

## Short Communication

### Rehabilitation of a Western Marsh Harrier *Circus aeruginosus* in Iran: A Case Report

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#### درمان و رهاسازی یک قطعه سنقر تالابی *Circus aeruginosus*

#### در ایران: گزارش موردی

**چکیده:** تلاش برای بازگرداندن پرندگان شکاری بیمار و مجروح به دلیل کاهش جمعیت‌های وحشی و افزایش آگاهی عمومی نسبت به عوامل تهدیدکننده پرندگان صورت می‌گیرد. مراکز ویژه‌ای در کشورهای توسعه یافته جهت درمان و رهاسازی این گروه از پرندگان احداث گردیده است. بسیاری از گونه‌های پرندگان شکاری هر ساله به منظور درمان به کلینیک‌های دامپزشکی ارجاع می‌شوند، در حالی که مرکز درمانی ویژه‌ای برای این منظور در ایران وجود ندارد. یک قطعه سنقر تالابی جوان در تاریخ ۸۵/۱/۱۲ به بیمارستان آموزشی دام‌های کوچک دانشکده دامپزشکی دانشگاه تهران ارجاع گردید. در معاینه بالینی شکستگی باز قسمت انتهایی استخوان ساق مشاهده گردید. بعد از آماده‌سازی، جراحی و بیهوشی، تثبیت استخوان شکسته به روش بین‌گذاری داخل مدولایی انجام گردید. آنتی‌بیوتیک درمانی به مدت یک هفته و تغذیه با جیره متعادل و غنی‌شده با کلسیم و ویتامین D به مدت شش هفته ادامه پیدا کرد. بعد از شش هفته ترمیم کامل استخوان صورت گرفت. در نهایت پرنده مذکور در همان محل پیدا شده رهاسازی گردید.

The conservation of raptors, including the rehabilitation of injured free-living specimens is an important part of maintaining species biodiversity. Veterinary investigations on injured raptors during the rehabilitation process can also help to identify emerging issues related to raptor health and populations. Attempts to return raptor casualties to the wild are carried out because free-living populations of many species are declining and because the general public are much more aware of the threats facing birds and the environment in general. Special centres have been established for the rehabilitation of birds of prey in developed countries. One of the earliest was The Raptor Center at the University of Minnesota, USA, established in 1974. It has pioneered many advances in the medical rehabilitation of raptors. A wide range of raptors inhabit Iran

and many are endangered, including Imperial Eagle *Aquila heliaca*, Pallas's Fish Eagle *Haliaeetus leucoryphus*, White-rumped Vulture *Gyps bengalensis*, Peregrine Falcon *Falco peregrinus*, Barbary Falcon *Falco pelegrinoides*, Merlin *F. columbarius*, Lesser Kestrel *F. naumanni*, Red-footed Falcon *F. vespertinus* and Red-necked Falcon *F. chicquera* (Scott & Adhami 2006).

This paper describes how a raptor with a serious fracture was successfully rehabilitated, following medical and surgical intervention. A juvenile female Marsh Harrier was admitted to Small Animal Teaching Hospital, Faculty of Veterinary Medicine, University of Tehran, on 1 April 2006. The bird had been wounded near Mahdasht-Karaj, in Tehran province and could not stand on the left pelvic limb.

Radiographs revealed no lead particles. An open fracture of the distal left tibiotarsus was noted on physical examination. Additional radiographs were taken in the lateral and cranio-caudal positions to determine the type of fracture. Radiological results revealed a complete short oblique open fracture (Fig. 1).

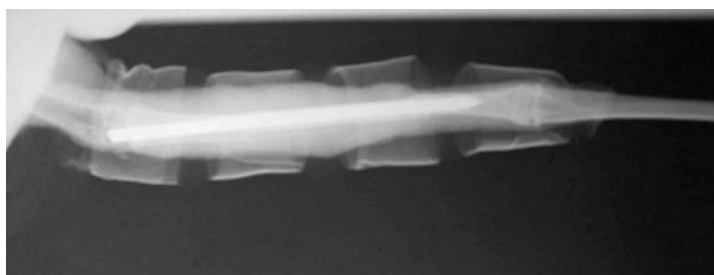
Considering the patient's condition and type of fracture, she was referred to surgery section immediately. Anaesthesia was induced through injection (Ketamine 30 mg/kg Body Weight (BW) and Diazepam 2 mg/kg BW) and the surgical site was prepared by cleaning with 10% Povidone Iodine followed by Betadine scrub after plucking the adjacent feathers. An intramedullary pin, trocar point, (3 mm) was inserted normograde into the distal medullary cavity of the fractured bone to the end of marrow cavity of the distal tibiotarsus. The open wound was then flushed with normal saline. The lacerated muscles were stitched with absorbable Vicryl 4/0 and the skin was sutured with 3/0 Nylon in a simple continuous pattern. To reveal the state of bone alignment, two radiographs (latero-lateral and cranio-caudal) were taken (Fig. 2).

Fluid therapy (IV) consisted of a 1:1 mix of Lactated Ringers solution and 5% dextrose, considering 10% estimated dehydration (fluid deficit: 10% BW, maintenance: 50 ml/kg/day) for 4 days and Clindamycin (50 mg/kg BW twice a day oral (BID PO)) and Ketoprofen (1 mg/kg BW Intramuscular, once a day (SID IM)) were given for one week post-operatively.

The bird was fed chopped chicken supplemented with vitamin D1 (20 IU/kg BW SID) and calcium (30 mg/kg BW SID) for six weeks. After fixing the leg, healing of the injured leg soft tissues was also confirmed (Fig. 3), a process that is completed much more quickly than bone healing. During the recovery period, healing of the fracture was monitored by obtaining radiographs every two weeks. The last radiograph and physical examination occurred six weeks after surgery and complete



**Figure 1.** The lateral radiograph of injured leg, © A. Borhanikiya.



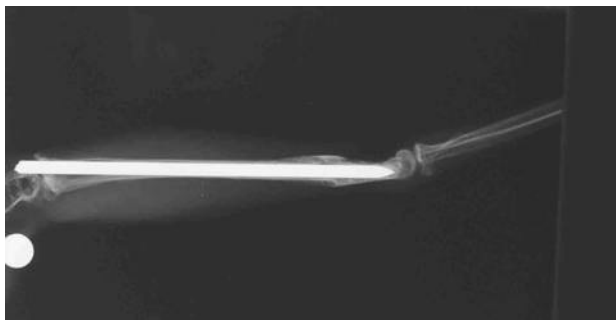
**Figure 2.** The cranio-caudal radiograph taken to observe the alignment of the fixed bone, © A. Borhanikiya.

union of bone was determined (Fig. 4). The patient was referred to the surgery section again. After anaesthesia and preparation, the implanted pin was removed. A six-week exercise regime was implemented, taking into account plumage condition (Fig. 5) and assessments of flight and hunting capability.

There is a great variety of treatment options for fractures, the choice depending on the type and location of the bone fracture, as well as size and temperament of the bird (Heidenreich 1995). Tibiotarsal fractures are best repaired with external fixation with a tie-in fixator. Tibiotarsus fractures often are oblique, and rotational problems are encountered in repair. Intramedullary (IM) pins have been used but have the disadvantage of damaging either the stifle (femorotibial joint) or hock (intertarsal joint); IM pins also offer little rotational support (Olsen & Orosz 2000). In the current case, intramedullary pinning was the only method available. To reduce rotational problems



**Figure 3.** Physical examination of injured pelvic limb tissues after six weeks, © A. Borhanikiya.



**Figure 4.** Latero-lateral radiograph showing complete healing of the injured bone after six weeks, © A. Borhanikiya.



**Figure 5.** Plumage condition inspection before release, © A. Borhanikiya.

bandage was used instead of coaptation splint. After clinical union, no rotational problem was observed. In last radiograph (6 weeks after removal of the pin) the joint was normal and the bird had no problem in extending and flexing of the femorotibial joint.

For successful release, the season and time of release are important. Since in temperate climates, summer is the time of abundant food supply, birds that are physically and psychologically fit should have no difficulty in finding sufficient food (Coles 1997). Based on ecological considerations, it was suggested that summer might be an optimal release time in Iran. Consequently the bird was released in the same place that was it had been found (Mahdasht, Karaj) in the early morning of June 2006.

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