

A Hidden Culprit: Infantile Ileocolic Intussusception Secondary to Abdominal Tuberculosis

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Case Report

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Abstract

Intussusception remains the most common cause of intestinal obstruction in infants, typically idiopathic and viral in etiology. However, in rare cases, underlying pathological lead points may be implicated, including infections such as tuberculosis. We report a rare case of a six-month old female infant who presented to the pediatric emergency department with signs of acute intestinal obstruction, including abdominal distension, bilious vomiting, and lethargy. A preoperative ultrasonographic diagnosis of ileocolic intussusception was made, prompting urgent surgical intervention. Intraoperative findings confirmed the diagnosis, and a segment of bowel was resected due to ischemic changes and suspicion of a pathological lead point. Histopathological examination of the specimen revealed two distinct pathological features: (1) multiple caseating epithelioid granulomas with Langhans-type giant cells, and (2) transmural lymphoplasmacytic infiltrate, both highly suggestive of abdominal tuberculosis. To the best of our knowledge, this is the third case reported worldwide of abdominal tuberculosis presenting as intussusception in an infant. Such presentations are exceptionally rare and pose significant diagnostic challenges, especially in non-immunocompromised hosts without overt systemic signs of tuberculosis. This case highlights the importance of considering abdominal tuberculosis as a differential diagnosis for intussusception in infants, especially in endemic regions, to facilitate timely diagnosis and management.

Introduction

Intussusception is a common cause of intestinal obstruction in infants, typically presenting between 4 and 10 months of age. ^[1] In India, although the overall incidence is lower than in high-burden countries like South Korea, regional variations and seasonal clustering are frequently reported. ^[1] Notably, tuberculosis, though rare in this context, has been recognized as an underlying cause in some pediatric intussusception cases, especially in endemic settings. ^[2] Intussusception refers to the invagination of a proximal intestinal segment (intussusceptum) into an adjacent distal segment (intussusciens), most often at the ileocecal junction. This leads to impaired venous outflow, mural edema, and may result in transmural ischemia, necrosis, and perforation if not managed promptly.

Epidemiologically, the incidence ranges between 1 to 4 per 1,000 live births, majority within the first year of life. ^[3] Ileocolic intussusception is the most common anatomical variant, seen in nearly 90% of pediatric cases. ^[4] While idiopathic cases are most prevalent in infants, pathologic lead points are identified in approximately 25% of cases ^[5], more commonly seen in older children with intussusception, often due to Meckel's diverticulum, enteric duplication cysts, or lymphoid neoplasms such as lymphoma. ^[6] In adults, a pathological cause is found in most cases, including benign and malignant tumors. ^[7, 8] Tuberculosis may involve the ileocecal area via Peyer's patch hyperplasia or mesenteric lymphadenitis both of which may serve as potential lead points for intussusception. ^[7, 8]

Case Report

A six-month old female infant was brought to the pediatric emergency department with a history of progressive abdominal distension, hematochezia, and multiple episodes of bilious vomiting since 4–5 days. The mother also reported poor feeding, lethargy, and high-grade fever. There was no family history or past history of Tuberculosis. On examination, the infant appeared irritable, with tachycardia and oxygen saturation of 94% on nasal prongs. The abdomen was markedly distended and diffusely tender. Rectal examination revealed blood-stained stool.

Initial management included bowel rest, nasogastric decompression, intravenous fluids, and empiric antibiotics. Abdominal ultrasonography revealed a 4–5 cm long segment of intussusception in the left lower quadrant and pelvis, consistent with ileocolic intussusception. (Fig. 1) Distended loops (up to 2.5 cm), bowel wall edema with preserved vascularity, mesenteric lymphadenopathy (7–8 mm), and moderate ascites were also noted, suggestive of subacute intestinal obstruction (SAIO).

Exploratory laparotomy was performed due to persistent symptoms and concerning imaging findings. Intraoperatively, ileocolic intussusception with gangrenous involvement of the terminal ileum, ileocecal junction, and proximal ascending colon was noted. Segmental resection with double-barrel stoma formation was performed; the appendix was also excised.

The resected bowel segment and appendix were received in the Pathology department for histopathological examination. Gross examination of the specimen showed a telescoped 5 cm bowel segment with congested mucosa and gangrenous changes. (Fig. 2)

On microscopic examination multiple epithelioid cell granulomas with central caseous necrosis along with Langhans type giant cells were seen within the submucosa of the bowel and the appendix which are hallmarks of tuberculous inflammation. (Fig. 3a & 3b) Microscopy of the resection margins showed viable mucosa and chronic inflammation. CBNAAT (Cartridge based nucleic acid amplification test) of gastric aspirate confirmed the presence of *Mycobacterium tuberculosis*. The diagnosis of tuberculous ileocolic intussusception was thus established and the child was further managed accordingly.

Discussion

While intussusception is a common cause of intestinal obstruction in infancy, its association with abdominal tuberculosis is exceedingly rare. To date, only two cases have reported TB as the lead point in infantile intussusception. ^[9, 10] The peak incidence of intussusception in infants occurs between 5 to 7 months of age, aligning with this patient's age. ^[11]

Classically, intussusception presents with episodic abdominal pain, bilious vomiting, and currant jelly stools. However, the full triad—abdominal pain, palpable mass, and bloody stool is seen in only 7.5–40% of cases. ^[12, 13] Ultrasonography remains the diagnostic modality of choice, with hallmark features such as the “target sign” on transverse view and “pseudokidney sign” on longitudinal scan. ^[12, 14]

Non-operative reduction using air or contrast enema is first-line in stable patients, with success rates up to 90%.^[15] However, surgical intervention is warranted when there is evidence of bowel compromise, prolonged symptom duration, or failed enema reduction.^[16] Delayed treatment of intussusception in infants can lead to bowel necrosis, perforation, or sepsis, with some requiring extensive resection and risking short bowel syndrome and nutritional deficiencies.^[17] In the present case also surgical intervention was done for the abovementioned reasons.

Conclusion

This case emphasizes a rare but important etiology of intussusception in infants: Abdominal Tuberculosis. In TB-endemic areas, pediatric patients presenting with acute abdomen should be evaluated with a high index of suspicion for tuberculosis, particularly when imaging or histology reveals lymphadenopathy or granulomatous changes. Prompt surgical and medical management is critical to ensuring favorable outcomes.

Declarations

Author Contribution

First author Arushi -Prepared text
Second author Neelam Sahani -Prepared images
Third author Sufian Zaheer- reviewed text
Fourth and Corresponding author Sristi Barman-verified references

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Figures

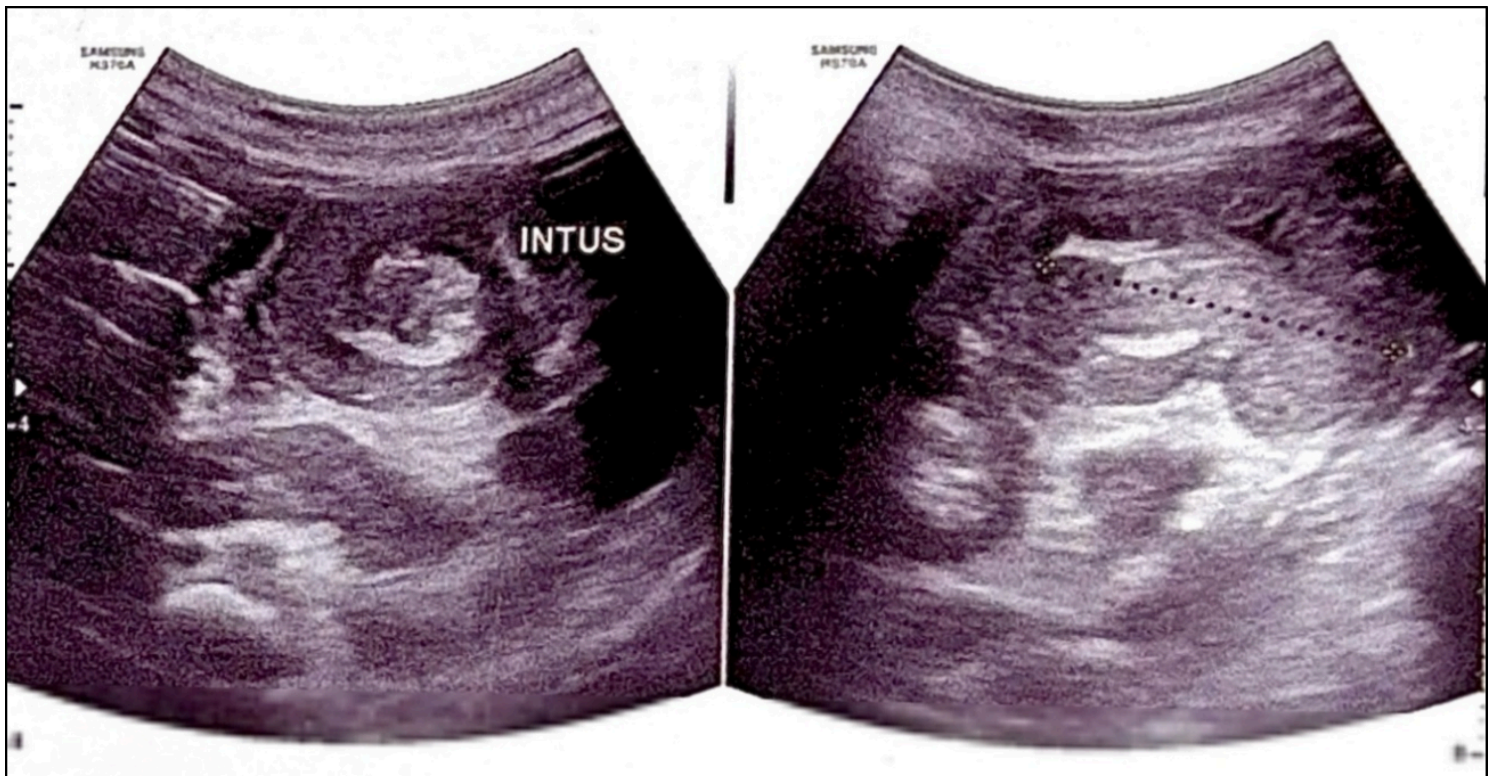


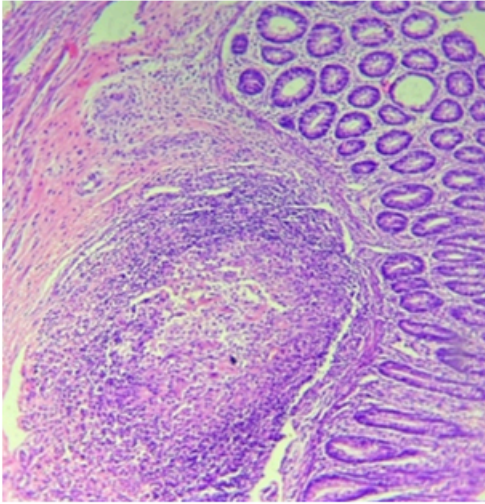
Figure 1

Ultrasonogram of abdomen, showing intussusception in left lower abdomen and pelvis with SAI0.

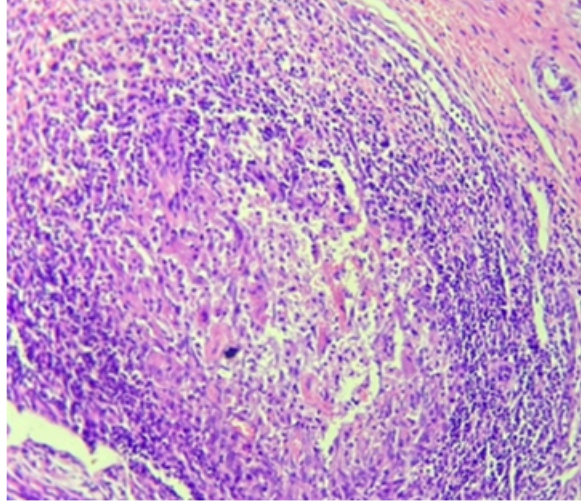


Figure 2

Gross specimen of resected bowel showing telescoped segment with congested mucosa and gangrenous changes.

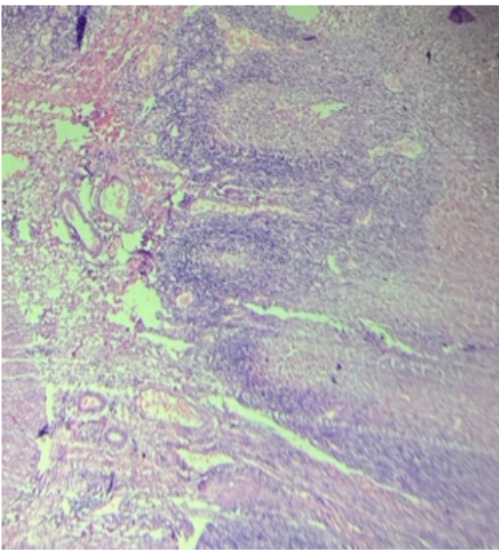


Appendix showing epithelioid cell granuloma (10X)

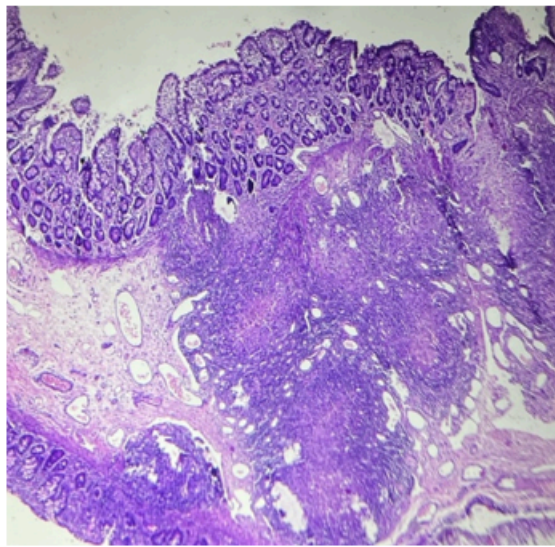


Epithelioid cell granuloma (40X)

(a)



Areas showing caseous necrosis within bowel wall (10X)



Multiple coalescing Necrotising Epithelioid cell granulomas in bowel wall (10X)

(b)

Figure 3

(3a & 3b): Appendix and Intestinal wall showing epithelioid cell granuloma.