Fixation of a Fractured Tibiotarsus in a Cockatoo, Using an External Fixateur

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History

Joey, a 32 y.o. Sulphur Crested Cockatoo, sex unknown but no history of egg laying, was presented 5/5 lame in the right leg. Unable to fly, he had fallen from a tree 24 hours previously, becoming acutely lame with no improvement overnight. He was still eating and drinking normally. Joey's diet was seed based, mostly sunflower but some vegetables and fruit were offered and he regularly grazed in the garden.

Examination

On examination he was moderately obese (530gm), unable to use the right leg with crepitus and bruising of the mid tibiotarsus. The foot had no grasp response but reacted to deep pain. No other abnormalities noted. Radiographs of the leg showed an oblique, displaced, closed, midshaft fracture of the right tibiotarsus. The mineralisation of the bones appeared adequate.

Assessment

It was decided that this type of fracture would be best treated with an external fixateur.

Pre-operative Treatment

Joey was given 10mg of cephalothin IM, prior to surgery and then every 12 hours for 36 hours post-operatively, in line with our standard prophylactic protocol for orthopaedic surgery. He was given 20 mls of fluid pre and post operatively SQ/IM. He was also given 2mg of carprofen IM, pre-operatively. He was masked down, intubated and maintained using isoflurane. The leg was prepared for sterile surgery.

Surgical Treatment

Two K wires were driven "blind", lateral to medial, through each fragment, using Jacobs chuck. A length of plastic tubing from an IV giving set was then placed on both ends of the pins, to act as stabilising bars. The stabilising bars were placed about 8mm from either side of the leg. Using a 20ml syringe, Methyl-methacrylate was forced into one end of the plastic tubing.

Note that only ***one end*** of the tubing is used to inject the cement. If both ends are used, a large air bubble will occur in the middle of the tube, severely weakening the stabilising bar. If an air bubble does occur, a needle can be used to inject methyl methacrylate directly into that area. A small hole on the opposite side will allow the air to be forced out.

The ends of the pins were cut off flush with the stabilising bars, padding was placed between the pins and the bars, using sterile swabs, to prevent movement of the skin along the pins. A light bandage was used over the whole device. An collar was placed on the bird. This is essential as the apparatus is easily destroyed by a large parrot. Recovery from anaesthesia was uneventful.

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Post-operative Progress

- The following day, Joey was starting to weight bear and some grasp had returned to foot. The leg appeared very bruised He was eating and drinking normally. After 3 days he was sent home and strictly confined.

- At 2 weeks the leg was radiographed. AP alignment was very good but some overlap was visible on the lateral view. The bruising had resolved and the bird was tolerating the apparatus and collar. The bird was weight bearing about 50% but had decreased movement in the hock. This was probably due to the pins restricting the normal movements of the muscles and tendons of the leg. The bandaging was removed and appeared clean and dry. It was not replaced.

- At 4 weeks an examination revealed palpable callus development, improved weight bearing and the leg appeared healthy. There was still limited movement in the hock. The pins were stable and no discharges noted.

- At 8 weeks the leg was being used extensively but with restricted movement in the hock. Radiography revealed that a long and wide callus had formed. The leg felt stable but some overlap and shortening was apparent. Some lysis was occurring around the pins in the upper fragment. The apparatus was removed and Joey was sent home to be confined for 2 more weeks and then increase mobility if no problems noted.

Summary

Overall, an external fixateur proved an effective, simple and inexpensive method of repairing this type of fracture. Some problems were encountered. Familiarity with methyl methacrylate or other acrylics ***before*** their use during avian surgery is recommended. Close attention needs to be paid to fracture alignment and normal leg position when pins are placed. Finally, use of an effective Elizabethan collar is essential.