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Megaesophagus in a lactating dog: Case report

Megaesophagus in a nursing dog: Case report

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Summary: Megaesophagus is the term given to generalized esophageal dilation, as well as hypomotility or null motility in relation to peristalsis in this region, which may be acquired, secondary, idiopathic or congenital, resulting in physiological alteration of food transit. A 30-day-old Siberian Husky dog in the lactating phase was treated at a private clinic in Marmelópolis/MG, where changes in the respiratory pattern were observed. An X-ray of the thoracic region was requested, since the suspicion was congenital megaesophagus. The objective of this study is to report the case described and the use of radiographic examination for the diagnosis of megaesophagus in a lactating dog.

Keywords: Megaesophagus. Canine. Diagnosis. Radiographic.

Abstract: Megaesophagus is the term given to generalized esophageal dilation, as well as hypomotility or zero motility with regard to peristalsis in this region, which may be acquired, secondary, idiopathic or congenital, which results in physiological changes in food transit. An animal of the canine species of the Siberian Husk breed, 30 days old and in the infant phase, was seen at a private clinic in Marmelópolis/MG, where changes in the respiratory pattern were found. An x-ray examination of the thoracic region was requested, as the suspected congenital megaesophagus. The objective of the present work is to report the case described and the use of radiographic examination to diagnose megaesophagus in an animal of the canine species in the infancy stage.

Keywords: Megaesophagus. Canine. Diagnosis. Radiographic.

INTRODUCTION

Megaesophagus is the term given to generalized esophageal dilation, as well as hypomotility or null motility in relation to peristalsis of the esophageal region, which may be acquired, secondary, idiopathic or congenital, resulting in physiological alteration of food transit. There are breeds that are predisposed, such as: Foz terrier, Schnauzer, German Shepherd, Sharpei, Golden and Poodle (KOZU, 2015). In cases of congenital megaesophagus, clinical signs manifest soon after weaning when solid foods are introduced (NELSON & COUTO, 2015).Affected animals are usually taken to the veterinarian with clinical signs of regurgitation, associated or not with weight loss, cough, nasal discharge or fever resulting from aspiration pneumonia. This pathology can also cause ptyalism, insufficient growth, muscle weakness, halitosis, bubbling sound when swallowing, tachypnea and in the physical examination in some cases it is possible to notice a protrusion of the esophagus at the entrance of the thorax and pain associated with palpation(SILVA, 2019, LONGSHORE, 2008).

The diagnosis of megaesophagus is made mainly through clinical signs, a detailed history and radiographic examinations (MINUZZO et al, 2021). Radiographic examinations can be the following: radiography, which can be simple or contrasted; esophagography, which is used to observe the dilation of the esophagus together with the displacement of the heart and trachea; endoscopy can also be used to visualize if there is dilation in the esophageal segment; and finally, nuclear scintigraphy, which will measure the rate of transport of food, which is radioactively marked, thus observing it through the esophagus. It is worth mentioning that simple and contrasted radiography are the most commonly used diagnostic methods.

Treatment is based on the underlying cause and aims to prevent the condition from worsening, since there is no cure. In some cases, even knowing the cause, treatment must be carried out for life with nutritional management. It should begin with dietary treatment where the animal should be fed a soft diet, on an elevated platform and in a standing position supported by the hind limbs, helping gravity to pass the food to the stomach, remaining in this position for 10 minutes after feeding.(TANAKA, 2010) In addition to correct positioning, it is recommended to provide food in small portions throughout the day in order to avoid the occurrence of regurgitation.

(TANAKA, 2010).Drug treatment should be based on the use of prokinetics such as metoclopramide with the aim of stimulating esophageal peristalsis by acting on smooth muscle.(TANAKA, 2010).Supportive treatment with fluid therapy with Ringer's lactate is also recommended to correct hydroelectrolytic and acid-base imbalances. Neural therapy with the application of local anesthetics also presents good results as an adjuvant treatment, presenting an improvement in cellular electrical potential, aiming to eliminate interfering fields and allowing the organism to have self-regulation mechanisms again.

The prognosis for megaesophagus can range from poor to poor due to the nature of the condition, its complications and the lack of definitive treatment. Although early diagnosis helps in the treatment and improvement of the animal, life expectancy is low and there is still a risk of death, especially in cases of aspiration pneumonia (MACE, 2012).

CASE REPORT

A 30-day-old Siberian Husky puppy was treated at a private veterinary clinic in Marmelópolis, Minas Gerais. The owner's main complaint was that the animal would regurgitate its milk after ingesting its mother's milk. During the anamnesis, she pointed out that the animal in question was a different size compared to the other animals in the litter, which consisted of seven puppies.

During the physical examination, a change in the respiratory pattern was observed, where it was possible to hear a crackling respiratory sound, suggestive of bronchopneumonia. The other parameters were within the normal range for the species, breed and age. Given the clinical picture, an X-ray of the thoracic region was requested, since the suspicion was congenital megaesophagus.

The animal underwent simple and contrast radiographic examinations, with barium sulfate contrast, according to the dosage suggested in the literature, 5-10 ml/kg. To perform the simple radiographic examination, the animal was positioned to obtain the lateral and ventrodorsal projections, then 2 ml of barium sulfate was given orally in order to compare with the initial examination without the use of contrast. Tests such as blood count and biochemistry were not performed.

Figure 1 – Chest radiograph without contrast
(Personal archive – Ribeiro, M. 2023).

Figure 2 – Chest X-ray with contrast.
(Personal archive – Ribeiro, M. 2023)

In the first radiographic image, without the use of contrast, it was possible to notice pulmonary changes suggestive of bronchopneumonia, where the esophagus could not be evaluated (Figure 1). In the contrasted image, it was possible to observe an increase in

final follow-up of the thoracic esophagus, confirming megaesophagus (Figure 2).

Initially, acetylcysteine was prescribed to improve the patient's respiratory condition, since the diagnosis was megaesophagus associated with bronchoaspiration pneumonia. The owner was advised to perform nutritional management, where the puppy would be breastfed using a syringe, keeping the puppy upright during feeding and for a few minutes afterward. Given the severity of the case and the animal's nutritional status, the puppy died after two days.

RESULTS AND DISCUSSION

The clinical signs presented by the patient are consistent with the descriptions present in the literature, where according to WILLARD (2010), regurgitation is the most frequently reported clinical sign and can be considered a pathognomonic sign of megaesophagus. Regurgitation is often confused with vomiting by owners, so it is crucial to inquire about these episodes. According to GALLAGUER (2012), regurgitation is the passive expulsion of materials from the pharynx or esophagus.

MCGAVIN (2013) highlights that in cases of congenital megaesophagus, clinical signs appear soon after weaning when solid foods are introduced, which differs from the manifestation that occurred in the patient in the present case report, since he presented clinical signs early, while still in infancy, which reinforces the gravity and severity of the case.

Requesting a blood count, biochemistry and urinalysis are only useful in secondary or acquired cases, where they help identify the cause (WASHABU, 2014), as the suspicion was based on congenital megaesophagus, the complementary exam requested was a simple and contrast radiography, which are the elective diagnostic means for the congenital manifestation.(GONÇALVES, 2019; MINUZZO et al, 2021).

Plain radiography was used to observe whether there was presence of air, liquids or food in the esophageal canal and to elucidate the crackling respiratory noise observed in pulmonary auscultation during the physical examination. It was possible to observe changes compatible with bronchopneumonia, possibly resulting from the aspiration of breast milk. For the contrast radiography, barium sulfate was used, which according to NELSON & COUTO (2015) is an excellent choice for this

type of examination and case, since there was no possibility of perforation or injury, as it provides safety and richness in details. In the contrasted image, it was possible to observe the dimensions of the esophagus with a marked degree of dilation, deviating from the standards of the patient's race and age, thus confirming the occurrence of congenital megaesophagus and going against the findings cited in the literature.

Treatment is carried out according to the underlying cause (KOZU, 2015), but in the case of congenital megaesophagus its pathogenesis is not fully elucidated. TORRES (1997) believes that it comes from a sensory failure or defect in the swallowing center and WASHABAU (2004) indicates that it is due to an association with a defect in the vagal innervation of the esophagus. As in congenital cases its cause remains unclear, treatment consists of dietary management, supportive therapy and avoiding bronchoaspiration, or treating it when it already exists, as occurred in the present case.

To treat aspiration bronchopneumonia and relieve respiratory symptoms, acetylcysteine was administered, which acts by breaking disulfide bonds in respiratory tract mucus and is a precursor of gluathionine, an antioxidant against free radicals. The owner was instructed on feeding management as described by TANAKA (2010), where the animal should be fed in an upright position, remaining that way for a few minutes, and in small portions throughout the day. Despite all the care and support, she was warned about the severity of the case and the prognosis.

According to TRINDADE (2007), the earlier the diagnosis, the better the prognosis, but this is for cases in which megaesophagus is acquired or secondary. In congenital cases, it usually ranges from reserved to poor, which can be observed in the outcome of the present case. It is still worth noting that life expectancy for both cases is low, being approximately one year of life (MACE, 2012).

Recurrent regurgitation led the patient to a state of malnutrition, and consequent bronchoaspiration as described by NELSON & COUTO (2015), bronchoaspiration which led to his death from aspiration pneumonia.

CONCLUSION

It is concluded that regurgitation is the main clinical sign of megaesophagus,

It is important to know how to differentiate regurgitation from vomiting. The simplest, most common and usual means of diagnosis is plain and contrast radiography. Since the pathophysiology of congenital megaesophagus is not fully understood, treatment is carried out with dietary management and supportive therapy. It is also important to clarify the severity and prognosis to the owner, which varies from reserved to poor in most cases. Performing a complete anamnesis, a thorough physical examination, in addition to requesting a radiographic examination and its proper interpretation, allowed an assertive diagnosis and conducting the case in a specific manner, based on literary evidence.

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