

Radio-Imaging in Ascariasis

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Introduction

History of *ascaris lumbricoides* is known to stretch back to 35 centuries. Discovered in Eber's Papyrus in 1550B.C even at the turn of the century with advanced medicines, it still continues to cause symptoms, illness and even death(1). The principle surgical complications occur because of obstruction and perforation of intestinal wall or by obstruction of biliary and pancreatic duct (2-5). Various criteria for surgical intervention in ascariasis are given by Dayalan *et al*(6), but controversy still exists regarding modality of treatment. Plain radiographs and contrast study examination of the abdomen help to visualise worms in gut (7). Sonographic evidence of intestinal obstruction by Scheible *et al* (8), and fluid filled bowel by Fleischer S. *et al*(9), help in identifying ascaris worms in these bowel loops. Peck (10), gave the ultrasonographic diagnosis of intestinal ascariasis.

Pictorial assay illustrates the presence of ascariasis as shown by non-invasive radio-imaging, focussing on the value of plain radiography, barium examination and ultrasonographic examination of the abdomen. Familiarity with varied features of ascariasis will permit more accurate diagnosis and will prevent false pathologic diagnosis.

Discussion

In Plan radiographs of the abdomen as observed by Isaac, Cole and Dasmohapatra *et al*, each worm appears as an elongated band of increased density a few millimeters(mm) in width and of variable curvature(3,11,12). A mass of such worms contrasted against the intestinal gas resembles a group of thick cords(Fig. 1). Contrast study examination of the gastrointestinal tract as reported by Tracey *et al*(13), Francke *et al*(14), Bar Maor *et al*(15) and Lofstrom *et al*(16), shows cylindrical filling defects resulting in longitudinal translucent areas located in the lumen of intestines(Fig. 2). Schulman A *et al*, (17), Cerri *et al* (18), Kamath *et al* (19), Khuroo *et al*, (20), Hangloo *et al*. (21) made the sonographic diagnosis of ascaris worms in hepatobiliary system. Each worm appears as long, linear or curved echogenic structure, with central anechoic tube representing digestive canal of the worm in common bile duct or gall bladder (Fig. 3&4). Sonographic appearance of ascariasis in fluid filled segments of intestines are coiled up masses of worms which are hyperechoic and without acoustic shadow (Fig. (5), linear hyperechoic shadows of ascaris (Fig. 6) and curved hyperechoic shadows of ascaris in fluid filled coils (Fig. 7).

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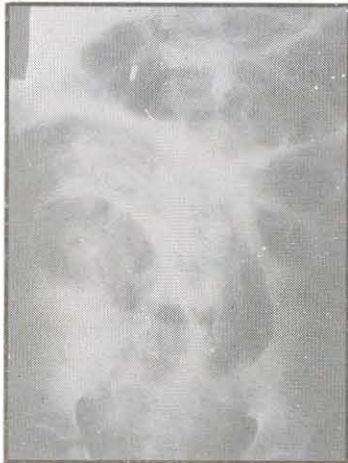


Fig. 1: Plain X-ray abdomen showing a segment of the dilated small intestines packed with round worms fairly well contrasted against gas in intestines.



Fig. 2: Contrast study examination of the GIT showing cylindrical filling defects resulting in longitudinal translucent area located in the lumen of small intestines.



Fig. 3: Sonogram revealing a long linear non-shadowing echogenic structure with central anechoic tube representing (Ascaris in CBD) digestive canal of worm.



Fig.4: Sonogram revealing tubular echogenic structure with central anechoic tube representing digestive canal of worm (Ascaris in Gall Bladder)



Fig. 5: Sonogram abdomen showing coiled up hyperechoic mass of round worms in fluid filled coils of distal ileum, the mass was without acoustic shadow.



Fig. 6: Sonogram abdomen revealing linear hyperechoic shadow of ascaris lumbricoids without acoustic shadow.



Fig.7: Sonogram abdomen revealing (curved) linear hyperechoic shadow of ascaris lumbricoides in intestine (single worm).

Conclusion

Ascariasis may go undetected, till it presents with a grim phenomenon. Confusion regarding correct diagnosis may arise when ascariasis is present with other causes of intestinal or biliary obstruction. A complete understanding of normal GIT anatomy and varied surgical problems caused by ascariasis is mandatory.

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