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SHORT COMMUNICATION

# Tick Attachment Cement with a Feeding Cavity in the Deep Dermis of the Penis

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Ticks are vectors for a variety of diseases, including Lyme disease and Japanese spotted fever. Precise diagnosis of tick bite is crucial to reduce morbidity and mortality from such diseases. Excision should be carried out because the tick hypostome and tick attachment cement may remain in the bitten skin. The tick hypostome is a rod-like, mouth-associated organ arising at the base of the beak. Tick attachment cement enables ticks to remain attached to the host during the prolonged feeding period of 4–8 days and prevents host immune response molecules from coming into contact with the tick hypostome (1). Dermoscopy has been used to detect ticks and the tick's mouthparts anchored to the skin (2–5).

We described here a case of tick bite with attachment cement and a feeding cavity containing the hypostome in the deep dermis of the penis. This case emphasizes the need for deep excision of tick bite lesions.

## CASE REPORT

In July 2013 a 29-year-old man presented with a slightly painful lesion 4 days after a tick bite on his penis, while on a trip to the mountains of Hyogo, Japan. He had noticed a tick biting his penis, and he removed it. Physical examination revealed a slightly painful, swollen, erythematous lesion with a tiny central blackish stinger located in the penile tissue (Fig. 1a). Dermoscopy revealed a distinct blackish stinger (Fig. 1b), probably the tick's mouthparts, anchored to the skin. The lesion was subsequently excised.

Haematoxylin and eosin staining revealed formation of a crust on the surface of the skin, an infiltration of inflammatory cells of neutrophils and eosinophils in the superficial dermis, and an eosinophilic homogeneous substance with central lucid region in the deep dermis (Fig. 1c). Higher magnification of the lower dermis revealed the tip of the serrated hypostome of the tick in the central lucid region and the peripheral eosinophilic homogeneous tick attachment cement (Fig. 1d). Minocycline hydrochloride 200 mg/day was administered orally for 2 weeks. The patient reported no other symptoms after excision.

## DISCUSSION

Histopathological features of tick attachment sites in animals include epidermal hyperplasia, discrete inflammatory oedema, haemorrhage, and vascular dilation of the dermis (6). In parasitized animals, tick attachment cement can be observed under the stratum corneum and the granular layer of the epidermis (6). Some histopathological specimens show a feeding cavity filled with dead

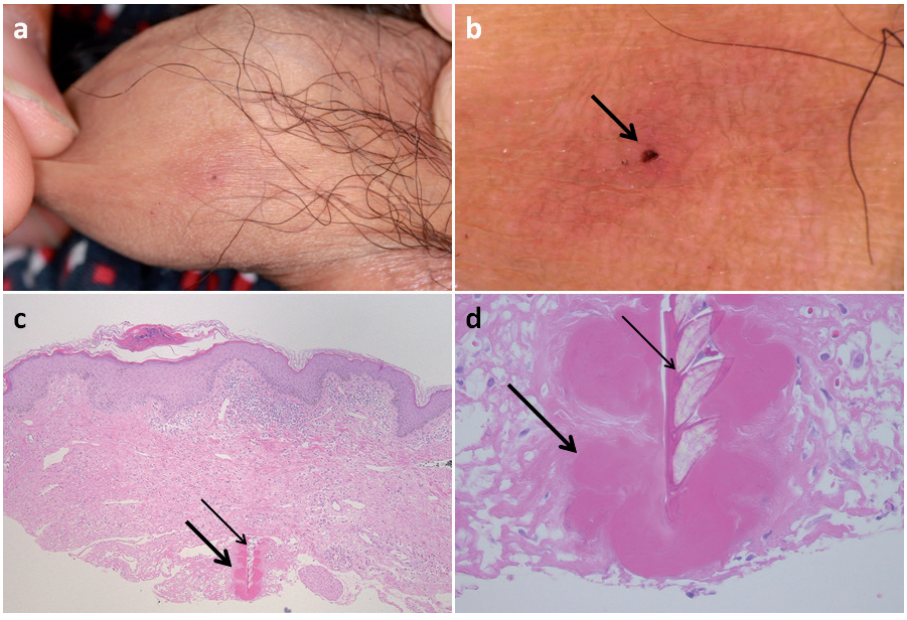


*Fig. 1*. (a) Clinical presentation of tick bite lesion of the penis. (b) Dermoscopy of the lesion, revealing a blackish stinger (*arrow*) suggestive of the tick's mouthparts anchored to the skin. (c) Haematoxylin and eosin staining showing formation of a crust on the surface of the skin, an infiltration of inflammatory cells in the superficial dermis, and an eosinophilic homogeneous substance (*bold arrow*) with a central lucid region (*thin arrow*) in the deep dermis (original magnification, ×40). (d) Higher magnification of the lower dermis revealed the tip of the serrated hypostome of the tick in the central lucid region (*thin arrow*) and the peripheral eosinophilic homogeneous substance of tick attachment cement (*bold arrow*) (original magnification, ×400).

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cells, debris, and neutrophils (6). Castelli et al. (7) summarized 25 human cases of tick bites and reported the histological features of tick attachment cement anchoring the mouthparts to the skin and a mild infiltration of inflammatory cells with dilated vessels and extravasations in the upper dermis. They clearly showed tick attachment cement expanding both vertically across the epidermis and horizontally between the prickle and the horny layers of the epidermis (7). Compared with previous cases in animals and humans, the presence of tick attachment cement in the deep dermis in our case highlights the need for complete excision to remove the component that could mediate infectious disorders.

Tick bites of the penis have rarely been reported (5, 8–10). The skin of the penis is among the thinnest in humans. We surmise the following events occurred in our case: the tick inserted and anchored the hypostome to the skin; in accordance with its length, the tip of the hypostome penetrated the deep dermis where it deposited attachment cement.

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