

## CASE REPORT

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### INTUSSUSCEPTION DUE TO ENTRAPPED ASCARIS: AN ULTRASOUND CASE REPORT

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**ABSTRACT:** Intestinal intussusception caused by ascaris is uncommon. Abdominal ultrasound is generally done as a first imaging investigation for abdominal symptoms. This report described the ultrasound features in this rare case of adult intussusceptions due to entrapped ascaris, making a significant contribution to radiological knowledge in diagnosing the cause at the earliest for better management.

**KEYWORDS:** Ascaris, intussusception, ultrasound.

**INTRODUCTION:** *Ascaris lumbricoides* is the most common intestinal nematode affecting human beings. Approximately one fourth of the world population is estimated to be affected with ascariasis. Infestation could be silent or may lead to serious complications like intestinal obstruction, volvulus and intussusception.<sup>1</sup> Ultrasound is noninvasive, quick, safe and easily available imaging modality can be used to diagnose intestinal worms. A case of intussusceptions with ascaris as leading point had been reported earlier.<sup>2</sup> Prior to current report ultrasound features of intussusceptions due to entrapped ascaris have not been described in the world literature.

**CASE HISTORY:** A 25 year old schizophrenic female was referred from mental hospital to gastroenterology department of our hospital with history of vomiting since 2 day. Patient was irritable and crying. She was on antipsychotic medication since 10 years. On clinical examination, her vitals were stable. BMI was 16 kg/m.<sup>2</sup> Cardiovascular, respiratory and neurological examination was normal. Abdominal examination revealed guarding in lower abdomen.

Her hemoglobin was 9.8g/dl. Other routine blood investigations were within normal limit. Erect abdominal radiograph revealed multiple air fluid levels. Ultrasound in transverse scan revealed lower abdominal doughnut like bowel mass containing multiple target and rings like shadows between the inner and outer part of the mass [Figure 1]. Mass showed pseudokidney appearance on longitudinal scan. On Doppler examination flow was not visualized within the mass. Proximal small bowel loops were dilated [Figure 2]. Multiple curved or straight, long echogenic tubes with or without central anechoic tube were present within the bowel loops on longitudinal scan [Figure2] and giving ring like appearance on transverse scan [Figure 3].

Diagnosis of intestinal obstruction due to intussusception with entrapment of worms between intussusceptum and intussusciptum was made. Emergency laparotomy was done which revealed irreducible ileoileal intussusception and presence of ascaris between the intussusceptum and intussusciptum with ischemic changes. Resection and anastomosis was done. Postoperatively piperazine was started and later on albendazole was prescribed.

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**DISCUSSION:** Telescoping of one bowel segment into lumen of the adjacent bowel segment represents an intussusception which appears as complex soft tissue mass consisting of the central intussusceptum and the outer intussuscipten. Intussusception is more commonly seen in children. Adult intussusception is an uncommon entity representing 5% of all intussusceptions and 1% of all bowel obstructions. 90% of adult intussusceptions are caused by an underlying disorder like neoplasm and a postoperative conditions of which neoplasm contribute approximately 65% of all cases.

It is commonly believed that masses in the bowel acts as an irritant causing the abnormal peristaltic movement leading to an intussusception. It commonly present with abdominal pain, nausea, vomiting and less commonly as melena, weight loss, fever and constipation.<sup>3</sup> Ascaris infestation is commonly observed in the underdeveloped countries like India.<sup>4</sup> It is endemic in the areas with illiteracy, ignorance, poor hygiene, poverty and malnutrition. Frequency of disease distribution varies according to economic condition, culture, climate, region and latitude.

Approximately 3 billion peoples in the world were reported to be infected by ascaris. It is prevalent in the tropical countries. Prevalence of approximate 45% had been reported in some regions of Asia and Latin America with approximate 1000000 new annual cases. Approximately 60000 annual deaths are attributed directly to ascariasis.<sup>[1]</sup> It occurs in all age group but more commonly seen in children.<sup>4</sup> Clinically it can be silent or lead to acute or chronic symptomatology.

It may present with loss of weight, chronic abdominal pain, nausea, vomiting and passage of worms in the stool. Most commonly it present as chronic infestation which contributes to the malnutrition. Complications like intestinal obstruction, volvulus, intussusception, appendicitis, bowel perforation had been reported which need urgent expert attention. Infestation is acquired by ingestion of ascaris eggs. Larvae migrate to the lung and complete their maturation. Afterward they ascend into respiratory tract and by the process of swallowing migrate to the small intestine of the human being where they become adults.<sup>1</sup>

Ultrasound is a useful tool to diagnose the adult intestinal ascariasis, dilated bowel loops and sometimes in diagnosing the cause of obstruction. Ultrasound appearance of ascaris is reported in various studies as presence of long echogenic structure (linear or curved, single or multiple) with or without a central anechoic tube, mostly without acoustic shadowing.<sup>5,6,7</sup> Varied appearances like “winding highway” or “parallel lines”, “railway track” sign, “3 line” or “4 line” sign on longitudinal scan and doughnut or target sign, ring sign, bull’s eye appearance on transverse scan had been reported in cases of ascariasis.<sup>5,7,8</sup>

Ultrasound has high sensitivity (98-100%) and specificity (88-100%) for the diagnosis of intussusception. Doughnut sign had been reported commonly in intussusceptions in which hypo-echoic outer ring is formed by the everted limb of the intussusceptum and the intussuscipten. Central part varies with the section level. Hypo-echoic Centre is generally seen at the apex portion of intussusceptions due to central limb of intussusceptum without mesentery. At the base of intussusceptions Centre is hyper-echoic crescent-shaped.

It is seen when the mesentery enclosed the central limb of the intussusceptions (crescent in doughnut sign). Sandwich sign, hayfork sign, pseudokidney sign can be seen on longitudinal scan. Three parallel hypo-echoic bands with interposing two hyper-echoic band gives sandwich sign. Outer two hypo-echoic bands represents edematous everted limb of intussusceptum and thin intussuscipten. Central hypo-echoic band represents central limb of intussusceptum.

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Hyper-echoic bands are due to enclosed mesentery. Hayfork sign is a variant of sandwich sign seen at apex where three hypo-echoic bands going to join. Pseudokidney sign seen in oblique scan or curved intussusceptions in which hyper-echoic mesentery seen on only one side of central limb of intussusceptum.<sup>9</sup> The management of intestinal ascariasis is conservative unless there has any serious complications.<sup>5</sup> Our patient had irreducible intussusceptions and underwent surgery for this. Such a type of ascaris presentation is uncommon and knowledge of ultrasound finding in such a case will definitely help the readers.

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**Figure 1:** Ultrasound image (Transverse scan) at apex (A) and middle (B & C) level of intussusceptions showing doughnut like appearing bowel mass [Intussusception] containing multiple target and ring like shadows of entrapped ascaris worm (represented by arrow) between intussusceptum and intussusception.

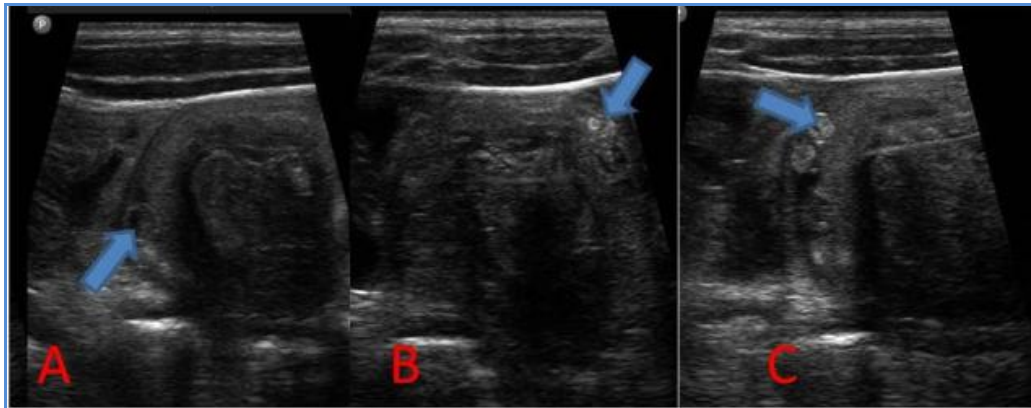


Figure 1

**Figure 2:** Ultrasound image (Longitudinal scan) showing ascaris as a long, curved echogenic tube (represented by arrow) within the dilated small bowel loop proximal to intussusception.

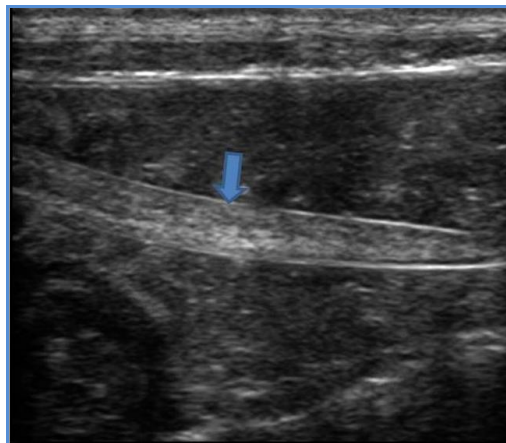
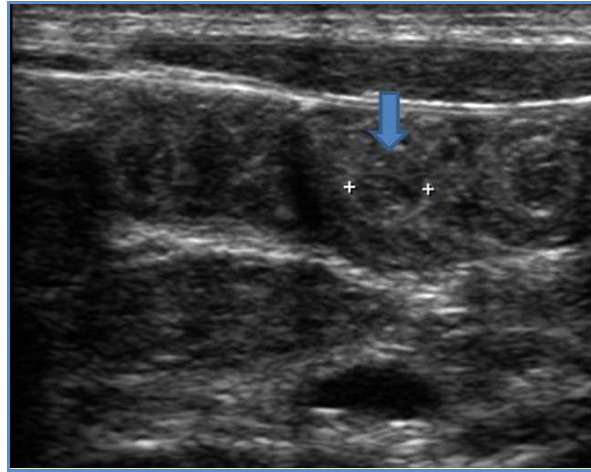


Figure 2

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**Figure 3:** Ultrasound image (Transverse scan) showing ascaris as multiple ring like shadows (represented by arrow) within the collapsed small bowel loop distal to intussusception.



**Figure 3**

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