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Case Report

Disseminated Strongyloidiasis in an Iranian Immunocompromised Patient: A Case Report

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Abstract

Strongyloides stercoralis is a soil-transmitted helminth (STH) widespread in various part of the world. A 78-yr-old peasant diabetic female from Mazandaran Province northern Iran, was admitted to Infection Department of the Razi Hospital in city of Qaemshahr, north of Iran complaining about abdominal skin rash, pruritus, itching, anorexia, nausea, vomiting, dysuria and cough. This patient had cutaneous migration effects of *S. stercoralis* larvae in her abdominal skin (larva currents and urticaria). Lung CT without contrast demonstrates bilateral diffuse ground glass opacity draws attention. Upper gastrointestinal endoscopy revealed gastro esophageal reflux with antral gastritis. Duodenal endoscopy showed unusual mucosa and a biopsy from it sent to the pathology laboratory. Histopathology of duodenal bulb and duodenum biopsy showed mild villous atrophy and *S. stercoralis* infection. The patient was treated with albendazole and clinical sings improved completely after treatment. Strongyloidiasis should be carefully considered by clinicians who practice in endemic areas. Clinicians must keep a high level of skepticism for patients from endemic area.

Introduction

Strongyloides stercoralis is a soil-transmitted helminth (STH) widespread in various part of the world. Recently, it has been estimated about 370 million people are infected with this parasite (1). *Strongyloides* is one of the most ignored infections between the neglected tropical diseases (NTDs) (2). Data about *S. stercoralis* is much less than other ma-

jor soil-transmitted helminths (STHs), such as *Ascaris lumbricoides, Necator americanus, Ancylostoma duodenale* and *Trichuris trichiura* (3). *Strongyloides* has a complex life cycle and transmission of it is usually with penetration into the skin by filariform larvae, which originating from soil or other materials contaminated by human feces (4, 5). It can also replicate inside the host as an autoinfection and causing a long-lived infection in humans for decade (6, 7). Infection with the *S. stercoralis* in individuals with a complete immune system is self-limited but in immunocompromised patients can be complicated and cause hyperinfection (8, 9).

The signs of strongyloidiasis varies and contains asymptom, complaints such as irritation, inflammation, and pruritus at the place of penetration of the skin, Luffer's syndrome (larvae immigration through the lung), abdominal pain, qualm, diarrhea, and malabsorption syndrome with long-lasting strongyloidiasis (8, 9). Presence of infection with *S. stercoralis* in the stomach and lung is relatively rare (10-12).

We report a case of immunocompromised patient in north of Iran, that infected by *S. stercoralis* and involvement three organs of this patient.

Case report

A 78-yr-old peasant female was admitted to Infection Department of the Razi Hospital in city of Qaemshahr in north of Iran on April 2015 due to abdominal skin rash, dysuria and cough from two weeks ago. She had nausea and vomiting from one day ago. The rash was with pruritus. This patient was a known case of diabetes mellitus and nephrotic syndrome for one year and take 10 unit insulin NPH daily and prednisolone 12.5 mg/d. She also had edema in lower extremities until near the knee. In physical examination revealed temperature body: 36.3 ˚C, Blood pressure: 125/80 mmHg, Respiratory rate: 16 rr/min, Heart rate: 83 beat/min. Chest sound was normal in auscultation of abdominal examination. The skin rash was linear erythematous and migratory similar to larvae current and urticaria (Fig. 1).

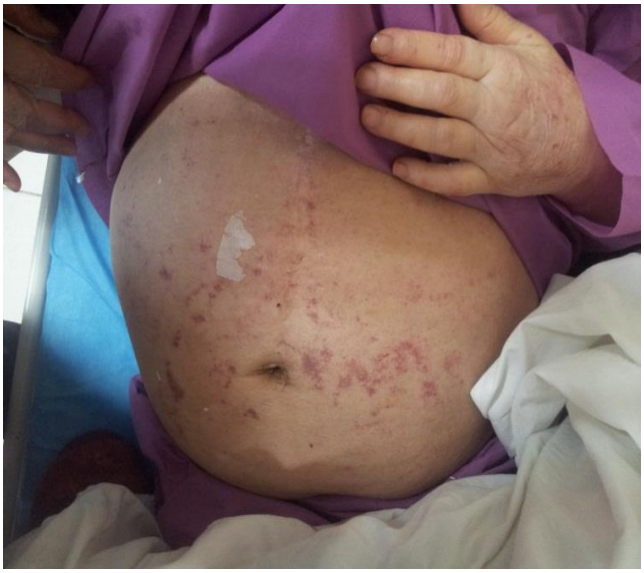

Fig. 1: Larva currents and urticarial in abdominal skin (Original)

In blood examination, the ESR was normal but she had anemia with hemoglobin level 8.1 g/dl, mild thrombocytopenia 142×10^3 µ/L and normal with cell (9.8×10^3 /µd) and hyperglycemia with 368 mg/dl blood sugar. The urea and creatinine level was high, 113 mg/dl and 1.4 mg/dl, respectively. Liver function test was impaired with SGOT: 59 IU/I, SGPT: 70 IU/I, alkaline phosphatase: 675 IU/I. In direct examination of feces parasite not observed. She underwent at upper gastrointestinal endoscopy that revealed gastroesophagus reflux with antral gastritis. Biopsy was taken and sent to pathology laboratory. A chest X ray obtained was normal but in lung CT scan without contrast bilateral diffuse ground glass opacity seen (Fig. 2).

Histopathology show mild villous atrophy with *Strongyloides* infestation (Fig. 3).

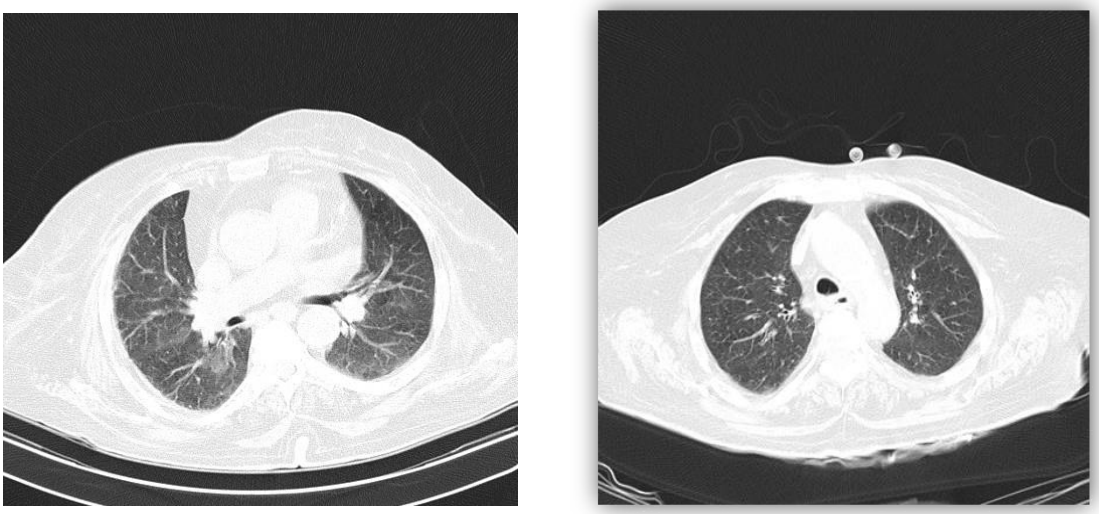

Fig. 2: Spiral lung CT parenchymal windows. Left-Pretreatment Right-post treatment 10 days after starting treatment

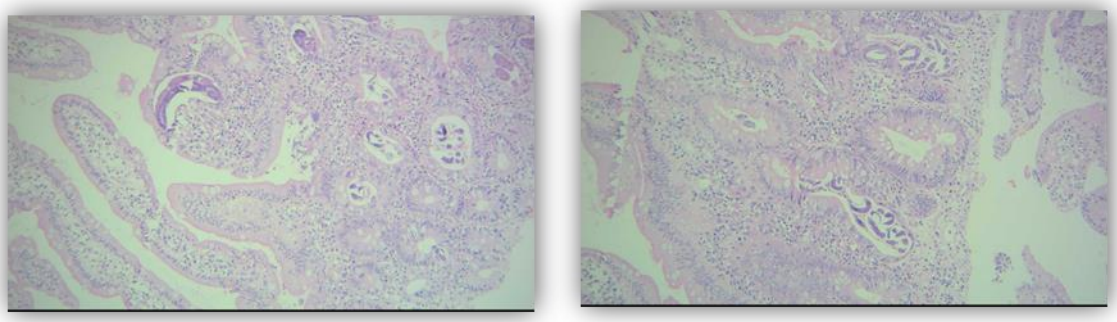

Fig. 3: Numerous longitudinal and cross section of *S. stercoralis* adult worms in duodenale mucosa are observed, *H&E* stain, Power 400x

The patient was treated with albendazole 400 mg doses twice daily during two weeks and discharged from Hospital after 14 days of admission. Treatment prolonged for one month. Clinical sings improved complete lately after treatment. Follow-up stool examination 14 and 40 days after beginning treatment show no *S. stercoralis* larva in stool.

Discussion

This is the first report of strongyloidiasis in a patient that suffering from diabetes, nephritis and gastric symptom in northern Iran.

Clinical and paraclinical inspection confirm presence of *S. stercoralis* in this case. This patient lived in rural area of Mazandaran Province and probably infected with this parasite when she worked barefoot in rice farm (12). In this case, the stool microscopy not identifies *S. stercoralis;* consequently, the diagnosis was based on biopsy. Strongyloidiasis is endemic in Southeast Asia, Latin America, sub-Saharan Africa, parts of the southeastern United States and Iran (13). Mazandaran is a province with moderate climate, in northern of Iran, at the vicinity of Alburz Mountain range and Caspian Sea. 45.9% of the population in this area was as urban inhabitants and

54.1% villagers (14). This province, located in the north of Iran and close to the sea, has the largest polar of production of rice in Iran (15). Infection with *S. stercoralis* in this province, that has a moderate temperature and high moisture, is endemic (16, 17). The prevalence of *S. stercoralis* in northern Iran is reported from 1%-10.3% (18-21).

Infection with *S. stercoralis* is comparatively common in north of Iran because of high humidity, kind of soil, and high exposure to mud in agriculturalists, particularly paddy field workers (22). People such as this patient who work in rice-filed are most commonly infected with this parasite (13, 23). *S. stercoralis* infection is a therapeutic challenge but should always be cured even in asymptomatic people. It can lead to a 60%-85% death rate in immuno-compromised people (6, 8, 24-26).

Strongyloidiasis should be carefully considered by clinicians who work in medical profession in endemic areas but it is easily neglected by both the patients and physicians (12). Clinicians must be skepticism of patients from endemic areas (12, 27). Moreover, screening for strongyloidiasis infection in endemic area, particularly in corticosteroids treatment patient for example inflammatory bowel disease (IBD) is recommended (6).

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