

Quiz

CORRECT ANSWER TO THE QUIZ. CHECK YOUR DIAGNOSIS

A TICK BITE-INDUCED SKIN LESION

TAKUYA MIYAGAWA, RYOSUKE SAIGUSA, SHINICHI SATO

Department of Dermatology, University of Tokyo Graduate School of Medicine, Tokyo, Japan

A 29-year-old healthy man visited our office because of a slight pain of the left lower limb. Physical examination revealed a tiny erythema, which did not reach a definitive diagnosis. A punch biopsy was performed at his urging. Histopathological examination showed a crust formation on the surface

of the skin and a brightly eosinophilic substance in the dermis (Fig. 1). Other histological findings include a marked perivascular infiltrate of lymphocytes, eosinophils and plasma cells in the dermis (Figs. 2, 3) and extravasations in the upper dermis (Fig. 4).

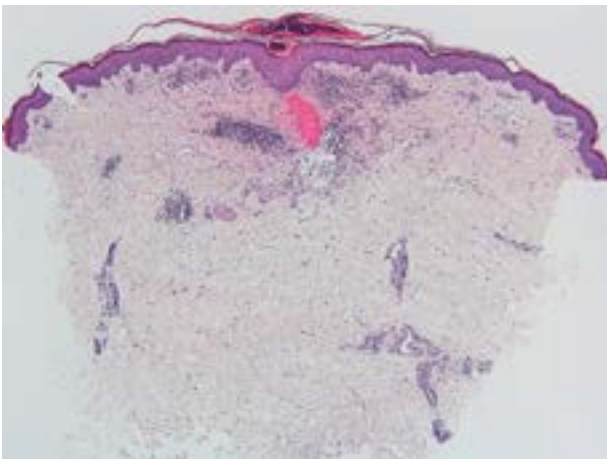


Fig. 1. Punch biopsy of the skin lesion

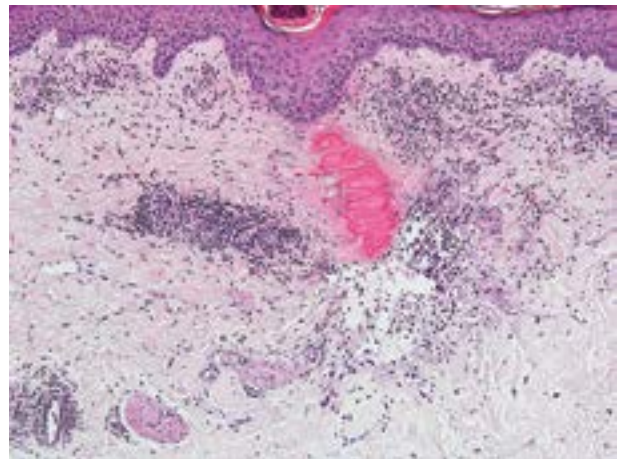


Fig. 2. Brightly eosinophilic substance in the dermis

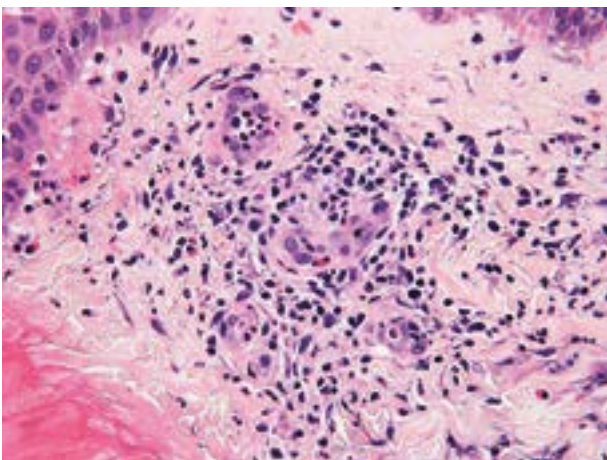


Fig. 3. Marked perivascular infiltrate of lymphocytes, eosinophils and plasma cells in the dermis

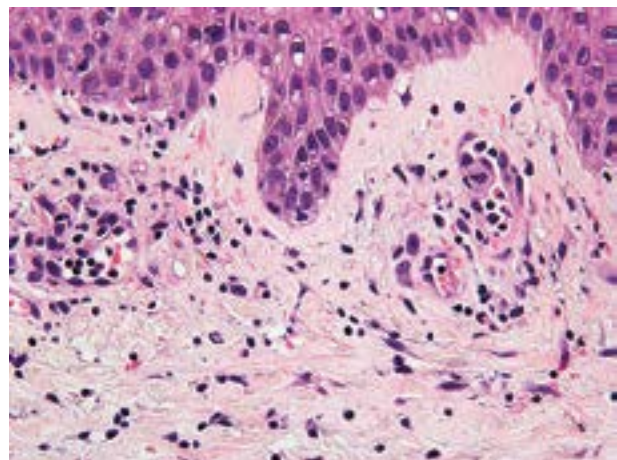


Fig. 4. Extravasations in the upper dermis

Authors' comments

A characteristic eosinophilic substance was considered as tick attachment cement, and a diagnosis of a tick bite was made. Infiltration of inflammatory cells, an extravasation of red blood cells, and a crust formation were consistent with the diagnosis. Judging from a superficial perivascular lymphoeosinophilic infiltrate, other differential diagnosis includes drug reactions, urticarial reactions, a prevesicular early stage of bullous pemphigoid, insect bites, infestations, and HIV-related dermatosis. Among them, a diagnosis of insect bites or infestations can be rendered considering a crust formation and an eosinophilic substance just beneath the crust. Besides, a characteristic eosinophilic substance suggests a tick bite rather than other insects or parasites. Generally, a tick bite indicates tick attachment cement anchoring the mouthpart to the skin and an infiltrate of inflammatory cells with dilated vessels and extravasation of red blood cells in the upper dermis in addition to a tick body and its mouthpart. Inflammatory cells include neutrophils and lymphocytes in acute lesions, and lymphocytes, plasma cells, and histiocytes in subacute or chronic lesions. Coagulation necrosis of the epidermis and papillary dermis can sometimes be observed at the point of penetration of a tick mouthpart.

Foreign-body giant cells may also be present in the infiltrate. The brightly eosinophilic tick attachment cement is a characteristic sign of a tick bite with diagnostic value. It can be found in the deep dermis in some cases, and therefore evaluation should be carried out carefully. When tick attachment is found in the paraffin section, we can make a diagnosis of a tick bite easily. Even in the absence of a tick body, other pathological findings enable us to diagnose a tick bite precisely. Since it is difficult to make a definitive diagnosis by observing manifestations of patients, especially in the absence of tick attachment, pathological examination is more important for the diagnosis in such cases. Therefore, we herein report this case, in which a tick body is absent, as a quiz.

The authors declare no conflict of interest.

Address for correspondence

Ryosuke Saigusa
Department of Dermatology
University of Tokyo Graduate School of Medicine
7-3-1 Hongo, Bunkyo-ku
Tokyo 113-8655, Japan
e-mail: saigusar-der@h.u-tokyo.ac.jp