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Surgical management of choke due to trichobezoars in a cow: A case report

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Abstract

Choke or esophageal foreign body obstruction is common condition in cow due to indiscriminate feeding habits. The most common site of obstruction is caudal cervical esophagus. A 7 year old, crossbred cow was presented with a history of sudden onset of ptyalism, bloated abdomen, respiratory distress, restlessness and swollen caudo-ventral cervical part. Physical examination of cervical region revealed partially movable, two round hard masses. Survey radiography showed two spherical (ball) like structures (6.83*6.11cm) at the level of C₃-C₄ and C₅-C₆ vertebral junction with an outer radiopaque wall and inner radiolucent part. The manual method of pushing foreign body into abdomen using probang and removal through oral cavity was failed due to complete intraluminal obstruction. Left cervical esophagotomy was performed and two trichobezoars (balls) were retrieved. This surgery proved excellent resolution of clinical signs.

Keywords: esophageal obstruction, choke, foreign body, spherical balls, esophagotomy, trichobezoars

Introduction

The esophagus is divided into three parts: cervical, thoracic and abdominal esophagus. The common condition of esophagus in ruminants is foreign body obstruction and other less common conditions are esophageal stricture, perforations, diverticulum and mega esophagus (Haven, 1990) [3]. The most common site of obstruction is distal third cervical esophagus. The lumen of esophagus is narrowed at the junction between middle and distal third cervical esophagus. This may be the reason; the obstruction is more common in distal cervical part (Singh *et al*, 2020) [11].

Two types of esophageal obstruction: Intra luminal (choke) obstruction may be due to vegetables, fruits, dry feed materials, phytobezoars, trichobezoars and foreign bodies. Extra luminal obstruction may be due to neoplasia, periesophageal abscess, etc (Singh *et al*, 2020) [11].

Even though esophageal obstruction is infrequent in ruminants, common in bovine which are free roaming, nutritionally imbalanced and indiscriminately feeding animals in field conditions (Smith, 2008) [12].

Case History

A 7 year old, non-pregnant, pluriparous crossbred jersey cow was presented to Large Animal Clinics-Surgery-Out-Patient unit, Department of Clinics, Madras Veterinary College, Vepery, Chennai, India, with a history of sudden onset of ptyalism, bloated abdomen, respiratory distress, restlessness and swollen caudo-ventral cervical part (Fig.1). On physical examination two partially movable, spherical hard masses were palpated at the caudo-ventral cervical part. A high pitched ping sound was heard on auscultation and percussion of left paralumbar fossa. Progressive increase in the size of left paralumbar fossa was noticed. Survey radiography showed two spherical like structures (6.83*6.11cm) at the level of C₃-C₄ and C₅-C₆ vertebral junction with an outer radiopaque wall and inner radiolucent part (Fig.2). These foreign bodies were completely obstructing cervical esophagus and compressing the trachea. The esophagus was noticed dilated cranial and caudal to the obstruction and filled with gas. The manual method of pushing foreign body into abdomen using probang and removal through oral cavity was failed due to complete intraluminal obstruction. Emergency trocarization was done to relieve the free gas bloat in the left paralumbar fossa. Condition of the animal was explained to the owner and esophagotomy was performed to remove the foreign body. This case report describes in detail about the surgical procedure for successful management of a choke due to trichobezoar in a cow.



Fig 1: Swelling at the left caudo-lateral aspect of neck due to trichobezoars

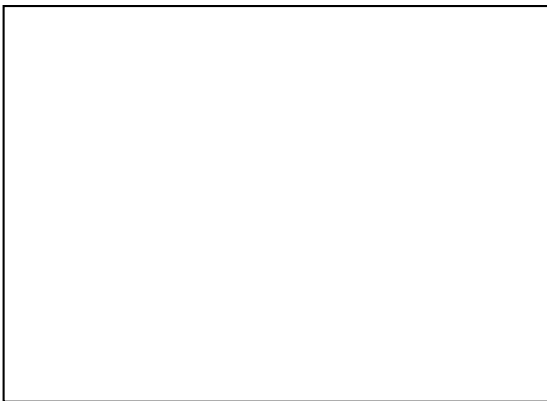


Fig 2: Cervical lateral radiograph showing two trichobezoars in the cervical esophagus

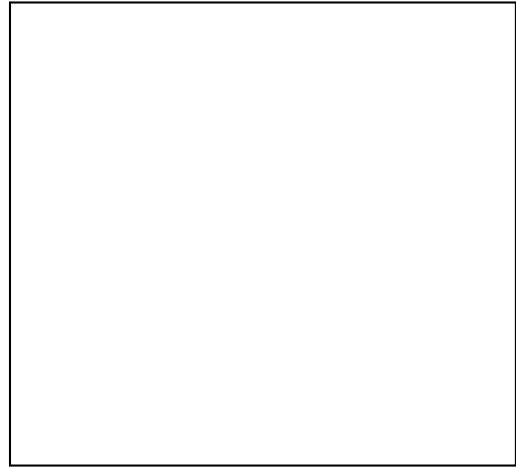


Fig 3: Two spherical trichobezoars retrieved from the esophagus

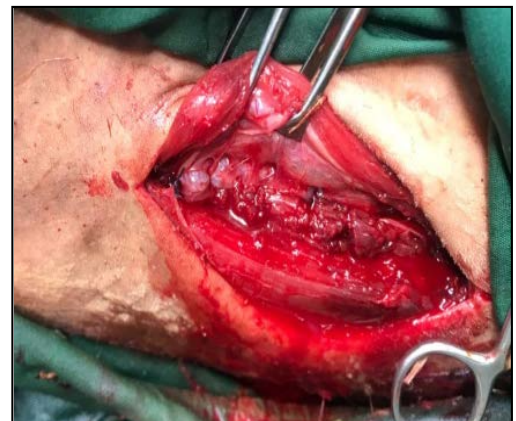


Fig 4: Two layer closure of the esophagus with polyglycolic acid



Fig 5: Cross section view of trichobezoars – smooth outer surface with inner hairs

Patient Preparation

Intravenous cefotaxime sodium and flunixin meglumine injections were given pre-operatively at the dose rate of 20 mg/kg and 1mg/kg body weight respectively. The ventral cervical part was aseptically prepared.

Anaesthesia

Recumbency stun was achieved with xylazine @ 0.05 mg/kg bwt, I/V, butorphanol @ 0.25 mg/kg bwt, I/V and ketamine @ 0.4 mg/kg bwt, I/V. The surgical site was locally infiltrated with 2% lignocaine.

Surgical Procedure

A 15cm long incision was made in the left ventral cervical part over the swollen part. A blunt dissection was made and esophagus was approached in between the sternocephalicus muscle and trachea. The esophagus was incised caudal to the first and cranial to the second foreign body. By gentle manipulation two spherical balls were retrieved carefully without any leakage of contents into surgical site (Fig.3). The mucosa of esophagus was closed with polyglycolic acid 2-0 in connell suture pattern with knot inside the esophagus lumen. The other layer was opposed in simple continuous pattern with polyglycolic acid 2-0 (Fig.4). Two layers of muscles were closed in an interlocking pattern with polyglycolic acid 1. Subcutaneous and subcuticular was closed in routine manner with polyglycolic acid 1. Skin was opposed with horizontal mattress using polyamide 1. The foreign bodies were blackish in colour, spherical in shape with smooth glistening surface, measured 10 cm diameter and weighed about 20 gram each. Dissection of the foreign body showed presence of hairballs, confirmed as trichobezoar (Fig.5).

Post-operative care

Once after retrieval of the foreign bodies, the bloated abdomen was completely reduced. The animal was maintained on parenteral fluid therapy, antibiotic-cefotaxime sodium (@ 20mg/kg body weight, q12hrs, I/V), pantoprazole (@ 1mg/kg body weight, q24hrs, I/V) and flunixin meglumine (@ 1.1 mg/kg body weight, q12hrs, I/V) for 72 hours post-operatively. The animal was allowed to have access water after 12 hours from surgery. Soft semi-solid feed was started three days post-operatively, gradually changed to regular feeding. The animal recovered uneventfully and no complications were reported by the animal owner.

Discussion

Incidence of trichobezoar related pathology is higher in late winter to early spring, correlated with increased ingestion of hair during shedding. Lack of dietary forage may trigger “grazing” on penmates or vices like licking their own coat. Dermatological disease condition may promote the animal to licking and grooming which predisposing animals to trichobezoar formation (Gangwar *et al.*, 2013) [2]. Inside the rumen, the ingested hairs will become large tight balls due to churning movements (Singh *et al.*, 2020 & Radostits *et al.*, 2000) [11, 8]. Trichobezars rarely obstruct the pylorus in calf and adult (Cockrill *et al.*, 1978) but in the present case, the trichobezoars were dislodged during regurgitation from rumen in to cervical oesophagus which leads to intraluminal complete obstruction of oesophagus. Pund *et al.*, 2018, removed unripened guava by performing esophagotomy from a crossbred cow which was restlessness, severely bloated, regurgitating oral contents through nostrils. The various obstructive materials removed by esophagotomy were tarpaulin cloth (Sreenu *et al.*, 2001) [13], leather (Salunke *et al.*, 2003) [10], coconut (Madhava Rao *et al.*, 2009) [5], palm kernel (Krishna *et al.*, 2010) [4], mango kernel (Vishwanatha *et al.*, 2012) [14], unripened mango (Mandagiri *et al.*, 2017) [6], and phyto-trichobezoars (Ahiwar *et al.*, 2021 & Gangwar *et al.*, 2013) [1, 2].

The reported complications following esophagotomy was surgical site wound dehiscence, luminal stenosis and formation of fistula (Ruben, 1997) [9]. These complications might be due to lack of serosal layer, reverse peristalsis, segmental blood supply and continuous movements of esophagus. Avoiding transverse esophageal incision, minimal vascular disturbance, tight incision site closure without any leakage and restricted post-operative oral feeding resulting in reduced rate of post-operative complications (Haven, 1990) [3].

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