

Endoscopy in Small Intestinal tuberculosis

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Disclosures

- None

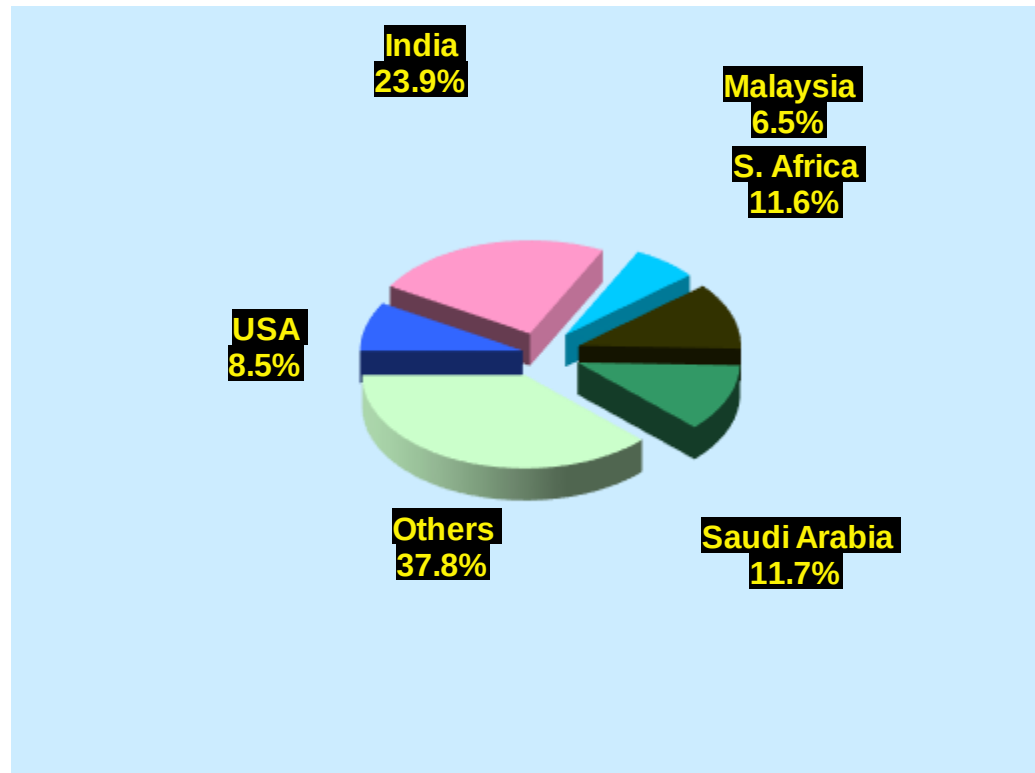
Objectives

- Understand SIBD epidemiology and clinical mimics
- Describe endoscopic modalities for small bowel evaluation
- Identify characteristic endoscopic features
- Review the therapeutic endoscopy role

Epidemiology

- Abdominal Tuberculosis (TB): 5-10% extrapulmonary TB cases; Small Intestinal Tuberculosis (SITB) ~10-20% of Gastrointestinal TB (GITB)
- Risk: Immunosuppression, prior pulmonary TB (50%) -
- Mimics Crohn's (strictures/ulcers), malignancy

Distribution of gastrointestinal tuberculosis and Crohn's disease



Inflammatory bowel disease (IBD) in rural and urban India: results from community colonoscopic evaluation of more than 30,000 symptomatic patients

Rupa Banerjee,^{a,*} Partha Pal,^a Rajendra Patel,^a Shubhankar Godbole,^a Akshay Komawar,^a Shirisha Mudigonda,^a Yamunasivalli Akki,^a Arvind Gaddam,^a Nissi Prakash Pasula,^a Sumitamol Joseph,^a Sadhana Valluvan,^a Dhanush Mekala,^a Musab Khalil,^a Swathi Kanaganti,^a Anuradha Sekaran,^b Duvvuru Nageshwar Reddy,^{c,d} and Simon P. L. Travis^{c,d}

	Village (2006)	Village (2020-2022)	p	Odds ratio	95% CI
Number of procedures	1540	6362			
IBD	2 (0.1%)	358 (5.6%)	<0.0001	45.9	11.4-184.3
Intestinal tuberculosis	29 (1.9%)	73 (1.1%)	0.03	0.6	0.4-0.9
Amoebic colitis	31 (2.3%)	8 (0.1%)	<0.001	0.06	0.3-0.13
Polyps	28 (1.8%)	511 (8.0%)	<0.0001	4.7	3.2-6.9

Table 5: Comparison of colonoscopic diagnoses in the current study with the Asian Institute of Gastroenterology (AIG) rural gastrointestinal health survey performed in 2006.

Clinical Manifestations of SITB

Obstructive Symptoms

- Abdominal Pain
- Distension
- Nausea and Vomiting

Mucosal Ulcerations

- Diarrhea
- Occult or overt bleeding

Malabsorption

- Various nutritional deficiencies
- Weight loss
- Developmental delay in childhood

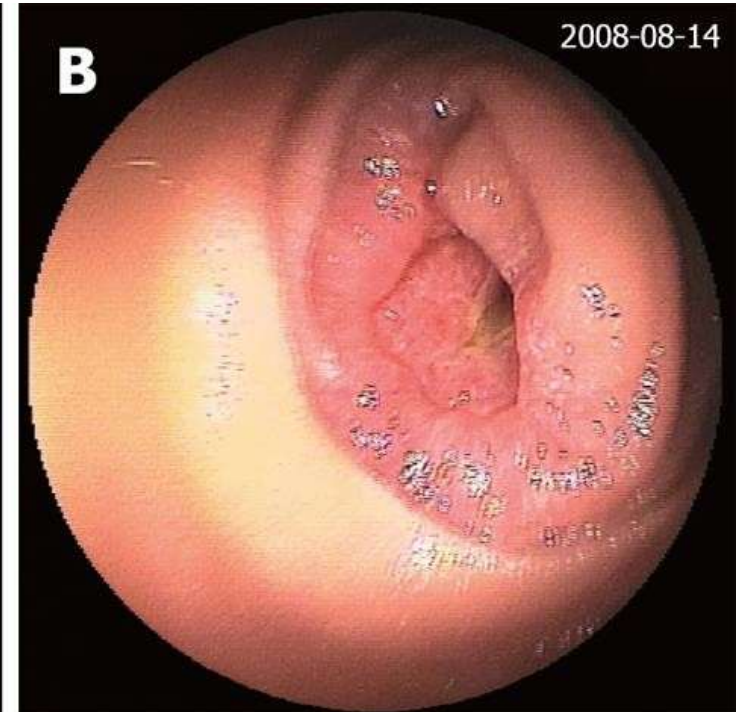
Constitutional Symptoms: Low grade fever; night sweats and easy fatigability may be present

Endoscopy in Small Intestinal tuberculosis (SITB)

- Colonoscopy with Ileoscopy – easy, proximal small bowel evaluation limited
- Capsule Endoscopy (CE)- Entire small bowel; non invasive; sensitive for ulcers; no biopsies or therapy; risk of retention with strictures & diverticulae
- Balloon assisted endoscopy (BAE)-: Biopsy + therapy; Invasive; requires sedation.
- Endoscopic Ultrasound - Evaluates layers/ vessels; structures outside bowel; operator dependent

Capsule Endoscopy (CE)

- Can help diagnose tuberculosis
- Transverse ulcers
- Localised disease
- Nodularity favors ITB
- High risk of capsule retention (10-12%)



Comparison of small bowel findings using capsule endoscopy between Crohn's disease and intestinal tuberculosis in Korea

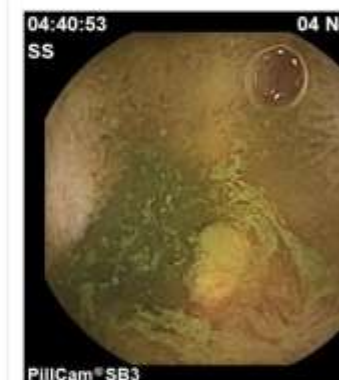
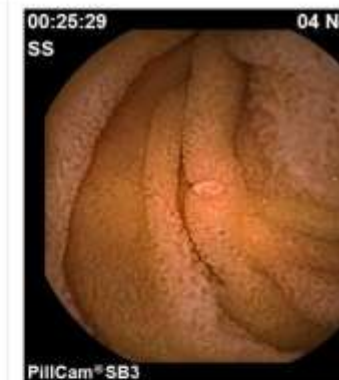
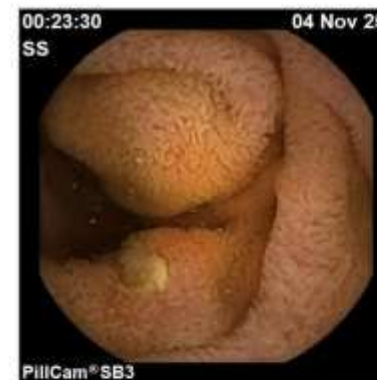
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- Ulcer Volume (> 10 ulcers)
- Spatial distribution (> 3 involved segments)
- Cobblestoning – confirmatory
- Presence of aphthous ulcers – Least reliable
- above points against ITB



Balloon assisted endoscopy (BAE)

- Direct visualization
- Biopsy
- Stricture dilatation
- Control of Bleeding from ulcers
- Reduction of intussusception
- Complications: Bleeding; perforation and rarely pancreatitis

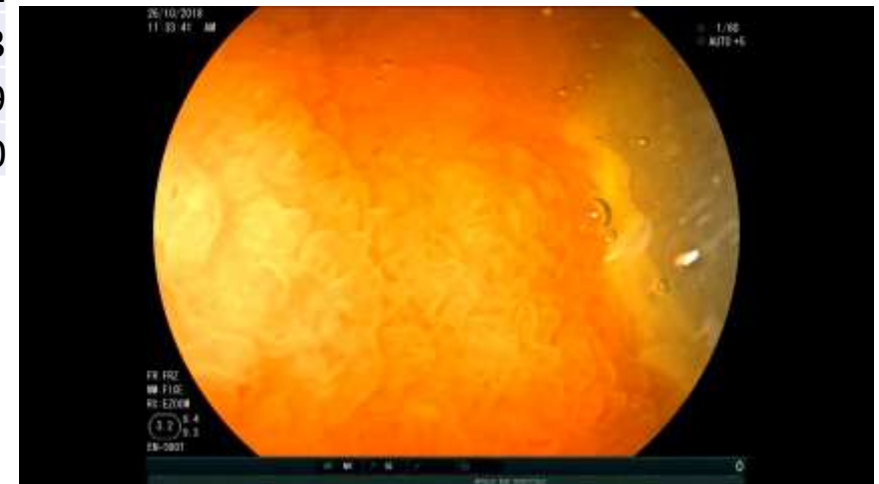
Double balloon endoscopy: our experience

- 211 Patients (2020 -2025)
- Total no of procedures : 264
- Median age 49 years (10-92 years)
- Dual enteroscopy (antegrade with retrograde) – 53 (20%)
- DBE yielded the diagnosis in 61%
- 26% of cases therapeutic intervention was performed
- Complications included Bleeding in 1, mild acute pancreatitis 2 patients. Small bowel perforation after APC in one patient requiring surgical intervention

Indications	Number	% of Total
Unexplained IDA	34	12.87
Obscure GI bleeding	68	25.75
Chronic diarrhea	41	15.53
Suspected IBD/ Tuberculosis/ mass lesion on Imaging	90	34.09
Polyposis Syndromes	5	1.89
Biliary Interventions	25	9.46
Retained Capsule	1	0.38
	264	
Findings		
Ulcers (Discrete or Confluent)	72	30
Strictures with ulcers or fibrotic	23	9.58
Mass lesions/Polyps	7	2.91
Vascular Abnormalities	30	12.5
Other Mucosal Abnormalities	13	5.41
Normal	95	39.58

Nodularity/ulceration and strictures

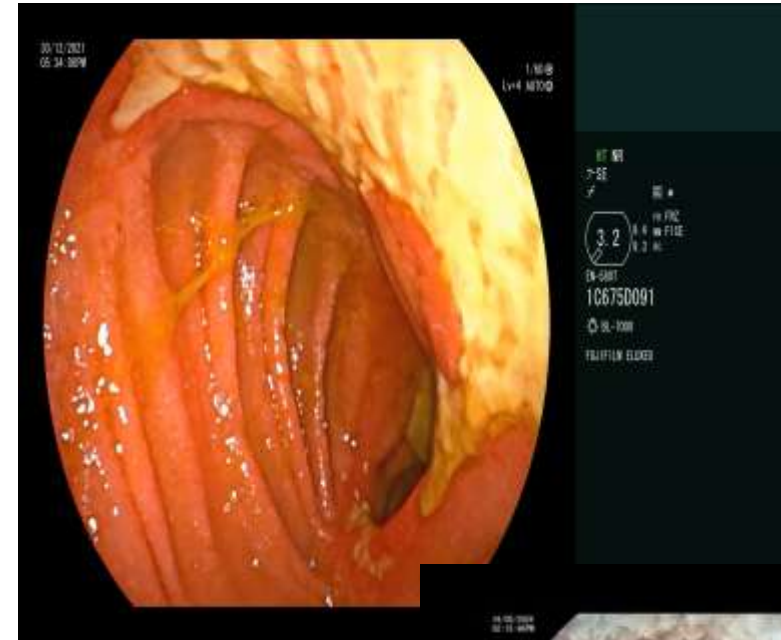
Location	Total	Crohn's disease (31.3%)	TB (18%)	Indeterminate/Other etiology
Ulcers/ strictures/nodularity	95			
Duodenal	3	2		1
Jejunal	12	7	2	3
Ileal	21	5	7	9
Ileocaecal	59	19	10	30



Differentiating features: Crohn's vs TB

- Crohn's disease
 - Long duration of symptoms
 - Ulcer Orientation –Longitudinal or aphthoid
 - Mucosal Pattern: Cobblestoning
 - Ileocaecal Valve Geometry: Stenotic or Contracted
 - Distribution: Skip lesions > 4 segments involved
 - Perianal status: Frequently involved with fistulae and abscesses
- Tuberculosis
 - Constitutional symptoms
 - Transverse ulcers often large and associated with asymmetric narrowing
 - Nodularity, scars and lymphangiectasia
 - Patulous IC Valve:
 - Localised, less than 4 segments involved
 - Perianal status: Usually spared

Mucosal abnormalities: Crohn's vs TB



Endoscopic Dilatation of GITB strictures: Is it feasible?

- First described in 1986 (Brower RA. Gastrointest Endosc.1986;32:38-40)
- Short concentric strictures, which persists despite ATT
- Preferable location for dilatation included Ileal, colonic and anastomotic stricture in Ileocaecal area
- High degree of immediate technical success rate (upto 90%), acceptable complication and repeat surgery rates.
- Introduction of balloon assisted enteroscopy and Spiral enteroscopy increased the depth of access in small bowel and hence range and depth of dilatation



Safety and efficacy of non-fluoroscopic endoscopic dilatation of gastrointestinal tuberculosis related strictures

Pankaj Kumar, Anuraag Jena, Chhagan Lal Birda, Harjeet Singh, Pankaj Gupta, Kaushal Kishor Prasad, Usha Dutta and Vishal Sharma*

- Total patients: 34
- Technical success: 88.2%
- Clinical success: 82.3%
- Median sessions: 2.5
- Long-term success: 26 patients
- Recurrence: 2 patients
- Surgery required: 7 patients

Dilatation: When & what size?

- Symptomatic stricture
- Size of stricture – less than 4 cms
(Hassan C, Zullo A, De Francesco V et al Aliment Pharmacol Ther 2007;26: 1457-64)
- No active ulceration, concomitant fistula and abscessess
(Hoffman JC, Heller F, Faiss S et al. Int J Colorectal diseases 2008;23:689-96.)
- Size of dilatation directly proportional complication
- Initial extent of narrowing seem to have an effect
- 15 mm – safe with least complications
- 25 mm – high degree of complications (bleeding or perforation)
- Repeat Sessions: Two weeks
- End Point: Safe passage of Scope/ Overtube

Which Stricture to dilate?



Dilatation: Complications

- Approximately 5% for all complications (Post procedure abdominal pain, bleeding, perforation, localised abscesses and fistulae)
- Up to 2% require surgery to manage (mainly perforation).
- Previous surgery and Intraabdominal adhesions increase risk of perforation

Intussusception reduction with BAE

Comparative Study > Surg Endosc. 2025 Mar;39(3):2044-2051. doi: 10.1007/s00464-025-11581-z.
Epub 2025 Jan 31.

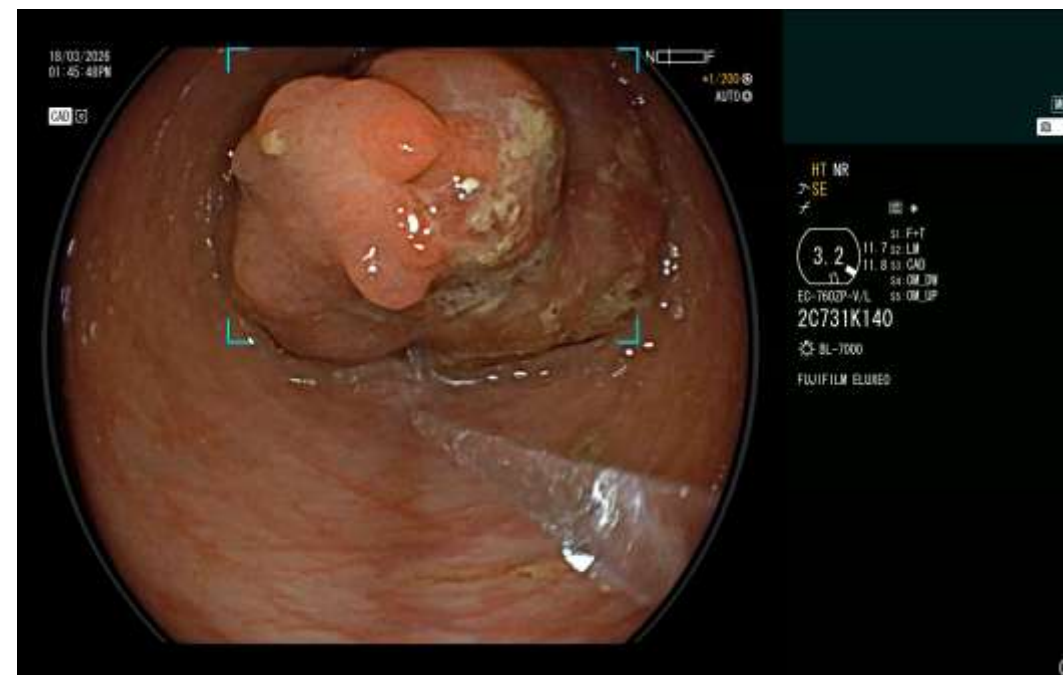
Balloon-assisted enteroscopy in the management of adult small-bowel intussusception: a comparative analysis of with and without double-balloon enteroscopy

Won Shik Kim ¹, Beom Jae Lee ², Moon Kyung Joo ¹, Seung Han Kim ¹, Jong-Jae Park ¹

Affiliations + expand

PMID: 39890611 DOI: 10.1007/s00464-025-11581-z

Conclusion: Preoperative BAE is a valuable diagnostic and therapeutic modality for ASI, particularly in cases of low-grade small-bowel obstruction, reducing surgical resection rates in most ASI cases. The introduction of the BAE has significantly improved ASI management, achieving high successful reduction rates and few surgical interventions. BAE should be considered a first-line diagnostic and therapeutic tool for ASI management.



EUS in SITB : Does it have any role?

- **Lymph Node Characteristics:** hypoechoic, heterogeneous, and matted nodes.
- **Bowel Wall Changes:** TB typically shows thickening of the mucosa (hyperechoic), while the submucosal layer often remains intact. (Sensitivity – 78.3%, Specificity – 84.6%)
- **EUS-FNA/FNB:** EUS-FNA provides, on average, a 76%–100% diagnostic yield for abdominal TB, with sensitivity and specificity for lymphadenopathy around 86% and 93%, respectively.

► JGH Open. 2022 Sep 30;6(11):745–753. doi: [10.1002/jgh3.12823](https://doi.org/10.1002/jgh3.12823) 

Current role of endoscopic ultrasound for gastrointestinal and abdominal tuberculosis

[Hasan Maulahela](#) ^{1,✉}, [Achmad Fauzi](#) ¹, [Kaka Renaldi](#) ¹, [Qorina P Srisantoso](#) ², [Amirah Jasmine](#) ²

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PMCID: PMC9667406 PMID: [36406654](https://pubmed.ncbi.nlm.nih.gov/36406654/)

Summary

- Small bowel endoscopy has a definitive role in diagnosis of SITB (both BAE and in CE in non obstructive presentation) and obtaining tissue confirmation (BAE)
- It plays an important role in differentiating TB Vs Crohn's in endemic areas where both disease are prevalent in significant proportion
- Confirms response to therapy in inconclusive presentation
- Plays a significant role in therapy by control of bleeding, stricture treatment and intussusception reduction.

