

## What Is Your Diagnosis?

### History

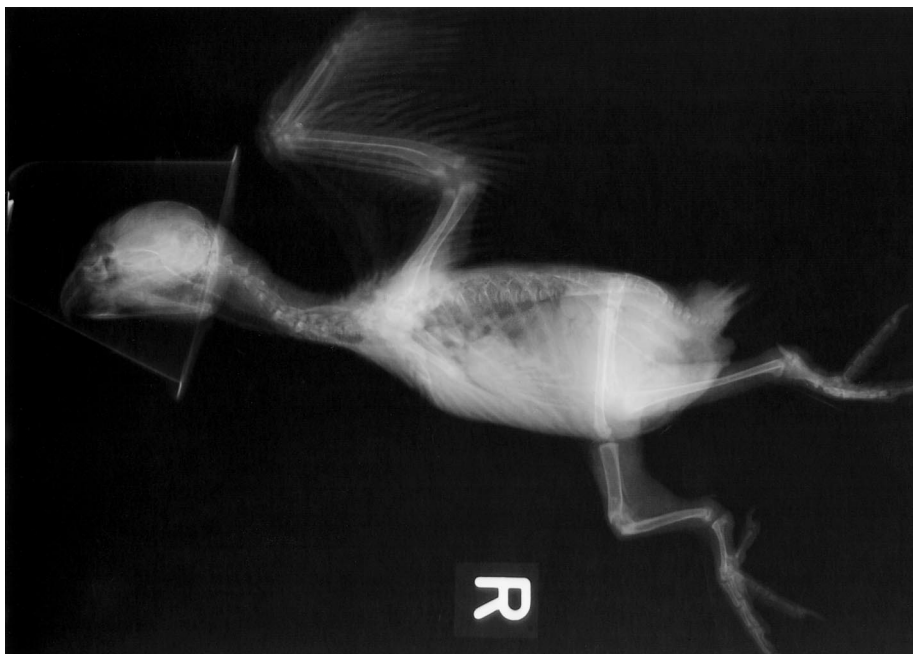
A 6-week-old African grey parrot (*Psittacus erithacus*) was presented with a 5-week history of right leg trauma. The hen bit the hatchling's right leg in the area of the tibiotarsus, causing a 1.5-cm laceration along its lateral aspect. The owner applied pressure to the area for hemostasis and allowed the laceration to heal through secondary intention. After the injury, the owner pulled the bird from the nest box to prevent further trauma. Because of the severe laceration and soft tissue injury, the owner had difficulty assessing skeletal damage. However, as the young bird grew, it became evident

that a skeletal injury had occurred. The right leg was malpositioned and was not bearing weight, prompting the owner to have the bird examined by a veterinarian. The patient weighed 383 g at the initial visit. The only external abnormality observed was an enlarged callus in the middiaphyseal region of the right tibiotarsus. A complete blood count (CBC), plasma biochemistry analysis, and survey radiographs of the affected area were recommended to further evaluate the health status of the young bird. The CBC and plasma biochemical analytes were within reference limits. Survey radiographs were obtained (Figs 1 and 2).

*At this time please evaluate Figures 1 and 2, the history, and the results of the physical examination. Develop a treatment plan that will satisfy the owner and allow the bird to have normal function of the right leg.*



**Figure 1.** Whole-body survey radiograph (ventrodorsal view) of an African grey parrot presented with a 6-week history of right leg trauma.



**Figure 2.** Whole-body survey radiograph (lateral view) of an African grey parrot presented with a 6-week history of right leg trauma.



**Figure 3.** Same as Figure 2. Arrow identifies the malunion of the right tibiotarsal bone.

### Diagnosis

The survey radiographs revealed a middiaphyseal fracture and malunion of the right tibiotarsus (Fig 3). An orthopedic surgery consult was requested to determine treatment options for return to normal function. The orthopedic surgeons provided 2 options for repair. One option was to wait until the bone had matured and reassess the limb for functional use. Surgical repair at the present time would be contraindicated because of the bird's young age and fragility. The second option was to refracture the tibiotarsal bone at the malunion and align it by external fixation. Because the owner was concerned about the expense of the surgery and the time required for skeletal maturation, external coaptation was selected. The authors determined that refracturing the tibiotarsus and applying a splint would align the bone with minimal soft tissue injury, increasing the chance of return to function.

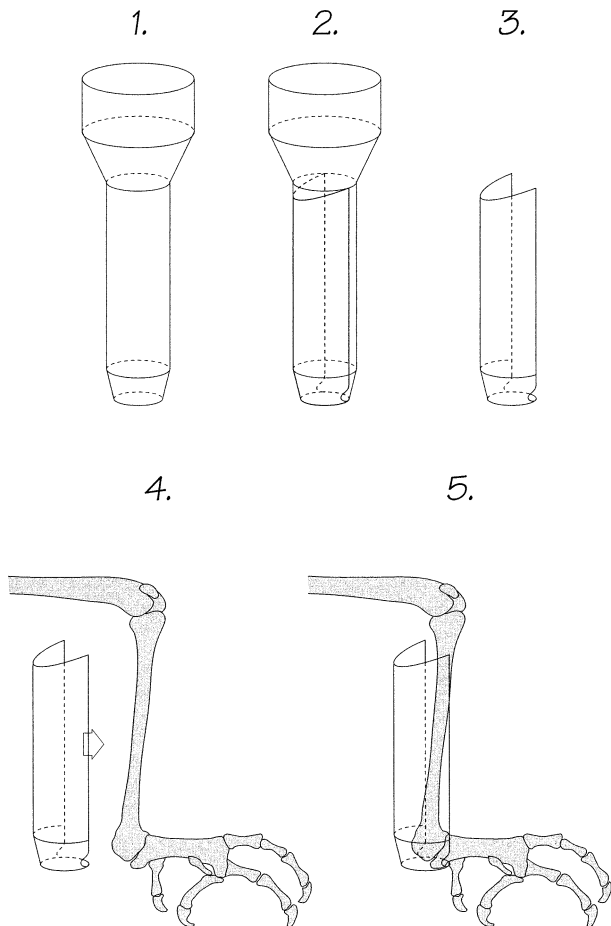
### Comments

Factors important in selecting external coaptation included the bird's age, an anatomic site appropriate

for external coaptation, and a large healing callous at the fracture site. Healing response to this fracture was considered to be greatest if prompt treatment was appropriately administered.

Controlled studies on avian bone healing have shown that healing is accelerated with internal fixation, but the function of the repaired limb can be improved with external fixation, when compared with internal fixation.<sup>1</sup> This may result from the fact that external fixation does not interfere with soft tissue structures or joints, thereby preserving limb function. In this case, if the fracture was not a malunion, the preferred method for repair would have been to place an external skeletal fixator on the tibiotarsus.<sup>2</sup> An intramedullary polypropylene plastic shuttle pin can be inserted at the fracture site to allow better purchase of type II external skeletal fixation pins.<sup>2</sup>

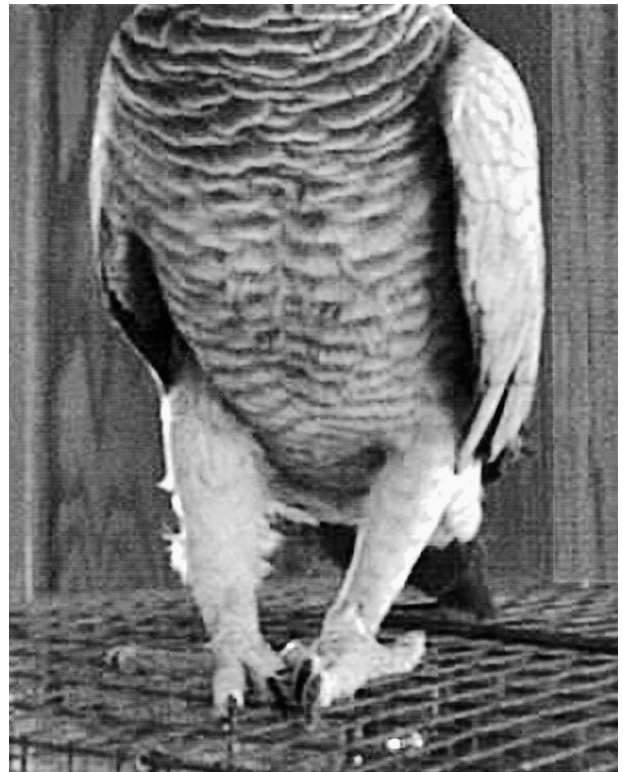
The best treatment option in this patient was to refracture and place the right tibiotarsus in a rigid splint. Recommended external bandages and splints for tibiotarsal fractures include a tape splint (patients < 130 g); a modified Thomas splint (patients



**Figure 4.** Line drawing schematic of a syringe case splint and application.

> 130 g); a Robert Jones bandage; and rigid, moldable plastic splints.<sup>3,4</sup>

A readily available option for a molded plastic splint is a syringe case modified to fit over the tibiotarsal fracture (Fig 4). Once modified for this patient, the splint was padded at the base and along the barrel with cast padding, including the cranial end where it rested against the flexor cruris medialis muscle. Feathers were plucked where the splint came in contact with the skin. Tape stirrups were placed on the lateral and medial surfaces of the tibiotarsus and cast padding was then wrapped around the leg. The splint was placed over the cast padding and tape was attached to each side. To position the splint properly, a cruciate tape pattern was applied over the distal part of the limb at its base. This taping was also important for assuring that the splint remained in place. In the cruciate tape pattern, the tape goes over and around the splint before coming back over the top and back around on the opposite side. The splint was wrapped with a non-stick bandage material (Vet-Wrap, 3M Animal Care



**Figure 5.** Right leg 1 year after treatment of the parrot in Figure 1, demonstrating full return of the leg.

Products, St Paul, MN, USA). The leg was reassessed regularly for tissue swelling and for skin abrasions from the splint edges. Owners should also closely monitor the condition of such bandages for excessive soiling and moisture.

In this parrot, the tibiotarsal malunion was re-fractured while the patient was under isoflurane anesthesia (2–3.5% isoflurane administered with oxygen at 1 L/min). The fracture was reduced and placed in a syringe case splint. Butorphanol tartrate (3 mg/kg IM; Torbugesic, Fort Dodge Laboratories, Fort Dodge, IA, USA) was given postoperatively to manage pain. The splint was maintained for 5 weeks, with weekly assessments during the treatment period. Although perfect reduction was not obtained, the tibiotarsus did heal in its normal anatomic position with full function and use 1 year after treatment (Fig 5).

This case was submitted by **Mark A. Mitchell, DVM, MS, PhD**, and **Thomas N. Tully, Jr., DVM, MS, Dipl ABVP (Avian), ECAMS**, from the Department of Veterinary Clinical Sciences, Louisiana State University School of Veterinary Medicine, Skip Bertman Drive, Baton Rouge, LA 70803, USA.

**References**

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