Fluctuating lesion of the scalp after a journey to the tropics: a case of furunculoid myiasis

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Abstract

Fluctuating lesions or furuncles of the scalp occur frequently in dermatological practice. This clinical condition is often caused by gram positive bacteria (e.g. staphylococcal or streptococcal skin infection) or fungal infection (e.g. Kerion celsi). However, a rare diagnosis such as myiasis might be considered, especially if a journey to an endemic area is reported. Herein, we present a case of furunculoid myiasis of the scalp and review the pathogenesis and therapeutic options to treat this condition.

Keywords: furunculoid myiasis, Dermatobia hominis, furuncle of the scalp

Introduction

Furunculoid myiasis is caused by the larvae of fly species that are indigenous in South and Central America or Africa. However, travelers might bring this condition to non-endemic areas. Thus, knowledge of clinical presentation, pathogenesis, and therapeutic options is crucial for appropriately advising the patients, and for selection of the treatment modality.

Case Synopsis

A 9-year-old boy presented in our clinic with a history of a progressing skin lesion of the scalp existing for two weeks. It was occasionally itchy and painful. Fever or malaise was not present. The family returned from a journey to Bolivia a day prior to the consultation. Physical examination revealed a slightly fluctuating nodule measuring about 1.5 cm in diameter, surrounded with moderate erythema and covered with a yellowish-hemorrhagic crust in the center of the scalp (**Figure 1A**). The routine laboratory investigation, including white blood cell count and C-reactive protein, was unremarkable.

Our differential diagnosis included furuncle caused by bacterial infection, but owing to the travel history also furunculoid myiasis was considered. We performed an incision of the fluctuating lesion under local anesthesia using prilocaine 1% with adrenaline (**Figure 1B**), extracted the content of the lesion (**Figure 2**), and were able to diagnose furunculoid myiasis.

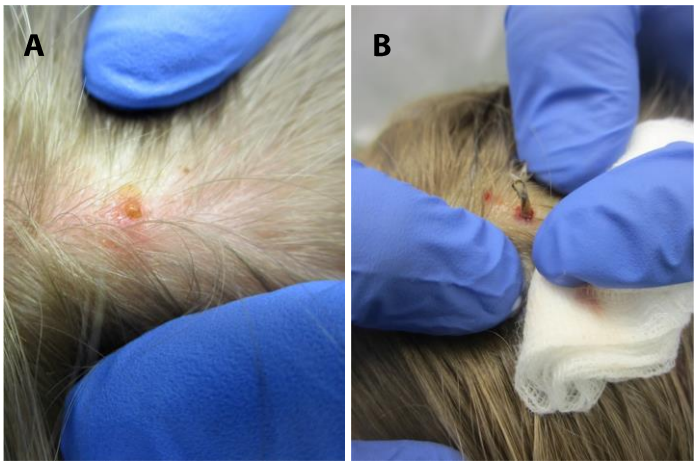

Figure 1. *A) Clinical presentation of the lesion before therapy; B) Intraoperative finding and extraction of the larva.*

Case Discussion

The term myiasis refers to the ectoparasitic infestation of human or other mammals by larvae of flies [1] that may occur in any body region. Urogenital myiasis, nasopharyngeal myiasis, and ophthalmomyiasis are just a few examples of the possibly involved organ systems [2]. Cutaneous myiasis is one of the most common forms of myiasis. It may be divided into localized furunculoid myiasis, migratory myiasis, and wound myiasis. The clinical picture of cutaneous myiasis depends on the fly species [3].

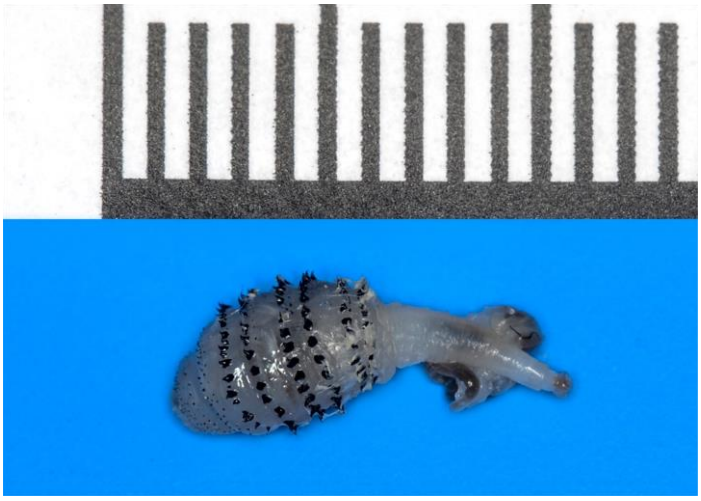

Figure 2. *Macroscopic presentation of the currently detected larva of Dermatobia hominis with numerous concentric rows of spikes over the body. Scale in mm.*

The most common causes of human furunculoid myiasis are larvae of *Dermatobia hominis, Cordylobia anthropophaga, Cuterebra spp., Wohlfahrtia vigil*, and *Wohlfahrtia opaca* [4]. In South and Central America Dermatobia hominis (human botfly) represents the most common species causing cutaneous myiasis, whereas *Cordylobia anthropophaga* (tumbu fly) is the main pathogen in Africa.

Dermatobia hominis is one of the most common pathogens of furunculoid myiasis [5] and was also diagnosed in our patient. This fly is present mainly in regions with relatively high temperatures and air humidity. The female *D. hominis* lays its eggs onto a vector insect (mosquitoes, or, less frequently, on flies and ticks), which then transfer those eggs to the host by an insect bite [6]. In contact with the warmth of the mammals' skin the eggs hatch and the hatched larvae can penetrate healthy skin. After the penetration, a small erythematous papule develops at the exposed skin and then turns to a nodule, which clinically may present similar to a furuncle. A central opening within the lesion allows the larvae access to oxygen supply. During the next 5 to 10 weeks the larva develops and digs deeper into the skin of the host [3].

The diagnosis of furunculoid myiasis is usually based on the relevant traveling history and identification of the typical furuncle-like lesion with a central pore. For the definitive species determination by a parasitologist after removal, the larva should be stored in 70 to 95% ethanol [7].

The treatment of furunculoid myiasis includes a complete extraction of the larva from the affected skin. Covering the opening of the lesion with an oily ointment (containing paraffin or Vaseline®) causes suffocation of the larva, which then can be extracted manually. Surgical procedures are rarely necessary with the exception of *D. hominis*. This species develops numerous concentric rows of spikes during the larval maturation, which may prevent the removal of the larva from the skin [8]. However, when *D. hominis* is suspected we also recommend using the ointment cover technique prior to extraction in order to facilitate the extraction process. The surgical procedure then involves injection of a local anesthetic into the lesion followed by a small incision at the opening and careful extraction of the larva.

Isolated cases requiring oral therapy with ivermectin owing to multiple lesions or involvement of the cavities (orbits or oral cavity) have been described [9, 10]. However, treatment with antiparasitics is not the therapy of choice in uncomplicated cases.

Prevention of myiasis depends on the life cycle of pathogenic organism. As the eggs of *D. hominis* are mainly transmitted by mosquitoes, the use of repellents plays a central role in prevention of infection.

Conclusion

Myiasis should be considered in the differential diagnosis in cases of fluctuating lesions of the skin and a suitable travel history. The number of lesions and involvement of special anatomical regions (e.g. oral cavity) are important when choosing the therapy.

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