

■ CASE REPORT

Sudden Death due to Ascariasis Infestation: An Unrecognized Danger

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ABSTRACT

Ascaris Lumbricoides or common round worm is the most common of human helminths and is distributed worldwide. Infection is more prevalent in the low socioeconomic areas locations with poor hygienic habits like lack of regular hand washing and proper disposal of human excretions. *Ascariasis* causes both intestinal and extra intestinal problems but very rarely leads to death. Most patients infected with *Ascaris* have a chronic disease course and remain asymptomatic for years or present with only mild symptoms. We report a case of an adolescent boy who was admitted with abdominal pain and passed away next day. The autopsy was conducted and it was found that boy died due to intestinal obstruction due to the *ascaris* infestation. The authors aim to highlight the risk of mortality due to ascaris infestation. The susceptible population should be educated and screened so as to prevent any further complications and avoidable fatality. The authors also aid to increase the awareness amongst autopsy surgeons about the presence of this hidden pathological finding in sudden undiagnosed death.

KEYWORDS | ASCARIS LUMBRICOIDES, ASCARIASIS, ROUND WORM, INTESTINAL OBSTRUCTION, SUDDEN DEATH.

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INTRODUCTION

Ascaris Lumbricoides or common round worm is the most common of human helminths and is distributed worldwide especially in developing countries.^{1,2} *Ascaris* is the largest nematode living in the small intestine. Infection is more prevalent in the low socio-economic areas locations with poor hygienic habits like lack of regular hand washing and proper disposal of human excretions. The incidence may be as high as 80–100% in rural areas with poor sanitation.^{1,2} *Ascaris* parasitic infects about more than 1

billion people worldwide, with annual addition of 10.5 million new cases.³⁻⁵ *Ascariasis* is common in the age group of 5 to 15 years and cause approximately 60000 deaths per year worldwide, mainly in children.^{2,4,6} Government of India too recognizes the magnitude of the soil transmitted helminthes infection and observes a National Deworming Day on 10th Feb every year to make every child wormfree.⁷ *Ascariasis* causes both intestinal and extra intestinal problems but very rarely leads to death. Most patients infected with

Ascaris have a chronic disease course and remain asymptomatic for years or present with only mild symptoms.⁶ We report a case of an adolescent boy who was admitted with abdominal pain and passed away next day. The autopsy was conducted and it was found that boy died due to intestinal obstruction due to the ascaris infestation. The authors aim to highlight the risk of mortality due to ascaris infestation. The susceptible population should be educated and screened so as to prevent any further complications and avoidable fatality. The authors also aid to increase the awareness amongst autopsy surgeons about the presence of this hidden pathological finding in sudden undiagnosed death.

Case Details

The deceased was a 13 years old male child who presented to a hospital with the complaint of abdominal pain. But when the symptoms didn't subside he was brought to All India Institute of Medical Sciences, New Delhi next

day where he was declared brought dead. The case was labeled as a Medicolegal case and subjected to medico-legal postmortem examination.

The deceased was average built teenaged male. The clothes were intact. Fungal infection was present over abdomen and inguinal region. Oral hygiene was poor. The other natural orifices were normal. No external injury was present over the body. Brain was edematous and congested, weighing 1360 gms. Thyroid complex and other neck structures were intact. Pleural cavity contained about 200ml of pleural fluid. Right lung was adherent to chest wall with consolidation changes. Heart was normal, weighing 290 gms. Peritoneal cavity contained about 500 ml of hemorrhagic fluid. Stomach mucosa was hemorrhagic and congested. In proximal part of duodenum about 10 Ascaris worms were present at the pyloric duodenum junction obstructing the outlet of stomach (Fig. 1).



Fig. 1: Ascaris worms at Pyloric Duodenal Junction

On further dissection more worms were found blocking the jejunum region with the entire loop being dilated and inflamed. The other internal organs were congested. No other

significant injury/pathology was present inside the body. The cause of death was concluded as shock due to complications on intestinal obstructions.

DISCUSSION

Most of the complications of ascariasis are in the digestive and airway tracts⁶ due to life cycle of *Ascaris lumbricoides*. *Ascaris* infection occurs by ingestion of eggs in the fecal contaminated drinking water and raw or undercooked foods. Eggs containing infective larvae hatch in the duodenum. The larvae penetrate the intestinal mucosa and migrate to the portal vessel to the liver and lungs. The larvae molt twice in the lungs. Eventually rupture from the pulmonary capillaries to enter the alveoli. Subsequently they move up to the respiratory tree and trachea to the epiglottis to be coughed up, swallowed, and passed again to the small intestine and mature into adults.^{2,8,9}

Clinical manifestations may vary from asymptomatic to fatal cases. The mechanical effects are caused due to masses of worms causing luminal occlusion or even a single worm infiltrating into a vital area. The adult worms live in the upper part of the small intestine, causing recurrent and often severe colicky pain in the abdomen. The worms may be clumped together into a mass leading to volvulus, intussusception, or intestinal obstruction and intestinal perforation.^{2,8,9} The deceased in the present case had abdominal pain prior to his death. The worms were found in the duodenal and jejunal region. The death was attributed to intestinal obstruction due to mechanical effects of the worms.

The presence and significance of *Ascaris* infection in trauma patients has also been reported with life-threatening complications such as obstruction of larynx^{10,11}, trachea⁶ and tracheal passage.^{12,13} Presence of even a single ascaris worm in the airways can cause acute respiratory failure and death.¹² Fatal case has been reported due to diffuse peritonitis, due to perforation of duodenal wall.¹⁴ Severe intestinal infestation may cause malabsorption¹⁵ and

undernutrition leading to fatality.¹⁶

The prognosis of intestinal infestation is usually good, but if undiagnosed may prove fatal like in the present case.¹⁴ Definitive Diagnosis is usually established by detection of eggs ova in feces. Radiological imaging such as ultrasound, CT, MRI can easily detect adult worms in intestinal or respiratory tract. Serological tests can detect *Ascaris* antibodies particularly in extra intestinal Ascariasis.² Ascariasis is easily treatable with medications like pyrantelpamoate, albendazole, mebendazole, or ivermectin.²

Ministry of Health & Family Welfare, Government of India in coordination with other ministries and all States/Union Territories observes National Deworming Day (NDD). The objective is to deworm all preschool and school age children (enrolled and non-enrolled) between the ages of 1-19 years through the platform of schools and Anganwadi Centers in order to improve their overall health, nutritional status, access to education and quality of life.⁷

CONCLUSION

Ascariasis is a prevalent, potentially lethal but preventable disease. Awareness activities towards maintaining the hand hygiene and sanitation, particularly in children, can restrict the spread of infection. Mass deworming programs will significantly reduce the morbidity and mortality. The sudden deaths with history of symptoms of abdominal pain etc should be meticulously investigated at Autopsy to diagnose unknown/hidden *Ascaris* infestations.

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