

A case of Western hognose snake bite

Dear Editor,

A 19-year-old male presented to our emergency department 2 hours after being bitten on his left hand by a captive Western hognose snake, *Heterodon nasicus*, while feeding the captive snake at his college. A fang mark was observed on his left hand and remarkable swelling and ecchymosis extended to his left arm (Figure 1). There were no neurologic symptoms such as paralysis or numbness. His laboratory findings, including a coagulation test and creatine kinase, were within normal limits, but the C-reactive protein level was slightly high. He was administered cefacloral. On day 8, the edema of his left hand had improved. Edematous erythema, blister formation, and pruritus, however, appeared on his left hand. A topical corticosteroid was therefore applied. Two months later, the lesion was improved.

There are two types of venomous snakes that are clinically significant: viperids, including pit viper and habu, and elapids, including cobra. Both types are front-fanged colubrids. Viperids have hemorrhagins, elapids, and neurotoxins. Western hognose snakes belong to the colubrids, but are rear-fanged snakes, having enlarged venom glands behind the maxillae. Western hognose snakes are thought to be phlegmatic and mild captives, and thus, they rarely bite humans when threatened. Therefore, they are generally not viewed as venomous. There are few reports of Western hognose snake bites, but the chief symptoms are edema, redness, blister formation, ecchymoses, and cellulitis.¹ Time to resolution of symptoms ranges from 2 days to 5 months. Administration of antibiotic prophylaxis is not recommended unless secondary infection occurs, in which case a broad-spectrum β -lactamase inhibitor should be administered.² The clinical changes of Western hognose snake bites are caused by the interaction of the venom components and type IV hypersensitivity.¹ Hill and Mackessy³ reported that Western hognose snakes produce Duvernoy's secretion with low levels of phosphodiesterase, which disrupts c-AMP, and hemorrhagic toxins, which have moderate-high protease activity.³ Other reports indicate that post-synaptically active toxins do not play important roles in *Heterodon* bites in vitro, but this conflict between in vitro and clinical symptoms is due to the specific response of mammals to hemorrhagic toxins and the taxa-specific neurotoxins in Duvernoy's secretions.^{1,4} Medeiros reported that sensitization to snake venom is associated with Type II hypersensitivity, such as serum IgE levels, atopic disposition, length of exposure, past history of snakebites, and frequency of exposure to dried venom.⁵ Due to the increase in the number of people who keep snakes as pets, physicians should be aware of the appropriate treatments for snakebites, not only

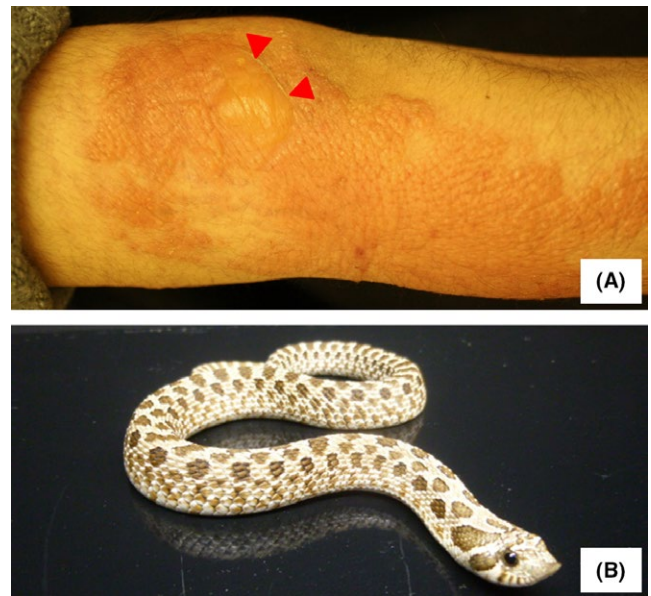


FIGURE 1 A, Picture of the patient's left arm on day 8 with remarkable swelling, ecchymosis, and blister formation. Red arrowheads indicate a blister. B, Western hognose snake

by well-known venomous snakes, but also by rear-fanged snakes such as the Western hognose snake.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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