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Neurotoxicity and Wound Infection Following Monocled Cobra Envenomation in the US

Hannah Malashock[1,2], Anne-Michelle Ruha[1,2], Kimberlie Graeme[1,2], Eleanor Oakley[1,2], Elizabeth Moore[1,2], David Watts[1,2]

[1]Department of Medical Toxicology, Banner - University Medical Center Phoenix, Phoenix, Arizona, USA, [2]Center for Toxicology & Pharmacology Education and Research, University of Arizona College of Medicine - Phoenix, Phoenix, Arizona, USA

Background: The Monocled Cobra (Naja kaouthia), native to South and Southeast Asia, is known to cause neurotoxicity and tissue necrosis. Standard treatment is administration of specific antivenom, however such antivenom is not widely available in the US. We report clinical effects and response to treatment following a Monocled Cobra envenomation that occurred in the US where specific antivenom was not readily available.

Case Report: A 72-year-old man was bitten by a captive Monocled Cobra. He immediately developed nausea and vomiting, and was transported to an ED by EMS. On arrival he reported wound pain, abdominal pain and fatigue, and shortly thereafter developed ptosis. The bite site revealed two 1-cm dark lesions with surrounding erythema. Initial vital signs were unremarkable, however over the next few hours he became progressively more hypertensive and tachycardic with a blood pressure reaching 183/105 and heart rate of 117 bpm. Neurotoxicity progressed to bulbar paralysis and respiratory depression, and was unresponsive to 4 vials SAIMR Polyvalent antivenom and neostigmine 0.5 mg IV. He was intubated, and descending paralysis continued despite a trial of 2 vials MENA Inoserp AV. Eight hours after the bite, species-specific Thai Cobra AV was obtained via private air transport from an out-of-state zoo. Within several hours of this antivenom his neurotoxicity completely resolved and he was extubated. Wound erythema and swelling progressed to a size of 13x 23 cm, and the initial darkened area became necrotic. Oral trimethoprim-sulfamethoxazole was started empirically about 40 hours after the bite but at 48 hours he developed a temperature of 38.6°C and IV antibiotics vancomycin, gentamicin and piperacillin-tazobactam were started. Wound cultures grew Morganella morganii. Fever resolved, erythema improved and he was discharged home with oral ciprofloxacin based on sensitivities.

Conclusion: Monocled Cobra envenomations can cause severe neurotoxicity and wound infections associated with particular organisms, including M. morganii. While native snake envenomations are rarely associated with infection, cobra bites should be monitored closely for infection. Despite challenges in locating and transporting exotic antivenoms emergently within the US, it is important to obtain species-specific antivenom to effectively treat toxicity.