

# *Lophomonas blattarum*: Is it Only its Morphology that Prevents its Recognition?

Hugo Cornelis van Woerden<sup>1</sup>, Rafael Martinez-Giron<sup>2</sup>

<sup>1</sup>NHS Highland, Assynt House, Beechwood Park, Inverness, IV2 3BW, UK

<sup>2</sup>Protozoal Respiratory Pathology Research Unit, INCLINICA Foundation, Oviedo-33207, Asturias, Spain

To the Editor: We have read with interest the article published by Li and Gao on *Lophomonas blattarum* infection.<sup>[1]</sup> In it, the authors question whether there is adequate evidence to consider this multiflagellated protozoon of significant importance in the context of the respiratory tract. Mu *et al.*<sup>[2]</sup> have also suggested that all the cases diagnosed as pulmonary *L. blattarum* infection reported in China were misdiagnosed.

It is true that it is difficult for microscopists who are not familiar with the technique to become skilled at differentiating between multiflagellated protozoa and bronchial ciliated cells. It had not been possible to identify an appropriate culture medium or a specific gene probe for *L. blattarum* so far, and it is only possible to recognize the differences by means of light or electron microscopy.

A response to antibiotics is also not pathognomonic. Although patients with the organism in their sputum have been reported as responding well to metronidazole, it is necessary to recognize that this drug is also effective for a wide range of other respiratory anaerobic infections.

A range of researchers, including the authors, have successfully used staining techniques<sup>[3,4]</sup> to identify this multiflagellated protozoon by means of light microscopy, taking into account a series of morphological characteristics including round-to-ovoid shape (20–60 µm in diameter); a double tuft of flagella inserted at the anterior end; absence of a terminal bar (very typical in bronchial ciliated cells) and a certain plasticity of the cytoplasm; as well as the presence of coarse granules and some phagocytic vacuoles. While on most occasions the nucleus is not visible in these protozoa, this is not the case with bronchial ciliated cells, where it is generally clearly visible in the basal portion of the cytoplasm.

We have postulated a route of transmission from the gut of arthropods in the domestic environment to the human respiratory tract, through the inhalation of the protozoal cysts, and have demonstrated such structures in the sputum of patients<sup>[5]</sup> and continue to believe that this hypothesis merits further investigation.

*L. blattarum* does not currently fulfill Koch's postulates, as observation under the microscope is currently the only way to identify this multiflagellated protozoon. In the absence of appropriate cultures and/or molecular identification techniques, the only way to demonstrate the presence of *L. blattarum* in human respiratory secretions is by means of sputum microscopy.

We think that it may need more evidence to provide an alternate explanation for the findings.

## Financial support and sponsorship

Nil.

## Conflicts of interest

There are no conflicts of interest.

## REFERENCES

1. Li R, Gao ZC. *Lophomonas blattarum* infection or just the movement of ciliated epithelial cells? Chin Med J 2016;129:739-42. doi: 10.4103/0366-6999.178025.
2. Mu XL, Shang Y, Zheng SY, Zhou B, Yu B, Dong XS, *et al.* A study on the differential diagnosis of ciliated epithelial cells from *Lophomonas blattarum* in bronchoalveolar lavage fluid (in Chinese). Chin J Tuberc Respir Dis 2013;36:646-50. doi: 10.3760/cma.j.isn.1001-0939.2013.09.003.
3. Martínez-Girón R, van Woerden HC. Bronchopulmonary lophomoniasis: Emerging disease or unsubstantiated legend? Parasit Vectors 2014;7:284. doi: 10.1186/1756-3305-7-284.
4. Alam-Eldin YH, Abdulaziz AM. Identification criteria of the rare multi-flagellate *Lophomonas blattarum*: Comparison of different staining techniques. Parasitol Res 2015;114:3309-14. doi: 10.1007/s00436-015-4554-4.
5. Martínez-Girón R. Parabasalids in respiratory secretions and lung diseases. Chest 2015;147:e111-2. doi: 10.1378/chest.14-2465.

**Address for correspondence:** Dr. Rafael Martinez-Giron, Protozoal Respiratory Pathology Research Unit, INCLINICA Foundation, Oviedo-33207, Asturias, Spain  
E-Mail: [rmartinezgiron@hotmail.com](mailto:rmartinezgiron@hotmail.com)

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

© 2017 Chinese Medical Journal | Produced by Wolters Kluwer - Medknow

**Received:** 12-09-2016 **Edited by:** Yuan-Yuan Ji

**How to cite this article:** van Woerden HC, Martinez-Giron R. *Lophomonas blattarum*: Is it Only its Morphology that Prevents its Recognition? Chin Med J 2017;130:117.

### Access this article online

#### Quick Response Code:



**Website:**  
[www.cmj.org](http://www.cmj.org)

**DOI:**  
10.4103/0366-6999.196579