Sepsis secondary to complicated skin and soft tissue infection caused by *Ignatzschineria indica*. First case report in Latin America.

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**Abstract**

**Introduction.** *Ignatzschineria* is a recently recognized genus associated with larvae infestation. Members of this genus are pathogens infrequently implicated in human disease. During the last decade, fewer than 10 cases of infection with *Ignatzschineria* species have been reported around the world. Bacteria of the genera *Ignatzschineria* and *Wohlfahrtiimonas* have been isolated from larvae of the parasitic fly *Wohlfahrtia magnifica*, which is found in Europe, Asia and North Africa, and is associated with myiasis in several animal species, but rarely in humans.

**Case presentation.** We report the first case of sepsis associated with complicated skin and soft tissue infection caused by *I. indica* in Latin America.

**Conclusion.** The clinical and molecular findings in our report add information to the accumulating data on emerging pathogens of this type, their geographic distribution, the correlation between the emergence of infectious diseases and social and economic inequalities, as well as the effects of global climate changes on potentially unusual distribution of vectors. We consider that fly larvae should be regarded as a potential source of specific arthropod-borne bacterial systemic infections.

**INTRODUCTION**

The genus *Ignatzschineria* belongs to the class Gammaproteobacteria and comprises at least three species: *Ignatzschineria indica*, *Ignatzschineria larvae* and *Ignatzschineria ureiclastica* [1]. The members of this genus are Gram-negative, aerobic, non-spore forming, non-haemolytic, non-motile, non-pigmented, rod-shaped bacteria [2]. In 2001, Toth et al. [3] described the bacterial genus *Schineria*, but 6 years later it was renamed *Ignatzschineria* to honour entomologist Ignatz Rudolph Schiner’s seminal work [4]. Taxonomically this genus is closely related to the genus *Wohlfahrtiimonas*, also a recently recognized genus associated with larvae infestation [5, 6]. Species of the genera *Ignatzschineria* and *Wohlfahrtiimonas* have been isolated from larvae of the parasitic fly *Wohlfahrtia magnifica* [7], which is found in Europe, Asia and North Africa and is associated with myiasis in several animal species, but rarely in humans [1, 8].

Species of the genus *Ignatzschineria* are pathogens infrequently implicated in human disease [9]. In 2007, two cases of bacteraemia due to *I. larvae* were reported, originally identified as *Schineria larvae* [10, 11]. In 2014 two more cases of bacteraemia, clearly associated with maggot infestation due to *I. indica*, were reported [1]. One year later Le Brun et al. documented a case of necrotizing wound infection due to *I. ureiclastica* [8]. Subsequently, two more cases have been reported [9, 12].

We report the first case of sepsis in Latin America caused by *I. indica* associated with complicated skin and soft tissue infection, which required lower extremity amputation.

**CASE REPORT**

In April 2017, a 72-year-old homeless male patient was admitted to the emergency department at the Ramos Mejia Hospital, Ciudad Autónoma de Buenos Aires, Argentina. The patient was in very poor hygienic condition, malnourished and dehydrated. He presented a deep necrotic ulcer on the anterior aspect of his left tibia of 9-months’ evolution, with exposure of both tibia and fibula, complete loss of muscle mass, severe ischaemia, foul discharge and heavy burden myiasis. Unfortunately, maggots had been rapidly...
In Argentina, there are three species of flies that cause myiasis in humans: Cochliomyia hominivorax, which is present almost throughout the country, and Dermatobia hominis and Oestrus ovis, which attack mainly ruminants [14].

Wohlfahrtia magnifica is present in Europe, Asia, and North America [8] but it seems that the distribution of this fly is progressively expanding because of its broad adaptation capacities and as a result of climatic changes [15].

In 2011, Almuzara et al. described the first case of fulminant sepsis due to Wolffiartimonas chitiniclastica in a homeless patient in Argentina [16]. The patient presented multiple skin lesions in both inguinal regions. Although no larvae were found in the patient’s groin lesions, the authors speculated that the skin lesions were infected with the organism which then entered the bloodstream.

Because we could not recover the larvae involved in this case, we could not identify the vector agent. There are no published works related to the study of the microbial flora in native Argentine flies, and therefore we cannot confirm that I. indica forms part of the flora of these flies; however, we cannot exclude the possibility. We can speculate about a recent migration of the fly W. magnifica to our region or that I. indica can colonize the larvae of other parasitic flies associated with myiasis in Argentina. More studies are needed to clarify these issues.

This case emphasizes the correlation between the emergence of infectious diseases and social and economic inequalities, as well as the influence of global climate changes on potentially unusual distribution of vectors. We consider that fly larvae should be regarded as a potential source of specific arthropod-borne bacterial systemic infections. We highlight the importance of collecting maggots found in patients’ injuries in order to be studied and identified by entomologists, so as to shed light on these emerging pathogens.

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Conflicts of interest
The authors declare that there are no conflicts of interest.

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