Clinical, radiographic and pathological analyses of megaesophagus in sheep: Case report

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ABSTRACT

The present report describes the case of a male adult Dorper sheep with abdominal distention. The animal had already presented several episodes of bloat. Ruminocentesis was performed and there was a lot of gas output. An attempt was made to pass an orogastric tube up to the rumen in order to remove the content, but there was no progression. Contrast radiograph revealed esophageal dilation, accumulation of contrast in the esophageal lumen and ventral displacement of the trachea, suggesting megaesophagus. The patient still had signs of pneumonia resulting from aspiration of regurgitated content. The animal was submitted to euthanasia and in necropsy, there was enlargement of esophageal diameter and food content inside. Microscopic examination showed edema at lamina propria and submucosa of the esophagus. Megaesophagus diagnosis was based on clinical signs associated with findings from contrast radiograph and post-mortem exam.

Keywords: Bloat. Larynx. Regurgitation. Ruminant.

Análise clínica, radiológica e patológica de megaesôfago em ovino: caso clínico

RESUMO

O presente relato descreve o caso de um ovino adulto Dorper com distensão abdominal. O animal já havia apresentado vários episódios de timpanismo. Inicialmente realizou-se rumenocentese devido à intensa produção de gás e, então, tentou-se passar uma sonda orogástrica para remover o conteúdo ruminal, mas não houve progressão. A radiografia contrastada revelou dilatação esofágica, acúmulo de contraste na luz do esôfago e deslocamento ventral da traqueia, sugerindo megaesôfago. O paciente ainda apresentava pneumonia resultante da aspiração de conteúdo regurgitado. O animal foi submetido à eutanásia e necropsia com observação de aumento do diâmetro esofágico e acúmulo de conteúdo alimentar na luz. O exame microscópico mostrou edema na lâmina própria

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e submucosa do esôfago. O diagnóstico de megaesôfago foi baseado nas manifestações clínicas associadas aos resultados da radiografia contrastada e exame *post mortem*.
Palavras-chave: Timpanismo. Laringe. Regurgitação. Ruminante.

INTRODUCTION

The esophagus is a musculomembranous and tubular organ, beginning dorsally to the larynx, following under the trachea. At the point the esophagus reaches the thorax cavity, it goes through the mediastinum towards the right of the aorta. The esophagus enters the abdominal cavity through esophageal hiatus and reaches the stomach. Esophageal motility disorders are generally associated with hypomotility, which leads to food and fluid accumulation inside this organ. This retention results in enlargement of the esophagus, known as megaesophagus (FEITOSA, 2004).

Megaesophagus is characterized by muscular atonia of esophagus with sagging and luminal dilatation, resulting in esophageal dysfunction, and generally leading to regurgitation (SCHILD, 2001). Any failure to control esophageal motility may cause megaesophagus (FEITOSA, 2004) but its etiology has not been well defined yet (SCHILD, 2001).

Among clinical signs are regurgitation, swelling in the cervical region, dysphagia, nasal reflux, aspiration pneumonia, anorexia, restlessness, coughing and drooling (SILVA JUNIOR et al., 2011). In ruminants, chronic bloat is reported (SCHILD, 2001; FEITOSA, 2004). Diseases of the esophagus can be diagnosed by clinical signs, contrast radiograph, and endoscopy. Treatment aims to eliminate the primary cause and establish the normal function of the esophagus, however, the clinical evolution can be prolonged, with complications which could culminate in the patient's death (SILVA et al., 2011). In ruminants, megaesophagus had already been reported in adult cattle (VERSCHOOTEN; OYAERT, 1977; ANDERSON et al., 1984), calves (VESTWEBER et al., 1985; ULUTAS et al., 2006), steer (JALILZADEH-AMIN; HASHEMIASL, 2015), goats (MOZAFFARI; VOSOUGH, 2007; SILVA et al., 2011), but, until now, there is just one case in ram (BRAUN et al., 1990). Hence, the aim of this paper is to describe a case of megaesophagus in an adult sheep.

CASE REPORT

An adult Dorper sheep, male, 55 Kg and about three years old was seen due to abdominal distention after overload intake of grains. On the farm, the animal had already received silicone solution at 30% in methylcellulose, but no improvement was observed. According to the owner, this sheep had already had many previous episodes of abdominal distention during his life.

Physical exam revealed apathy, congestion in oral and eye mucosa, tachycardia, dyspnea, cough, bilateral nasal discharge, abdominal distention in the left dorsal region, regurgitation, the absence of ruminal motility and of eructation.

Due to the large increase in abdominal volume, ruminocentesis was held and there was a large volume of gas output. Flunixin meglumine (1.1 mg/kg, IM, SID, 3 days), ceftiofur (4.5 mg/kg, IM, SID, 10 days) and bromhexine hydrochloride (0.2 mg/kg, IM, SID, 7 days) were prescribed.

Until the fifth day of hospitalization, nasal discharge, hypomotility, congestion in mucosas, hyporexia, reduction on defecation, regurgitation, and absence of eructation could be observed. During these five days, ten ruminocentesis were performed. Intravenous fluid therapy with lactate ringer was done when the patient was dehydrated and dipyrone (50mg/kg, IM) was done to treat fever episodes.

An orogastric tube was employed in order to avoid a new abdominal distension, but there was no progression. Then rumenotomy followed by transfaunation was done. After surgery, benzathine penicillin base (40000 UI/kg, IM, QOD, four times) was prescribed.

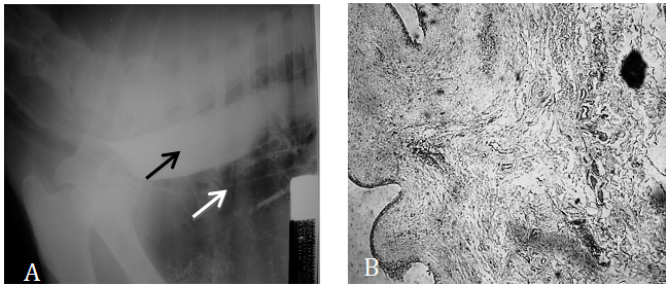
Without significant improvement, the animal was submitted to the radiographic examination of the esophagus. A simple radiograph revealed radiopacity in the tracheal region and broncho-alveolar pattern in lungs. In contrast radiograph with barium sulfate, there was esophageal enlargement with contrast accumulation in the lumen of the organ, ventral displacement of trachea without narrow areas until cardia (Figure 1A), and such changes are consistent with megaesophagus diagnosis.

In the face of the critical situation and lack of improvement, the animal ended up being euthanized. Necropsy revealed lung congestion, bilateral adherences between pleura and thorax cavity. The ventral portion of the lung lobes, particularly the diaphragmatic, was congested with darker areas on the cut surface. The ventral portion of the trachea was hyperemic. The esophagus was flabby, and the larger diameter segment measured approximately 6.5 cm, containing food inside.

The main histopathological findings were restricted to the lungs and esophagus. In the lung parenchyma, there was multifocal inflammatory infiltrate composed of mononuclear cells, mainly macrophages, lymphocytes, plasma cells and giant cells; there were foci of necrosis with dystrophic calcification and presence of inflammatory infiltrate of polymorphonuclear cells, mainly neutrophils. The bronchi exhibited hyperplasia of lymphoid aggregates and there was intense mononuclear cell infiltration in the submucosa. These findings are consistent with aspiration pneumonia. The pleura was thickened and there were areas with necrosis coagulation and bleeding. The esophagus had edema in the lamina propria and submucosa and presented focal perivascular infiltration (Figure 1B).

The diagnosis of megaesophagus was based on clinical signs and contrasted radiographic examination and was later confirmed by necropsy and histopathological findings.

FIGURE 1 – Megaesophagus in an adult sheep. A – The contrasted radiograph exhibits esophageal dilation with contrast accumulation in the lumen (white arrow) and ventral displacement of the trachea (black arrow). B – The histopathological exam of esophagus presenting edema in submucosal and lamina propria, and focal perivascular infiltrate (hematoxylin-eosin, 40X).



Source: The author.

DISCUSSION

Clinical signs were in accordance with other authors (BRAUN et al., 1990) who described regurgitation, dysphagia, nasal reflux and aspiration pneumonia. Regurgitation used to be seen after intake, similar to what was observed in goat megaesophagus (SILVA JUNIOR et al., 2011). Changes in radiographic examination corroborate previous study (BRAUN et al., 1990) that also described the presence of esophageal dilatation and ventral displacement of the trachea in an animal with the same condition.

One of the complications presented by the patient was pneumonia due to aspiration of regurgitated content. Dyspnea, cough, bilateral nasal discharge and fever in cattle with megaesophagus had already been related. Aspiration pneumonia renders the prognosis difficult and is the leading cause of death in animals with megaesophagus (NELSON; COUTO, 2006).

The macroscopic changes observed in this case resemble those seen in megaesophagus of bovine (PARDON et al., 2010). The sagging of the esophagus observed in this case was also cited in one of the few reports of megaesophagus in sheep (BRAUN et al., 1990).

One should note that the presence of food content in the esophageal lumen explains the difficulty in the progression of the orogastric tube, and the chronic bloat presented by the animal.

CONCLUSIONS

Thus, clinical signs, findings in radiographic contrast of the esophagus, and the macroscopic as well as histopathologic findings, all show that this sheep was carrying megaesophagus. Since there are few reports of this disease in sheep, this case report may contribute to the literature.

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ETHICS COMMITTEE FOR ANIMAL EXPERIMENTATION

This case report was approved by the Ethics Committee in the Animal Use of UFPR/ SPA (protocol n. 25/2015).

CONFLICT OF INTEREST

None.

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