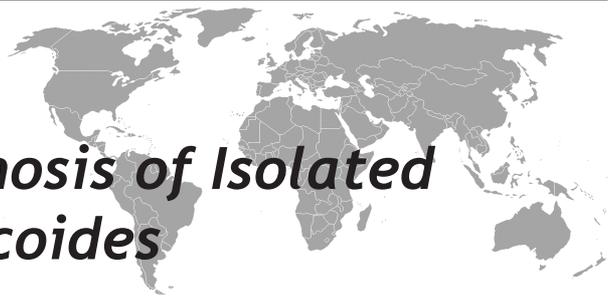


Ultrasonographic Diagnosis of Isolated Jejunal *Ascaris Lumbricoides*



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ABSTRACT

Ascariasis is one of the most common helminthic diseases on earth. Abdominal ultrasonography is usually used for the diagnosis of biliary ascariasis in spite of diagnosis of this infestation is not easy. Two ultrasonographic image of jejunal ascariasis is added to depict clinical situation.

Key words: *Jejunal ascariasis, ultrasonography*

İzole Jejunal *Ascaris Lumbricoides*'in Ultrasonografik Tanısı

Ascariasis dünyada en yaygın helmintik hastalıklarının başında gelmektedir. Abdominal ultrasonografi genellikle biliyer ascariasisin tanısında kullanılmaktadır. Jejunal ascariasisin 2 ultrasonografik görüntüleri klinik görünümüne ek olarak gösterilmiştir.

Anahtar kelimeler: *Jejunal ascariasis, ultrasonografi*

INTRODUCTION

Intestinal parasitosis may cause many health issues in economically poor populations of developing countries. Although it is not common in developed countries, with increasing habit of travelling and immigration, its prevalence may increase (1). Ascariasis, caused by the parasite called *ascaris lumbricoides*, is the most common parasitic infestation in humans. Its worldwide prevalence is estimated to be 25% (>one billion people) (2,3). Ultrasonography (US) can generally be used for the diagnosis of biliary ascariasis but the procedure itself has some limitations and its success depends on operator's diagnostic experience and intestinal gas superposition (2,4).

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Figure 1. Multifrequency linear transducer, trapezoid image show; An echogenic linear parasite with in the jejunal loops



Figure 2. Multifrequency convex transducer image: Tubular structure seen as double hyperechogenic lines corresponding ascaris is seen in the jejunal loops.

The goal of our case report is to present ultrasonographic image of jejunal ascariasis to show its diagnostic value.

CASE

A 60-year-old woman was admitted to hospital with a history of epigastric and left upper quadrant pain which started two days ago prior to the admission and increased its intensity with associated anorexia and nausea. We have confirmed tenderness in the epigastrium and left upper quadrant on physical examination. There wasn't any abnormality on biochemical tests and complete blood count (CBC) results. Examination of feces for the parasite ovas was negative.

First we started abdominal ultrasonographic examination with 3,5-5 mHz multifrequency Convex transducer and secondly we used 5-10 mHz multifrequency linear transducer. We used linear transducer with trapezoid imaging method for to provide better resolution. Ultrasonography showed that a linear, 18 centimeter (cm) length, mobile, non-shadowing, echogenic structure within the jejunal loop which had three layers. Peripheral layers more echogenic than central layer (Figure 1, 2). At transverse examination target sign were seen. We couldn't detect any abnormal finding in gall bladder and bile ducts on hepatobiliary sonographic examination. Water ingestion was not needed to enhance the images. There was not any evidence of bowel

dilatation or excessive peristalsis indicating possible obstruction on abdominal US. We could just captured two longitudinal dimensional images. Ultrasonographic findings were suggestive of Ascariasis

Although the examination of feces for the parasites ova was negative the patient was treated with albendazole (10 mg/kg/day) for two weeks according to ultrasonographic detection of ascariasis. After the treatment she got over the her symptoms.

DISCUSSION

Ascaris lumbricoides is one of the most common worldwide causes of human helminthic infestation. An adult worm is typically 15-50 cm long and three-six millimeter (mm) thick (5). Life cycle in human infestation begins by ingestion of parasite's egg. Larvae emerge in the duodenum and migrate to the caecum after the eggs hatch to penetrate the surface epithelium of the mucosa. Later larvae enter the veins of the portal system from mucosa and are carried to the liver (6, 7).

The adult worm may be an incidental finding of stool examination for ascaris eggs. However the eggs in feces may be absent when only male worms are present or the females are too young or old. Similarly we did not found the ova of parasites in stool examination in our case. The most dramatic and serious presentation may

Table 1. Surgical complications of ascariasis (n=145)

Intestinal obstruction	107
Extraintestinal migration	28
to biliary tree	19
to peritoneal cavity	9
Perforation of the appendix	10

be seen on pancreatobiliary Ascariasis however usually this infestation is asymptomatic (1,7).

Although most patients with Ascariasis can be managed with medical therapy, some of them may develop serious acute complications that require urgent surgical therapy. Ascaris-induced intestinal obstruction is a frequent complication in children with heavy worm loads in endemic areas. It constitutes 5% to 35% of all cases of bowel obstruction in such regions (7). Ochoa B. has demonstrated surgical complications of ascariasis (Table 1) (8).

There have been several reports on the ultrasonographic appearance of hepatobiliary and pancreatic duct ascariasis but there are only few reports concerning sonographic evaluation of bowel obstruction due to ascariasis in the literature. This can be attributed to the lack of experience of sonographers in this field and the preconception of many surgeons that ultrasonography is less useful in the investigation of bowel obstruction as bowel gas may preclude satisfactory examination (2,4).

It is generally diagnosed when it is suspected firstly from the patient clinic, and later upon seeing the eggs in the feces. US, magnetic resonance cholangiopancreatography (MRCP), endoscopic retrograde cholangiopancreatography (ERCP) are employed on the diagnosis of the *Ascaris lumbricoides*. The ERCP is especially a good method for providing both the diagnosis and treatment of biliary ascariasis. Ultrasonography is quite useful method for the scanning hepatic, pancreatic and other regions of the human body in addition to gallbladder (9).

Ascariasis are traced along the long axis by ultrasonography, are seen as round on transverse axis and recognized as target sign from time to time with one or more echogenic linearly extended interfaces without giving posterior shade. Clinical finding should be supported by applying different diagnostic procedure at the beginning of disease since the clinical symptoms are much heavier later. Severe clinical symptoms seen in unrecognized as-

cariasis are mostly either symptomatic intestinal infestations including volvulus, perforation, intussusceptions or acute cholecystitis, appendicitis and pancreatitis in addition to hepatic abscess. Intrahepatic biliary ducts, gallbladders or pancreas may also be infested especially among asymptomatic people. The diagnosis of parasites completely based on experience and suspicions of observer (10).

Primary treatment is conservative for intestinal ascariasis and includes adequate fluid and electrolyte replacement, nasogastric suction, specific anthelmintics therapy, and antibiotics. Laparotomy is indicated in the following situations: persistent mass in the same site for more than 24 hours; persistent abdominal pain and tender mass; toxemia and rising pulse rate with disappearance of the mass. The most common surgical procedure is manually compress and pull to advance parasitic bundle toward the colon. If this maneuver is unsuccessful, worms can be delivered through enterotomy. Intestinal resections are warranted if the bowel shows evidence of gangrene or infarction. Prognosis is good if the patients present early or have partial bowel obstruction. Often, patients present late in their illness with complicated obstruction and underlying malnutrition but unfortunately they tolerate surgical procedures poorly. Mortality rate is high in patients who need bowel resection for complicated obstruction (7).

Although ultrasonography is an easy and noninvasive method for the diagnosis of *Ascaris lumbricoides*, it has a limited usage. Nevertheless, ascariasis can be determined during the routine abdominal US scanning of a patient, who lives in endemic zones.

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