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Research Paper

SURGICAL PROCEDURE OF FOREIGN BODY FROM OESOPHAGUS OF ASIAN OPENBILL STORK (*Anastomus oscitans*): A CASE REPORT

Das Babita^{1*}, Jawre Shobha², Shahi Apra³, Singh Randhir² and Nidhi Rajput⁴

*Corresponding Author: Das Babita, ✉ bob_surg21@yahoo.com

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An Asian openbill stork (*Anastomus oscitans*) had been referred to TVCC with history of uneasiness and making abnormal cackle. Apparent observation revealed extended neck and difficulty in swallowing. Radiography revealed presence of thin curved radio opaque object resembling fish hook in cervical region of oesophagus. Since manual removal was not possible, it was surgically removed under general anaesthesia. The bird showed uneventful recovery and was released to its natural habitat after three days convalescence. The skin sutures were allowed to remain *in situ*.

Keywords: Avian surgery; Stork; Foreign body

INTRODUCTION

The Asian openbill stork (*Anastomus oscitans*) is a large wading bird of the stork family, mainly inhabiting the Indian subcontinent and Southeast Asia. The usual foraging habitats are inland wetlands along with river banks and tidal flats. On agricultural landscapes, birds forage in crop fields, irrigation canals, and in seasonal marshes (Sundar, 2006). When hunting, the stork

puts its head inside the water, with its bill being partly open, this makes them prone to accidental ingestion of fish hooks or other foreign bodies. Metallic foreign bodies can lodge anywhere in the gastrointestinal tract, but are most commonly found in the proventriculus and ventriculus (Dumoncaux *et al.*, 1994; and Wagner, 2005). The ingestion of ferrous metal objects, such as nails, wire, hairpins, and needles, accounts for the majority of cases (Peckham, 1978).

¹ Assistant Professor and Ph.D Scholar, Department of Veterinary Surgery and Radiology, Nanaji Deshmukh Veterinary Science University, Jabalpur (MP), India.

² Associate Professor, Department of Veterinary Surgery and Radiology, Nanaji Deshmukh Veterinary Science University, Jabalpur (MP), India.

³ Associate Professor and Incharge, Department of Veterinary Surgery and Radiology, Nanaji Deshmukh Veterinary Science University, Jabalpur (MP), India.

⁴ Assistant Professor in School of Wild life Forensic and Health, Nanaji Deshmukh Veterinary Science University, Jabalpur (MP), India.

Foreign body ingestion may be diagnosed using plain and contrast radiography as well as gastric endoscopy (Champour and Ojrati, 2014).

Several protocols have been suggested for removing foreign bodies from the ventriculus of birds. Surgical removal is documented and effective but is a high risk to the patient. The size of the avian patient and its anatomy often make surgery extremely difficult (Bush and Kennedy, 1978). The approach to ventricular foreign bodies in birds is affected by the nature of the foreign body, the clinical signs, the species affected, the tools available, and the preference or experience of the veterinarian (Lloyd, 2009). In this case, the decision to remove the foreign body by surgery resulted in a favourable outcome for the bird.

MATERIALS AND METHODS

School of Wildlife Forensic and Health, NDVSU, Jabalpur referred an Asian openbill stork (*Anastomus oscitans*) to Teaching Veterinary Clinical Complex (TVCC), College of Veterinary science and A.H., Jabalpur with history of uneasiness and abnormal cackle. Apparent observation revealed extended neck and difficulty in swallowing. Close observation of the neck revealed a pointed swelling over the upper ventral area of neck, which appeared to be painful. Lateral and ventro-dorsal radiography revealed presence of thin curved radioopaque object resembling fish hook in cervical region of oesophagus (Figure 1). As manual removal was not feasible, it had been decided for surgical intervention.

The feathers of target and surrounding area were clipped and painted with Povidone iodine 10%. A perforated drape was used on designated field. The bird was anaesthetised using Ketamine (20 mg/kg) and Xylazine (2 mg/kg) intramuscularly. A 2 cm linear skin incision was

Figure 1: Lateral and Ventro-Dorsal Radiography Images of Cervical Region of Oesophagus



Figure 1 (Cont.)



made on ventral aspect of neck. Subcutaneous tissues were separated by blunt incision. After locating the hook, a small incision was made on oesophageal wall along with perforation. Then the hook was manually manipulated and removed. The oesophageal incision was closed by a simple continuous pattern with a 3-0 Vicryl. The surrounding subcutaneous tissue was wiped with an antiseptic solution and routinely closed. Antibiotic powder was sprinkled over the site and the skin incision was closed by a simple interrupted suture pattern with 2-0 Vicryl. Antibiotics and NSAIDs were prescribed for three days postoperatively. The bird showed uneventful recovery and was released to its natural habitat after three days convalescence and the skin sutures were allowed to remain *in situ*.

RESULTS AND DISCUSSION

Anterior gastrointestinal tract obstruction by a foreign body has been reported in several avian species, most commonly in captive birds. It is often associated with behavioural issues that lead to compulsive consumption of bedding materials or bright moving objects (Castano-Jimenez *et al.*, 2016). The size of the avian patient and its anatomy often make surgery extremely difficult (Bush and Kennedy, 1978). Furthermore, an accurate pre-surgical diagnosis, safe general anaesthesia, adequate surgical exposure, and postoperative care all represent daunting problems.

Radiography is essential in cases of suspected foreign material ingestion. Survey radiographs in this case revealed multiple foreign bodies of varying radio-density within the GI tract, and the perforation was not apparent. Contrast radiography is performed post-endoscopy to determine the exact location of the remaining wire

and evaluate for other radiolucent material in the GI tract before surgical removal. However, in the present case, since perforation was suspected, no contrast radiography was applied due to risk of leakage of media.

Forbes (2002) indicated parenteral anaesthesia because the caudal thoracic and abdominal air sacs receive fresh air from the trachea, it is important to consider that celiotomy is impossible without opening the air sacs, which reduces the effectiveness of inhalant anaesthesia. When administered parenterally, the combination of Ketamine (100 mg/ml) and Xylazine (20 mg/ml) enhances muscle relaxation and analgesia and reduces the incidence of stormy recoveries observed in some avian species compared to cases in which Ketamine is administered alone. The dose and route of administration of these agents depend upon the degree of immobilization and speed of recovery desired. Combining 10-30 mg/kg of Ketamine with a half volume of Xylazine (1-3 mg/kg) administered intramuscularly induces an anaesthetic level adequate for surgical procedures (Champour and Ojrati, 2014). However, Hayati *et al.* (2012) opted for inhalation anaesthesia with Isoflurane (1%-3%) and oxygen by face mask, whereas Bush and Kennedy (1978) chose Ketamine HCl (15 mg) for sedation, followed by 1.5% Halothane and a Nitrous oxide/Oxygen mixture at a ratio of 3:2 administered via a face mask.

Removal of ingested foreign material is medical or surgical depending on size, location, type of material, and condition of the patient. Foreign material small enough to move freely through the GI tract can be managed with hydration, emollients, laxatives, and the administration of insoluble grit particles (Lupu and

Robbins, 2009). Crop or proventricular lavage may suspend small foreign pieces for tube aspiration. Most large objects can only be removed endoscopically or surgically. Endoscopic removal of gastrointestinal foreign bodies presents a less invasive alternative to surgery but can only be performed in select cases. Large objects with well-defined edges are more likely to be retrievable using the small grasping forceps that accompany the endoscope (Taylor and Murray, 1999). However, in present case since radiograph revealed perforation, only surgical removal was considered feasible and adopted. The technique described by Altman (1997) was followed.

The procedure was successful and bird recovered without any complication and the authors concur with Castano-Jimenez *et al.* (2016) who demonstrated that the most indicated and preferred method is not always possible and that knowledge of the biologic, anatomic, and physiologic differences of the species may allow the use of an alternative and more invasive approach with favourable outcomes. 🌀

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Hyderabad, INDIA. Ph: +91-09441351700, 09059645577

E-mail: editorijasvm@gmail.com or editor@ijasvm.com

Website: www.ijasvm.com

