

What's crawling in this sputum?

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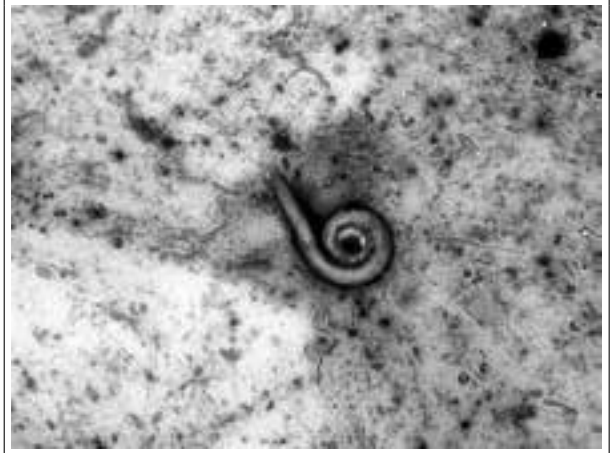
CASE REPORT

A 64-year-old Dutch Caucasian male was admitted to our intensive care unit for postoperative care after aortic valve replacement. His previous medical history was relevant for giant cell arteritis for which he was taking 60 mg of prednisone daily. On the sixth postoperative day sepsis developed and a hospital-acquired pneumonia was suspected. Sputum was collected and investigated and is shown in *figure 1*.

WHAT IS YOUR DIAGNOSIS?

See page 88 for the answer to this photo quiz.

Figure 1. *Microscopic analysis of sputum*



ANSWER TO PHOTO QUIZ (PAGE 85)
WHAT'S CRAWLING IN THIS SPUTUM?

DIAGNOSIS

The sputum was investigated and surprisingly high numbers of mobile *Strongyloides stercoralis* larvae were observed. The same day blood cultures grew *Escherichia coli* and *Enterococcus faecium* and a diagnosis of *Strongyloides stercoralis* hyperinfection syndrome was made. Broad-spectrum antibiotics and ivermectin (12 gram orally, once daily) were started. During the first few days of treatment the clinical situation progressively deteriorated and severe multiorgan failure developed. Due to gastroparesis insufficient ivermectin uptake was suspected and subcutaneous ivermectin therapy, which is an off-label use of the compound, was started. Thereafter the number of live larvae in sputum samples decreased massively in a few days. After two weeks of intensive treatment the patient died due to intractable severe multiorgan failure. An evaluation of risk factors for *Strongyloides stercoralis* revealed that the patient had lived in Indonesia until the age of nine.

Strongyloides stercoralis is a helminthic parasite which can complete its lifecycle entirely within the human host.¹ Infection with the parasite is highly prevalent in developing countries. Together with depressed cell-mediated immunity, autoinfection can give rise to potentially fatal hyperinfection with disseminated disease.² Clinical findings in hyperinfection syndrome may be attributable to the direct consequences of organ invasion or to secondary Gram-negative bacteraemia, pneumonia or meningitis due to bloodstream seeding.³ This dissemination of filariform larvae from the gastrointestinal tract to lungs, liver, heart, central nervous system and endocrine glands often results in severe and ongoing septic shock. *Strongyloides stercoralis* hyperinfection syndrome

is a rare clinical entity in the Western world for which mortality rates exceeding 80% have been reported. The likelihood of developing the hyperinfection syndrome is increased if cell-mediated immunity is impaired and strongly associated with the use of corticosteroids.⁴ In retrospect, a full travel history revealed that the patient had spent several childhood years in Indonesia, which should have led to testing and treatment of *Strongyloides stercoralis* prior to the implementation of steroid therapy. We here report a case of *Strongyloides stercoralis* hyperinfection syndrome and disseminated polymicrobial sepsis after cardiac surgery, in a patient who was on steroids. This report illustrates that *Strongyloides stercoralis* should be excluded in any patient with a history of travel to endemic areas and/or gastrointestinal symptoms before induction of immunosuppressive therapy. Hyperinfection syndrome with disseminated disease should be suspected in immunosuppressed patients with polymicrobial sepsis who are at risk for *Strongyloides stercoralis* infection.

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