



Short Communication

## Repair of Humeral Fracture in a Peregrine Falcon by Nailing of an Injection Needle

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### ABSTRACT

A young peregrine falcon was presented with a right midshaft open fracture of the humerus. This report describes an innovation technique for intramedullary pinning using an injection needle as a pin device of internal fixation.

**Keywords:** *Falcon, Humerus, Nailing, Needle*

A young peregrine falcon was presented to the Surgery Clinic of the Faculty of Veterinary Medicine, Cairo University for evaluation of an injured wing. Upon its clinical examination, the bird was emaciated, weighed about 500 gm, and suffered an open fractured humerus of the right wing. Radiography confirmed the presence of an oblique, mid shaft humeral fracture (Fig.1). The falcon was taken to emergency surgery to pin its broken humerus. The bird was rehydrated by s.c administration of lactated Ringer's solution (50 ml/kg). Anesthesia was induced by i.m injection of xylaject (5mg/kg)(XylazineHCl, Adwia, Egypt) and Vetalar (10 mg/kg) (Ketamine HCl, Pharmacia,UK) into the keel muscles. The anesthetic effect started 3-5 minutes. The inner and outer sides of the affected region was prepared by plucking the feathers. The exposed fracture site was cleansed, disinfected with povidone iodine and wrapping the rest of the wing. Debridement of the fracture site to remove unsound tissue followed by sterile saline irrigation were done. The utilized pin was a sterile injection needle (1.5 inches and 18 gauge) was introduced with manual slight pressure in the sulcus just behind the cranial tuberosity of the affected humerus in normograde manner through its medullary cavity. Whilst the two fractured segments were held firmly, the needle wholly directed to pass along the medullary cavity of distal fracture segment of the humerus to anchor its inner cortex. To ensure rotational alignment, the intramedullary needle device was stabilized with a cerclage knot applied across the reduced fractured ends using Vicryl 2/0 (Vicryl-Ethicon, USA). The muscle and subcutaneous tissues were closed by using Vicryl 4/0 with simple continuous suture. The skin was apposed with the same suture material using simple interrupted suture. A dose of antibiotic Rociphin (20 mg/kg) (Ceftioxone, Roche,Switzerland) was injected

intramedullary through the inserted needle. The crown of the inserted needle was then fixed to the skin by stitching using silk 2/0 and was sealed with terramycin antibiotic ointment (Pfizer, Egypt) to block the needle's passage. Post-operative radiographs were done to confirm proper alignment of the fractured bone (Fig. 2). The owner was advised to feed his falcon with fresh quail meat cut in small pieces to which calcium and vitamin D3 supplement was added daily for 3 weeks to enhance fracture repair. The same antibiotic dose was continued over a time period of seven days using the keel muscles for injection. Rimadyl (2 mg/kg) (Carprofen, Pfizer, Egypt) as analgesic and anti-inflammatory was given orally for one week. Cage confinement of the falcon and avoidance manual disturbing of the needle device for at least 4 weeks were recommended.

One hour post-operation, the falcon had recovered and was moving its wing. Since the falcon's owner had to move to another far place where he was living, therefore, follow-up was by call communications. After two weeks PO, information about recovery progress was positive so that the falcon was moving its wing and the wound healed perfectly. Unfortunately, follow-ups have been discontinued upon communication stoppage.



**Fig.1.** Radiographic view of humeral



**Fig.2.** Radiographic view after nailing compound fracture of Peregrine of an injection needle Falcon

## CONCLUSION

The present clinical report focuses on the reliability and versatility of utilizing the injection needle as an intramedullary device for internal fixation of some long bone fractures as humerus and femur in birds. The length and gauge of the selected

needle should match the length and diameter of the fractured bone. The costs are considered very low in comparison with other internal fixation implants. The injection needles are hollowed and of lightweight. Such characters favour the avian pneumatic bones. If an orthopedic device is to be used, it should be versatile, malleable, and light weight (Orosz, 2002). In this respect, other methods of fracture repair in birds have been described either by use of non-invasive external fixation (Bennett and Kuzma, 1992) and surgical invasive as IM pinning (Howard and Redig, 1994) and external fixators ESF (Satterfield and O'Rourke, 1981; MacCoy, 1992). In this clinical report, polygalactin -910 2/0 cerclage knot across the reduced fractured ends was applied to withstand rotational or compressive forces. Poor rotational stability often results in excessive callus formation, which especially in birds may have a negative effect on flight (Bennett and Kuzma, 1992)

#### REFERENCES

- Orosz S.E. 2002. Clinical considerations of the thoracic limb. *Vet Clin North American Exotic Animal Practice*, **5**:3.
- Bennett R.A. and Kuzma A.B. 1992. Fracture management in birds. *Zoo and Wildlife Medicine Journal*, **23**:5-38.
- Howard D.J. and Redig P.T. 1994. Orthopedics of the wing. In: Fudge AM, Redig, P.T. Ed., *Seminars in Avian and Exotic Pet Medicine*. Philadelphia: WB Saunders Co: 51-62.
- Satterfield W.C. and O'Rourke H.I. 1981. External skeletal fixation in avian orthopedics using A modified through and through Kirschner-Ehmer splint technique (the Boston technique). *Journal of American Animal Hospital Association*, **17**: 635-637.
- MacCoy D.M. 1992. Treatment of fractures in avian species. *Vet Clin North American Small Animal Practice*, **22**(1) :225-38.

