Chronic Respiratory Allergy Caused by *Lophomonas blattarum*: A Case Report

**Oghlniaz Jorjani (PhD)**
Laboratory Sciences Research Center, Faculty of Paramedicine, Golestan University of Medical Sciences, Gorgan, Iran

**Abdolrahman Bahlkeh (MSc)**
Central Laboratory, Azadshahr Health Center, Golestan University of Medical Sciences, Gorgan, Iran

**Faramarze Koohsar (PhD)**
Laboratory Sciences Research Center, Faculty of Paramedicine, Golestan University of Medical Sciences, Gorgan, Iran

**Beniamin Talebi (DVM)**
Private veterinary physician, Gorgan, Iran

**Ali Bagheri (MD)**
Communicable Disease Control of Health Center, Golestan University of Medical Sciences, Gorgan, Iran

**Corresponding author:** Oghlniaz Jorjani

**Email:** niaz_jorjani@yahoo.com

**Address:** Laboratory Sciences Research Center, Faculty of Paramedicine, Golestan University of Medical Sciences, Gorgan, Iran

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**ABSTRACT**

**Background and Objective:** *Lophomonas blattarum* is a multi-flagellate protozoan that is commensal in hindgut of cockroaches and other insects. The protozoan can cause respiratory infection in humans. Most cases of the infections with this protozoan have been reported in China. Here, we present a case with chronic respiratory allergy caused by *L. blattarum* in Golestan province, Iran.

**Case Description:** The case was a 37-year-old male with history of respiratory conditions and he was immunocompetent. An athlete, *L. blattarum* was detected in direct smear examination of sputum.

**Conclusion:** Since we found respiratory infection in an immunocompetent individual who was also an athlete, it is necessary to study this parasite and its life cycle and transmission methods. It is also suggested to consider *L. blattarum* infection and treatment with metronidazole in cases of chronic allergies, especially those that do not respond to treatment.

**Keywords**: *Lophomonas blattarum*, Respiratory Allergies, Iran.
INTRODUCTION
Lophomonas blattarum is a multi-flagellate, round to oval shape protozoan with diameter of 20-60 μm. At one pole, the protozoan has a tuft of numerous flagella. This anaerobic protozoan from phylum Parabasalia, order hypermastigida and suborder Lophomonadidae is a commensal of hindgut of cockroaches, termites and omnivorous roaches, and probably involved in facilitation of digestion (1). Respiratory symptoms and lung infection by L. blattarum is rare in humans. Several cases have been reported in China and a few cases have been found in Spain, Peru and Turkey (2-5). In Iran, the first case of respiratory infection caused by L. blattarum was reported in 2014. The case was a young female who was admitted to the hospital because of sinusitis and respiratory symptoms (6). Here, we report a case of chronic respiratory allergies caused by L. blattarum in Iran.

CASE DESCRIPTION
A 37-year-old male with history of respiratory conditions including asthma, cough and wheezing, shortness of breath and sputum after exercise, especially in the cold season was referred to the Diagnostic Laboratory of Tuberculosis in east of Golestan province, Iran. Moving flagellated protozoa were observed in direct smear sputum examination. The case was referred to the Department of Medical Laboratory Science at Golestan University of Medical Sciences on August 26, 2016. Further evaluations were made in the parasitology laboratory, and a number of L. blattarum was detected in the direct smear sputum examination by light microscopy (Figure 1). The protozoon has an irregular orientation and loses the power of movement after 15-20 minutes. The patient reported that he had seen cockroaches in his home. The case was immunocompetent and played football regularly. White blood cell count was 6.4 ×10^3 cells/L with 2% eosinophils. Erythrocyte sedimentation rate was 8 and C-reactive protein was negative. Culture of sputum for diagnosis of Mycobacterium tuberculosis was negative. Moreover, sample culture in sabouraud dextrose agar for detection of fungi was negative. Chest X-ray was normal. Direct sputum smear examination for diagnosis of tuberculosis was negative. The patient was treated with metronidazole 750 mg t.i.d for 15 days.

DISCUSSION
Bronchopulmonary L. blattarum infection has been reported in some countries, especially China. Most cases have been observed in immunosuppressed individuals (7). However, infection with this protozoan has been recently observed in immunocompetent young adults (8). Since we found respiratory infection in an immunocompetent individual who was also an athlete, it is necessary to study this parasite and its life cycle and transmission methods (1, 5). In addition, physicians are advised to consider infection with this parasite, especially in allergic respiratory disorders. Chronic respiratory allergies caused by the parasite can be treated with metronidazole.

CONCLUSION
It is suggested that L. blattarum infection be treated with metronidazole in cases of chronic allergies, especially those that do not respond to treatment.

CONFLICT OF INTEREST
The authors declare no conflict of interest.
REFERENCES