

Tick Bite-Induced Facial Cellulitis and Posterior Auricular Lymphadenopathy

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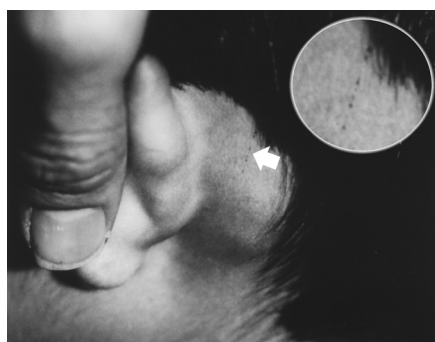
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Systemic tick-borne diseases are well known, yet little has been written about local reactions to tick bite. We report the case of a child who presented with significant local manifestations following a tick bite.

Case Description

The patient, an otherwise healthy 10-year-old boy, presented to the pediatric emergency room with headache of 4 days duration followed by swelling of the scalp and face. The child was referred by his pediatrician to rule out the possibility of previously unnoticed head trauma. The patient had no fever or vomiting and denied any history of head trauma. Past medical history and family history were unremarkable. On physical examination, his pulse, respiratory rate and blood pressure values were within normal limits. Body temperature was 37.6°C. The scalp and the upper half of the face were swollen and tender, and a left posterior auricular lymph node was noted to be enlarged and painful [Figure A]. Swelling and tenderness were maximal at the frontoparietal aspect of the scalp where an engorged tick was found to be attached. The tick was removed by gentle traction, leaving a yellow crusted lesion surrounded by erythema. The child was treated with oral erythromycin. Signs and symptoms resolved within 2 days. The tick was identified as a female of the *Ixodes* species [Figure B]. No Weil-Felix reaction was achieved.



[A] Swollen tender posterior auricular lymph node, 3x2x2 cm in size

Comment

Ticks are blood-sucking arthropods that parasitize reptiles, birds and mammals throughout the world. Feeding also on humans and domestic animals, they may constitute a major health problem in tick-infested areas. Through their bite, ticks are able to transmit various viral, parasitic and bacterial systemic diseases to humans. These include Lyme disease (due to *Borrelia burgdorferi*), Q fever (*Coxiella burnetii*), Mediterranean spotted fever (*Rickettsia conorii*), ehrlichiosis (*Ehrlichia chaffeensis*), tularemia (*Francisella tularensis*), viral encephalitis (arbovirus) and babesiosis (*Babesia divergens*) [1].

Our patient demonstrated an extensive local reaction to the tick bite on his scalp. The differential diagnosis of such a reaction includes the following: a) cellulitis due to invasion of a secondary infectious agent; b) tick-induced

allergic reaction: the clinical manifestation of such an allergic reaction can vary from a small or large localized painful pruritic erythematous lesion to a systemic (anaphylactoid) reaction [2]. Gauci et al. [3] demonstrated that in individuals with extensive local reactions the pathogenesis may involve either delayed hypersensitivity, a late-phase IgE response, or the direct pharmacological action of tick secretions; c) local lymphadenopathy: Raoult et al. [4] recently described a patient with a "new tick transmitted disease" due to *Rickettsia slovaca*. Later, Lakes [5] reported a "tick-borne lymphadenopathy," questioning whether it too was caused by the same agent. In his series of 27 patients, most of them children, tick bites were mainly on the occipital scalp. Most patients developed a "herpes-like" eruption at the site of the tick bite, but the main symptom in all patients was enlarged and painful regional lymph nodes. Several patients demonstrated systemic symptoms such as fatigue,



[B] Ventral view of the female *Ixodes* species tick after removal from the patient's scalp

dizziness, headache, sweating, myalgia, and loss of appetite. *Staphylococcus aureus* was cultured from the eruption in two of four patients. Serology for Lyme borreliosis was confirmed in only six patients, while no Weil-Felix reaction was noted in any of the patients. Treatment with doxycycline appeared to shorten the disease.

Providing routine antibiotic treatment to tick bite victims is under debate; however, this debate refers to the prevention of Lyme disease and not to treatment of local reaction. Taking into account the above-

mentioned differential diagnosis, we believe that antibiotic treatment should be considered for children presenting after the tick bite with local manifestations, especially when extensive.

References

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