

OCCURRENCE OF OESOPHAGEAL OBSTRUCTION IN BOVINES – A CLINICAL STUDY OF 16 ANIMALS

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Abstract: A total number of 1,500 cases were treated for different surgical conditions during the year 2018-2020 at large animal surgery facility. A total number of 13 cows and 2 cow calves were affected with oesophageal obstruction. Overall the occurrence of oesophageal obstruction in cattle was found to be 1.06%. The occurrence was higher (59.16%) in the age group of 5 to 10 years followed by the age group of 6 months to 5 years (37.5%). The occurrence was lowest (15.49%) in animals below the age group of six months. Out of 16 cases of bovines affected with oesophageal obstruction, 15 (93.75%) were found to be females and one was male (6.25%). With respect to site of obstruction, highest number of foreign bodies were noticed at caudal cervical (50.0%) followed by mid cervical (18.75%), cranial cervical (18.75%) and thoracic inlet (12.5%) region. The obstruction at cervical oesophageal region was (87.5%) and at thoracic inlet region was (12.5 %).

Keywords: Bovines, Oesophageal obstruction, Occurrence, Study.

INTRODUCTION

Oesophageal obstruction by foreign body was a common disorder in cattle and results from incomplete mastication and rapid ingestion (Fubini and Pease, 2004). The common foreign bodies that cause oesophageal obstruction include apple, mangoes, palm kernel, turnip, potatoes, coconut, corn stalks, large sized lemon etc., Oesophageal obstruction has been occasionally reported in buffaloes which may be complete or partial (Krishna *et al.*, 2020). 80% of the oesophageal obstructions were in the cervical region in cattle (Hofmeyr, 1974). The animals affected with oesophageal obstruction were greedy feeders and about 20% choke in the cattle were intra-thoracic (Oehme and Prier, 1974). The oesophageal disorders were more common in adult cows. In cattle, females were more commonly affected than males (Singh and Singh, 1999 and Singh *et al.* (1991).

The other conditions that favoured the obstruction were pica, advanced stage of pregnancy, improper animal husbandry practices, leaving the animal outside for grazing and feeding the animal with garbage or vegetable waste (Rani *et al.*, 2003; Shivaprakash, 2003). Choke had been encountered frequently in large ruminants and caused were by large sized food stuffs, foreign objects, trichobezoars or oesophageal granulomas and was an emergency surgical condition causing severe tympany which may be life threatening if not treated timely (Radostits *et al.*, 2007).

Complete oesophageal obstruction is an emergency condition as it interferes with eructation of gases resulting in acute bloat and respiratory distress. The common sites of oesophageal obstruction reported were behind the pharynx, distal third of oesophagus, thoracic inlet and base of the heart (Tyagi and Singh, 1999; Marzok *et al.*, 2015). The cranial or mid cervical oesophageal obstructions were relieved manually after pushing towards gullet (Manjunatha *et al.*, 2018).

MATERIALS AND METHODS

The data of clinical cases of oesophageal obstruction presented for two years (November 2018 – October 2020) to the Dept. of Veterinary Surgery and Radiology, Veterinary College, Hebbal, Bengaluru was collected and analysed. Occurrence was studied in relation to species, age, sex of animal with choke, site of obstruction and type of foreign bodies retrieved from oesophageal obstruction in bovines.

RESULTS

During the study period, a total of 1,500 cases of various species were treated for different surgical conditions. A total number of 13 cows and three cow calves were found be affected with oesophageal obstruction. Overall the occurrence of oesophageal obstruction in cattle was 1.06% (Table 1 and 2). Among 16 cases, 11 were HF cows (68.75%), one was Jersey cow (6.25%) and four were non-descript cows (25%) Table 3. The age-wise occurrence of oesophageal obstruction in bovines (Table 4). Among 16 cases, two cases were of less than six months of age, six cases were in between 6 months to 5 years of age and 8 cases were between 5 to 10 years of age. The occurrence was higher (59.16%) in the age group of 5 to 10 years followed by the age group of 6 months to 5 years (37.5%). The occurrence was lowest (15.49%) in animals below the age group of six months.

Out of 16 cases of bovines affected with oesophageal obstruction, 15 cases (93.75%) were found to be females and one was male (6.25%) Table 5. Out of 16 cases of bovines affected with oesophageal obstruction, in three cases, the obstruction was at cranial cervical

(18.75%), in three cases, at mid cervical (18.75%), in eight cases, at caudal cervical (50%), in two cases at thoracic oesophageal region (12.5%). The obstruction at cervical oesophageal region was (87.5%) and at thoracic inlet region was (12.5 %) Table 6.

The most common foreign body recovered or cause of oesophageal obstruction was beet root which accounted to 4 (25.0%), potato 2 (12.5%), mango kernel 2 (12.5%), orange 2 (12.5%), hair ball 2 (12.5%), guava 1 (6.25%), turnip 1 (6.25%), knol-knol bulb 1 (6.25%) and coconut with feed (6.25%) Table 7.

DISCUSSION

Overall clinical occurrence of oesophageal obstruction among all surgical conditions treated in cattle was 1.06%. This suggests that oesophageal obstruction is an important condition in cattle. Susan and Anthony (2004) reported 0.8% of occurrence of oesophageal disorders in bovines. Tyagi and Singh (2006) reported that obstruction of the oesophagus was of infrequent occurrence in ruminants. Singh *et al.* (1991), Singh and Singh (1999) and Shivaprakash (2003) reported that buffaloes were more commonly affected than cattle. Contrarily, Radostits *et al.* (2000) reported that cattle were more frequently affected by oesophageal obstruction than sheep and goat.

The occurrence of oesophageal obstruction was more in cattle in this study. similarly, O'Connors (1965) and Radostits *et al.* (2000) reported high incidence of cervical obstruction in bovines than sheep and goat. Shivaprakash (2011) reported that incidence of oesophageal obstruction varied as per the type of species predominant in that region. Patil *et al.* (2017) reported that bovine was more frequently affected by oesophageal obstruction than other animals. Incidence of oesophageal obstruction was more in stray cattle owing to their indiscriminate feeding habits. In cattle, mostly oesophageal obstruction occurs at the level of caudal cervical oesophagus due to their anatomical trumpet shape and narrowed lumen (Haven, 1990). This may be attributed to the fact that cattle population was more in this geographical region Shivaprakash (2011) stated cattle were less in the city, for open grazing at garbage's. The cattle and buffaloes eat foreign bodies because of their greedy nature of feeding leading to oesophageal obstruction.

The study revealed that occurrence of oesophageal obstruction is more common in adult cattle between 5 – 10 years than in younger animals. The higher occurrence in adult cattle may be due to the fact that they are taken out in the city at near to garbage place for open grazing and feed the vegetables/fruits wastes. Similarly, Singh and Singh (1999) reported that oesophageal disorders were more common in adult cattle. Contrarily, Church *et al.* (1972)

reported that yearlings and large calves were commonly affected, followed by mature cattle and young calves. Shivaprakash (2003) reported that young age and pregnancy were the predisposing factors for the oesophageal obstruction. Younger calves would definitely be affected with oesophageal obstruction if they were left out for grazing where mango kernels or cloths are thrown. However, Verschooten and Oyaert (1977) opined that there was no age difference in the occurrence of oesophageal obstruction in bovines. In cattle occurrence of oesophageal obstruction was high in adult and less in young animals in the present study. The similar observations have been observed by Singh and Nigam (1980).

The study showed that the occurrence of oesophageal obstruction was more in females (93.75%) than in males (6.25%). Out of 16 animals, 15 were female and one male animals. Higher occurrence of oesophageal obstruction female in cattle was due to the fact that farmers usually rear only females for milch purpose. Similarly, Singh and Singh (1999) and Shivaprakash (2003) reported that oesophageal obstruction was more common in female cattle. On the other hand, Singh and Nigam (1980) and Singh *et al.* (1991) found that occurrence was almost equal in male and female cattle. Similarly, Marzok *et al.* (2015) and Prasad *et al.* (2017) reported that oesophageal obstruction more frequent in females.

Most common predilection site of the oesophageal obstruction in bovines was mid cervical (18.75%), followed by caudal cervical (50.0%), cranial cervical (18.75%) and thoracic inlet region (13.33%). The occurrence of cervical oesophageal obstruction was higher (86.66%) than the thoracic obstruction (12.5%). The higher occurrence of oesophageal obstruction in caudal cervical region may be due to the fact that larger and irregular foreign bodies found in this study could not pass through the narrow thoracic inlet. Similarly, O'Connors (1965) reported higher incidence of cervical obstruction in bovines. Hofmeyr (1974) reported that 80% of the oesophageal obstructions were in the cervical region in cattle. Oehme and Prier (1974) also reported that only 20% choke in the cattle were intrathoracic. David *et al.* (1985) reported that intra-thoracic obstruction was not common in bovines.

The type of foreign body ingested by the animal depends upon the managerial and agricultural practices of the area or living style of the people. Patil *et al.* (2017) and Rani *et al.* (2003) also reported similar type of foreign bodies from cervical oesophagus from cattle. The other foreign bodies recovered in this study, were beet root (4/15; 26.66%), mango kernel (2/15; 13.33%). Potato (2/15; 13.33%), orange (2/15; 13.33%), Guava (1/15; 6.66%), Turnip (1/15; 6.66%), knol-knol bulb (1/15; 6.66%), coconut with feed (1/15; 6.66%) and Hair ball (1/15; 6.66%). Similar types of foreign bodies were recovered by Umakanthan (1995), Singh

and Singh (1999), Shivaprakash and Usturge (2004), Rao *et al.* (2009), Murthy *et al.* (2012), Vishwanatha *et al.* (2012), Manjunatha *et al.* (2018), Pund *et al.* (2018), Vijayakumar *et al.* (2018) and Bhattacharya *et al.* (2019).

Table 1. Occurrence of oesophageal obstruction in bovines during

Sl. no.	Breed	Age	Gender
1.	Non-descript	8 years	Female
2.	HF	5 years	Female
3.	HF	7 years	Female
4.	Jersey	6 years	Female
5.	Non-descript	5 years	Female
6.	HF	3 years	Female
7.	HF	6 years	Female
8.	HF	8 years	Female
9.	HF	4 years	Female
10.	HF	5 years	Female
11.	HF calf	6 months	Female
12.	Non-descript	8 years	Female
13.	HF	10 years	Female
14.	HF calf	6 months	Female
15.	Non-descript	8 years	Female
16.	HF calf	1 years	Male

Table 2. Species-wise occurrence of oesophageal obstruction in bovines

Sl. No.	Species of animal	Number of animals	Percentage (%)
1	Cattle	16	1.06

Table 3. Breed-wise occurrence of oesophageal obstruction in bovines

Sl. No.	Breed of animal	Number of animals	Percentage (%)
1	HF crossbred	11	68.75
2	Jersey	01	6.25

3	Non-descript cows	04	25.0
	Total	16	100

Table 4. Age-wise occurrence of oesophageal obstruction in bovines

Sl. No	Age of animal	Number of animals	Percentage (%)
1	Below 6 months	2	12.5
2	6 month to 5 year	6	37.5
3	5 years to 10 year	8	50.0
	TOTAL	16	100

Table 5. Sex-wise occurrence of oesophageal obstruction in bovines

Sl. No	Sex	Number of animals	Percentage (%)
1	Male	1	6.25
2	Female	15	93.75
	TOTAL	15	100

Table 6. Occurrence in relation to site of oesophageal obstruction in bovines

Sl. No.	Site of oesophageal obstruction	Number of cases	Percentage (%)
1.	Cranial cervical	03	18.75
2.	Mid cervical	03	18.75
3.	Caudal cervical	08	50.0
4.	Thoracic inlet	02	12.5
	TOTAL	16	100

Table 7. Occurrence of different foreign bodies recovered from oesophageal obstruction in bovines

Sl. No.	Foreign bodies	Number of animals	Percentage (%)
1	Potato	2	12.5
2	Mango kernel	2	12.5
3	Turnip	1	6.25
4	Guava	1	6.25

5	Orange	2	12.5
6	Beet root	4	25.0
7	Knol-knol bulb	1	6.25
8	Coconut with feed	1	6.25
9	Hair ball	2	12.5
	Total	16	100

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