

ASCARIS LUMBRICOIDES AND ACUTE APPENDICITIS: A CASE REPORT

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ABSTRACT

Acute appendicitis caused by ascaris lumbricoides is an uncommon entity. We describe a case in which trans abdominal sonography (with high frequency linear probe) detected ascaris worm in inflamed appendix. Surgery proved the diagnosis.

Keywords: Acute abdomen, Appendicitis, ascaris.

Introduction

Appendicitis (also called epityphlitis) is the inflammation of the appendix, commonly presents with right iliac region pain, nausea, vomiting, and decreased appetite. It is caused by blockage of the hollow portion of the appendix, most commonly by a calcified "stone" made of feces. However inflamed lymphoid tissue from a viral infection, parasites or tumors may also cause the blockage. This blockage leads to increased pressures within the appendix, decreased blood flow, bacterial growth inside the appendix with subsequent inflammation and luminal distention resulting in injury and death.¹

Ascariasis is a world-widely distributed parasitic infection, especially in tropical and subtropical areas where unhygienic disposal of human excreta is common. Infection is by the ingestion of embryonated eggs in raw vegetables, water or soil-contaminated hands.² Ascariasis may cause intestinal obstruction, perforation, cholangitis, appendicitis and pancreatitis.³

Case Report

5 years old boy was referred to radiology department for ultrasound examination with clinical suspicious

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of acute appendicitis based on his symptoms of abdominal pain, nausea and vomiting for two days. Ultrasound was performed which revealed a blind ending distended loop in the right iliac fossa most likely appendix. A linear tubular shaped echogenic structure visualized within the lumen of the appendix most likely representing an ascaris (Fig. 1A, 1B).

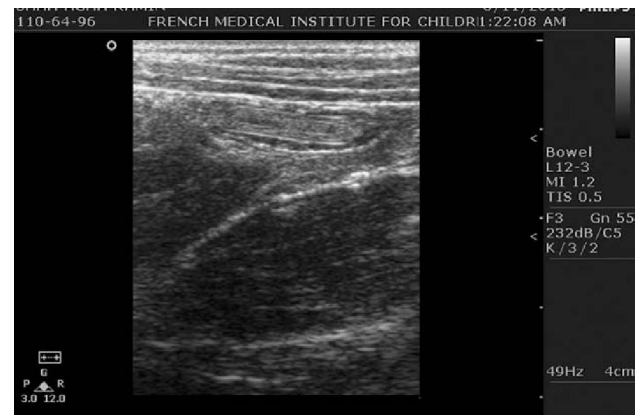


Figure 1A: Longitudinal U/S scan of right iliac fossa demonstrates a non-compressible, blind ended tubular structure surrounded with hyperechogenic mesenteric fatty infiltration corresponding to acute appendicitis containing single ascaris worm.

The appendix showed signs of inflammation evident by luminal distension, surrounding hyperechoic mesenteric fatty infiltration and few prominent lymph nodes in the meso-appendix. Based on ultrasound features the child was sent back to the referring sur-



Figure 1B: Longitudinal sonographic scan of right iliac fossa demonstrates a non-compressible, blind ended tubular structure surrounded with hyperechogenic mesenteric fatty infiltration corresponding to acute appendicitis containing single ascaris worm.

geon with possibility of acute appendicitis secondary to ascaris in the lumen. Intra-operative exploration revealed distended inflamed appendix with a large ascaris in the lumen (Fig. 2A, 2B) thus confirming the ultrasound diagnosis.



Figure 2A: Open surgery confirmed the diagnosis of ascaris worm within the inflamed appendix.

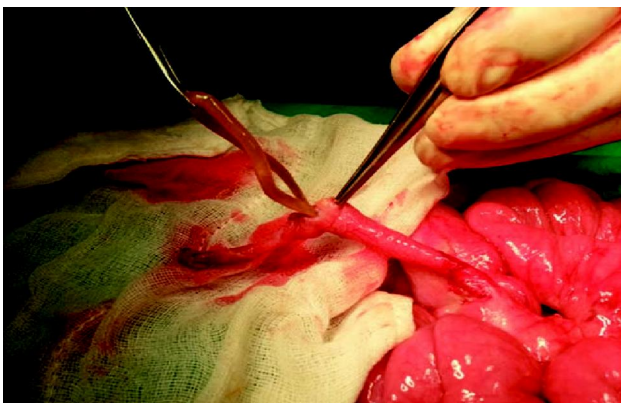


Figure 2B: Open surgery confirmed the diagnosis of ascaris worm within inflamed appendix.

Discussion

Ascariasis is one of the most common helminthic disease in humans occurring mostly in developing countries. In endemic areas 30% of adults and 60-70% of children are infected with the adult worm. *Ascaris* normally infests the small bowel with occasional migration of the adult worm into the biliary and pancreatic ducts, portal venous systems or the abdominal cavity, thereby causing ectopic forms of the disease. Ascariasis can cause serious intra abdominal complications such as intestinal obstruction, cholangiohepatitis, biliary obstruction, liver abscess, pancreatitis, acute appendicitis, intestinal perforation and granulomatous peritonitis.⁴

Acute appendicitis by an adult worm is a well known complication. The ascaris may result in obstruction of the lumen.⁵ This blockage leads to increased pressures within the appendix, decreased blood flow, bacterial growth inside the appendix with subsequent inflammation and luminal distention resulting in acute appendicitis.¹

In cases where the diagnosis cannot be made based on the clinical history and physical exam, close observation, radiologic imaging and laboratory tests can often be helpful.

Ultrasonography and computed tomography (CT) may help lower the rate of false-negative appendicitis diagnosis, reduce morbidity from perforation, and lower hospital expenses.

Ultrasonography is safe and readily available, with accuracy rates between 71 and 97 percent. While there is controversy regarding the use of contrast media and which CT technique is best, the accuracy rate of CT scanning is between 93 and 98 percent. Disadvantages of CT include radiation exposure, cost, and possible complications from contrast media.⁵

Graded compression sonography using a linear high frequency 5-12 MHz transducer is a non-invasive low cost technique which is particularly suitable for children, young and pregnant women with suspected appendicitis.⁶ However, sonography has limitations especially in the obese where tissue penetration is reduced and in the presence of retrocecal appendix surrounded by bowel gas which prevents sound transmission.

On real-time graded compression sonography, the identification of a non-compressible, thickened appendix greater than 6-7 mm in diameter is diagnostic of appendicitis. Other associated findings that can be determined on ultrasound are the presence of a hyperechoic appendicolith with posterior acoustic shadowing, or the presence of anechoic fluid or an abscess in the right lower quadrant.⁶ Sometime the cause for acute appendicitis like Ascaris resulting in obstruction and leading to inflammation can be visualized. Like in our case ultrasound revealed a blind ending distended loop in the right iliac fossa most likely appendix. A linear tubular shaped echogenic structure visualized within the lumen of the appendix most likely representing an Ascaris (Fig. 1 A, B). The appendix showed signs of inflammation evident by luminal distension, surrounding hyperechoic mesenteric fatty infiltration and few prominent lymph nodes in the meso-appendix. Similar to the sonographic Murphy's sign in the diagnosis of acute cholecystitis, a sonographic "Mc Burney's" sign can be elicited by compressing the visualized inflamed appendix using the ultrasound probe which further enhances the diagnostic value of the ultrasound examination.⁶

Conclusion

Acute appendicitis caused by *Ascaris lumbricoides* is an uncommon entity especially in children. Trans abdominal Ultrasound with high frequency linear transducer by expert hands can be the first and highly sensitive modality for early diagnosis.

Conflict of Interest: Authors declared no financial or institutional conflict of interest.

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