

Uncommon Presentation of Roundworm Infection

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1. Abstract

1.1. Objective

Soil-transmitted helminth (STH) infections are a common global health issue that affects underprivileged communities without adequate access to clean drinking water, sanitation, and hygiene. *Ascaris lumbricoides* is the main species that infects humans.

1.2. Clinical Presentation

We present a 62 years old male, not a known case of any chronic illness who presented with symptoms of pain abdomen and anorexia for last three months. He was initially seen by local health practitioner who treated symptomatically with proton-pump inhibitor and anti-spasmodic which led to partial relief. He continued to have intermittently vague, non-localized abdominal pain. There was no history of fever, vomiting, diarrhea, blood or worm passage with stools, urticaria or significant weight loss. One day he vomited a live large white colored unsegmented worm. The patient and family members never consulted or took treatment for this worm infestation. The baseline symptoms persisted for next two months and he again vomited a similar kind of live white colored unsegmented worm. At this point of time, he had severe pain abdomen for which he was treated with injectable analgesics. All his routine blood investigations except for raised ESR and eosinophils, ultrasonogram abdomen, chest x-ray, stool and urine examination were essentially normal. He was treated with albendazole and ivermectin combination which gave him complete relief and now after three months follow-up, he is totally asymptomatic without any pain abdomen or anorexia.

1.3. Conclusion

Intestinal ascariasis arises from risk factors such as low socioeconomic conditions, poor nutrition, and lack of awareness. Health education is of utmost importance in preventing and/or controlling the disease. Medical treatment with anthelmintics is the mainstay of treatment.

2. Introduction

Evidence of infestation with *Ascaris lumbricoides* has been documented as far back as 1550 BCE in Ebers Papyrus from ancient Egypt. It was one of the three common parasitosis during the time of Hippocrates. *Ascaris* has been found in humans since the domestication of pigs. Soil-transmitted helminth (STH) infections are among the most common infections worldwide with an estimated 1.5 billion people or 24% of the world's population affected. These infections usually affect the low socioeconomic and underprivileged communities with inadequate access to clean drinking water, proper sanitation, and good hygiene in tropical and subtropical regions [1]. The highest prevalence has been reported from sub-Saharan Africa, China, South America, and Asia [2]. Ascariasis is an important cause of intestinal obstruction in children presenting as an acute abdomen but involvement at adult stage is uncommon. Early detection of intestinal obstruction due to STH involves high suspicion and is essential for preventing serious and lethal complications [3]. *Ascaris lumbricoides* enters the human host by ingestion of the fertilized eggs that contaminate the soil in poorly sanitized areas. Hatched larvae then enter the circulation and migrate to the lungs where they are then coughed up and swallowed and reenter the gastrointestinal tract. The worms mature in the small intestine. The life cycle is perpetuated by faecal excretion of eggs back into the soil. The eggs passed in faces will take about 3 weeks to mature in the soil before they become infective. Hence, there is no direct transmission from person to person or infection from fresh faces. Roundworms cannot multiply in the human host. Therefore, reinfection can only occur as a result of contact with infective stages in the environment [4,5].

3. Case Report

We present a 62 years old male, not a known case of any chronic illness who presented with symptoms of pain abdomen and anorexia for last three months. He was initially seen by local health

practitioner who treated symptomatically with proton-pump inhibitor and anti-spasmodic which led to partial relief. He continued to have intermittently vague, non-localized abdominal pain. There was no history of fever, vomiting, diarrhea, blood or worm passage with stools, urticaria or significant weight loss. One day he vomited a live large white colored unsegmented worm. The patient and family members never consulted or took treatment for this worm infestation, The baseline symptoms persisted for next two

months and he again vomited a similar kind of live white colored unsegmented worm. At this point of time, he had severe pain abdomen for which he was treated with injectable analgesics. All his routine blood investigations except for raised ESR and eosinophils, ultrasonogram abdomen, chest x-ray, stool and urine examination were essentially normal. He was treated with albendazole and ivermectin combination which gave him complete relief and now after three months follow-up, he is totally asymptomatic without any pain abdomen or anorexia.



Figure 1: First time vomited female Roundworm which is long and with straight end.

4. Discussion

Ascaris lumbricoides are nematodes (round or cylindrical worms) which parasitize the small intestine of the human being [2]. The adult worm is white or pearlescent pink in color, which differs by sex; the male is between 15 and 20 cm and the female is between 35 and 40 cm, both with a width between 2 and 6 mm. The male differs from the female by having a rolled rear end, unlike the female's, which is straight. Its size depends on the parasite load of the host, in intense parasitosis the size is smaller. Fertilized females lay 200,000 eggs per day, which grow into an infective form about 18 days after laying. Symptomatic cases are now quite rare, and a high index of suspicion is necessary to make a prompt diagnosis. "Massive ascariasis" is a term used for overwhelming infestation by roundworms [4]. Symptoms include colicky abdominal pain, vomiting, and constipation. Possible complications may include worms in the vomitus, ileocecal intussusception, volvulus, gangrene, and perforation of the bowel [6]. Neurotoxins are excreted by roundworms which can cause contraction of the small bowel, resulting in obstruction. An inflammatory reaction in bowel segments may be caused due to the other toxins excreted by the worms, such as anaphylatoxins, hemolysins, and endocrinolysins [6]. Heavy worm infestation, large aggregates of worms can be

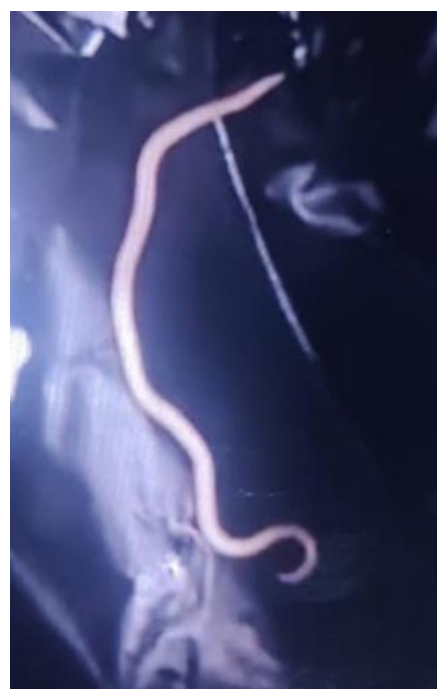


Figure 2: Second time vomited male roundworm which is short and with curved end.

seen as "cigar bundles," which are radiolucent areas on plain radiograph of the abdomen. Occasionally, the contrast between a mass of worms and the gas in the bowel produces a "whirlpool" effect. Ultrasonography of the abdomen is fast, safe, noninvasive, and a low-cost modality for suspected intestinal worm infestation, and various appearances of roundworms have been described like a thick echogenic strip with a central anechoic tube or multiple long, linear, parallel echogenic strips without acoustic shadowing. On computed tomography imaging, worms can be visualized on soft tissue window as multiple, linear thread-like structures [5]. The medical management is constant, with oral albendazole 400 mg as a single dose as the drug of choice. The second choice of treatment is mebendazole 100 mg twice a day for three days or 500 mg as a single dose or ivermectin 100 microgram/kg to 200 microgram/kg once [1]. According to estimates, 225 million children in India are at risk for STH. Numerous health initiatives have been carried out, such as mass drug administration, the WASH intervention (water, sanitation, and hygiene), the "Total Sanitation Campaign," and the "Swachh Bharat Abhiyan," which was launched by the Indian government to install flush pit latrines and community mobilization among villagers [7]. Most people who have ascariasis are 10 years old or younger. Children in this age group may be at higher risk because they're more likely to play in dirt. In contrast our patient

was in much older age group with having limited visits outside home. It is important to note that factors such as fever, sepsis and some anesthetic or antiparasitic drugs can generate the migration of *Ascaris lumbricoides* to sites other than its usual habitat in the small intestine, even to the airways, but due to its reduced mobility, it needs a combination of gastroesophageal sphincter relaxation and horizontal position [8]. In our case also patient had uncommon route of retrograde passage of worms through oral cavity.

5. Conclusion

Intestinal ascariasis arises from risk factors such as low socioeconomic conditions, poor nutrition, and lack of awareness. Health education is of utmost importance in preventing and/or controlling the disease. Medical treatment with anthelmintics is the mainstay of treatment.

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