

Points

- The conventional evaluation of the GI tract includes endoscopy, barium studies and CT scan
- USG is an important screening tool in patients with abdominal pain and lumps and an established modality for many abdominal structures
- With the advent of high-resolution USG, its role in the evaluation of the GI tract has increased considerably

USG of the Gastro-Intestinal Tract

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Traditionally, the gastro-intestinal (GI) tract has been imaged using plain radiographs and barium studies. With the advances in endoscopy, the role of barium studies has now become restricted to barium swallow for the esophagus and small bowel enema / enteroclysis for the jejunum and ileum. Over the last few years, CT scan has also become an important modality for small bowel pathology, especially with the use of CT enteroclysis.

USG is an important modality in abdominal imaging. It serves as a screening tool in patients with abdominal pain and lumps and in many instances, such as in the liver and gall-bladder can be a definitive modality as well. With the advances in USG technology, many more pathologies of the GI tract can now be accurately evaluated. High resolution USG allows direct visualization of all the mural layers of the GI tract and often allows visualization of gastrointestinal dynamics as well.

Among its many indications, USG of the GIT is an

excellent tool in the following situations

1. Congenital

- Hypertrophic pyloric stenosis (Fig. 1)
- Malrotation (Fig. 2)

2. Acute bowel pathology

- Appendicitis (Fig. 3)
- Obstruction (Fig. 4)
- Intussusception (Fig. 5)
- Colitis (Fig. 6)
- Sigmoid diverticulitis (Fig. 7)

3. Tumors (Fig. 8)

4. Miscellaneous

- Ileo-cecal tuberculosis (Fig. 9)
- Duodenal ulcer (Fig. 10)
- Round worms (Fig. 11)

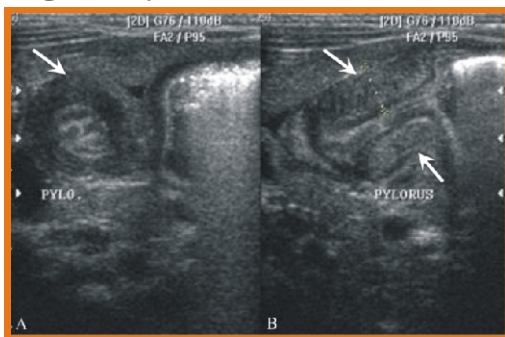


Fig. 1

Fig. 1 (A, B): Hypertrophic pyloric stenosis. Transverse (A) and longitudinal (B) scans in an infant with vomiting, show marked hypertrophy of the pylorus (arrows).

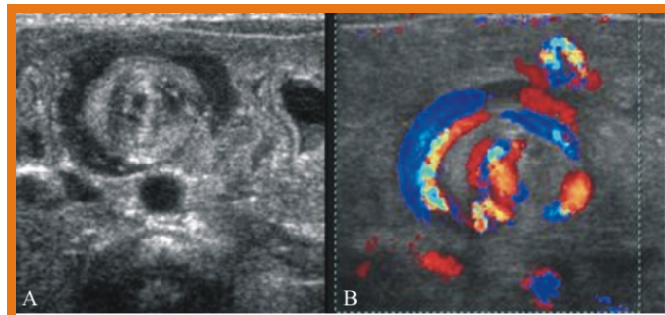


Fig. 2

Fig. 2 (A, B): Malrotation and volvulus. Transverse (A) and color Doppler (B) scans show a "whorl" sign due malrotation and volvulus and altered relationship of the mesenteric vessels.

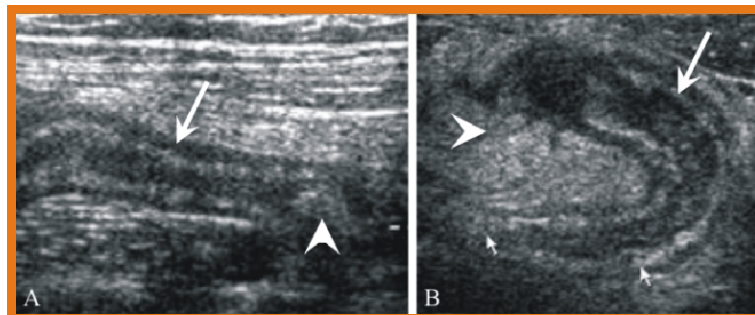


Fig. 3

Fig. 3 (A, B): Appendicitis. Two separate patients show a thickened appendix (arrows) with an appendicolith (arrowhead in A) and an inflammatory phlegmon (arrowhead in B).



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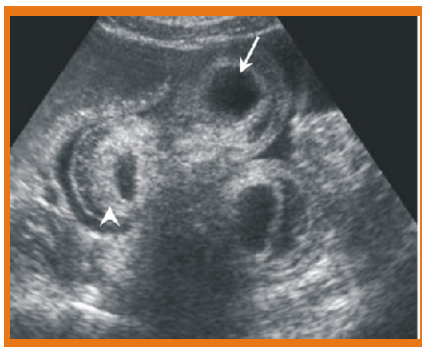


Fig. 4

Fig. 4: Closed-loop obstruction. USG shows dilated loops (arrows) with thickened walls (arrowheads) with a swirling appearance, typical of a closed-loop obstruction.

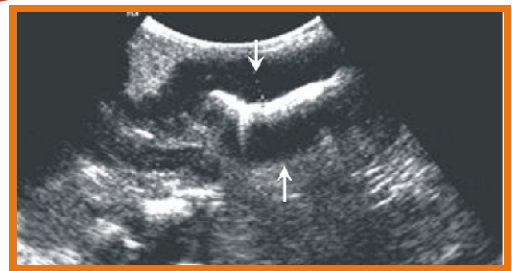


Fig. 8

Fig. 8: Lymphoma. Longitudinal USG of a jejunal loop shows marked focal wall thickening (arrows). Carcinomas and other bowel tumors also usually present in the same manner. Eccentric masses may also be seen in these conditions, connected to the bowel.

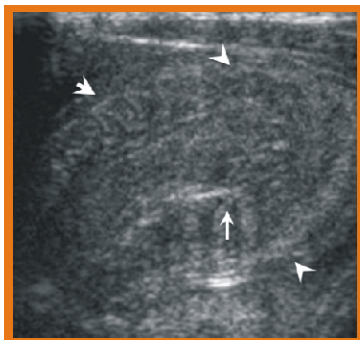


Fig. 5

Fig. 5: Intussusception. USG shows a multi-layered, "pseudo-kidney" appearance. The lumen of the intussusceptum (arrow) is seen invaginated into the intussusciens (arrowheads).

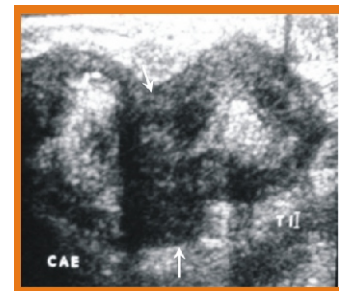


Fig. 9

Fig. 9: Ileo-cecal tuberculosis. Longitudinal USG of the ileo-cecal junction shows marked wall thickening (arrows) of the terminal ileum and cecum, suggesting tuberculous involvement.

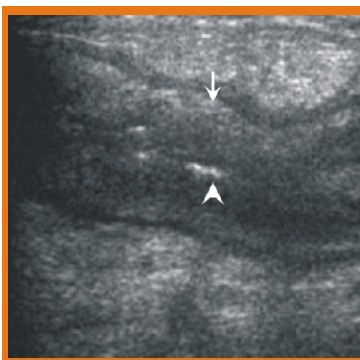


Fig. 6

Fig. 6: Colitis. Longitudinal USG shows marked thickening of the colonic wall (arrow). Note the air in the lumen (arrowhead).

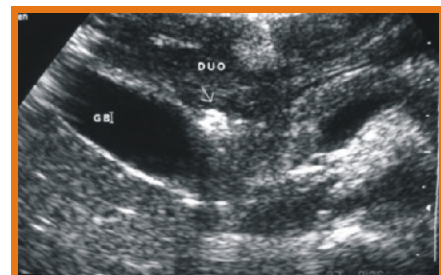


Fig. 10

Fig. 10: Duodenal ulcer. Oblique image through the upper abdomen shows an echogenic focus (arrow) in the duodenum (DUO), which represents air within the ulcer crater of a duodenal ulcer.

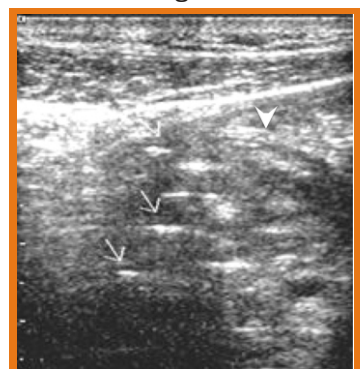


Fig. 7: Sigmoid diverticulitis. USG shows thickening of the sigmoid colon walls (arrowheads). Air within the diverticuli is seen (arrows) with ill-defined interfaces, suggesting inflammation / infection.

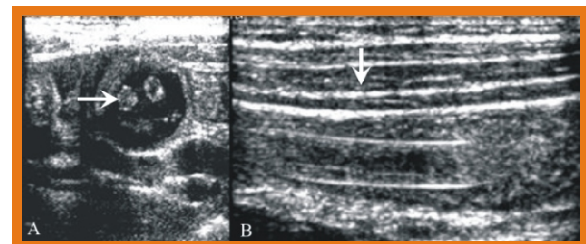


Fig. 11

Fig. 11: Roundworms. Transverse (A) and longitudinal (B) images show roundworms (arrows) appearing as echogenic foci within a dilated bowel loop. Note the GI tract of the roundworm (arrow in B).

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