COMPARISON OF COLLATERAL TRAUMA ASSOCIATED WITH SCALPEL, CO₂ LASER AND 4.0 MHz RADIOSURGICAL SKIN AND MUSCLE INCISIONS IN GREEN IGUANAS (Iguana iguana): COMPARING APPLES WITH APPLES!

Stephen J. Hernandez-Divers, BVetMed, DZooMed(Reptilian), Dipl ACZM,¹ *Scott J. Stahl, DVM, ABVP(Avian),² Uriel Blas-Machado, DVM, PhD, Dipl ACVP,³ and Pauline Rakich, DVM, PhD, Dipl ACVP³

¹Department of Small Animal Medicine & Surgery, College of Veterinary Medicine, University of Georgia, 501 DW Brooks Drive, Athens, GA 30602 USA; ²Stahl Exotic Animal Veterinary Services, 111A Center Street South, Vienna, VA 22180 USA; ³Department of Pathology, College of Veterinary Medicine, University of Georgia, 501 DW Brooks Drive, Athens, GA 30602 USA

ABSTRACT

Four green iguanas (Iguana iguana) were anesthetized for non-recovery surgery. Three 5-cm parallel craniocaudal skin incisions were made in the ventrum using each device; (1) #15 scalpel blade, (2) CO₂ laser (NovaPulse, Luxar Corp, Bothell, WA) set to 15 watts using a 0.3-mm tip, and (3) 4.0 MHz radiosurgery unit (Ellman International Inc., Oceanside, NY) digital setting 10 (25 watts) on continuous filter cut using a 0.18-mm wire electrode. The skin from the thigh region was reflected before three 2-cm parallel incisions were made in the iliofibularis, iliotibialis, pubotibialis, or flexor tibialis internus muscles using the same surgical devices (CO₂ laser set to 12 watts, and radiosurgery digitally set to 8 [22 watts]). Iguanas were euthanatized and representative sections of skin and muscle were submitted for routine histopathology. Pathologists, blinded to the surgical device used, examined the tissue slides and measured the degree of collateral coagulation.

Scalpel incisions resulted in the least coagulative necrosis, but invariably resulted in hemorrhage. Radiosurgery and laser both produced bloodless incisions, but radiosurgery caused significantly less collateral damage in both skin (307 ± 94 μm vs. 386 ± 108 μm) and muscle (18 ± 7 μm vs. 91 ± 31 μm). Both CO₂ laser and radiosurgery are effective for creating bloodless skin and muscle incisions in iguanas; however, the significant reduction in coagulative necrosis associated with high-frequency radiosurgery is likely to result in faster healing, and represents an important benefit over CO₂ laser for reptile soft tissue surgery.
LITERATURE CITED
