

Case Report

Infestation of the Eyelid by an Egg-Laying Tick: Case Report

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Keywords

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Abstract

In this report, we describe a rare case of a tick egg-laying infestation of the eyelid. A 7-year-old girl consulted our hospital after a trip in Thailand for an itchy and painful eyelid. The first examination at the slit lamp showed the tick's body attached to the left superior eyelid margin, surrounded by its eggs. The tick detached itself afterward and a tobramycin prophylactic treatment was introduced. The patient was put under surveillance and no signs of a tick-borne disease were described during the follow-up.

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Introduction

Ticks are ectoparasites that feed on animal blood. They are known to be vectors of several diseases, such as Lyme borreliosis, Crimean-Congo hemorrhagic fever, typhus, or Q fever. A single tick can carry a number of different pathogens [1], leading to atypical presentation of tick-borne illness. Two classes of tick responsible for disease in humans are identified: hard ticks (family Ixodidae) and soft ticks (family Argasidae) [2].

Tick infestation of ocular tissues is a rare occurrence, but it requires a quick and complete removal in order to prevent tick-borne diseases or late sequelae such as granuloma or abscess formation. The ocular localization is quite unusual, as it is more common in disabled or vulnerable people, to allow it to go in this sensitive area and leave it there. Herein, we present the case, noteworthy for its occurrence, of a tick egg-laying infestation of the eyelid. The CARE

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Case Presentation

A 7-year-old girl consulted the emergency-ophthalmology department, with complaints of itchy eyelid, pain, and sensation of moving worms in the left superior eyelid. Her mother reported they just came back from vacation in Thailand, 3 days before. The complaints began at their return in Belgium.

Slit lamp examination revealed one large moving ectoparasite on the left upper eyelid, surrounded by some black eggs (shown in Fig. 1, 2). An appointment was settled the next day to remove the parasite in operating room. The little girl was quite traumatized by the idea that something alive had been laid inside her, and this made the examination very difficult and stressful. On the morning before the surgical exploration, the ectoparasite detached itself from the eyelid.

The mother kept it, and the sample was sent to a specialized center in tropical species. Careful examination revealed a slightly swollen conjunctiva toward the area where the tick was attached. Physical examination did not reveal other ectoparasite and treatment with tobramycin was initiated as a precaution.

The patient was sent to an infectious diseases specialist, who, given the time elapsed, felt that surveillance was more appropriate than an extensive workup with serology and other complementary tests. The specialized center in tropical species identified the tick as Ixodidae, the family of hard type because of a scutum's presence. The ectoparasite's species was identified as an *Amblyomma* sp. tick by the parasitology team of CHU Saint-Pierre.

Discussion

Ticks are hematophagous arthropods that can infest ocular tissues and lead to severe systemic and local complications. A few cases of tick infestations outside the eyelid have been described in the literature [3–6], but no cases of egg laying under the eyelid have been reported.

There are two types of tick families and they can be distinguished by some features. Soft ticks take smaller and quicker blood meals at shorter intervals and can transmit pathogens much more quickly than hard ticks [7]. However, hard ticks are more likely to transmit disease since they are more prevalent and harder to remove [1]. In addition, compared to the soft ticks, Ixodidae differ in their life cycle as they attach to a host painlessly and are generally unnoticed. They remain in place until they engorge and are ready to change their skin for a further stage of development. This characteristic feature may explain why it could infest a young girl and stay so long unnoticed.

During their life cycle, female ticks from the Ixodidae family drop off their host in order to lay eggs [8], and the process of egg laying normally kills the female tick [9]. In the present case, the tick oddly laid the eggs while being still attached to the eyelid and detached itself afterward alive. This peculiar sequence of events could explain the singularity of this case since the tick has to be normally detached from the host to lay its eggs.

Removing ticks wholly from the affected tissue is of higher importance in the prevention of tick-borne diseases and possible abscess, granuloma, or other local lesions [6]. Numerous mechanical and chemical removal methods were described, but experimental evidence suggests that chemical irritants are ineffective in inducing tick detachment from the host



Fig. 1. 7-year-old girl with hatched ticks on eyelid and the egg sac protruding from underneath the eyelid.



Fig. 2. Slit lamp examination of the hatched ticks and the back of the mother tick.

and risk triggering injection of salivary fluids and possible transmission of disease-causing microbes [1]. Therefore, the safe mechanical removal with forceps is preferred and recommended.

Finally, the infested clothes, sheets, beds, and any other clothing where the tick's eggs could have spread should be taken for cleaning. There are several cleaning methods described, and an effective one is to wash the clothes with water temperature $\geq 54^{\circ}\text{C}$, or to dry the clothes on high heat in a dryer for a minimum of 6 min [10].

In conclusion, ophthalmologists are rarely confronted with ectoparasites and should be aware of the importance of a quick removal and the threaten of tick-borne diseases. Patients should undergo blood and serologic tests for tick-borne diseases and be monitored with clinical observation and follow-up in internal and tropical medicine.

Statement of Ethics

All procedures followed were in accordance with ethical standards and the Helsinki Declaration. Written informed consent was obtained from the patient's parents for the publication of this case report and accompanying images. Ethical approval is not required for this study in accordance with local and national guidelines.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

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Author Contributions

This work was carried out in collaboration among all authors. Sina Hakami and Youssef Afifi drafted the manuscript and developed associated figures. Dorine Makhoul, Sina Hakami, and Aurélie Le saw the patient at the hospital. Younes Azzagnuni was consulted about the infectious disease assessment. Aurélie Le edited and provided final approval for the manuscript to be published.

Data Availability Statement

All data generated or analyzed during this study are included in this article and its online supplementary material. Further inquiries can be directed to the corresponding author.

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