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Manual removal of irregular-shaped foreign body lodged in the pharyngolaryngeal area in 4-months-old puppy

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Choke in the veterinary profession is a term used to denote an obstruction to the passage route of food through the pharynx and oesophagus, either partially or completely. This case report describes a four-month-old male puppy, a Nigerian indigenous breed of dog weighing 6kg, diagnosed with oesophageal obstruction caused by ingestion of a fried chicken scapular bone. The puppy was presented at the emergency unit of the University of Jos Veterinary Teaching Hospital, where it was clinically evaluated, diagnosed and managed via manual removal of the dislodged bone that was performed with sterile thumb forceps under deep sedation. Reducing the incidence of foreign body obstruction in dogs can be achieved by ensuring that dogs are not fed with large, irregularly shaped bone and/ or bones with sharp edges. The bones are correctly disposed-off in the environment. Furthermore, bones should not be fed to dogs where likely competition for the bone is likely as a choke at the pharyngolaryngeal region can occur.

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Introduction

The most occurring life-threatening emergency involving the oesophagus is its obstruction. Choke, by definition, is an obstruction to respiration/ breathing; the obstruction is generally located at the larynx. However, in the veterinary profession, the term choke is used to denote an obstruction to the passage route (pharynx or oesophagus) of food or food substance in ingestion, the obstruction in the oesophagus can either be partial or complete (Subhash *et al.*, 2011). This condition can result from

diseases such as abnormal swellings around the oesophagus, neurological disorders affecting the oesophageal muscle, the facial nerve or the tongue and also abnormal dentition (Wyatt & Barron, 2019). The condition can also be due to trauma which can result at the oesophagus. Furthermore, a previous injury to the oesophagus after healing can result in the stricture of the oesophagus, which eventually predisposes a patient to difficulty in deglutition and even choke.

Largely choking as it pertains to the respiratory system its mainly due to irritation by food substances during deglutition which provokes coughing since the upper respiratory tract is very sensitive to ejecting irritants that completely or incompletely affect respiration (Kokila *et al.*, 2017). In the occurrence of large food particles, suffocation may result, which could lead to complications or even fatality (Kokila *et al.*, 2017). In veterinary Practice generally, choking occurs in an effort to swallow an unsuitable food or food substance, for instance, unregulated access to or incompletely soaked sugar beet pulp in horses, rapid ingestion of dry or dry and fibrous feed-in ruminants, equine and dogs (Subhash *et al.*, 2011). The sites of oesophageal obstruction in dogs are the thoracic inlet, the base of the heart (midway of the thoracic inlet and the pylorus) and caudal oesophagus (pyloric region), these are regions where extra-oesophageal structures restrict oesophageal dilation (Kokila *et al.*, 2017; Wyatt & Barron, 2019).

Choke is common in cattle and dogs as these animals are inclined to ingest food or food substances too bulky for the food passage route, pharyngolaryngeal /or oesophagus it could also be due to ingestion of sharp-pointed or irregularly shaped objects, hence, narrowing the passageway resulting in pain, discomfort, and even fatal consequences due to puncture wound, bloat or suffocation (Hillyer, 1995; Subhash *et al.*, 2011). The swallowing of foreign body (like eggs, apples, potatoes and unripped mango fruit) or sharp objects could result in other oesophageal disorders such oesophageal neoplasia, oesophageal perforation/rupture, oesophageal ulceration, oesophageal stricture, oesophageal compression by external tissues, megaesophagus, oesophageal diverticulum, congenital/developmental oesophageal abnormalities (Hillyer, 1995; Subhash *et al.*, 2011).

Clinical signs of choke include sudden cessation in feeding due to sudden pain, the animal may vocalise, awkwardness, and swift bloat formation. Profuse salivation, bulging of the oesophagus, presence of a hard mass in the oesophagus on palpation, regurgitation or vomiting with a nasal return of food/saliva, anorexia, and signs of depression (Hillyer, 1995). Secondary aspiration pneumonia is queried in the occurrence of pyrexia and halitosis (Wyatt & Barron, 2019). Successful treatment typically involves oral removal with fluoroscopic guidance, endoscopy, or with the advancement of the foreign body into the stomach with a rigid tube. Thoracotomy is indicated if the foreign body cannot be retrieved or if a medium-sized or large oesophageal injury/ perforation have

developed at the region of the base of the heart or pyloric inlet (Kokila *et al.*, 2017; Mahesh *et al.*, 2020).

Case Report

History

A four-month-old male Nigerian indigenous breed of dog weighing 6 kg was presented to the University of Jos Veterinary Teaching Hospital Nigeria as an emergency condition in the emergency unit of the hospital with the chief complaint of the puppy's inability to swallow. The puppies were fed with bones as the two puppies in the house competed for the feed provided by the owner, as reported by the client. The affected puppy was noticed to have a sudden cessation of interest in food and water, and the client said the other puppy continued to rush for the food provided by the owner without its competitor.

Physical and clinical findings

On presentation, the puppy was weak but alert, with the ears stretched. The head was facing the ground, with the neck stretched, and saliva was drooling. On palpation of the neck region, the puppy tended to withdraw and showed signs of pain. A hard mass was felt around the pharyngolaryngeal area. On examination of the buccal cavity, the puppy became aggressive and attempted to bite the clinician.

Management and treatment

The patient was attended to immediately on presentation and noted that, is a case of choke, it was treated as an emergency condition. Hence, the decision to sedate the patient using xylazine hydrochloride (alfasan Woerden-Holland) at 2 mg/kg (2% injection Xylazine hydrochloride intramuscularly) half the volume calculated was administered, sedation was achieved within 3 minutes post-administration. The patient was consequently placed on sternal recumbency with the head raised, neck relatively stretched (that is, maintained in the normal posture the patient always keeps its neck to avoid injury to soft tissues), the tongue was brought out and held in position using a thumb forceps for easy visualisation and assessment of the pharyngolaryngeal region. A foreign body was then noticed at the pharyngolaryngeal region, and was gently manipulated, as well as gentle traction was applied to pull out/ dislodge the foreign mass using a thumb forceps (Plate I). The puppy was then medicated with oxytetracycline long-acting (20% injection oxytetracycline at 20 mg/kg intramuscularly) and dexamethasone (1% injection dexamethasone at 0.5 mg/kg); the client was asked to

present the puppy the next day for follow up. The puppy on representation the next day was evaluated; the puppy was active, not aggressive and without drooling saliva. Furthermore, the client reported that the puppy fed well at home.

Discussion

Dogs are known for their high bone preference, especially when feeding, and bones were reported to be the most common cause of oesophageal foreign body obstruction in this species of animals; this is in agreement with this case report where a bone was lodged in the laryngopharyngeal region. Foreign body oesophageal obstruction is regarded as an emergency (Vishwanatha *et al.*, 2012), which, if prompt intervention is not carried out, could result in life-threatening conditions like aspiration pneumonia, bloat and oesophageal perforation (Mahesh *et al.*, 2020). However, in this report, the patient was presented promptly to the emergency unit immediately; the client noticed great discomfort by the puppy during ingestion of the chicken bone fed to it. Clinical signs such as drooling saliva were observed in this case, resulting from a disturbance in the organisation of oro-facial, palate, and lingual musculature, as also reported by Lakraj *et al.* (2013). The choice of xylazine to sedate the patient was because of its sedative properties and its additional advantage of good muscle relaxation where voluntary or uncoordinated tongue retraction was easily overcome. The animal was then positioned on sternal recumbency with the head raised to achieve the most convenient positioning for ease of respiration; this positioning was also recommended by Rozanski *et al.* (2010). The tongue was pulled-out and latero-ventrally deviated using thumb forceps to enhance visualisation of the pharyngolaryngeal region (obstructing object) and, consequently, avoid rolling the tongue, which could obstruct respiration by blocking the pharyngolaryngeal region. The choice of thumb forceps to pull out the obstructing object was to avoid sharp surgical tools that could cause avoidable injury to the animal in removing the foreign obstructing object.

Wound healing of the mucosa of the buccal cavity and the pharyngolaryngeal region is fast and generally without complication (Shah *et al.*, 2020). However, chances were not taken in the present case, as the use of antimicrobial interventions out-weights the detrimental effect of likely infection in the patient. Hence, the use of antibiotics was to prevent infection

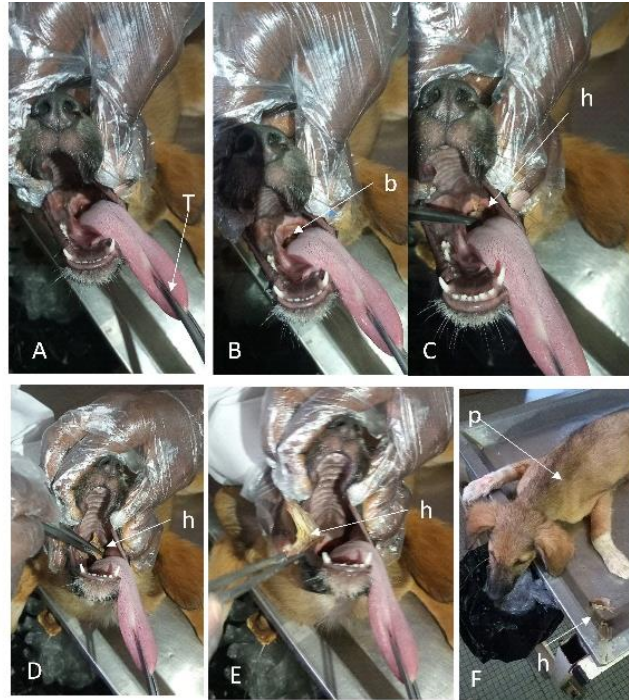


Plate I: A; Showing sedated animal with the buccal cavity wide open and the tongue exteriorised with a thumb forceps (t). B; Arrow showing the obstructing bone (b). C; Obstructing object grasped with a thumb forceps (h). D; Exteriorising the grasped obstructing object (h). E; Obstructing object removed (h). F; The dislodged obstructing object (h) and the puppy (p) after removal of the obstructing foreign object

in case there was an injury caused by the obstructing object. The use of the anti-inflammatory drug was to control the tendencies of oedema formation and to control the inflammatory response, pain and also to reduce the stress that could be caused by the foreign body and enhance management procedure. Hillyer *et al.* (1995) reported that an inflammatory response is inevitable in the choke.

Diagnostic modalities that could have aided the management of the condition was the use of an X-ray or the use of an endoscope. However, these facilities were not used due to the fact that it was an emergency situation, as the wide negative intrathoracic pressure could create an abdominothoracic pressure gradient sufficient to overcome the barrier of the oesophageal sphincter (Richard *et al.*, 2005), which could lead to reflux of abdominal content, subsequently aspiration pneumonia. Furthermore, the obstructing object was easily visualised through the buccal cavity at the laryngopharyngeal region in the present case, which is not a common site for a choke in puppies, as reported by Kokila *et al.* (2017). Consequently,

surgical removal was not required in this case, as the obstructing object was assessible through the buccal cavity and appeared too large with an irregular shape to pass through the laryngopharynx region. Mahesh *et al.* (2020) reported that surgical intervention is only indicated when endoscopic removal fails.

In conclusion, choking is an emergency condition. Aside from the three common sites (thoracic inlet, base of the heart and the stomach inlet) of foreign body obstruction, the occurrence of laryngopharyngeal obstruction is also possible. To reduce the incidence of bone choke in puppies, bones should be given minimal room for competition among puppies, avoid feeding bones with sharp edges, and dispose of such from the pets' environment. In the occurrence of laryngopharyngeal foreign body obstruction, simple instruments like the thumb forceps can be utilised in the management of the condition.

Limitation: Though the animal was healthy two weeks after the incidence, we would have been sure of non-complete perforation if an X-ray or endoscopy was employed on presentation (that is, after dislodging the foreign body), though was an emergency condition or during follow-up management.

Conflict of interest

The authors declare that there is no conflict of interest.

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