

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

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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  $\mu\text{m}$ . 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 (Figure1). The protozoan 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  $6.4 \times 10^3$  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.

Figure1 -Presence of *L. blattarum* in direct sputum smear examination by light microscopy (at 40X magnification)



## 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.

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