

CASE SERIES

Catastrophic Acute Ischemic Stroke After Crotalidae Polyvalent Immune Fab (Ovine)-Treated Rattlesnake Envenomation

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We report 2 cases of catastrophic ischemic stroke after Crotalidae polyvalent immune Fab (ovine)-treated rattlesnake envenomation, 1 fatal and the other resulting in significant permanent disability. It is possible these serious adverse events may have been related to venom factor(s), an interaction between venom and antivenom, occult patient blood dyscrasia, or to random unrelated events. We present the rationale for each possibility, and submit the experiences to elicit alternate postulation and communication of similar presentations.

Key words: snakebite, rattlesnake, venom, antivenom, stroke

Introduction

Ischemic stroke is extraordinarily rare after snakebite envenomation, particularly when compared with other serious yet uncommon complications, such as hemorrhagic stroke or other serious bleeding. Neurological complications after snakebite typically include paresthesias, paralysis, damage to local nerve structures, and myokymia. Many serious rattlesnake envenomings cause thrombocytopenia and hypofibrinogenemia that raise common concerns about easy bleeding, bruising, or even spontaneous bleeding. Ischemic stroke, although described for other snake envenomations (*Bothrops lanceolatus*, *Daboia [Vipera] russelii*, *Echis carinatus [coloratus]*, *Hypnale hypnale*, and so forth),^{1–6} has only been reported once after a rattlesnake envenomation in the United States and one other time after a South American rattlesnake bite. We describe 2 additional cases of catastrophic ischemic stroke after rattlesnake envenomation.

Case Presentations

CASE 1

A 50-year-old man was bitten on his left anterolateral calf on May 16, 2003, at approximately 12:15 PM to

12:30 PM after stepping on an unseen snake on the ground. The bite penetrated his jeans, and the patient presented to a local hospital approximately 30 minutes after the snakebite. The snake was not available for identification but was most likely a Southern Pacific rattlesnake (*Crotalus oreganus helleri*) based on a good description by the patient, geographical location of the incident, and clinical presentation. The patient's pertinent medical history included coronary artery disease, for which he was taking daily aspirin as his only medication. The patient reported pain, swelling, and tenderness with palpation of approximately half of the left lower extremity. He also reported shortness of breath and paresthesias around the mouth and bilateral upper and lower extremities, with symptoms being worse in the left lower extremity. Vital signs included blood pressure, 155/96 mm Hg; heart rate, 101 beats/min; respiration, 18 breaths/min; temperature, 36.1°C; and oxygen saturation, 94% on room air. Treatment with 6 vials of Crotalidae polyvalent immune Fab (ovine) (CroFab; FabAV, Protherics, Brentwood, TN), was initiated at 2:37 PM, which was approximately 2 hours after the bite. Initial laboratory tests were significant for hemoglobin of 15 g/dL and platelet count of 269,000/mL³. Compartment pressures were obtained (anterior tibial compartment 26 mm Hg, lateral compartment 28 mm Hg, superficial posterior compartment 18 mm Hg, deep posterior compartment 20 mm Hg). Twelve additional vials of FabAV were given as illustrated in [Figure 1](#).

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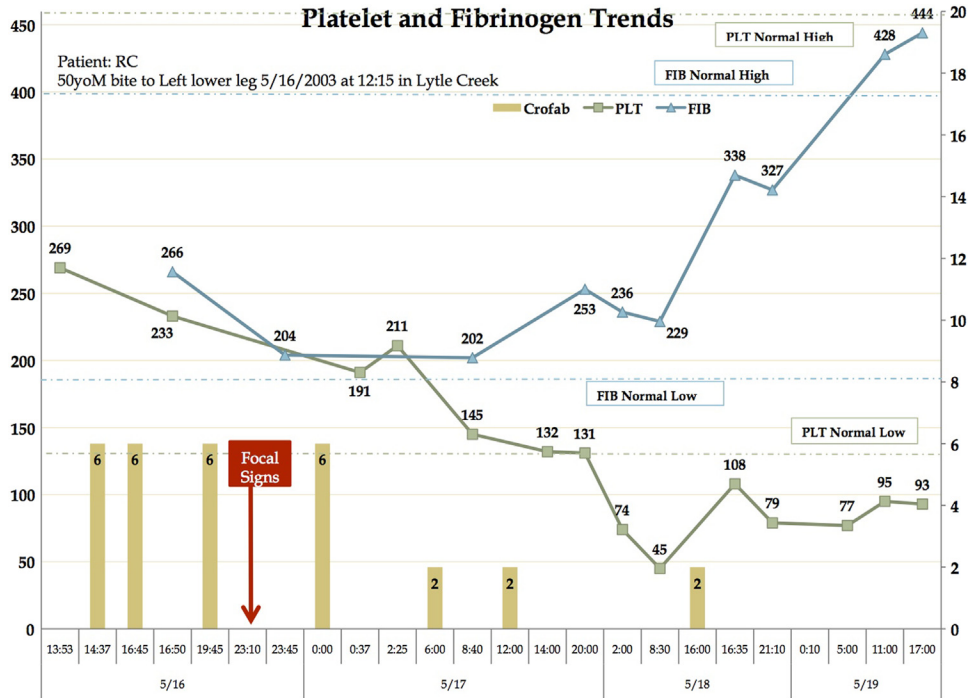


Figure 1. Platelet counts, fibrinogen levels, and fab antivenom dosing over time. Stroke symptoms onset approximately 11 hours after the snakebite.

At 11:10 PM on May 16, 2003, the patient had the sudden onset of slurred speech, right-sided weakness, and right facial droop (Figure 2). Initial head computed tomography showed no signs of intracranial hemorrhage, mass effect, or sign of acute large-vessel infarct. The patient’s laboratory tests at about the same time showed no thrombocytopenia or hypofibrinogenemia.

However, an additional 6 vials of FabAV were given because of the acute neurological symptoms. Stroke interventions were considered but decided against secondary to the risk of thrombolytic medication compounded by the patient’s underlying risk of hemorrhage from the rattlesnake envenoming. Brain magnetic resonance imaging showed acute infarctions involving the right frontal lobe and left parietal



Figure 2. Neurological exam revealed right facial paresis sparing the forehead. Patient consented to picture for educational use.

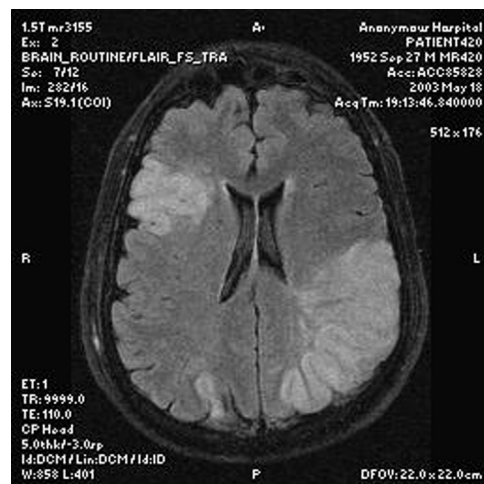


Figure 3. Brain MRI showed infarctions.

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