## Case Report

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# Crohn's disease triggering ileoileal intussusception in an adult

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#### **ABSTRACT**

Intussusception is defined as the telescoping of a segment of the gastrointestinal tract (intussusceptum) into an immediately adjacent distal bowel (intussuscipiens), causing venous congestion, edema, and blood supply reduction. Adult intussusception is a rare entity which can be with or without lead-point. Cases without lead-point frequently occurs in children or adults with celiac disease and Crohn's disease and with lead point is caused by an underlying neoplasm, benign or malignant frequently presenting with bowel obstruction and acute abdomen. A 41-years-old male presented to our outpatient clinic with a history of recurrent abdominal pain. The clinical presentation and CT scan findings led to the diagnosis of ileoileal intussusception. Subsequently he underwent laparotomy which revealed an ileal intussusception, which was investigated and was found to be of Crohn's etiology.

**Keywords:** Intussusception, Bowel obstruction, Crohn's disease

## INTRODUCTION

Crohn's disease is a chronic granulomatous inflammatory disease of the gastrointestinal tract, which can involve almost any segment of bowel from the mouth to the anus. Crohn's disease in its earliest stage, causes superficial erosions in the small intestine, which as the disease progresses, they become larger and deeper, generating points of stenosis as a lead point, the lead point is pulled forward by normal peristalsis, telescoping or prolapsing the affected segment of bowel (intussusceptum) into another segment of bowel (intussuscipiens) for the genesis of intestinal intussusception.<sup>1</sup>

Invagination of a bowel loop with its mesenteric fold into the lumen of an adjacent part of the bowel is termed intussusception. There is reduction in venous drainage of the mesentery, leading to venous congestion and tissue edema, compromising peristalsis, and regular intestinal transit. If untreated, bowel ischemia, necrosis and finally perforation can follow. The association of intestinal obstruction due to intussusception is more commonly seen in pediatric age group which is rare and uncommon in Adult intussusception (AI) approximately 5% of all intussusceptions and it accounts for 1-5% of all adult intestinal obstructions. <sup>2,3</sup> We describe an unusual case of acute intestinal obstruction due to ileoileal intussusception as an initial manifestation of Crohn's disease.

### **CASE REPORT**

A 41 years male patient presented with complaints of pain abdomen since one week on and off colicky type non radiating, with fever for five days and was associated with non-projectile, non-bilious vomiting four episodes per day for past three days and was not constipated. After admission he had two episodes of passage of bright red blood in stools. He had underwent ESWL with stenting for right ureteric calculi 1 year back.

On examination he was febrile with signs of pallor was noted. Abdomen was soft, tenderness noted in right hypochondriac, lumbar and iliac, ill-defined mass noted in right hypochondrium, bowel sounds were present. Per rectal examination was normal and was not blood stained. Hematological investigations revealed Hb of 6.7 g/dl, WBC of 5660 cells/cumm. Erect abdomen X-ray revealed multiple air fluid levels (Figure 1). USG abdomen showed thickening of bowel in right iliac fossae suspicion of intussusception. CECT abdomen showed target sign of ilio-ileal intussusception (Figure 2). He was resuscitated with IV fluids and three pints of PRBC was transfused after stabilization he was taken up for laparotomy which showed normal large intestine, small intestine was traced showed iliolieal intussusception (Figure 3) 30 cm proximal to ilieocecal junction, 40 cm long resection with end to end isoperistaltic anastomosis was carried out. Post-operative period was uneventful, he was discharged on the fifth postoperative day and is on regular follow-up. Gross appearance showed cobblestone mucosa with ulcer (Figure 4). Microscopy shows patchy ulceration of ileal mucosa extending into submucosa with dense transmural acute inflammatory infiltrate (Figure 5).



Figure 1: Erect X-ray abdomen.

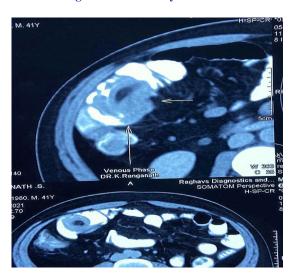


Figure 2: Arrow head showing target sign in axial CT scan.

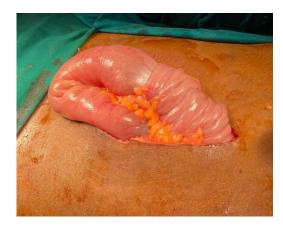


Figure 3: Ileal intussusception.



Figure 4: Arrow head showing cobble stone pattern with ulcer.

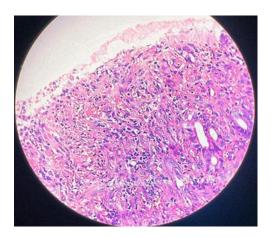


Figure 5: Microscopy of specimen.

## **DISCUSSION**

Paul Barbette described Intussusception in 1674, and the term 'intussusception' was coined by Scottish surgeon James Hunter in 1793.<sup>4,5</sup> Intussusception is common in infants between the age of 5 and 18 months, with an incidence from 15 to 300/100000 children <1 year of age per year worldwide.<sup>6</sup> Intussusceptions are rare in adults, with an incidence of 2/1000000 cases per year worldwide.<sup>8</sup> The mean age of intussusception in adults is 50 years with no gender predominance. Identifiable etiology is noted in

about 90% of cases.<sup>9</sup> Adult intussusceptions, majority arise from the small bowel, and the lead-point is usually a benign condition such as adhesions, strictures, Meckel's diverticulum, inflammatory bowel disease, and benign tumors (lipomas and leiomyomas).<sup>8,10,11</sup> Sometimes, the leadpoint may be a malignant lesion, most commonly metastatic lesions (from melanoma, breast, and lung), colonic adenocarcinoma and lymphoma. Other infrequent malignant causes associated with small bowel intussusception include gastrointestinal stromal tumors (GISTs), malignant fibrous histiocytomas, carcinoid tumors, neuroendocrine neoplasms, and leiomyosarcomas (LMSs).<sup>12</sup>

The clinical presentation can be non-specific because of its no characteristic signs and symptoms. Intussusception is the cause of 1-5% of bowel obstruction cases in adults.<sup>13</sup> The most common presenting symptom is abdominal pain with bowel obstruction signs. Other common symptoms are abdominal mass, fever, bowel perforation, and gastrointestinal (GI) bleeding. 14 Symptoms presentation is typically acute, with longer onset in large bowel than in small intestine.<sup>15</sup> Laboratory tests shows elevated white blood cell count and nonspecific inflammatory markers increase, such as high C-reactive protein. Radiological images help in the differential diagnosis. Ultrasonography is often used suspected and he classic features include the 'target and doughnut sign' on transverse view and the 'pseudokidney sign' in longitudinal view. There are limitations in sonogyaphy in cases of obstruction that is operator dependency and difficulty in image interpretation in presence of air. 6,20

The pre-operative diagnostic accuracy of ultrasonography is 78.5%. In cases of palpable abdominal mass, the diagnostic accuracy of ultrasonography is even better 86.6%.6 CT scan has the diagnostic accuracy of 58-100% and a specificity of 57-71% and the most useful modality. 6,20 The CT findings of intussusception are a mass-like lesion, including the inner intussusceptum, an eccentric fat density mass that represents the mesenteric intussuscepted fat, and the intussuscipiens, and this appears as a 'target' or a 'sausage' mass according to imaging plane.4 CT reveals the site, level, and cause of intestinal obstructions and in indicating possible bowel ischemia. Additional information, such as metastasis or lymphadenopathy are also noted.<sup>6</sup> In view of the uncertain etiology and diagnosis and high incidence of malignancy (approaching 50%), the treatment of intussusception in adults is invariably surgical resection. However, the extent of bowel resection and the manipulation of the intussuscepted bowel during reduction remain controversial.8,15 About 15-20% of cases are due to conditions other than tumor growth which includes Crohn's diseases which is a chronic granulomatous inflammatory disease that may involve any part of the alimentary tract, which most commonly affects ileum.<sup>1</sup> The granulomas can be either necrotizing or nonnecrotising. Necrotising granulomas in due course of time lead to small ulcerations of the affected bowel causing

scarring and thickening of bowel segment. Necrotising granulomas, bowel wall thickening, submucosal edema, bowel wall abscess and pseudopolyps are some reason for hypothesis which is responsible for intussception to most commonly affect ileum in patients with Crohn's diseases.

Approximately 70% of patients with Crohn's disease will require operative intervention and of these patients 50% will require a second operation. There are chances of developing short bowel syndrome due to repeated resection of intestine. Operative reduction is preferred in patients with Crohn's disease over primary resection in the absence of any pathologic entity or strangulation. In our patient we noted lead point and in suspicion of malignant pathology resection of the bowel was done.

#### **CONCLUSION**

Intussusception is a rare event noted in adults. Crohn's disease can present as an episode of intussusception due to altered peristalsis of intestine because of inflammation, transmural edema and spasm. In all cases, the diagnosis must be made with an adequate physical examination, clinical history and exact etiology can be confirmed with CT scan, as it has a high sensitivity and specificity when compared to ultrasound. Regarding treatment, this must be individualized according to the diagnostic suspicion and intraoperative findings. Early exploration helps to preserve the length of intestine by avoiding necrosis and thereby reducing morbidity.

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