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Clinical Article

SURGICAL REPAIR OF A TIBIOTARSAL FRACTURE BY INTRAMEDULLARY PINNING IN GOOSE-A CASE REPORT

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SUMMARY

A four-year-old, male Goose (Anser) was presented with history of trauma and lameness since one week. Physical examination showed good body condition and palpation revealed crepitation, haematoma and fractured bone. Radiographic examination showed midshaft transverse fracture of tibio-tarsal bone with soft tissue swelling. The bird was anaesthetized with xylazine, diazepam and ketamine anaesthesia and prepared for intramedullary pinning. The fractured site was exposed after separating the skin, fascia and muscles and intramedullary pin was inserted via retrograde manner. Postoperatively, leg was immobilized with light bandage material with oral antibiotic and analgesics. Radiographically callus formation was seen on 21st day and I/M pin was removed on 49th day with normal locomotory movement.

Keywords: Fracture, Goose, Intramedullary pin, Tibiotarsus

A four-year-old male Goose, weighing 750 gm was presented to avian surgery ward with chief complaint of non weight bearing lameness of left limb since one week. On thorough clinical examination, bird had abrasion over mandible and beak area with ocular discharge. Physical examination revealed crepitation and swelling on tibiotarsal region with presence of haematoma. Lateral radiography of lame limb showed transverse fracture of proximal one third shaft of tibiotarsal bone with slight overriding of fractured fragments and soft tissue swelling (Fig. 1). Haemato-biochemical values of the patient were in normal range and it was kept on antibiotic, anti-inflammatory and temporary splinting of fractured limb aiming to minimize swelling for 2-3 days. During the procedure, Goose received Ringer lactate fluid (5 ml/kg per hour) through an intravenous catheter placed in metatarsal vein. Heart rate, respiratory rate and body temperature (Claocal temperature) were monitored periodically during anaesthesia. The bird was anaesthetized with combination of Xylazine hydrochloride (@ 2 mg/kg, I/M), Ketamine hydhrochloride (@25 mg/kg, I/M) and Diazepam (@ 0.5 mg/kg, I/V) as general anaesthetic protocol. The limb was prepared aseptically with chlorhexidine solution and kept in left lateral recumbency. On the craniomedial aspect of tibiotarsal bone, the skin incision was made between the tibialis cranialis and the medial portion of gastrocnemius by separating the skin, fascia, fibularis longus, tibialis cranialis muscles and the medial head of the gastrocnemius to expose the fracture bone.

The haemaotma was drained and fractured bone was exposed for further examination. Intramedullary pin, measuring 0.5 mm thickness was inserted into marrow via retrograde method and fractured fragments were reduced near to anatomical position without ankylosing proximal and distal joint. Surrounding muscle and fascia was sutured with chromic catgut no. 3-0 and skin was sutured with nylon. Postoperatively, operated limb was supported with additional splint bandage to immobilize fractured fragments with parental Cefotaxime @ 75 mg/kg and Meloxicam @ 5 mg/kg for 5 days orally. The bird started bearing weight on fractured limb on 10th day. The bird was evaluated on 21st days after surgery for a routine CBC count and radiographs revealed formation of healthy callus at proximal diaphyseal transverse fracture site (Fig. 2) and bird was sheltered in a flight cage (130×21×6 m) for 15 days. In present report, bird was recovered from general anesthesia smoothly without complications and M pin was removed uneventfully after seven weeks after radiographic confirmation of hard callus.

Repair of fractures in wild birds often presents a significant challenge to the veterinary surgeon (Kumar *et al.*, 2012). Tibio-tarsus bone is formed from a union of the tibia and the proximal row of tarsal bones during the embryonic growth. Avian bones are thin, brittle and easy to break into several fragments due to variety of etiological factors such as midair collision, fights with other bird (Houston, 1993). Tibiotarsal fractures are among the most common orthopedic problems encountered in raptors, especially in newly jessed hawks (Sanchez *et al.*, 2007). In this case, the cause of fracture was unknown but it is most likely due to entrapment of limb in cage during movement. A number of standard orthopaedic techniques have been used for fracture management in wild birds like eagle and kites by several scientific workers with variable results (Manjulkar *et al.*, 2008).

Kamiloglu *et al.* (2008) stated that intraosseous and intramuscular ketamine administration resulted in a

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Fig. 1. Lateral radiograph of left limb showed transverse fracture of tibio-tarsal bone with slight overriding with measurement of fragments

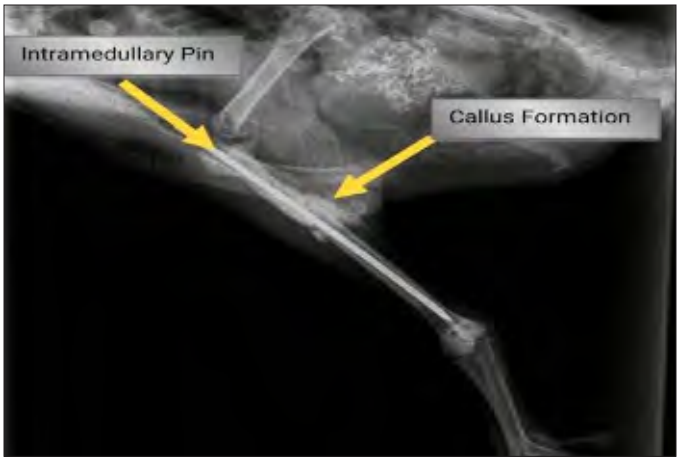

Fig. 2. Lateral radiograph of operated limb revealed minimum callus formation at fracture site on 21st postoperative day

satisfactory anaesthesia in pigeons. In present case, intramuscular administration of ketamine was found to be effective and safe throughout surgical procedure. Gahlot (2008) repaired tibial fracture in a peacock using intramedullary pinning, similar procedure was used to treat tibiotarsal fracture in present case. Intramedullary pinning under ketamine anesthesia is safe technique to repair tibio-tarsal fracture in pigeons (Verma *et al.*, 2018). To conclude, the transverse fracture of tibiotarsus in goose was repaired successfully by using intramedullary pin without any complications.

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