

Presented at the ACMT Annual Scientific Meeting 2016 – Huntington Beach, CA

Published in J Med Toxicol 2016,12:35

97. Cutting to the Chase: Observations on Debridement in Crotalid Envenomation. ACMT ToxIC North American Snakebite Registry

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Background: Skin necrosis and fluid-filled or hemorrhagic bullae may occur following crotalid-envenomation. Debridement has been described as treatment but there is limited published literature to support or refute this practice. Debridement may restore mobility where limited by bullae but may also expose unprotected tissue to pathogenic contamination and increase pain.

Hypothesis: We sought to compare clinical characteristics and outcomes in patients who underwent debridement versus those where debridement was not performed in crotalid-associated necrosis and/or bullae.

Methods: A retrospective case-series was constructed from the ACMT ToxIC North American Snakebite Registry for cases between January 2013 and November 2015. Patients in which skin necrosis and/or bullae were present were included for analysis. Cases of incision and drainage for infections were excluded from analysis. Age, gender, bite location, offending crotalid (rattlesnake, cottonmouth, or copperhead), antivenom administration, Snakebite Severity Score (SSS), administration of antibiotics, and length of hospitalization (LOS) were recorded. The SSS was calculated using an online score calculator. Comparisons between subjects with and without debridement were performed.

Results: Four-hundred-twenty cases of crotalid-exposures were identified during the time interval. Sixty-nine victims developed skin necrosis and/or bullae. Nineteen patients (28 %) underwent debridement. Debridement took place most commonly for male patients (100 % [95 % CI 82–100] vs 66 % [95 % CI 51–79], $P=0.03$ ChiSquare [CS]) and in upper extremity bites (95 % [95 % CI 74–100] vs 68 % [95 % CI 53–80], $P=0.02$, CS). There were no differences identified in age [35 (IQR 17.5–52.5) vs 20 (IQR 0–65), $P=NS$, Mann Whitney (MW)], SSS [2.5 (IQR 1.5–3.5) vs 3 (IQR 2–4), $P=NS$, MW], number of vials of antivenom administered [13 (IQR 11.5–15.5) vs 12 (IQR 7.5–16.5), $P=NS$, MW], or responsible crotalid (rattlesnake 89 % [95 % CI 67–99] vs 70 % [95 % CI 55–82], $P=NS$, CS; cottonmouth: 0 % [95 % CI 0.05–18] vs 2 % [95 % CI 0.05–11], $P=NS$, CS; copperhead: 11 % [95 % CI 1–33] vs 28 % [95 % CI 16–42], $P=NS$, CS). Performance of debridement was associated with statistically significant higher rate of antibiotic administration for confirmed cellulitis (26 % [95 % CI 9–51] vs 4 % [95 % CI 0.5–15], $P=0.005$, CS) and longer hospital LOS (3d [IQR 2–4] vs 2d [IQR 0.5–2.5], $P=0.04$, MW).

Discussion: The present case series is limited by a small number of observations (especially amongst debridement group) and wide confidence intervals.

Conclusion: Patients who undergo debridement in the treatment of crotalid-associated skin necrosis and/or bullae may be at increased risk for cellulitis and increased hospital LOS. Future prospective studies are warranted to identify benefits or complications associated with debridement in the treatment of crotalid-associated bullae and/or skin necrosis.