

## CASE REPORT

# A case of fatal disseminated strongyloidiasis accompanied with intestinal obstruction

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## Abstract

*Strongyloides stercoralis* is an endemic parasite in some regions including the tropical and subtropical areas with high humidity. Most infections are asymptomatic with nonspecific signs and symptoms, making the final diagnosis complicated. Here, we report a patient referred to our hospital with signs consistent with sepsis, intestine obstruction, which finally died with the diagnosis of strongyloidiasis. The patient was from northern parts of Iran which are considered as endemic areas for *S. stercoralis*. In conclusion, there is an important message in this history, i.e. physicians should be aware of specific and non-specific signs of strongyloidiasis especially in people living in endemic areas to make an accurate final diagnosis by proper clinical and paraclinical examinations.

## INTRODUCTION

*Strongyloides stercoralis* (*S. stercoralis*) is a soil transmitted helminth (STH) with high prevalence rate that infects the small intestine of humans and causes strongyloidiasis [1]. *S. stercoralis* is endemic in tropical and subtropical areas with high humidity including Africa, Asia, Central and South America particularly Brazil, Colombia and Guyana [2]. The exact prevalence rate of *S. stercoralis* is not easily predictable due to large number of people

with subclinical infections. However, it is estimated that 30–100 million individuals are infected in more than 70 countries [3].

## CASE REPORT

Our case was a 73-year-old woman from a village around the city of Babol, northern Iran. On 20 February 2015, this patient was admitted to a local hospital in Babol due to a history of nausea, frequent vomiting, anorexia, cough, fever and electrolyte

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disorders. Upon physical and clinical examinations, extreme tachycardia (heart rate over 100 beats/min) and respiratory distress were recorded. Additionally, she was an addict and with a history of ovary cancer; therefore, prednisolone (10 mg/day) and antibiotics (Cefixime 400 mg and Co-amoxiclav 625 mg) were regularly used. The patient also had epigastric pain, increased intestinal gas and bowel obstruction signs. Laboratory results upon admission (1 month before death) were as follows: calcium level 3.45 mg/dl, potassium 1.5 mg/dl, sodium 95 mEq/dl, white blood cell count 8500/mm<sup>3</sup> (granulocyte 57.6%, lymphocyte 33.4%, eosinophil 1%, monocyte 7.3%, basophil 0.7%), hematocrit 36% and platelet 162 k/mm<sup>3</sup>. Albumin, magnesium and total proteins were within the normal values. The patient was treated with parenteral fluid and discharged from the hospital 2 days later.

She did not follow up and on 10 March 2015 was again referred to Imam Khomeini Hospital in Tehran because of similar complaints. Upon readmission, obstruction in the small intestine and cutaneous manifestation (including chronic urticarial lesions of the buttocks and waistline) were obvious and no ovarian granulosa cell tumors was presenting sonographic and CT findings. Edema and the release of serosae fluids were main signs. Laboratory examination revealed highly decreased hematocrit and hemoglobin levels and red blood cell counts. C-reactive protein and CA125 were both positive potassium and calcium were at decreased levels while sodium was within the normal level. Also, eosinophil count reached 10% and the patient was diagnosed with sepsis but with negative blood culture. HIV and HTLV-1 status were not checked for this patient. Liver function tests were within normal limits, vital signs were stable with only a light tachypnea present. At this stage, corticosteroid and antibiotic therapy were initiated for treating sepsis.

On 16 April 2015, in Hazrat Zahra Hospital, eosinophil count reached 35%, urine analysis was normal with negative urine culture and constant body temperature. Endoscopy results were normal and colonoscopy was not done because of the situation of patient and also muddy colon.

Oliguria were seen with the urine output ranging from less than 0.21 ml/kg/hr and extensive ecchymosis was also observed in patient body.

There was no request for stool examination until this time. Biopsy sample were taken randomly at the same time with endoscopy, for patient's convenience and prevention of time wasting. The biopsy of duodenum was sent to laboratory but it took 1 week for the result to be prepared. The patient was pathologically diagnosed as having strongyloidiasis while the parasite (both larval and adult stages) was identified 3 days after the death.

Some characteristic features that resulted in the diagnosis of *S. stercoralis* in pathologic slides were as follows: size (>15 µm) and location of the parasite (duodenum), observation of internal organs of the parasite (intestine, ovary) and also the appearance of the parasite's ova which just happened by simultaneous observation of both ova and the ovary (Figs 1 and 2).

## DISCUSSION

*Strongyloides stercoralis* is an intestinal nematode of human and other mammals that can also spread to other parts of the body such as lungs, spleen, kidney, skin and brain during disseminated infection syndrome[4]. The course of illness for this patient was accompanied with epigastric pain, heightened intestinal gas and bowel obstruction signs. Eosinophil count



Figure 1: Histological aspects of strongyloidiasis in duodenum. Section of parasite larvae in biopsy of duodenum is observed (hematoxylin-eosin, magnification ×400)

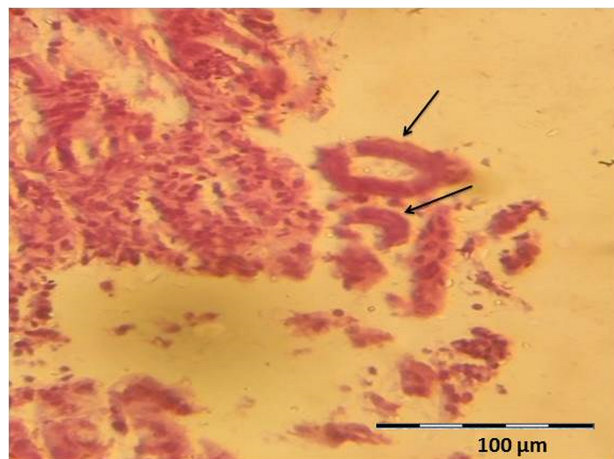


Figure 2: Histological aspects of strongyloidiasis in duodenum. Section of parasite adult worm in biopsy of duodenum is observed (hematoxylin-eosin, magnification ×400)

from a baseline of 1% reached 35% during hospitalization. This high figure for eosinophil count should be considered as a significant finding for all physicians and laboratory experts as eosinophilia (more than 7%) is often a sign for parasitic infections [5]. This patient was re-hospitalized in Imam Khomeini hospital (Tehran) with sepsis manifestation but no stool examination was requested. The history of patient reveals that she came from a village around the city of Babol, northern areas of Iran. Mazandaran is a province with moderate climate and high humidity considered as an endemic area for *S. stercoralis*. In these areas, people are mostly farmers and engaged in agricultural activities, working mostly in paddy fields [6]. These locations are mostly contaminated with parasite larvae and ova and the patient's history is one of the most important key for appropriate diagnosis, although this clinical history should be accompanied by an appropriate and specific diagnostic method. So far, several cases of human strongyloidiasis have been reported from Iran [7–9]. *Strongyloidiasis* should be carefully considered by physicians in endemic areas, a key point that may be easily neglected. *Strongyloidiasis* is usually a fatal disease yet preventable and treatable if diagnosed early

and treated instantly [10]. Conventional diagnostic exams for strongyloidiasis are based on parasitological tests that are not sufficiently sensitive. Serological tests (such as IFA, ELISA and western blot), agar plate culture and molecular identification are fruitful, although these tests are usually available in reference laboratories [11, 12].

The patient of current report died and was not accurately diagnosed at the right time because of non-specific symptoms, lack of proper diagnostic methods, heavy infection and also false diagnosis. The authors of the current report assume that although the definitive cause of death in this complicated case may not be due to *S. stercoralis*, based on the results of other tests, this parasite can be regarded as one important reason of death. This is in harmony with the findings of numerous studies that have shown death in patients with disseminated strongyloidiasis frequently occurs following intestine obstruction.

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## CONFLICT OF INTERESTS

The authors have no conflicting interests to declare.

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