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**Case Report**

# Bowel obstruction in adults due to ascariasis

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## ABSTRACT

In the world the most frequent and cosmopolitan parasitosis of all human helminthiasis is that caused by ascaris lumbricoides this sickness affects 1.5 billion people around the world, and approximately 60,000 people die annually as the result, about of complications, the intestinal obstruction being the most frequent complication from 38 to 87.5%, the humans become infected by ingesting the larvated eggs of the parasite. OPS report a prevalence of 46 million children between 1-year-old and 14 years old, the most importance prevalence occurs in children between 2 years old and 10 years old, decreasing significantly from the 15 years old. Mexico report through SINAVE (SEMARNAT 2020) a national incidence of 24,203 cases, the State of Sinaloa a total of 690 cases (2.8%). Lack of sanitation, drinking water and precariousness are risk factors for complications such as obstruction a complication that can progress to death.

**Keywords:** *Ascariasis lumbricoides*, Ascariasis, Helminths, Intestinal obstruction, Laparotomy

## INTRODUCTION

Intestinal obstruction due to ascariasis in adults is a rare presentation in patients over 15 years of age. Ascariasis has a higher reported incidence in pediatric age, the highest incidence occurs in children from two to 10 years old, approximately 13 million school-age children (between one and 4 years) and 33.3 million school-age children (5 to 14 years) due to lack of sanitation and access to drinking water.[1]

The incidence of small bowel obstruction in the United States is 350,000 annually, its etiology includes adhesions (65%), hernias (10%), neoplasms (5%), Crohn's disease (5%) and others (15%).[2]

Mechanical obstruction is observed in 38-87.5% of surgical complications due to ascariasis.[3]

*Ascaris lumbricoides* is the largest and most predominant helminth in the human body.[4] Soil-transmitted helminths (STHs) affect approximately 1.5 billion people around the world. Children with risk and socioeconomic factors are more susceptible to infestation, with serious complications such as obstruction, volvulus, intussusception, and intestinal necrosis.[5]

Early detection of intestinal obstruction caused by *Ascaris lumbricoides* is very useful to avoid its serious and lethal complications.[6]

In Mexico, SEMARNAT reports as of 2020 report a national incidence of 24,203 cases, in the State of Sinaloa with a total of 690 cases: 327 men and 363 women. Which was a decrease of 40% compared to the previous year (2019), which reported a total state incidence of 1,139 cases reported by SEMARNAT.[7]

## CASE REPORT

22-year-old male without chronic degenerative conditions, non-allergic, non-surgical, positive drug addiction,

smoking index of 0.8 years, alcohol intake every eight days, use of marijuana 2-3 times a week and use of glass 1-2 times weekly, mechanic with poor hygiene-dietary habits, enters the emergency room due to abdominal pain that has been going on for 3 days, colic-like, starting in the mesogastrium that radiates to both iliac fossae, accompanied by nausea and vomiting on multiple occasions, which does not improve after conservative treatment.

In emergency room, the patient presented with metallic noises on abdominal examination, generalized pain on superficial and deep palpation with signs of peritoneal irritation, tachycardic, diaphoretic, and generalized paleness. Treatment was started with fluid replacement, analgesia, antibiotics, and placement of a nasogastric tube which gave its placement gastrobiliary characteristics. An abdominal x-ray was performed where great dilation of intestinal loops was observed, an abdominal ultrasound was performed (Figure 1 and 2).

**Figure 1: Abdominal X-ray showing intestinal dilation.**

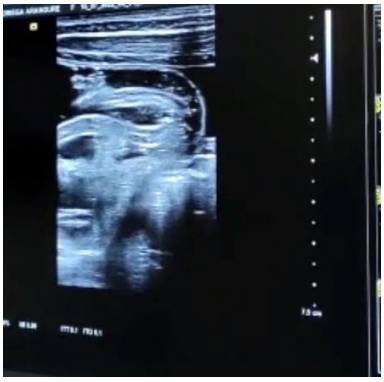

**Figure 2: The presence of mobile tubular images related to *Ascaris lumbricoides* was observed.**

Upon admission, he had the following laboratory results: hemoglobin 13.2 g/dl, hematocrit 39.7%, platelets 327x103/ul, leukocytes 17.7x103/ul, neutrophils 73.8%, eosinophils 1.0%, total bilirubin 0.6 mg/dl. Surgical treatment was decided, exploratory laparotomy was performed, where fluid free of inflammatory characteristics and necrotic intestinal segment of 10 cm to 270 cm of Treitz's ligament was found, where mechanical obstruction of approximately 15 cm was observed where intraluminal ascaris were observed proceeded to perform enterotomy and spontaneous release of ascaris was obtained, the proximal intestinal loop was milked, obtaining *Ascaris lumbricoides*, a resection of 10 cm of ileum was performed at the level of the necrotic segment and subsequently end-to-end manual anastomosis of the ileum to 270 cm of Treitz ligament plus drainage placement (Figure 3 and 4).

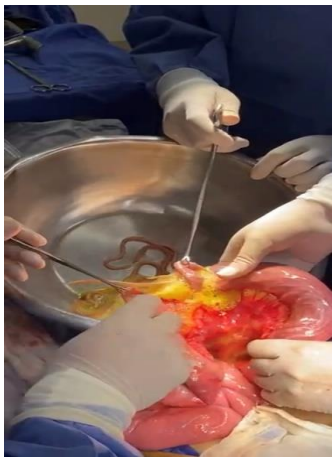

**Figure 3: Small intestine with intestinal obstruction, note the ascaris plastron. Enterotomy at that level.**

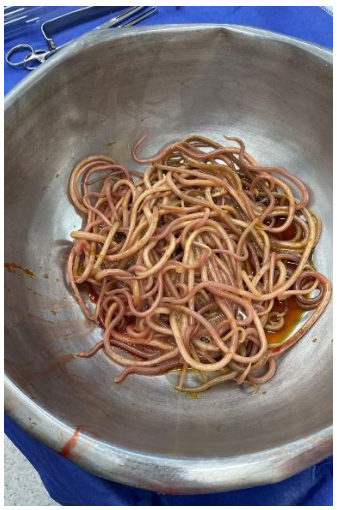

**Figure 4: *Ascaris Lumbricoides.***

The patient presented a favorable post-surgical evolution, so it was decided to discharge him on the sixth day after surgery, tolerating oral route and adequate evacuations, attending the outpatient clinic two weeks later where he was asymptomatic, with no evidence of obstruction or additions, it was decided to discharge him of service.

## DISCUSSION

More than 1.5 billion people are carriers of helminth infections, an estimated 819 million individuals infected

with *Ascaris lumbricoides*, 465 million with *Trichurus trichiura* and 439 million with hookworm (*Necator americanus* and/or *Anquilostoma duodenale*), parasitic infections continue to be a public health problem.[8]

Infections of one and/or several species cause diseases ranging from mild to severe and even fatal, as well as increased school absenteeism, although this may not be detectable at the community level.[9]

The most common acute complication of ascariasis is bowel obstruction; the mortality rate of this complication is 5.7% after 10 years. When mechanical obstruction persists, the worm bolus acts at a fixed point and leads to intestinal intussusception or volvulus, as occurred in our case, with treatment being imminent surgical management. Ascaris can also excrete neurotoxins and anaphyllotoxins, causing spasticity and inflammation of the small intestine.[10]

Partial bowel obstruction can resolve spontaneously with conservative management including intestinal rest, intravenous fluids, and decompression with a nasogastric tube.[11]

## CONCLUSION

Complications due to ascariasis, bowel obstruction is the most frequent with a mortality of up to 5.7%, predominantly in children under 10 years of age, which is why the diagnosis and management must be effective and timely. In our patient, he was not a candidate for management. conservative giving surgical treatment, which prevented further complications and decreased mortality.

It should be noted that the improvement of health infrastructure and prevention programs at the primary level are the most effective measures to reduce presentation and morbidity and mortality.

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