

Assessment of 2 Treatment Methods for Ulna Fractures with an Intact Radius in Raptors: Conservative Management and Surgical Fixation with a Type I External Skeletal Fixator Intramedullary Pin Tie-in

Dana M. Franzen-Klein, DVM, MS, Patrick T. Redig, DVM, PhD

Abstract: There are several reported methods for treating avian antebrachial fractures, yet there is limited quantitative information regarding their success. This retrospective study applied data from raptors admitted to a wildlife rehabilitation center to provide metrics associated with the treatment of ulna fractures with an intact radius using either conservative management or a single surgical method, a type I external skeletal fixator tied-in to an intramedullary pin (ESF IMP tie-in). Post-fledging, wild raptors with an ulna fracture admitted to The Raptor Center at the University of Minnesota College of Veterinary Medicine (St. Paul, MN, USA) between January 1, 2007 and December 31, 2017 that survived for at least 7 days after admission were included in the study. Information regarding signalment, fracture characteristics, treatment method, outcome, and complications were recorded. The study included 110 raptors comprising 15 species. The majority of birds 69% (76/110) were treated with conservative management. Conservative management was used more often in cases of chronic ($P = .02$) and closed ($P = .02$) fractures, while fractures with poor alignment at the time of admission were frequently treated through surgical means ($P = .001$). Alignment was more likely to improve with an ESF IMP tie-in ($P = 1.01e-09$). The majority of cases, 65% (72/110) had a successful outcome. Birds with closed fractures were more likely to have a successful outcome ($P = .03$). Birds in which fracture alignment became exacerbated with either treatment method were more likely to have a poor outcome ($P = .002$). The results of this retrospective study found that conservative management and surgical fixation using the ESF IMP tie-in technique are both viable treatment options for ulna fractures with an intact radius in raptors. The choice of treatment method is dependent on the clinician's assessment of the fracture characteristics and individual patient.