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Chylous Ascites as the Main Clinical Symptom of a *Strongyloides stercoralis* Infection in an Immigrant from Bosnia-Herzegovina

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ABSTRACT

Extraintestinal strongyloidiasis is rare in patients without immunosuppression. We describe the first case of chylous ascites as a result of strongyloidiasis. Alcohol cessation, diuretic therapy and repeated paracentesis did not lead to improvement of refractory chylous ascites with positive nucleic acid amplification test indicative of *Strongyloides stercoralis* infection. Only after therapy with ivermectin, could diuretics be withdrawn.

Although direct proof of *S. stercoralis* was not possible by microscopy, successfully treated strongyloidiasis was confirmed in this patient by the positive and negative nucleic acid amplification tests from ascites before and after treatment together with the clinical improvement only after antiparasitic therapy.

LEARNING POINTS

- In the appropriate setting, chronic parasitic diseases should be considered in patients presenting with unusual symptoms.
- Alcohol misuse, as a form of immunosuppression, can particularly distract from other underlying conditions presenting with similar signs and symptoms.
- This case study may represent the first publication of strongyloidiasis manifesting as chylous ascites.

KEYWORDS

Strongyloidiasis, immigration, chylous ascites, ivermectin, *Strongyloides stercoralis*

INTRODUCTION

Infection with *S. stercoralis*, a soil-transmitted nematode, often results in subclinical disease, commonly chronic and associated with an autoinfective process. Patients with changed immune status, for whatever reason, are prone to life-threatening exacerbation of this otherwise often neglected disease [1].

Extraintestinal strongyloidiasis is rare in patients without immunosuppression; detection of *S. stercoralis* in isolated ascites is even more unusual [2,3]. However, as described below, strongyloidiasis should be considered in the investigation of chylous ascites in the appropriate setting.

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CASE DESCRIPTION

In a 44-year-old male who recently immigrated from Bosnia-Herzegovina to Austria, computed tomography for an episode of acute pancreatitis revealed pancreatic pseudocysts, mild ascites and peritonitis. Due to proven alcohol abuse and furthermore unremarkable medical history no further investigation was forced, and the patient was discharged from the Department of Surgery after conservative therapy.

About six months later, he was readmitted to the Department of Internal Medicine due to abdominal pain and massive ascites. Surprisingly, paracentesis (8,000 ml) produced morphological chylous ascites (*Fig. 1*) with triglyceride levels of 1,999 mg/dl. Further investigation revealed regular liver (serum) and pancreatic (serum and ascites) enzymes, and was unremarkable for malignancy or bacterial and fungal infection. Technetium scintigraphy [4] excluded leaks of the lymphatic system as a consequence of pancreatitis.

Figure 1. Chylous ascites due to Strongyloides stercoralis infection

Despite discharge after clinical stabilisation, he had to be re-admitted six weeks later, presenting with massive weight gain (19 kg) and deterioration of his general condition. Another paracentesis revealed chylous ascites (16,000 ml) without further hints regarding microbial or cytologic diagnosis. Measurement of hepatic venous pressure gradient (HVPG: 4 mmHg) excluded idiopathic portal hypertension for any reason.

Thereafter, screening for debatable parasite infestation revealed positive IgG for *S. stercoralis* and negative results for *Trichinella*, *Ascaris*, *Toxocara*, *Taenia solium*, *Echinococcus* and *Fasciola* serology. Tests for human immunodeficiency virus (HIV), mycobacterium tuberculosis, human T-cell lymphotropic virus (HTLV), and stool microscopy for parasites were negative.

Exposure to the pathogen may have taken place while the patient was working and sleeping at construction sites with poor sanitation in Bosnia-Herzegovina, a work environment for migrants from all over the world, as detailed history revealed. History and clinical examination were negative for any skin rashes.

Before treatment initiation with ivermectin (0.23 mg/kg BW per os/qd, i.e. 21 mg), another paracentesis had to be performed as the patient deteriorated again, with dyspnoea. As chylous ascites was still present, a sample was sent to the Institute of Specific Prophylaxis and Tropical Medicine at the Medical University of Vienna, questioning whether *S. stercoralis* might be detectable in ascites as well, which finally could be proven only by PCR revealing strongyloides DNA, whereas repeated stool tests remained negative.

After treatment, neither ascites nor general condition showed clinical improvement on follow-up visits. Thus, a second cycle of Ivermectin was initiated, but this time on two occasions, 2 weeks apart [5]. After this the patient improved significantly, with a gain in appetite and stabilisation of body weight within the next visits. A last paracentesis revealed chylous fluid, however, without detectable strongyloides DNA. Diuretic treatment was reduced consecutively, and finally completely withdrawn, without recurrence of ascites.

DISCUSSION

Strongyloidiasis, the world-wide burden of which may be underestimated, can transform from an asymptomatic infection to a life-threatening disease [1]. We present a case of a *S. stercoralis* infection manifesting as chylous ascites in an immigrant.

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Although direct proof of the causative agent was not possible via stool or ascitic fluid microscopy, we interpreted the clinical course, as well as the positive and negative nucleic acid amplification tests from ascitic fluid before and after treatment as corroborating evidence of successfully treated strongyloidiasis. Positivity, proved by molecular diagnostic techniques and being lost after successful treatment, has been shown for active strongyloidiasis before [1].

We may have encountered a case of non-disseminated hyperinfection [1] affecting the abdominal lymph system, thereby leading to chylous ascites. *S. stercoralis* has been discovered from ascites before [1,3], but this is the first case of chylous ascites as a consequence of strongyloidosis.

CONCLUSIONS

In conclusion, this is the first description of the detection of *S. stercoralis* in chylous ascites. This underlines the possibility of strongyloidiasis in patients appearing with isolated extra-intestinal symptoms, a condition to be especially aware of in patients who are recent immigrants [6] or who receive treatment for immunosuppression [1].

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