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A rare cause of eosinophilia in a patient with bronchial asthma

Short title: A rare cause of eosinophilia

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A 71-year-old patient with bronchial asthma after lobectomy of the right lung due to chronic respiratory failure, was admitted to our department because of increased dyspnea,

cough, and fever. Biochemical studies revealed mild normocytic anemia (hemoglobin, 11.7g/dl, n: 12-16g/dl); leukocytosis (white blood cells, $15.7 \times 10^3/\mu\text{l}$, n: $4-10 \times 10^3/\mu\text{l}$); and peripheral blood eosinophilia (eosinophils, $2.10 \times 10^3/\mu\text{l}$, n: $0.00 - 0.45 \times 10^3/\mu\text{l}$), which did not disappear during treatment, and the presence of latent blood in the feces. Chest computed tomography revealed inflammatory changes of the lungs in the regression phase, mottled areas with reduced transparency ("milk glass" opacity) of the lung parenchyma, and features of bronchiectasis. Panendoscopy demonstrated superficial mucositis in the antrum and the gastric corpus, and colonoscopy revealed no pathological changes. Histopathological examination of the material collected during the gastroscopy showed the presence of *Strongyloides stercoralis* larvae in the lumen of single intestinal crypt (Figure 1). In the material collected during the colonoscopy, we observed inflammatory infiltration, with a large number of eosinophils. The patient was referred to the Outpatient Clinic of Infectious Diseases, and albendazole was administered at a dose of 2 x 400 mg for 7 days.

Strongyloidiasis is a parasitic disease caused by the nematode *Strongyloides stercoralis* that occurs mainly in tropical and subtropical areas, and sporadically in places with a moderate climate [1]. The parasite, in the form of invasive larvae that live in contaminated soil, water, or feces, penetrates the skin and accesses the bloodstream, making its way to the lungs through the venous circulation. After getting into the alveoli, the larvae move along the bronchial tree toward the throat where they are swallowed. In the digestive tract, they mature and transform into adult females living in the mucous membrane of the duodenum and jejunum [2].

Most often, the course of infection is asymptomatic, but skin, gastrointestinal, and pulmonary symptoms may develop. The most common symptoms are rash accompanied by pruritus (16%-90%); abdominal pain, nausea, diarrhea, and bloating (41%-74%); and cough with hemoptysis, or dyspnea and bronchial spasm (~25%) [3]. The course of infection is

occasionally severe, especially in those with immune disorders. Laboratory tests reveal eosinophilia (which is often the only symptom), a high IgE level, and anemia. Diagnosis is usually made on the basis of fecal parasite larval infestation, but the test is not very sensitive and may require a few attempts. For this reason, serological enzyme-linked immunosorbent assay tests, which demonstrate high sensitivity and specificity, are considered the diagnostic method of choice [4]. An equally sensitive, but invasive diagnostic method, is histopathological evaluation of the material obtained from biopsy of the duodenal mucosa during endoscopic examination [5].

Treatment of strongyloidiasis should lead to complete eradication of the parasite. Currently, the most effective drug is considered to be ivermectin at a dose of 200 µg/kg body weight for 1 to 2 days. The second-line drug is albendazole at a dose of 2 x 400 mg per day for 5 to 7 days.

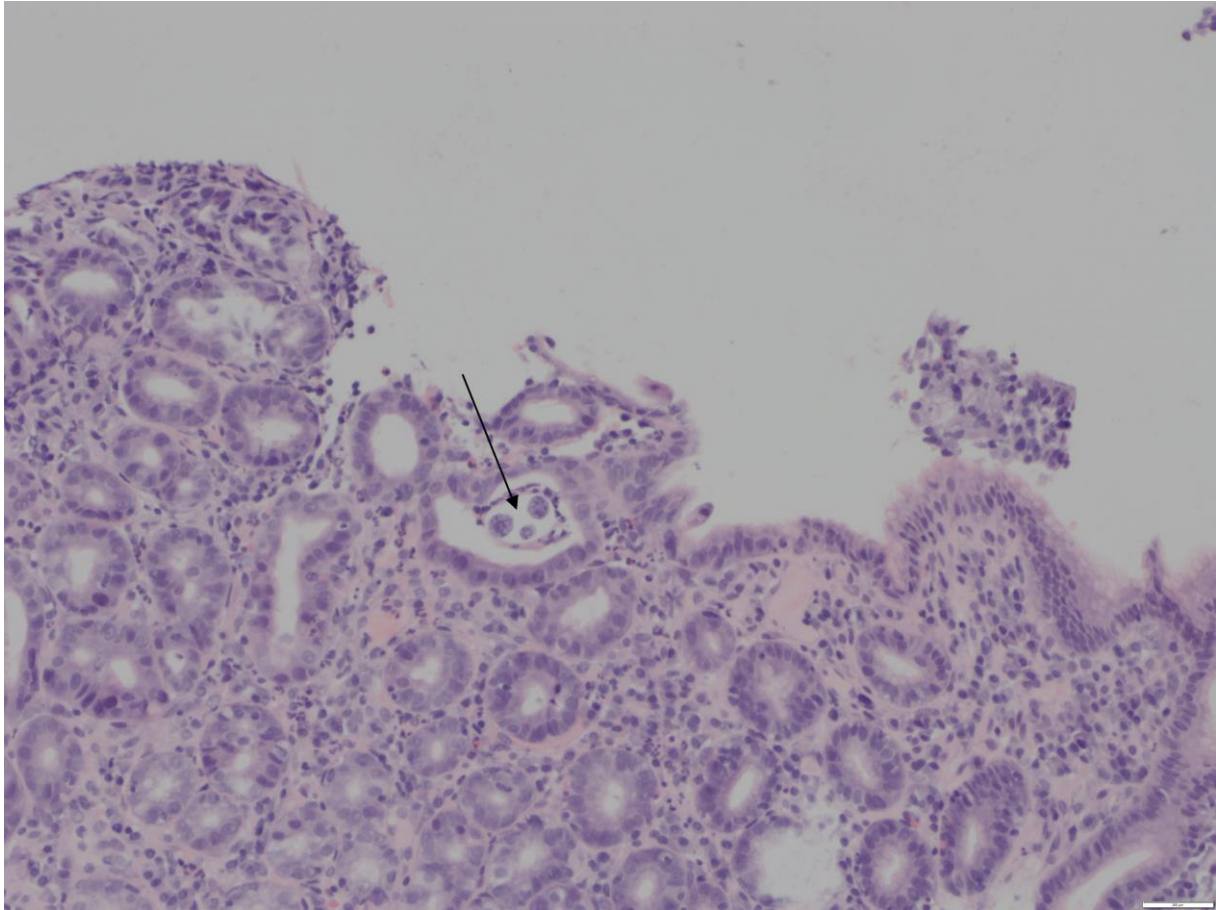


Figure 1. Histopathological examination of the gastric mucosa. Visible *Strongyloides stercoralis* larvae (arrow). Magnification 100x.

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