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Management of Accidental Finding of Ascaris Lumbricoides During Emergent Abdominal Surgery: A Case Report and Review of the Literature

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Rezumat

Managementul descoperirii incidentale a prezenței de ascaris lumbricoides în timpul chirurgiei abdominale de urgență – prezentare de caz și revizuire a literaturii

Ascaris lumbricoides este cel mai frecvent helmint cu transmitere prin contact cu solul din lume și cel mai adesea prezența sa este asimptomatică, deși poate determina dureri abdominale, malabsorbție și deficit de creștere în greutate, obstrucție totală sau parțială la nivelul intestinului subțire sau al căilor biliare etc. Descoperirea incidentală de ascaris în timpul operațiilor abdominale de urgență este foarte rară, fiind raportată în foarte puține articole. În lucrarea de față descriem acest eveniment rar din perspectiva unei țări cu prevalență scăzută a acestei infecții, iar apoi revizuim literatura de specialitate, clarificând posibilele provocări chirurgicale și pe parcursul urmăririi postoperatorii determinate de prezența acestui parazit pentru chirurg.

Cuvinte cheie: *ascaris*, traumă, Albendazol, plagă împușcată, perforație intestinală

Abstract

Ascariasis lumbricoides is the most common soil-transmitted helminth worldwide and most often is asymptomatic, although it can present with abdominal pain, malabsorption and growth failure, complete or partial obstraction in small bowel and biliary system and etc. Accidental encounters with ascaris during emergent abdominal surgeries are very rare and have been reported in less than a handful of papers. In this report, we describe this rare event from a country with low prevalence of this infection, and then review the literatures and clarify the possible challenges for surgeons during operation and post-operative follow-up.

Key words: *ascaris*, trauma, Albendazole, gunshot, intestinal perforation

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Introduction

Although *ascariasis lumbricoides* is the most common soil-transmitted helminth worldwide, there are only few reports of accidental encounters with ascaris during emergent abdominal surgeries. In this report, we describe this rare event from a country with low prevalence of this infection and then, review the literature and propose a guideline for general surgeons on intra-operative and post-operative strategies in the case of confronting with such a situation.

Case report

A 28 year-old Afghan male, who was shot by the border guards because of illegal immigration into the country, was transferred to our hospital. Upon his arrival, his vital signs were stable. Bullet entrance wound was on his back and the exit wound on

the peri-umbilical area. After primary resuscitations and preparations, he was transferred to the operating room for a midline exploratory laparotomy. There were four sites of perforation in the small bowel and one site in the sigmoid. During our exploration, we noticed two fragments of ascaris inside the peritoneal cavity (Fig. 1).

Alive worms wriggling out of the perforation sites could be observed which were removed one by one. We explored the entire abdomen to remove all the worm fragments. Then, we resected 45 cm of the small bowel with primary repair, refreshed sigmoid perforation site and pulled it through the abdominal wall to create a loop colostomy. He received a single dose (400 mg) of Albendazole in the third post-operative day (POD) in addition to prescription of Ceftriaxone and Metronidazol. He was discharged on POD 5 and he went on colostomy closer and revision about 6 week later.

Discussion

Although ascariasis is the most prevalent infection around the world (1) and its prevalence is about 40 - 80% in some regions (2), its incidence in Iran as a developing country is only 1.5% (3). However, the incidence in the regions along the eastern and western borders can be higher where the country is neighbored by Pakistan, Afghanistan, and Iraq and exposed to the illegal immigrants or smugglers.

As mentioned above, there are only few publications which have reported unexpected encounter with *ascaris* during an emergent abdominal surgery. These cases included a 3 year old boy with pistol shot (4), a 17 year old girl with multiple injuries in a bomb explosion (5), and a young soldier with gunshot injury (6). None of these cases had pre-operative diagnosis of ascaris infection. In all these cases, the surgeons tried to remove worms and none of them reported complications such as missing some worm fragments (e.g. abscess formation) or anastomotic breakdown and there is no general agreement on the type and dosage of the post-operative anti-helminthic therapy. Considering the fact that foreign bodies may result in abscess formation, we advise to explore carefully the entire abdominal cavity to find and remove all the worm fragments.

Mebendazole has interactions with Metronidazole, which is usually used after gastrointestinal tract trauma, and causes Stevens–Johnson syndrome and severe toxic epidermal necrolysis (7). On the other hand the cure rate of Albendazole (90% - 100%) is higher than that of Mebendazole (8). So, we prefer Albendazole over Mebendazole in such patients against what was proposed by other surgeons (9). According to Steinmann P. et al (10), administration of a single dose of Albendazole instead of triple-dose is enough to eradicate ascaris which has been stablished by stool exam.

At the end because of high cure rate of albendazole there is no recommendation to check the egg eradication by stool examination in the treatments or prophylactic programs by WHO, therefore we did not check any parasitological examination of the patient's stool.

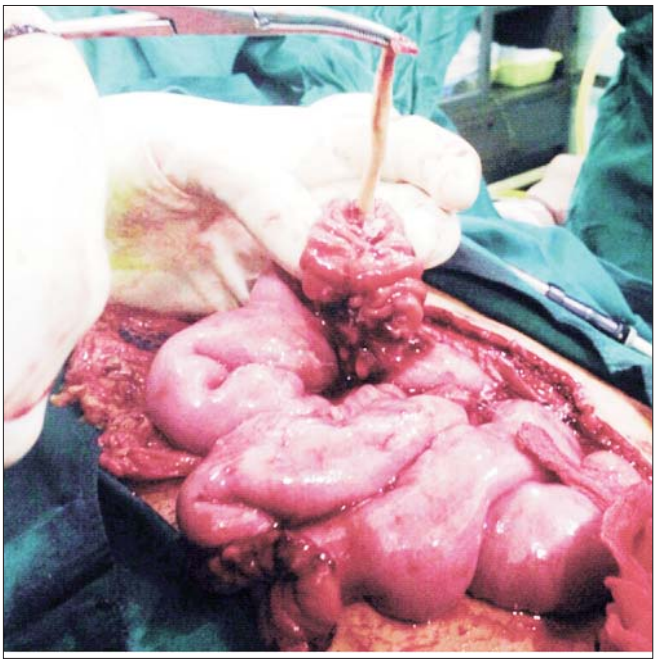

Figure 1. *Intra-operative view of ascaris fragments in peritoneal cavity*

Conclusion

It seems necessary for physicians and health care providers in border areas to be familiar with the epidemiology of the diseases in the neighboring countries. This may include a reassessment of standard chemoprevention programs in these areas by the ministry of health.

References

1. Hotez PJ, Brindley PJ, Bethony JM, King CH, Pearce EJ, Jacobson J. Pearce and Julie Jacobson. Helminth infections: the great neglected tropical diseases. J Clin Invest. 2008; 118(4):1311-21. doi: 10.1172/JCI34261.
2. Kaminsky RG, Ault SK, Castillo P, Serrano K, Troya G. High prevalence of soil-transmitted helminths in Southern Belize-highlighting opportunity for control interventions. J Trop Biomed. 2014;4(5):345-53. doi: 10.12980/APJTB.4.201414B3.
3. Sayyari AA, Imanzadeh F, Bagheri Yazdi SA, Karami H, Yaghoobi M. Prevalence of intestinal parasitic infections in the Islamic Republic of Iran. East Mediterr Health J. 2005; 11(3):377-83.
4. Podgorny G. Ascariasis complicating a gunshot wound: case report and review of the complications of ascariasis. N C Med J. 1967;28(1):21-3.
5. Pratt LT1, Blachar A. Computed tomography diagnosis of intestinal ascariasis: incidental finding in a trauma patient. Isr Med Assoc J. 2007;9(9):688-9.
6. Cabrera F, Garcia HH. A truly emerging intestinal parasitosis. Am J Trop Med Hyg. 2011;85(3):396.
7. Chen KT1, Twu SJ, Chang HJ, Lin RS. Outbreak of Stevens-Johnson syndrome/toxic epidermal necrolysis associated with mebendazole and metronidazole use among Filipino laborers in Taiwan. Am J Public Health. 2003;93(3):489-92.

8. Steinmann P, Utzinger J, Du ZW, Jiang JY, Chen JX, Hattendorf J, et al. Efficacy of single-dose and triple-dose albendazole and mebendazole against soil-transmitted helminths and Taenia spp.: a randomized controlled trial. PLoS One. 2011;6(9):e25003. doi: 10.1371/journal.pone.0025003. Epub 2011 Sep 27.
9. Masumbuko CK, Hawkes M.Worms and war: a case report of trauma and tropical disease intersecting. Afr J Paediatr Surg. 2010;7(2):107-9. doi: 10.4103/0189-6725.62858.
10. Steinmann P, Utzinger J, Du ZW, Jiang JY, Chen JX, Hattendorf J, et al. Efficacy of single-dose and triple-dose albendazole and mebendazole against soil-transmitted helminths and Taenia spp.: a randomized controlled trial. PLoS One. 2011;6(9):e25003. doi: 10.1371/journal.pone.0025003. Epub 2011 Sep 27.