

AMPUTATION OF WING FOR THE MANAGEMENT OF HUMERUS FRACTURE IN A DUCK

S. Brindha^{*}, B. Udayakumari, N. Aruljothi and T.P. Balagopalan

Department of Veterinary Surgery and Radiology,
Rajiv Gandhi Institute of veterinary Education and Research, Pondicherry-9
E-mail: brindhasundar18@gmail.com (*Corresponding author)

Abstract: A one year old non descript duck, was presented with a history of broken right wing. On clinical examination, the shaft of right humerus was found to be fractured. The tissue around the fracture site and the extremities of the fractured fragments showed necrosis. Radiographical examination of the site confirmed it as an oblique overriding fracture of the humerus. Amputation of the wing was resorted and the duck recovered uneventfully.

Keywords: Duck, humerus fracture, wing amputation.

Introduction

Avian bones are much different from mammalian bones, they are lighter as most part of their bones is pneumatic and are richer in inorganic substances (calcium phosphate). Avian long bones have a very thin cortex and the medullary cavity contains a network of trabeculae, they are harder, but at the same time more fragile and less elastic than those of mammals and splinter easily when fractured (Cano *et al.*, 2012). Humerus fractures are routinely seen in domestic animal but are rare in birds (Singh *et al.*, 2006). Amputation is a surgical procedure that involves removal of an extremity or limb or a part of a limb usually as a result of chronic trauma to the wing, unresectable tumors, non-union or open severely contaminated fractures and severe infection and at times is a life saving procedure (Javanmardi *et al.*, 2017). This report discusses a case of unilateral amputation of wing in a duck for the management of humeral fracture.

History and clinical findings

A one year old non descript female duck, weighing 1.75 kg was presented with a history of broken right wing. The owner was unaware of the etiology of the injury. On clinical examination, open fracture at the mid shaft of right humerus was observed. The fracture site was contaminated, the fragments were exposed and showed necrosis (Fig.1). The affected wing was dropping, non-functional and the duck showed difficulty in walking. The bird was apparently normal in its feeding and voiding habits. Radiographical examination of the site confirmed it as an oblique overriding fracture at the mid shaft of the humerus (Fig. 2). A

swab was taken from the affected site for antimicrobial sensitivity and it revealed sensitivity for drugs such as cephalexin, enrofloxacin, ciprofloxacin. Based on clinical and radiological findings amputation of wing was considered.

Treatment

The duck was anaesthetized with administration of Inj. Xylazine at the dose rate of 1.0 mg/kg and Ketamine at the dose rate of 10mg/kg body weight intramuscularly and was restrained on left lateral recumbency with its right wing stretched upward. The feathers around the surgical site were plucked manually and the site was irrigated with metronidazole and povidone iodine solution. A hot water bag was used to maintain the duck's body temperature throughout the surgery. The surgical site was aseptically prepared and the necrosed tissue was debraded. An elliptical incision was made on the skin proximal to the elbow joint and the underlying muscles were dissected. A transverse osteotomy was performed at the proximal one third of humerus and the transacted muscle were sutured over the bone stump using polyglactin 910 (Vicryl) size 2-0 in simple continuous pattern. The subcutaneous tissue was closed in routine manner using polyglactin 910 (Vicryl) size 2-0. The skin was sutured in simple interrupted pattern using black braided silk size 2-0 (Fig. 3). Collagen ointment (Sore treat) was applied over the suture site and the site was protected with bandage. Post operative therapy was provided with Tab .ciprofloxacin at dose of 10mg/kg BW. The wound dressing was done once in three days. After complete wound healing the sutures were removed on 10th post operative day. The duck was able to balance its body and walk without any difficulty and recovered uneventfully (Fig.4).

Discussion

Avian bone fractures are often open and frequently comminuted, especially in wild birds (Bennett and Kuzma, 1992). The selection of a proper technique for definitive repair will depend on several variables, including the patient's role (pet, breeder, wild bird), the function required of the injured limb, the type of injury and the age the bird (Javanmardi *et al.*, 2017). When the fractured bones are necrosed and the site is contaminated, amputation can be the only choice to save the life of the bird (Kumar *et al.*, 2012). The ability of an individual bird to deal with either thoracic or pelvic limb amputation depends on the bird's size, demeanor and required return to function (Helmer and Redig, 2006). In this case amputation of the wing did not interfere with duck's ability to balance or walk as the duck was able to move freely soon after the surgery. Anesthesia with xylazine and ketamine is reported to be a safe in birds (Edling, 2006) and the same combination was effective to perform the surgery.

Collagen ointment promoted efficient wound healing. The case presented had grossly contaminated fractured site and hence amputation was performed to save the bird.

References

- [1] Bennett RA, Kuzma AB. (1992). Fracture management in birds. *Journal of Zoo and Wildlife Medicine*. 1:5-38.
- [2] Cano FG, Reviriego F, Espinosa AA, Collado CS, Rivero M. (2012) Interactive Avian anatomy :Functional and clinical aspect.
- [3] Edling TM. (2006) Updates in anesthesia and monitoring. *Clinical avian medicine*. 2:747-60.
- [4] Helmer PE, Redig PT. (2006) Surgical resolution of orthopedic disorders. *Clinical Avian Medicine*. 2:761-74.
- [5] Javanmardi S, Madadi MS, Farajli Abbasi M. (2017) Wing amputation in a Golden eagle with humeral fracture. *Iranian Journal of Veterinary Surgery*. 12(2):71-5.
- [6] Kumar V, Mathew DD, Pathak R, Ahmad RA, Zama MM. (2012)Surgical management of an Indian spotted eagle with compound fracture of humerus. *Journal of Advanced Veterinary Research*. 1; 2(4):301-2.
- [7] Singh P, Chander S, Singh KD, Arya SC. (2006) Management of avian humeral fractures-a report of two cases. *Haryana Veterinarian*. 45:102-3.



Fig 1: Contaminated open fracture of the humerus

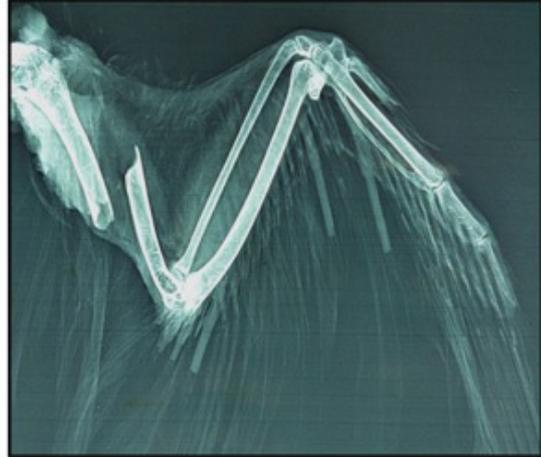


Fig 2: Oblique overriding fracture humerus



Fig 3: Suture of skin in simple interrupted pattern using braided silk size 2-0



Fig 4: 32nd post operative day