Regd. No. MH/MR/South - 243/2006-08

Inner Spaces

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Vol. 1 No. 3, Sept '06

Subscription Price: Rs. 10

Points

- The small bowel remains a difficult area to image with traditional modalities including endoscopy
- A small bowel enema (SBE) is a procedure that involves injection of barium through a tube placed beyond the duodeno-jejunal (DJ) flexure
- Currently, SBE is the gold standard for the evaluation of small bowel pathologies, especially strictures and mucosal lesions
- A normal SBE rules out a stricture

Small Bowel Enema

- Dr. G. R. Jankharia

Imaging of the small bowel is still not easy. Endoscopy of the jejunal and ileal loops is rarely possible and techniques such as video endoscopy are still not widely available or accepted. Plain radiographs and ultrasound have a limited use in small bowel pathologies. A barium meal follow-through allows bowel luminal visualization, but without bowel distension. A CT scan allows bowel lumen and wall visualization, but information on mucosal detail is limited.

A small bowel enema (SBE) is a technique, where barium is injected, like in an enema, through a tube placed in the fourth part of the duodenum or the duodeno-jejunal flexure (Fig. 1). By following the injected head of barium, bowel distensibility can be assessed. By distending the bowel, soft strictures (Fig. 2) can be picked up. By using methyl cellulose or air has negative contrast media, the bowel mucosa can be exquisitely assessed (Fig. 3).

Small bowel enema (SBE) is currently the gold standard for detecting luminal pathology in the small bowel up to the ileo-cecal region. The technique is very safe, reliable and well-tolerated by the patients.

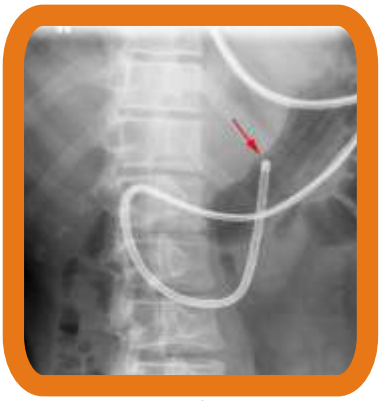

Fig. 1

Fig. 1: Position of the BD tube at the DJ flexure (arrow), prior to injection of barium.

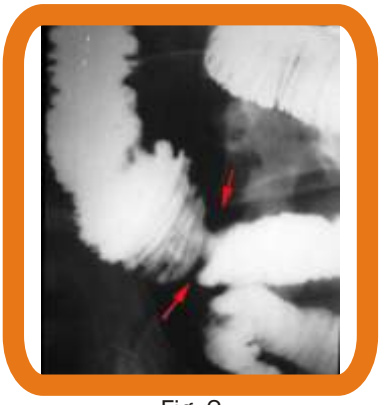

Fig. 2

Fig. 2: Ileal stricture. SBE study shows a stricture of the mid ileum (arrows) with mucosal irregularity.

Fig. 3

Fig. 3: Mucosal evaluation. SBE study shows exquisite mucosal detail in the jejunum.

Procedure

1. The colon has to be empty. This is done by limiting the intake of solids for the previous 24 hours, and allowing fluids, but excluding milk. Laxatives are taken the night before.
2. Metoclopromide is taken 15-20 minutes before the study.
3. A Bilbao-Dotter (BD) tube is inserted per nasal, in a manner similar to a Ryle's tube, beyond the duodeno-jejunal (DJ) flexure. This is important, so that the barium does not reflux back into the stomach. This maneuver is performed under fluoroscopy vision.
4. Barium is then injected, followed by methyl cellulose, until the barium reaches the ileo-cecal junction
5. Each and every loop of bowel is monitored by fluoroscopy and compression spot radiographs are taken.
6. The entire procedure usually takes 20 minutes.

*The online version is up at **http://www.jankharia.com/innerspaces/current.htm***

Indications:

1.Subacute intestinal obstruction for strictures (Fig. 4) and adhesions

2.Suspicion of tuberculosis (Fig. 5), Crohn's disease (Fig. 6) or other mucosal abnormalities

3.Malabsorption syndrome (Fig. 7)

4.Small bowel diarrhea (Fig. 7,9)

5.Occult gastro-intestinal bleeding (Fig. 8)

A normal SBE usually rules out strictures and mucosal pathologies.

Fig. 4

Fig. 4: Jejunal stricture: SBE study shows a tight jejunal stricture (arrow) in this patient with episodic subacute intestinal obstruction, with proximal bowel dilatation (arrowhead).

Fig. 5

Fig. 5: Ileo-cecal tuberculosis. SBE shows dilatation of the terminal ileum (arrow) with loss of mucosal relief, with marked fibrosis of the cecum, which is pulled up (arrowhead).

Fig. 6

Fig. 6: Crohn's disease: SBE shows mucosal irregularity of the distal ileum (blue arrow) and cecum (red arrowhead) with an exo-enteric cecal fistula (red arrow)"

Fig. 7

Fig. 7: Unclassified malabsorption syndrome. This patient with classic small bowel diarrhea shows diffuse, regular mucosal thickening of the ileal loops (arrows), with an increased number of ileal folds, as compared to the jejunal folds, a finding sometimes seen in celiac disease, which however could not be confirmed.

Fig. 8

Fig. 8: Submucosal lipoma. In this patient with occult gastro-intestinal bleeding, a submucosal mass is seen in the jejunum (arrow). This was eventually proven to be a lipoma.

Fig. 9

Fig. 9: Lymphoma. SBE shows mucosal irregularity (red arrowhead), ulceration (red arrow) and irregular areas of narrowing (blue arrow) and aneurysmal dilatation (blue arrowhead)."

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Printed at: India Printing House, First Floor, 42, G D Ambekar Marg, Opp. Wadala Post Office, Wadala, Mumbai 400 031

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