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Surgical retrieval of oesophageal foreign body-in 12 cows

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Abstract
A total number of 12 crossbred jersey cows were presented at DVSR, RIVER, Puducherry over a period of 2 years with a history of acute bloat, dyspnoea, restlessness, inappetence, suspended rumination. On clinical examination of all the animals, a mass was palpated on ventro-lateral aspect of the cervical part of oesophagus. Radiographic examination revealed the foreign body obstruction in the oesophagus. All the animals were sedated with Inj. Xylazine @ 0.1 mg/Kg body weight intravenously. The bloat was relieved using trocar and canula. All the animals were restrained on right lateral recumbency and the site was aseptically prepared. A 10 cm incision was made on left side over the mass on dorsal aspect of jugular furrow; muscles were separated and the oesophagus was exposed. A 5 cm longitudinal incision was made through the lateral wall of oesophagus and the foreign body Beetroot (2 cases), Potato (3 cases), Guava (2 cases), Palm fruit seed (1 case), Groundnut cake (1 case), Sweet lime (1 case), Wood apple (1 case) and plastic bag packed with soaked tea waste (1 case) were removed. Post operatively, all the animals were maintained on fluid therapy and antibiotic Inj. Streptopenicillin @ 10 mg/Kg body weight, Inj. Meloxicam @ 0.5 mg/kg body weight I/M for 3 days. Sutures were removed on 10th post-operative day and all the animal made an uneventfully without any postoperative complications.

Keywords: Crossbred jersey cows, acute bloat, dyspnoea, restlessness, inappetence

Introduction
Cows frequently suffer from choking or oesophageal foreign body obstruction as a result of their haphazard eating practices. In cattle, oesophageal obstructions typically occur at the pharynx, near the base of the heart, the thoracic inlet, and most commonly at cranial portion distal third of the cervical oesophagus (Krishna *et al*., 2010) [2]. Singh *et al.*, 2020 [9] reported that the main cause of this is that, the lumen of oesophagus is narrowed at the point of convergence between middle and distal third cervical oesophagus. There are two distinct types of oesophageal obstruction, (1) intraluminal (choke) may cause by Fruits, vegetables, dry feed ingredients, phytobezoars, trichobezoars, and foreign objects. (2) Extraluminal obstruction could result from peri oesophageal abscesses, cancer, etc. When cattle experience oesophageal obstruction (choke), they are unable to expel ruminal gasses and experience severe free gas bloat, which can be fatal if left untreated (Rao *et al.*, 2014). This present paper describes about successful surgical management of foreign body obstruction in the oesophagus in 12 cows.

Case history and observation
A total number of 12 crossbred jersey cows were presented at DVSR, RIVER, Puducherry over a period of 2 years with a history of acute bloat, dyspnoea, restlessness, inappetence, suspended rumination. On clinical examination of all the animals, a mass was palpated on ventro-lateral aspect of the cervical part of oesophagus. On Palpation of the cervical part of oesophagus revealed a palpable mass. Further increase in the size of left paralumbar fossa (flank region) was observed. The trachea was being compressed and the cervical oesophagus was totally obstructed by these foreign objects. It was observed that the oesophagus was full with gas and was dilated cranially and caudally to the obstruction. Due to complete intraluminal blockage, the manual technique of pushing the foreign bodies into the abdomen

with a probang and removing it through the mouth cavity proved unsuccessful. In order to relieve the free gas bloat in the left paralumbar fossa, emergency trocarisation was performed. Based on the history, clinical signs, clinical findings, Xray and inability to pass the stomach tube beyond the palpable mass, the case was diagnosed as intraluminal obstruction of the cervical oesophagus. The owner was informed of the animal's condition, and an esophagotomy was done to remove the foreign body. Cervical oesophagostomy revealed that the obstruction was caused by the lodging of beetroot, guava, tea bag into the oesophagus in 12 different cases.

Surgical procedure

A 10cm incision was made in the left cervical region on the swollen part. A blunt dissection was made on sternocephalicus and sternothyrohyoideus muscles and oesophagus were approached. The oesophagus was incised caudally and by gentle manipulation, foreign bodies were retrieved carefully without any leakage of contents to the surgical site to prevent contamination. The double layer suture of oesophagus was followed, first, mucosal layer of oesophagus was sutured with polyglycolic acid 910 size 1 in simple continuous suture pattern. The other layer was closed with PGA910 size 0 in simple continuous suture pattern. The muscle layers were closed with PGA 910 size 0 in interlocking suture pattern. subcutaneous layer was sutured in routine manner. Skin was opposed with cross mattress using braided silk. Retrieved foreign bodies were 6 beetroots, 4 guava, 1 tea bag, 1 corn piece was retrieved from 12 different cases.

PO Retrieved FBST operatively

Immediately after retrieval of foreign bodies, the distension of abdomen was completely reduced.

- The animal was maintained on fluid therapy, antibiotic course
- Injection streptopencillin @ 20 mg/kgbwt, anti-inflammatory – meloxicam @ 0.5 mg/kgbwt was given for 5-and 3-days post operatively. The animal was allowed to have only soft, and semi solid feed for 10 days. After 10 days progressively changed to routine feeding. In all five cases, animals were recovered uneventfully without any complications.

Results and Discussion

Incidence of Oesophageal obstruction in cattle is higher, because of their indiscriminate eating habits or nutritional deficiencies (Tyagi and Jit Singh, 1999; Shivaprakash, 2003) [8, 12]. In cattle, oesophageal obstructions typically occur at the cranial portion distal third of the cervical oesophagus due to the narrow lumen (Misk, 2004). In our study among 12 cases 9 cases were cervical oesophageal obstruction and 3 were obstructed at proximal part of oesophagus. There are two distinct types of oesophageal obstruction, (1) intraluminal (choke) may cause by Fruits, vegetables, dry feed ingredients, phytobezoars, trichobezoars, and foreign objects. (2) Extraluminal obstruction could result from peri oesophageal abscesses, cancer, etc (Singh *et al*, 2020) [9]. When cattle experience oesophageal obstruction (choke), they are unable to expel ruminal gasses and experience severe free gas bloat, which can be fatal if left untreated (Prakash *et al*., 2014). The different obstructive materials that were removed during the esophagotomy procedure included coconut (Madhava Rao *et al.*, 2009) [5], leather (Salunke *et al.*, 2003) [12], and tarpaulin fabric (Sreenu *et al*, 2001), palm kernel (Krishna *et al.*, 2010) [2] mandarin kernel (Viswanathan *et al*., 2012) [10]. Mango that has not yet ripened (Mandagiri *et al*., 2017) [6], as well as Phyto-trichobezoars. Surgical site wound dehiscence, luminal stenosis, and fistula formation were the documented consequences after esophagotomy (Ruben, 1997) [11]. The absence of a serosa layer, reverse peristalsis, segmental blood supply, and continuous esophageal movements could be the cause of these issues. Reducing the incidence of post-operative complications by avoiding transverse oesophageal incision, causing the least amount of vascular disruption, closing the incision site tightly to prevent leaks, and limiting oral eating after surgery. No complications were reported in any among five cases, and all animals recovered uneventfully.

Fig 1: Shows hard swelling at the cervical part of the oesophagus

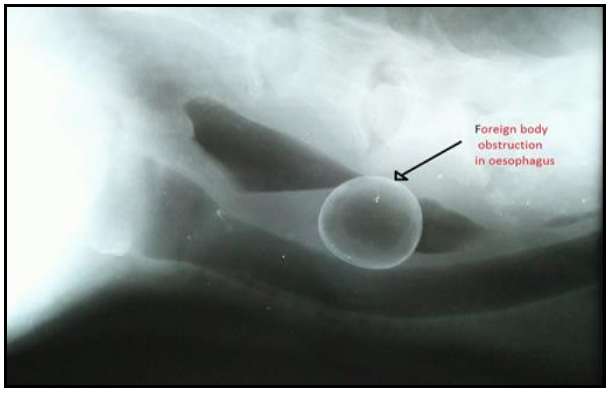

Fig 2: Radiographic finding of obstruction at the cervical part of the oesophagus

Retrieved FB

Palm fruit

Guava fruit

Corn

Undigested food

Wooden apple

Beetroot

Beetroot

Tea bag

Conclusion

In conclusion, the incidence of oesophageal obstruction in cattle is significant, primarily attributed to their eating habits and nutritional deficiencies. Our study corroborates previous findings, with a majority of cases presenting cervical oesophageal obstructions. These obstructions vary in origin, including intraluminal causes like food items and foreign objects, as well as extraluminal factors such as abscesses or tumors. Oesophageal obstructions lead to severe consequences like gas bloat, potentially fatal if untreated. Surgical intervention, while effective, carries risks such as wound complications and stenosis. Mitigating post-operative issues necessitates precise surgical techniques and careful postoperative management. Our study highlights the diverse range of materials causing obstructions and emphasizes the

importance of prompt intervention and appropriate surgical approaches to ensure favorable outcomes for affected animals.

Conflict of interests

The authors declared no potential conflicts of interest with respect to the clinical work, authorship, and/or publication of this article.

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