality, with the characteristic target sign and bowel-within-bowel configuration [4,5], while colonoscopy is critical for differentiating the inverted appendix from true cecal neoplasms and avoiding hazardous polypectomy [3,8]. In this case, the predominantly inflammatory nature of the obstruction allowed successful conservative management without surgical intervention [6,7].

Small bowel obstruction is the most common indication for surgery in Crohn's disease, but obstruction driven primarily by active inflammation rather than fibrostenotic disease may respond to conservative management [6,7]. In this case, the predominantly inflammatory nature of the obstruction allowed successful nonoperative treatment, with resolution of symptoms and inflammatory markers, and subsequent outpatient initiation of Crohn's disease-directed therapy. This approach is consistent with current guidelines recommending initial conservative management of inflammatory Crohn's-related obstruction in clinically stable patients [7].



CONCLUSION

Appendiceal intussusception may represent a rare initial manifestation of Crohn's disease and an unusual cause of ileocecal obstruction in young adults. This case highlights the importance of a multimodal diagnostic approach: ultrasound serves as a valuable first-line modality, particularly in children, while CT provides the most accurate characterization of intussusception and associated inflammatory changes. Endoscopic evaluation is essential for differentiation from malignant pathology and to prevent hazardous polypectomy of an inverted appendix. In clinically stable patients with predominantly inflammatory obstruction, conservative management may be successful and allow postponement of surgical treatment. Awareness of this rare association is important for clinicians to ensure timely diagnosis and appropriate management of underlying Crohn's disease.

REFERENCES

1. Birkness J, Lam-Himlin D, Byrnes K, Wood L, Voltaggio L. The inverted appendix – a potentially problematic diagnosis: clinicopathologic analysis of 21 cases. Histopathology. 2019;74(6):853-860. Available from: https://pubmed.ncbi.nlm.nih.gov/30565298/
2. Chaar CI, Wexelman B, Zuckerman K, Longo W. Intussusception of the appendix: comprehensive review of the literature. Am J Surg. 2009;198(1):122-128. Available from: https://pubmed.ncbi.nlm.nih.gov/19249733/
3. Ryu BY, Kim TH, Jeon JY, Kim HK, Choi YH, Baik GH. Colonoscopic diagnosis of appendiceal intussusception: a case report. J Korean Med Sci. 2005;20(4):680-682. Available from: https://pubmed.ncbi.nlm.nih.gov/16100466/
4. Kim YH, Blake MA, Harisinghani MG, Archer-Arroyo K, Hahn PF, Pitman MB, Mueller PR. Adult intestinal intussusception: CT appearances and identification of a causative lead point. Radiographics. 2006;26(3):733-744. Available from: https://pubmed.ncbi.nlm.nih.gov/16702451/
5. Park SB, Ha HK, Kim AY, Lee SS, Kim HJ, Park BJ, Kim YH, Auh YH. The diagnostic role of abdominal CT imaging findings in adults intussusception: focused on the vascular compromise. Eur J Radiol. 2007;62(3):406-415. Available from: https://pubmed.ncbi.nlm.nih.gov/17236733/
6. Aaron AE, Amabile A, Andolfi C, et al. Gastrointestinal Surgical Emergencies Textbook. American College of Surgeons; 2021.
7. De Simone B, Davies J, Chouillard E, et al. WSES-AAST guidelines: management of inflammatory bowel disease in the emergency setting. World J Emerg Surg. 2021;16(1):23. Available from: https://pubmed.ncbi.nlm.nih.gov/33902668/
8. Salehzadeh A, Scala A, Simson JN. Appendiceal intussusception mistaken for a polyp at colonoscopy: case report and review of literature. Ann R Coll Surg Engl. 2010;92(6):W46-48. Available from: https://pubmed.ncbi.nlm.nih.gov/20573313/
9. Mostyka M, Fulmer CG, Hissong EM, Yantiss RK. Crohn disease infrequently affects the appendix and rarely causes granulomatous appendicitis. Am J Surg Pathol. 2021;45(12):1703-1706. Available from: https://pubmed.ncbi.nlm.nih.gov/34392253/