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CASE REPORT

# Intestinal tuberculosis and Crohn: A clinician's diagnostic dilemma

**Seema Pavaman Sindgikar** [a,*], **Rathika Damodar Shenoy** [a], **Vijaya Shenoy** [a], **Raghu Shankar** [b]

[a] *Department of Pediatrics, K. S. Hegde Medical Academy, NITTE University, Mangalore, India*
[b] *Dept. of Pediatric Surgery, K. S. Hegde Medical Academy, NITTE University, Mangalore, India*

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Comb sign;
Inflammatory bowel disease

**Abstract** A 12 year old girl with altered bowel habits, hematochezia and growth failure was evaluated for intestinal tuberculosis and inflammatory bowel disease and was ultimately diagnosed to have Crohn disease. This case is being reported to highlight the difficulty in differentiating inflammatory bowel disease from gastrointestinal tuberculosis in Asia Pacific region.



## Introduction

Increasing trend in the incidence of pediatric-onset inflammatory bowel disease (IBD) from different parts of the world and especially Eastern countries including India has been reported recently.[1,2] Because of the frequent occurrence of infectious diseases like tuberculosis of gastrointestinal system and the overlapping features of IBD and intestinal tuberculosis (ITB), diagnosis of Crohn disease (CD) becomes challenging. Clinical presentation, epidemiology, radiology, histology and response to treatment continue to be the key to differentiate these two conditions. We report the delay in the diagnosis of CD in a child with gastrointestinal complaints and growth failure.

## Case report

A 12 year old girl presented with history of alternating diarrhea with constipation and bleeding per rectum since 4 years of age. There was loss of appetite, recurrent pain in the abdomen and non-bilious vomiting for past 6 months and failure to gain weight. There was no history of contact with tuberculosis. On the basis of ultrasonogram abdomen showing ileal thickening, growth failure she was prescribed anti-tuberculous treatment (ATT) elsewhere 1 month back. However the complaints persisted. There were no urinary symptoms, rash, fever or arthritis. There was no history of chronic gastrointestinal illness in the family. Examination showed that weight and height were below third centile and there was pallor, symmetric pedal edema, pan digital clubbing, angular stomatitis, glossitis and ichthyosis over limbs. There was tenderness in right iliac fossa. No mass or hepatosplenomegaly. Perianal fissures were present. Other systems were within normal limits.

* Corresponding author at: Department of Pediatrics, K. S. Hegde Medical Academy, NITTE University, Derlakatte, Mangalore 575018, Karnataka, India. Tel.: +91 09741511245; fax: +91 08242204016.
E-mail address: drseema2482@rediff.com (S.P. Sindgikar).

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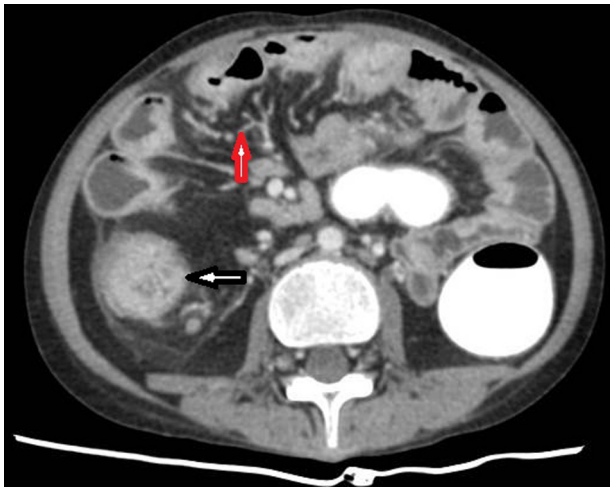

**Figure 1** CECT abdomen showing increased mesenteric vascularity: comb sign (red arrow), mesenteric lymphadenopathy and long segment stricture with mural thickening of terminal ileum and ileocaecal junction (black arrow).

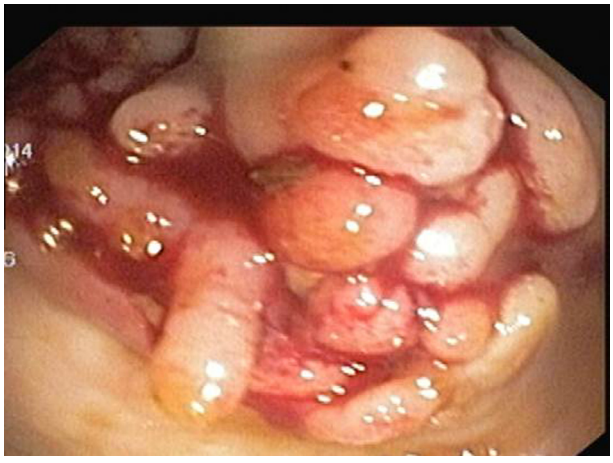

**Figure 2** Colonoscopy showing multiple pedunculated polyps and bleeding spots.

Investigations showed hypochromic microcytic anemia, polymorphonuclear leukocytosis, thrombocytosis, elevated acute phase reactants (APR) and hypoalbuminemia. Stool occult blood was positive. Stool and urine microscopy were normal and stool culture negative. Renal and liver function test were normal. Serology for HIV was negative. Chest radiograph was normal. Computed tomography (CT) abdomen with contrast revealed circumferential long segment (6 cm) thickening of terminal ileum, ileocaecal junction and ascending colon causing irregular narrowing of the lumen with pericolonic fat stranding, increased mesenteric vascularity; comb sign (Fig. 1), multiple enlarged mesenteric and para-aortic lymph nodes with minimal ascites. Colonoscopy showed multiple pedunculated polyps with luminal narrowing in hepatic flexure and bleeding spots in splenic flexure (Fig. 2). Histopathology of mucosal polyp showed non-caseating granulomatous inflammation with round cell infiltrate in lamina propria. Acid fast bacilli (AFB) staining was negative.

Serology was positive for IgG anti-*Saccharomyces cerevisiae* antibody (ASCA) (46.68; normal < 20 units). Based on the imaging, colonoscopy, serology and histopathological examination diagnosis of CD was made. She was prescribed mesalamine (70 mg/kg/day), prednisolone (1.5 mg/kg/day) and azathioprine (1 mg/kg/d) with supportive measures. During follow-up, the child continues to have growth failure and dimorphic anemia.

## Discussion

Few cases of pediatric CD have been reported from India. Sathiyasekaran et al. from Chennai and Avinash et al. from Vellore reported a series of 10 and 23 pediatric patients over a span six and 8 years respectively.[3,4] Differentiating two chronic granulomatous inflammatory disorders: CD and ITB in India is a difficult task owing to higher burden of tuberculosis.

Clinical features in both ITB and CD include constitutional symptoms with diarrhea, hematochezia, abdominal pain, malabsorption, intestinal obstruction, perforation and fistulisation. Ileocaecal region is the most common site affected in either condition but CD can involve any portion of gastrointestinal system. Ascending colon may be involved in direct contiguity with the ileocaecal region in ITB and isolated colorectal involvement is rare. Extra-intestinal manifestations such as arthritis and sclerosing cholangitis occur predominantly in CD while involvement of primary sites like pulmonary or lymphadenopathy is seen in TB. Both may have positive family history. In patients with CD the duration of illness is generally more than 12 months as seen in index case while it is shorter in ITB. Short stature and failure to thrive in the absence of bowel complaints can be the presenting feature in CD and in spite of medical therapy growth failure can persist.[5]

Abnormalities in routine blood tests suggestive of inflammation are seen in the active phase of both. About 49% patients with CD have a positive ASCA in contrast to 7% with ITB.[6] Both disorders may show overlapping features on computed tomography. Hypodense lymph nodes with peripheral enhancement in the mesentery and retro-peritoneum and high dense ascites are features of ITB. In CD, imaging shows vascular engorgement of mesentery (comb sign) and fibrofatty proliferation. Mural thickening is a feature of both. On endoscopy transversely placed ulcers, nodularity, hypertrophic lesions, involvement of fewer than four segments, a patulous ileocaecal valve are frequent in ITB. Aphthoid or longitudinal deep fissuring ulcers and cobblestone appearance are more typical of CD. Skip lesions in the colon are significantly frequent in CD.[6] On histopathology, caseation and demonstration of AFB, the diagnostic feature of ITB are found in only 18–33%. Features that favor a diagnosis of CD include infrequent (< 5), small (< 200μ) granulomas that are poorly organized, discrete or isolated. Crypt abscess, cryptitis and focally enhanced colitis are also features of CD.[7]

Therapy and follow up also have a role in establishing diagnosis. Good response to ATT confirmed by endoscopic and histological clearance of disease confirms the diagnosis of ITB. Conversely a poor response to ATT suggests either drug resistant ITB or CD. In our patient Crohn disease was diagnosed due to chronicity, growth failure, clubbing, micronutri-

ent deficiencies, characteristic intestinal stricture with fat stranding and increased mesenteric vascularity, non caseating granuloma with negative AFB stain and poor response to ATT.

## Conclusion

Diagnosing IBD poses two major problems. One is lack of gold standard represented by histological or serological confirmation; second is the number of conditions mimicking IBD in this region. Direct visualization of the gastrointestinal mucosa by endoscopy and histopathological examination establishes a diagnosis in CD. Decision to withhold ATT in a child with chronic gastrointestinal inflammatory disorder in our country with high prevalence of tuberculosis is difficult, especially in ambiguous cases.

## Authors' contribution

All the authors were involved in the management of the case diagnosis and treatment, drafting and revising the article critically for important intellectual content.

## Conflict of interest

None declared.

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