

# An Inflamed Bowel Loop Mistaken for Appendicitis on Ultrasonography In a 35-year Old Man

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## ABSTRACT

**Objective:** To describe the sonographic appearance of an inflamed bowel mistaken for an inflamed appendix.

**Method:** A case is presented

**Result:** Surgery revealed that this patient had generally inflamed "matted loop" pattern of bowel. This gave a diagnosis of an inflamed bowel and not appendicitis.

**Conclusions:** Inflammatory bowel disease should be considered in patients with sonographic signs of appendicitis if a clear cut blind ending could not be made out. Inflammatory bowel disease could be diagnosed on the basis of 2 Dimensional gray scale sonography. Keys words Appendicitis, inflammatory bowel disease; sonography.

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## INTRODUCTION

Inflammatory bowel diseases are chronic disorders in which the intestine (bowel) becomes inflamed, often causing recurring abdominal cramps and diarrhea (1). The two types of inflammatory bowel diseases are ulcerative colitis, which primarily affects the colon, and Crohn's disease, which may involve ileum, colon, or both (1,2).

Crohn's disease (regional enteritis, glaucomatous ileitis, ileocolitis) is a chronic inflammation of the intestinal wall (1). The major differential diagnosis of Crohn's diseases is tuberculosis; others include abdominal lymphoma, and carcinoma of the small bowel (3). The major differential diagnosis of Crohn's colitis is ulcerative colitis (3). Barium studies and endoscopy are currently the most reliable techniques for evaluation of mucosal diseases but

provide limited information about the extent of transmural and peri-intestinal abnormality (4).

We present a case of inflammatory bowel disease, mistakenly reported as appendicitis on the basis of gray scale 2D ultrasonography without recourse to other imaging modalities like endoscopy or even barium studies.

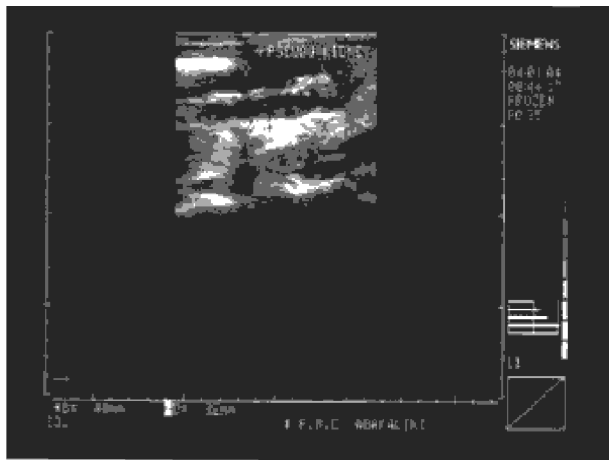
## CASE REPORT

**Presentation and Examination:** A 35-year old man was referred to our unit for an untargeted ultrasound examination of the abdomen for generalized abdominal tenderness with right upper quadrant and McBurney's point preponderance. The patient displayed involuntary guarding on the areas of tenderness, looked stressed psychologically and cachetic on physical examination.

**Transabdominal Sonography:** Transabdominal sonography was performed using a conventional gray scale, 3.5MHZ linear array transducer (sonoline D). A hard copy acquisition was achieved using sono video graphic printer. Graded compression was partly hindered due to involuntary guarding around the areas of tenderness.

**Transabdominal Sonography Finding:** In longitudinal plane, a thick walled (14mm), tubular structure was seen (fig.1). A central stripe of echogenic mucosa was observed. This gave it a "pseudo-kidney" appearance. No compressibility was noticed. It averages 36mm in Antero-posterior diameter. With a higher frequency probe (6.5MHZ), this structure became clearer. On transverse sections, the abnormal bowel had a bull's eye appearance, reflecting the central acrogenic mucosa with a sonolucent wall (annulus). No enlarged lymphnode was seen, unlike in mesenteric adenitis (5). There was no typical wall stratification (2) or ragged mucosa as seen in cases of ulcerative colitis (6). The inferior portion of swollen bowel loop appeared to have a

blind ending which gave way for the diagnosis of appendicitis.



**Surgery:** At surgery, an inflamed, “matted-loop” pattern of bowel was seen. This gave the diagnosis of inflammatory bowel disease.

#### DISCUSSION

The result of this report illustrates the potential utility of 2D gray scale ultrasonography in aiding the examination of a patient with inflammatory bowel disease. Care should always be taken in this situation not to mistake a poorly visualized end on the screen as a blind end which would give a false positive diagnosis of appendicitis. In the past, the upper gastrointestinal series and the barium enema examinations were the main studies used to assist in the diagnosis and follow-up of inflammatory bowel disease. More recently, CT and sonography have been added to the imaging regime to assist in diagnosis and to evaluate complications of the disease such as fistulas, and abscess formation. A non invasive radiologic method to monitor disease activity would be useful in assessing the treatment of patients with inflammatory bowel disease. Bowel inflammation (wall thickness greater than 3mm) can be identified on sonography and sonography can reveal a change in disease activity during treatment (7).

In the literature review, it was discovered that the gray scale sonography findings in inflammatory bowel disease include bowel wall thickening, reduced bowel compressibility, loss of distinction of normal wall stratification and loss of colonic haustrations (8–12). Attempts to differentiate between ulcerative colitis and Crohn’s disease on the basis of echo morphology of the bowel wall

have met with variable success (12– 14). While some have found sonographic findings to be non specific indicators of bowel inflammation (11,14,15), others recognise that sonography has a role in the differentiation of Crohn’s disease and ulcerative colitis (16,17).

Preservation or loss of the echo stratification of the bowel wall bears some relation to the depth and severity of the inflammatory process but cannot differentiate accurately ulcerative colitis, Crohn’s disease or other inflammatory disorders (12). Sheridan et al (18) used gray scale sonography in the primary investigation of adult patients with suspected Crohn’s disease or recurrent Crohn’s disease and reported up to 87% sensitivity and 91% specificity for detection of disease.

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