ENDOSCOPIC DIAGNOSIS OF MEGAESOPHAGUS IN A BUFFALO

Govindarajan Vijayakumar[1], Sankariah Jegaveera-Pandian[1,*], Elumalai Venkatesakumar[1], Shanmugam Kathirvel[2], Mayilvahanam Subramanian[1] and Saravanamuthu Dharmaceelan[2]

ABSTRACT

A graded Murrah, she-buffalo (*Bubalus bubalis*) was presented with clinical signs of anorexia, occasional cough and regurgitation through nostrils and mouth for the past 15 days. Physical examination revealed fluctuation on the ventral neck and rumen intubation caused discomfort and regurgitation of watery, greenish ingesta through nostrils and mouth. Plain and contrast radiography of the neck was carried out. Endoscopy was performed as per standard procedure to visualize the esophagus and bronchi. The animal was found to have severe esophageal dilatation with stagnated ingesta and mild aspiration into the trachea. Further, the esophageal dilatation was confirmed in contrast radiography of esophagus.

Keywords: regurgitation, megaesophagus, esophagoscopy, buffalo, esophageal disorders

INTRODUCTION

Regurgitation is a clinical sign associated with esophageal disorders. In dogs and cats, the incidence of esophageal disorders is very common. Observation of regurgitation in cattle is a rare incidence and usually accompanies with aspiration pneumonia. Congenital or acquired dilatation and atony of esophagus is termed as megaesophagus. Consequent to this condition, regurgitation, dehydration and aspiration pneumonia may be manifested.

This condition has been reported in llamas, horses, cattle, sheep and goats (Watrous *et al*., 1995; Braun *et al*., 1990; Ulutas *et al*., 2006; Broekman and Kuiper, 2002). Clinical and endoscopic features of esophageal dilatation in dogs and cats have been well documented. Based on the literature reviewed, megaesophagus in buffalo has not been reported yet. In this short communication, clinical and endoscopic features of megaesophagus in a buffalo are presented.

CASE HISTORY

A six –year- old, she-buffalo in mid-lactation was brought to the Teaching Veterinary Clinical Complex of Veterinary College and Research Institute, Namakkal, Tamil Nadu, India with the complaint of frequent regurgitation of ingesta through mouth and nostrils and occasional cough for the past 15 days. The animal was referred

[1]Department of Veterinary Clinical Medicine, Ethics and Jurisprudence, Veterinary College and Research Institute, Namakkal, Tamil Nadu, India, *E-mail: jeganicar@gmail.com

[2]Department of Veterinary Surgery and Radiology, Veterinary College and Research Institute, Namakkal, Tamil Nadu, India

by practising veterinarian for the evaluation of regurgitation. On physical examination, all vital parameters were within the normal physiological range. Regurgitated materials were found smeared over the nasal orifice. Thin body condition and lustreless coat were observed. On palpation of the lower ventral neck, fluctuation was observed. Passage of stomach tube caused discomfort to the animal but on entering the upper esophageal sphincter, fluid mixed feed material gushed out through mouth. Venous blood sample was collected for routine haematological and biochemical examination.

Lateral survey radiography of the neck was performed. The animal was subjected to esophagoscopy under physical restraint and without any sedation. Esophagoscopy was performed using Olympus™ (Olympus Corporation, Japan) flexible video endoscope with a diameter of 8 mm and a usable length of 160 cm that featured a channel for instruments and navigation system allowing the endoscope to be moved in two directions (upward 180º and downwards 100º). The instrument was equipped with a halogen light source, an irrigation system, an insufflation system and recording devices. The use of image and data archiving system allowed digital recording of the endoscopic findings during examination. Contrast radiography of esophagus with barium sulphate was carried out as per standard procedures.

RESULTS AND DISCUSSION

Haemato-biochemical examination of samples revealed mild elevation of haematocrit (42 %) and all other parameters were within the normal physiological range. Severely dilated cervical and thoracic esophagus up to the level of base of the heart with stagnation of chewed fodder material mixed with saliva was observed in esophagoscopy (Figure 1). Loss of linear rugae could be observed in the internal wall of esophagus. Bronchoscopic findings were unremarkable. Survey lateral radiography of neck showed dilatation of esophagus. Lateral contrast radiography of cervical and thoracic segments of esophagus confirmed dilated lumen (Figure 2). As the prognosis was unfavorable, the animal was discharged at owner's request.

Megaesophagus has neuromuscular, inflammatory, infectious and neoplastic origin. Posterior paresis and megaesophagus associated rhabdomyosarcoma on the thoracic wall compressing tenth and eleventh thoracic nerve (Kajiwara *et al*., 2009). Megaesophagus has been reported in sheep, goats, calf and was confirmed by esophagoscopy and contrast esophagography with barium sulphate (Mozaffari and Vosough, 2007). Clinical signs like salivation, regurgitation, recurrent tympany and swelling in the ventral neck are noteworthy indications for esophagoscopy. Esophagoscopy is useful in the diagnosis of diverticula, inflammatory and neoplastic conditions. Esophagoscopy was used for the evaluation of characteristic mucosal erosions in the esophagus associated with Bovine Virus Diarrhea (Franz and Baumgartner, 2002). The clinical findings in this animal like regurgitation, aspiration associated cough and normal vital signs are in agreement with the above reports. Visually appreciable swelling in sheep and Iranian crossbred goats with megaesophagus were reported (Ulutas *et al*., 2006). Such swelling could not be seen in the present case. Only by palpation, the swelling in the left ventral neck was appreciable in the present case. It might be due to thick and less elastic skin of buffaloes.Increased haematocrit value might be due to dehydration associated with regurgitation. On esophagoscopy, mild rhinitis, pharyngitis, frothy

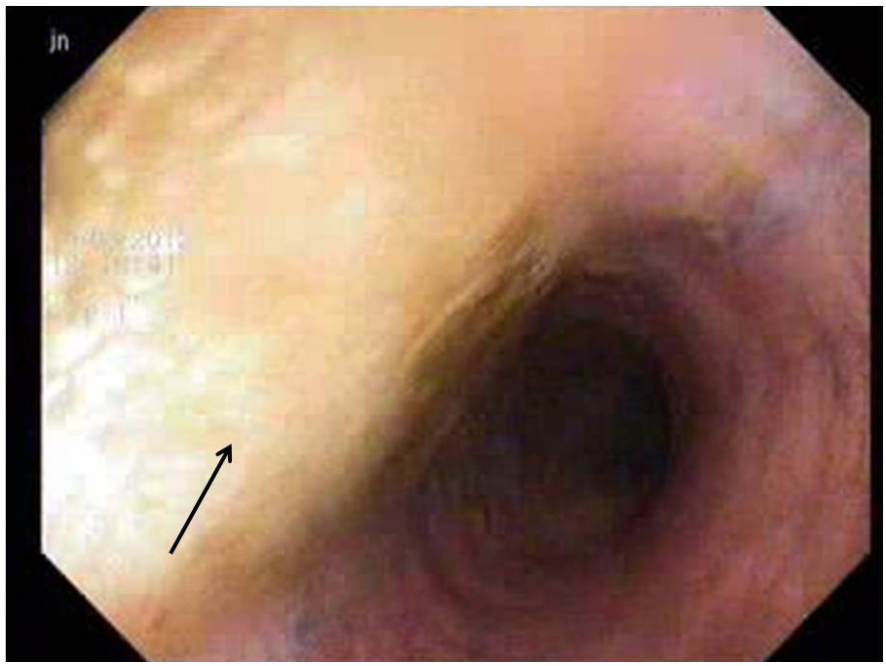

Figure 1. Esophagoscopic image showing severe dilatation and saliva-mixed ingesta (arrow).

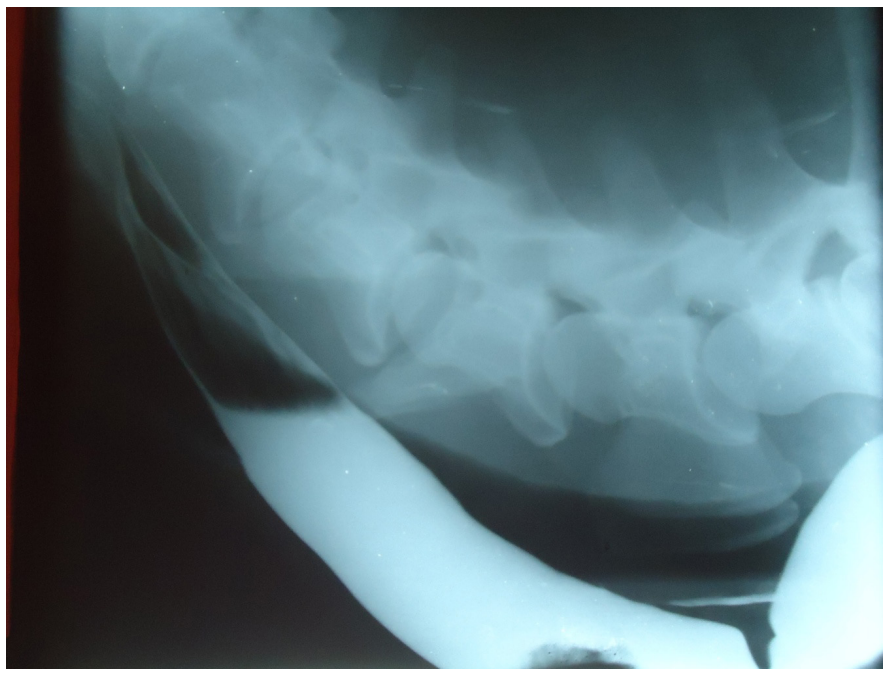

Figure 2. Contrast esophagography showing severely dilated esophagus (lateral view).

mixture of mucus and feed material, dilated lumen without rugae were observed in a Holstein cow with megaesophagus (Kasari, 1984). Further, the author opined that observation on the eating behavior was the initial step for the definitive diagnosis of megaesophagus. In many reports, it was concluded that megaesophagus could be of idiopathic origin (Forbes and Leishman, 1985). Bluetongue virus serotype – 8 infections in cattle was incriminated to be the cause of megaesophagus, esophageal paresis and regurgitation (Pardon *et al*., 2010). It is concluded that megaesophagus is a less frequently reported clinical condition in large ruminants with idiopathic origin. It is clinically manifested as regurgitation and associated aspiration pneumonia with an unfavorable prognosis.

ACKNOWLEDGEMENTS

The authors express their sincere gratitude to the Dean, Veterinary College and Research Institute, Namakkal, and the Director of Clinics, Tamil Nadu Veterinary and Animal Sciences University, Tamil Nadu, India for the facilities provided during the study.

REFERENCES

Braun,U., R. Steiger, M. Flukiger, G. Bearth and F. Guscetti. 1990. Regurgitation due to megaesophagus in a ram. *Can. Vet. J*., **31**: 391-392.

Broekman, L.E.M. and D. Kuiper. 2002. Megaesophagus in the horse. A short review of the literature and 18 own cases. *Vet. Quart*., **24**: 199-202.

Forbes, D.C. and D.E. Leishman. 1985. Megaesophagus in a cat. *Can. Vet. J* ., **26**: 354-356.

Franz, S. and W.A. Baumgartner. 2002. Retrospective study of oesphageal endoscopy in cattle-Oesophagoscopy for the diagnosis of mucosal disease. *Vet. J*., **163**: 205-210.

Kajiwara, A., N. Tani, Y. Kobayashi, H. Furoka, N. Sasaki, M. Ishii and H. Inokuma. 2009. Rhabdomyosarcoma with posterior paresis and megaesophagus in a Holstein heifer. *J. Vet. Med. Sci*., **71**: 827-829.

Kasari, T.R. 1984. Dilatation of the lower cervical esophagus in a cow. *Can. Vet. J*., **25**: 177-179.

Mozaffari, A.A. and D. Vosough. 2007. Idiopathic megaesophagus in a goat: Clinical and Radiological features. *Iran. J. Vet. Surg*., **4**: 94-97.

Pardon, B., V. Vandenberge, S. Maes, K. De Clercq, R. Ducatelle and P. Deprez. 2010. Oesophageal paresis associated with bluetongue virus serotype 8 in cattle. *Vet. Rec*., **167**: 579-580.

Ulutas, B., M. Sarierler, G. Bayramli and K. Ocal. 2006. Macroscopic findings of idiopathic congenital megaoesophagus in a calf. *Vet. Rec*., **158**: 26-27.

Watrous, B.J., E.G. Pearson, B.B. Smith, S.P. Snyder, L.L. Blythe, T.W. Riebold and O.R. Hedstrom. 1995. Megaesophagus in 15 Llamas: A Retrospective Study (1985–1993). *J. Vet. Intern. Med*., **9**: 92-99.