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Ascaris intestinal perforation after trivial trauma

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ABSTRACT

Introduction: Isolated gastrointestinal perforation after blunt abdominal trauma and perforation seen from parasitic infestation are infrequent case presentations. Ascaris lumbricoides (round worm) is a common parasitic infestation in underdeveloped as well as developing countries.
Case Report: Herein, we report a case of a 42-year-old male patient who was presented to the emergency department with history of trivial trauma and complain of abdominal pain, investigations lead to the diagnosis of peritonitis. The emergency laparotomy was done and unexpectedly, a live round worm was found to be the cause of a single jejunal perforation. It is suggested that the trivial trauma might have exacerbated the impending ascariasis perforation.
Conclusion: Ascaris lumbricoides, an intestinal roundworm, is one of the most common helminthic human infestations worldwide. Infestation with this can result in a wide range of clinical presentations ranging from asymptomatic worm infestation to potentially fatal complications. Thus ascariasis should be investigated in patients with non-specific abdominal pain or intestinal perforation especially in tropical countries. It is saddening that in spite of worldwide improvement in public awareness of hygiene and good sanitation, there are still some parts of the world where prevalence of helminthiasis and their complications are rising. A jejunal perforation with single ascaris after trivial trauma is a rare entity. This unique case has highlighted the probability of blunt trauma intensifying an impending perforation by roundworm in this patient.

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Keywords: *Ascaris lumbricoides*, Peritonitis, Trauma, Helminthiasis

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INTRODUCTION

Worldwide *Ascaris lumbricoides* is one of the most common human helminthic infestations [1]. The durability of eggs, high number of eggs produced per parasite, poor socioeconomic conditions lead to its high prevalence. *Ascaris* transmission is increased as asymptomatically infested individuals continued to shed eggs for years [2]. In tropical countries where warm and wet climate provides suitable environmental conditions for its high prevalence, contrast to dry areas, where transmission occurs mainly in rainy season [3]. Jejunum or ileum is usual sites of habitat of an adult

worm. The life span of an adult worm ranges from 10 months to 2 years. The immunologic response of the host to infestation with larvae, eggs or adult worms, direct tissue damage, gastrointestinal obstruction by an aggregation of worms and nutritional sequelae are the proposed pathophysiologic mechanisms [4].

This is a report of an unusual case of *Ascaris lumbricoides* and blunt abdominal trauma presenting adjuvantly. Though clinical presentation is usually delayed if the nature of the trauma is trivial, this inappreciable trauma might have led to intestinal perforation, precipitating concealed presence of an impending ascariasis perforation.

CASE REPORT

A 42-year-old male patient was admitted to our emergency department with complains of abdominal pain in periumbilical region with history of blunt trauma to abdomen due to fall from motor cycle while taking the turn at minimum speed. He was not a frequent traveler and resides in small village near Patiala, India. Patient had history of intermittent abdominal pain for the last three months which use to subside by taking oral anti-acids and anti-spasmodic. There was no history of vomiting, fever or obstruction. On examination, tenderness and guarding were present in epigastric and periumbilical region. All routine blood investigations were performed and found to be within normal limits. The abdomen X-ray (erect position) showed free air under both domes of diaphragm. Peritonitis was diagnosed and patient was taken up for exploratory laparotomy. Intraoperative findings were as follows: A single perforation was present in the jejunum, about 14–16 cm distal to duodenojejunal junction, measuring 1x0.5 cm in size, on the anti-mesenteric border. One live round worm measuring about 12 cm in length was found protruding out of the perforation site (Figure 1), rest of the small intestine was examined for presence of any other worm. The biopsy was taken along the margin of perforation and the perforation site was closed in double layer. Peritoneal cavity was washed with warm normal saline. The abdomen was closed after placing proper drains. Postoperatively, the patient was given broad spectrum intravenous antibiotics and anti-helminthic therapy. Postoperative period was uneventful and patient was discharged under satisfactory condition on tenth postoperative day after removal of skin sutures. Biopsy showed focal acute non specific inflammatory reaction which implies that the inflammation was secondary to *Ascaris* infestation.

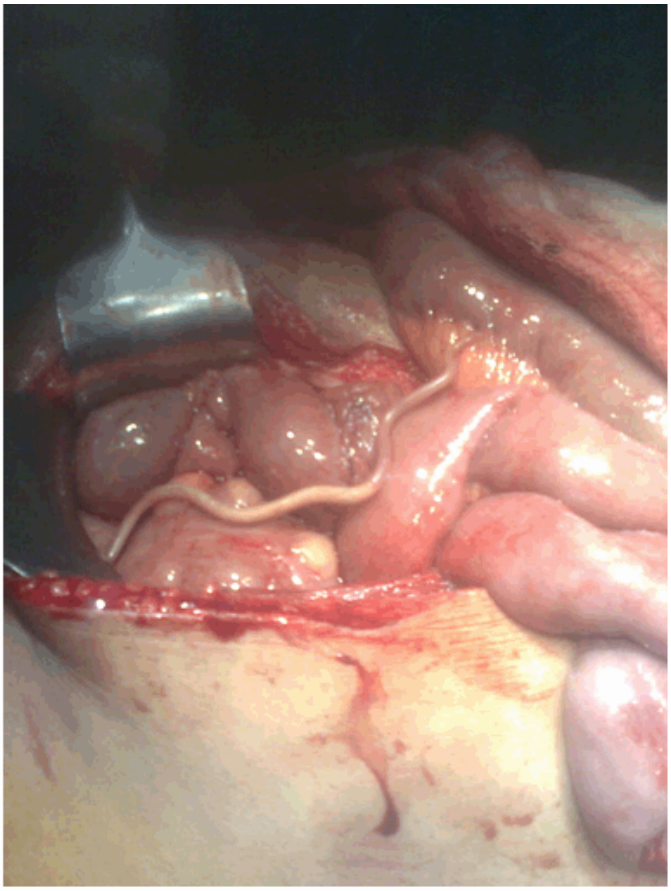

Figure 1: Live *Ascaris lumbricoides* extracted from jejunal perforation.

DISCUSSION

Ascaris lumbricoides, an intestinal roundworm, is one of the most common helminthic human infestation worldwide [1]. Perhaps as much as one quarter of the world's population is infested, with a prevalence of 45% in Latin America and 95% in parts of Africa [5]. The faeco-oral route being common mode of *Ascaris* transmission by ingestion of raw vegetables and fruits containing embryonated eggs. Adult worms may be found in gastrointestinal system, hepatobiliary system or peritoneal cavity, resulting in a wide range of clinical manifestation like volvulus, gastrointestinal obstruction, intussusceptions, cholangiohepatitis, liver abscess, peritonitis, pancreatitis, cholecystitis and Loeffler's pneumonitis [6]. The presence of dead adult worm in peritoneal cavity or reaction to ascaris eggs may result in granulomatous peritonitis, so one should suspect helminthiasis infestation in patient presenting with non-specific complain of abdominal pain or gastrointestinal perforation to avoid further complications [7]. The perforation due to helminthiasis is rare. Normal worms may result in two types of gastrointestinal perforation, primary and the secondary. The perforation through healthy intestine occur in primary type, where in secondary type it usually occurs in association with presence of a predisposing factor e.g., trauma, typhoid , tuberculosis, amebiasis or a weakness in intestinal wall [6, 8]. Trauma to the intra-abdominal structures can be classified into two primary mechanisms of injury–

compression forces and deceleration forces. Compression or concussive forces rupture the intestine by transiently increasing intraluminal pressure [9]. As seen in our case where trivial trauma increased the intraluminal pressure leading to rupture of an impending perforation because of presence of ascaris. Literature also discusses the synergistic action between typhoid and taenia causing intestinal perforation [10].

It is saddening that in spite of worldwide improvement in public awareness of hygiene and good sanitation, there are still some parts of the world where prevalence of helminthiasis and their complications are rising. The provision of clean drinking water, safe disposal of sewage, legislation to ensure high standards of food hygiene and programs to detect and monitor chronic carriers are advocated. These efforts should be complemented by mass anti-helminthic chemoprophylaxis which may further ameliorate the risk of early intestinal perforation [6].

CONCLUSION

A jejunal perforation with single *Ascaris* after trivial trauma is a rare entity. Infestation with *Ascaris* is common in underdeveloped and developing countries and should be evaluated. As a delay in management, abdominal complications can have a fatal outcome. In our case, the trivial trauma precipitated the impending perforation leading to puncture of the small intestine and symptoms of peritonitis. Thus, this unique case has highlighted the probability of blunt trauma intensifying an impending perforation by roundworm in this patient.

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Author Contributions

Kuldip Singh Ahi – Conception and design, Acquisition of data, Drafting the article, Critical revision of the article, Final approval of the version to be published

Anand Munghate – Conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Critical revision of the article, Final approval of the version to be published

Mahak Chauhan – Acquisition of data, Analysis and interpretation of data, Drafting the article, Critical revision of the article, Final approval of the version to be published

Harnam Singh – Conception and design, Analysis and interpretation of data, Drafting the article, Critical revision of the article, Final approval of the version to be published

Ashwani Kumar – Conception and design, Analysis and interpretation of data, Drafting the article, Critical revision of the article, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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