

## Case Report

# Intussusception presents as usual epigastric pain in an adult: a case report

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Adult intussusception constitutes 5% of all cases of intussusception and 1%–5% of cases of bowel obstruction in adults. More than 90% of cases of intussusception are caused by pathologic mechanisms, such as carcinoma, polyps, or benign neoplasms. A 32-year-old woman presented to the emergency department with mild epigastric pain that progressed to moderate intensity and vomiting without peritonitis. Abdominal computed tomography (CT) was performed and showed ileoileal intussusception. Emergency surgery was arranged. This case report highlights the unusual presentation of intussusception in adult patients, such that a high level of clinical experience is needed to properly diagnose this condition. For unexplained presentations of persistent abdominal pain without signs of peritonitis, we recommend early abdominal CT scan and surgical intervention to prevent life-threatening diseases.

**Keywords:** Adult intussusception; abdominal pain; abdominal CT scan

## Introduction

Intussusception is defined as the telescoping of a segment of the gastrointestinal tract into an adjacent segment.<sup>1</sup> Intussusception is the second leading cause of intestinal obstruction leading to acute abdominal disease in children. However, adult intussusception (AI) is rare, making up only about 5% of all cases of intestinal obstruction. About 90% of cases are secondary to polyps, inflammatory lesions, Meckel's diverticulitis, appendicitis, adhesions, or malignancies.<sup>2,3</sup> The mechanism of AI is unknown. However, it is believed that any lesion in the bowel wall

or irritant within the lumen that alters normal peristaltic activity can initiate invagination.<sup>1, 3</sup> AI is an infrequent problem and often presents with nonspecific symptoms in acute, subacute, or chronic state. Therefore, initial diagnosis remains difficult in the emergency department (ED) and can influence therapeutic decisions.<sup>2</sup> Moreover, delayed diagnosis can lead to bowel ischemia. Therefore, in patients without abdominal peritonitis but with unexplained persistent abdominal pain, AI needs to be considered. Early abdominal CT scan can lead to early diagnosis of AI without morbidity or mortality.

## Case report

A healthy 32-year-old female suffered persistent epigastric pain after breakfast without trauma, reported as 3/10 on the pain scale. She had nausea and vomited several times with watery diarrhea once and mild sensation of fullness.

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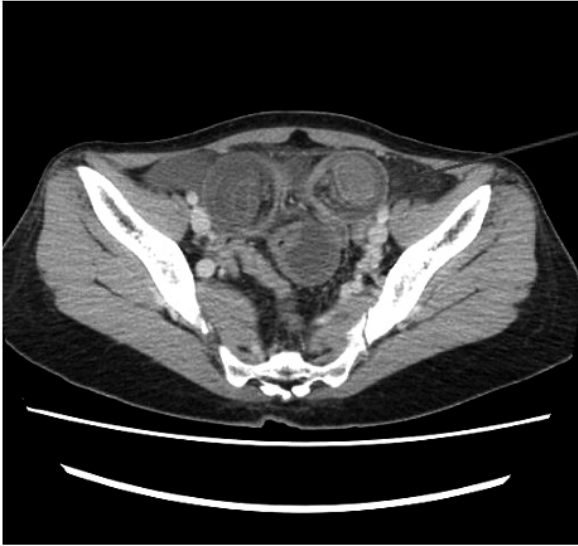


Figure. 1a Axial CT image shows multiple concentric rings with the central cylinder resulting in a target sign (arrow).



Figure. 1b Coronal abdominal CT image suggests ileoileal intussusception (arrow).

Her defecation pattern was normal. She came to the ED 4 hours later. Upon initial examination, it was noted that the patient was conscious with blood pressure 119/82mmHg, pulse rate 89 beats/min, respiration rate 22 breaths/min, and body temperature 36.5°C. Physical examination revealed soft and flat abdomen without tenderness, muscle guarding, rebounding pain or palpable mass. Her bowel sounds were normal. There was no tarry



Figure. 2a Excised specimen, opened to illustrate ileoileal intussusception.

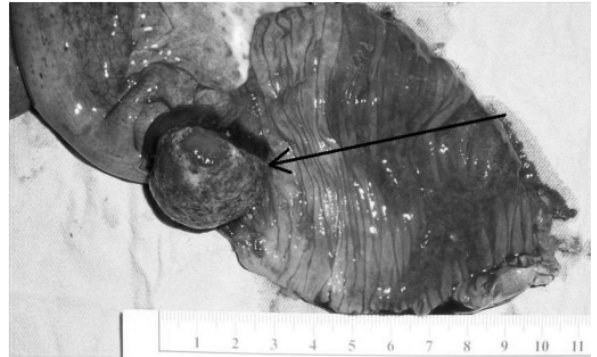


Figure. 2b Macroscopic submucosal polypoid lesion at the lead point of intussusception (arrow).

stool, dysuria, frequency, or vaginal discharge. The laboratory survey revealed WBC 7210 (segment 61%), Hb 12.4, Platelet 344000, Cr 0.5, ALT 9, Lipase 16, and Glucose 113. She was managed with supportive treatment and fluid therapy. During the period of observation in the ED, persistent epigastric pain and nausea were noted despite injection of analgesic (ketorolac). Chest X-ray and KUB were performed. Results were unremarkable without bowel obstruction, soft tissue mass, free air, or stool impaction. Although the patient had no peritoneal signs, due to persistent abdominal pain abdominal CT scan was performed which showed ileoileal intussusception (Figs. 1a and 2b). Emergency surgery was arranged. The surgical findings included segmental ileum ischemia of about 56 cm in length and a gray-whitish polypoid submucosal mass measuring 3.0 x 2.6 x 1.5 cm with

surface ulceration (Figs. 2a and 2b). Segmental resection and primary anastomosis of small bowel were performed. The pathologic diagnosis was gastrointestinal stromal tumor (GIST). She was discharged 11 days following surgical intervention. Recovery and six-month follow-up were uneventful.

## Discussion

Intussusception is uncommon in adults when compared with children. Moreover, AI often presents with nonspecific symptoms such as abdominal pain with distension. Therefore, initial diagnosis remains difficult. AI can present with subacute and chronic symptoms of intestinal obstruction to various extents. Moreover, conventional lab studies are generally non-specific. As there are many common causes of acute abdominal pain including early appendicitis, peptic ulcer disease, and pancreatitis, AI should be considered when more familiar etiologies have been ruled out.<sup>5</sup> Moreover, time is of the essence in AI management. Therefore, emergency physicians face a great challenge in early and accurate diagnosis of AI due to atypical symptoms and signs during examination in the ED. In pediatric patients, diagnosis is mainly made using ultrasound or barium-enema studies. Ultrasound is the common diagnostic tool, but AI can be masked by gas-filled loops of bowel with most cases presenting with intestinal obstruction. The preoperative diagnostic accuracy of ultrasound is about 60.0% which is not satisfactory.<sup>6,7</sup>

Barium-enema studies are not recommended as over 90% of AI cases are associated with secondary lesion.

In adult patients, CT is the main diagnostic tool, which is also helpful. A case of adult intussusception in establishing the underlying cause. Due to the ability to observe target or sausage aspect, mesenteric fat, and vessels, abdominal CT scan has been reported to be the most useful imaging technique, with a diagnostic accuracy of 58%-100%.<sup>3, 8-9</sup> CT scan should be performed in patients with persistent unexplained abdominal pain during observation in ED after initial screening of frequent etiologies and especially in those with history of lead point(s) in the intestine.<sup>3, 5</sup> We suggest that

repeated and thorough examinations and abdominal CT be arranged for patients with unexplained presentation of persistent abdominal pain without abdominal peritonitis. It is important to recognize the pitfalls of underestimating AI in patients with atypical signs and symptoms. Delayed diagnosis of AI is potentially fatal due to sepsis from bowel necrosis. Early diagnosis and management can alter the prognosis. The management of intussusception in adults differs from that of children by mostly radiological reduction. Surgical resection is recommended in cases of AI as it is associated with a lead point in up to 95% of cases. In our case, there was gangrenous portion of intestine due to pathologic lesion of GIST resulting in AI.<sup>10-12</sup> Thus, early operative treatment of AI should be considered in symptomatic or asymptomatic patients.

## Conclusion

From this case report, intussusception in adult patients can present as unexplained abdominal pain with or without peritonitis, which may be a pitfall for emergency physicians. AI should be considered when more common etiologies of acute abdominal pain have been ruled out. Repeated physical examinations, timely abdominal CT scan, and early surgical treatment can prevent life-threatening conditions.

## Conflicts of interest

None.

## References

1. Zubaidi A, Al-Saif F, Silverman R. Adult intussusception: a retrospective review. *Dis Colon Rectum* 2006; 49: 1546-1551.
2. Wiener-Carrillo I, González-Alvarado C, Cervantes-Valladolid M1, Echaverry-Navarrete D, Zubieta-O'Farrill G, Gudiño-Chávez A. Intussusception secondary to a carcinoid tumor in an adult patient. *Int J Surg Case Rep.* 2014;5:265-7.
3. Savas Yakan, Cemil Caliskan, Ozer Makay, Ali Galip Denecli, Mustafa Ali Korkut. Intussusception

- in adults: Clinical characteristics, diagnosis and operative strategies. *World J Gastroenterol* 2009 April 28; 15(16): 1985-1989.
4. Goh BK, Quah HM, Chow PK, Tan KY, Tay KH, Eu KW, Ooi LL, Wong WK. Predictive factors of malignancy in adults with intussusception. *World J Surg* 2006; 30: 1300-1304.
  5. Aref H, Nawawi A, Altaf A, Aljiffry M. Transient small bowel intussusception in an adult: case report with intraoperative video and literature review. *BMC Surg*. 2015 Apr 3;15:36. doi: 10.1186/s12893-015-0020-6.
  6. Wang N, Cui XY, Liu Y, Long J, Xu YH, Guo RX, Guo KJ. Adult intussusception: a retrospective review of 41 cases. *World J Gastroenterol*. 2009 Jul 14;15:3303-3308.
  7. Erkan N, Hacıyanlı M, Yildirim M, Sayhan H, Vardar E, Polat AF. Intussusception in adults: an unusual and challenging condition for surgeons. *Int J Colorectal Dis* 2005; 20: 452-456.
  8. Wang LT, Wu CC, Yu JC, Hsiao CW, Hsu CC, Jao SW. Clinical entity and treatment strategies for adult intussusceptions: 20 years' experience. *Dis Colon Rectum* 2007; 50: 1941-1949.
  9. Gayer G, Zissin R, Apter S, Papa M, Hertz M. Pictorial review: adult intussusception-a CT diagnosis. *Br J Radiol* 2002; 75: 185-190.
  10. Varban O, Tavakkoli A. Multiple simultaneous small bowel intussusceptions in an adult. *J Surg Case Rep*. 2012 Dec 4;2012 (11).
  11. Agha FP. Intussusception in adults. *AJR Am J Roentgenol* 1986;146:527-531.
  12. Nagorney DM, Sarr MG, McIlrath DC. Surgical management of intussusception in the adult. *Ann Surg* 1981;193:230-236.