

Case Report

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Bilateral symmetric ankle and feet cellulitis after fish pedicure: Case report and review of the literature

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Abstract

Fish pedicure (feet immersion in a tank containing fish *Garra rufa* or *Cyprinion macrostomus*) is a widely diffuse cosmetic practice, usually considered safe. However, this practice is regulated only in a few Countries, and the risk of infection related to this practice is not quantified. We report a case of bilateral symmetric ankle and feet cellulitis in a previously healthy young woman without risk factors for infections, after a fish pedicure in Greece.

Three cases of foot infection after fish pedicure have been described in the English literature, two sustained by *S. aureus* and one by *Mycobacterium marinum*, but none of them was so extensive, involving not only feet but also ankles.

The practice of the aesthetic fish pedicure should be regulated in all Countries to reduce the risk of complications related to this procedure. Moreover, studies targeted at investigating the risk of infection associated with this procedure are warranted.

Keywords: Fish pedicure; Cosmetic procedure; Cellulitis; Risk infection.

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Introduction

Fish pedicure (ichthyotherapy) consists of dipping different parts of the body in tanks with specimens of *Garra rufa* or *Cyprinion macrostomus*. These fishes should be able to remove small portions of stratum corneum, in order to peel the skin. This represents an increasingly used aesthetic practice, despite the absence of rules and guidelines. However, the lack of specific regulatory rules raises some health concern since this practice cannot be clearly attributed neither to aesthetic nor to medical treatments [1].

We report a case of bilateral symmetric ankle and feet cellulitis after aesthetic fish pedicure in a previously healthy 21-year-old woman.

Case presentation

A previously healthy 21-year-old American woman without any past medical history asked for a medical check due to the appearance of a symmetric bilateral erythema, oedema, and pain located in both her feet and ankles. About a week before the clinical visit, the patient had performed a fish pedicure (immersion of the feet in a tank with fish that nibble off dead skin) during a holiday in Greece. She reported an itching and burning sensation at the soles of the feet that had begun the day after the pedicure. After about 4 days, she experienced night fever (body temperature peak of 38°C) and ankle pain, followed by the appearance of swelling and erythema of both ankles and feet. After two days of bed resting, given the persistence of

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these symptoms, she decided to ask for a doctor house call.

At clinical examination, symmetrical bilateral oedema and erythema of ankles and feet was evident. There were no skin ulcers, but the skin was thin and exfoliating; A diagnosis of symmetric bilateral cellulitis was made (Figure 1). The patient also reported that she had shaved her lower limbs a week before the holiday.

Antibiotic treatment with oral amoxicillin/clavulanate (1g tid for 7 days) was prescribed with complete regression of the symptomatology. At one-month follow-up the patient was completely recovered.



Figure 1: Ankles and feet cellulitis, seven days after fish pedicure; The erythematous skin area was marked with a dark pen mark.

Discussion

Ichthyotherapy has a long-standing history in Middle Eastern cultures for aiding skin conditions, especially psoriasis, and helping to remove scaly skin. The two species of fish used for this therapy are *Cyprinion macrostomus* e *Garra rufa*, both of the Cyprinidae family; they live in the fresh water of Anatolia, Syria, Jordan and other countries of the Middle East. These omnivorous fishes in case of insufficient amount of phytoplankton and zooplankton can eat dead human skin cells. Despite its use for medical conditions in those regions, the first mention of fish pedicure in scientific journals was in 1989 [2]. Up to that date, there was an absolute lack of scientific studies on the effectiveness of this practice in skin diseases. Afterwards, some evidences has been produced on the effectiveness and safety of fish pedicure in the treatment of psoriasis, alone or combined with ultraviolet rays [3,4].

Currently, healthy people commonly use fish pedicure as aesthetic procedure in several countries. This use shows several problems related to the safety of this procedure and to the lack, in most countries, of rules about management of these fishes. With this regard, water disinfection is impossible because these fish are very susceptible to water disinfectants, and little is known about the health of the fishes and about the types of microorganisms that they may carry. Furthermore, the contact of the same fishes with different clients is unavoidable, and the risk of transmission of infective diseases is not evaluable, although no cases of transmission of pathogenic microorganisms have been described to date. For these issues, this practice is forbidden in many states of United States of America and in Canada. On the other hand, some countries, such as Germany

and United Kingdom [5], pointed out the risk of infections related to this procedure and regulated the management of fish pedicure, even if several countries have not yet regulated this practice.

At present, only three cases of infections related to fish pedicure have been described: Veraldi and Colleagues documented a *S. aureus* infection of the feet, with maceration, purulent discharge, scales and crusts after a fish pedicure in Greece in a previously healthy 39-year-old women [6]. The year before, Sugimoto and Colleagues documented a methicillin-resistant *S. aureus* foot infection with cellulitis after a fish pedicure [7]. Furthermore, a case of *Mycobacterium marinum* foot infection has been described [8]. Similarly to the first two cases described above, the cellulitis reported in the present case could be related to a Gram positive infection, as proven by the rapid clinical improvement of symptoms with the antibiotic therapy; however, it was not possible to perform microbiological cultures given the lack of ulcers or exudation. Thus, a different etiology cannot be excluded.

Finally, this is the first case with a symmetric involvement of both feet and legs with bilateral cellulitis. Despite a direct association between fish pedicure and infection could not be proven, the close temporal association between this practice and the onset of the symptoms in a previous healthy woman is suggestive for a causal role of fish pedicure. Furthermore, the depilation may have contributed to the extension of the skin infection.

Conclusion

The practice of fish pedicure for aesthetic purpose should be regulated in all countries to reduce the risk of complications related to this procedure. Studies targeted at investigating the risk of infection associated with this procedure are warranted.

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