Case Report

Lophomonas isolation in sputum sample at Peru

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ABSTRACT

Lophomonas infection is an emerging parasitic disease causing respiratory infections. After China, Peru is the second country with the highest number of cases. In the bright-field microscopy evaluation of fresh samples, most of them are incorrectly estimated. Therefore, correct identification using cytological stains is to be supplemented. We report a case of a 29-year-old male with typical clinical symptoms of pneumonia, marked eosinophilia, and noninfiltrative pattern in chest X-ray, who had bronchopulmonary lophomoniasis.

KEY WORDS: Emerging disease, *Lophomonas blattarum*, parasite, pulmonary infection

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INTRODUCTION

Lophomonas is a rising cause of parasitic lung infections in Peru, and Spain.[1-3] This flagellated protozoan can cause bronchopulmonary lophomoniasis (BPL) with nonspecific symptoms (cough, breathlessness, etc.), eosinophilia, and pulmonary infiltrate.

Lophomonas blattarum and *Lonchura Striata* are the two main species that usually inhabit the intestines of cockroaches, termites, and mites. Therefore, in the environment infested by these insects, the risk of human infection is high, leading to respiratory failure.

Since their identification by Lee and Brugerolle[4] at the beginning of the millennium, the observation of the morphological characteristics of parasites in biological samples has been conducted by bright-field microscopy techniques. Since *Lophomonas* cannot be cultured, their microscopic identification is based on the fresh and stained samples evaluation of sputum, bronchoalveolar lavage, and bronchial aspirate. To avoid identification errors, it is recommended to analyze the stained samples, mainly using Papanicolaou (Pap), Giemsa, or trichrome staining.[5,6]

We report here a clinical case of *Lophomonas* infection in Peru.

CASE REPORT

A 29-year-old male patient arrived at the emergency department with chest pain, a productive cough, fever (approximately 38.5°), and throat inflammation. The processes related to typical pneumonia were ruled step by step: a smear microscopy and sputum culture was performed to search for *Mycobacterium*

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tuberculosis (negative result). Chest X-ray showed a noninfiltrative pattern, sputum cytology was negative for cancer (Pap stain), and the blood count showed eosinophilia (7%). The stool culture and the tests for *Aspergillus fumigatus* were also negative, and the value of C-reactive protein (average: 2.5 mg/L) and the erythrocyte sedimentation (average was 15 mm/h) was elevated. The rest of the clinical examination was unremarkable.

Given the suspicious diagnosis of parasitic disease, fresh sputum sample was sent for microscopic evaluation (×400 and ×1000), and revealed pear-shaped organisms with linear flagellar movement [Figure 1a and Video Supplementary 1 data]. Pap slides confirmed this finding [Figure 1b], and we also performed Masson's trichome and Giemsa staining to describe in detail the characteristics of the parasites present in the sample [Figures 1c and d].

Paracetamol, cetirizine, and cephalexin were administered for 4 days. Given the cytologic diagnosis, metronidazole was used for a week. The clinical manifestations improved rapidly 2 to 3 weeks after starting of antiparasitic treatment, with complete resolution at 5 weeks.

DISCUSSION

Although this finding establishes a link between *Lophomoniasis* causing-respiratory disease, its scrutiny is misestimated on a daily workflow. Therefore, lung infection is rejected as the cause of respiratory disease. Although advances in molecular techniques[7] may reduce these problems, they are still challenges in identifying BPL.

The fresh observation of this flagellated parasite measuring 60 × 20 µ can be confused with ciliated cells or may be unnoticed in its evaluation. For this reason, the use of stained smears is suggested for the microscopic evaluation of its characteristics. This study also demonstrated the usefulness of other staining techniques that allow us to observe this protozoan present in samples from patients with respiratory disease.

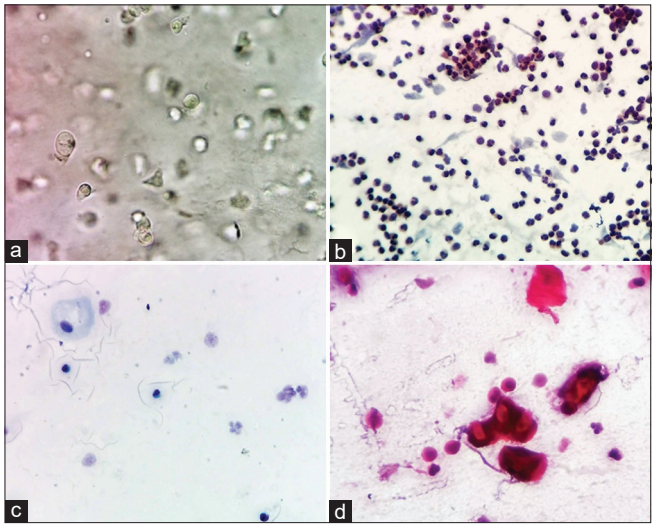

Figure 1: Lophomona in sputum sample. (a) Fresh sample. (b) Papanicolaou stain. (c) Giemsa stain. (d) Masson's trichome stain

BLP has been reported in patients with some degree of immunosuppression such as with hematopoietic transplantation[8] or leukemia,[9] in patients with sinusitis,[10] asthma,[11] tuberculosis,[12] and also in the immunocompetent population.[13] In this case, the clinical manifestations of BPL in an immunocompetent patient have significant eosinophilia consistent with previous reports.[3]

To date, several studies have focused on *L. blattarum* infection, and rare cases of BPL are becoming more frequent. In the case of Peru, which has about 10% of case reports, the northern populations are more affected, of reported cases, the northern populations are the most affected, with patients from the Intensive Care Units being the most affected.[14,15] Further studies are required to understand whether *L. blattarum* is endemic.

Finally, the case report and documentation of the parasite are essential for understanding the pathophysiological processes of its human infection, improving diagnostic methods, and promoting preventive measures against the parasite that causes BPL.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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