

Aortic arch persistence in Great Dane Puppy

Marcelline Santos Luz^{1,2}, Priscila Tucunduva²; Raphael Rempto Pereira³,
Marina Mattos Filgueiras³; Lais Helena Pinho Muniz³;
Denise de Mello Bobany²

¹ *DIAGNOSIS –Veterinary Diagnostic Center- Teresópolis - RJ;*

² *Professor - Veterinary Medicine- Centro Universitario Serra dos Orgãos - UNIFESO - Teresopolis, RJ Brazil*

³ *Veterinary practitioner*

Abstract: *The aortic arch persistence is one of the most commons vascular malformation in dogs, in particular on the lagers breeds. This problem avoids the solid food to go normally through the esophagus manifesting, clinically, through regurgitations and delay in the growing observed after the weaning. The objective of this report was to highlight the importance of the premature radiographic diagnostic in the aortic arch persistence for the patience survival.*

Keywords: *dog, malformation, thoracic radiography*

I. Introduction

The aortic arch persistence is a malformation of fetal vascular estruction that remain after the birth causing constriction with signs of esophagus obstruction, being one of the most commons malformation in dogs, particularly on the lagers races [1]. Approximately 95% of the cases are in the right aortic arch anomaly [1-3].

This anomaly is more common in breeds like German Shepherd, Setter and Boston Terrier [2,4] and causes food buildup in esophagus which results, clinically, in intermittent regurgitation and delay in the growing observed after the weaning [2,3,5]. Although in the clinical examination a prominent enlarged esophagus in some parts may be palpate, the thoracic radiography usually indicates the problem [2,3,6].

The thoracic radiography reveal dilated esophagus and the trachea may be displaced and the esophagus may be superimposed on it. The contrasted radiographs with barium sulphate demonstrate esophageal constriction on the heart base [2,5,7]. It is necessary a careful analysis of the radiograph since the radiographic signs of esophageal stricture are similar [7]. The computed tomography, the echocardiogram and the endoscopy may exclude another diagnostics [2].

The treatment can be medicative which is only palliative and surgical, being that the surgery must happened as soon as the clinical signs are manifested [2,3]. The objective of this report was to highlight the importance of the premature radiographic diagnostic in the aortic arch persistence for the patience survival.

II. Case Report And Discussion

A great Dane cub, one of the most predisposing race, two months old, was taken to a fisician due to the fact, although it nurse well, wasn't developing right being the smallest of the brood and, during the transition to solid feed, started to present regurgitation [6]. This fact made the veterinary r suspect of esophageal problems, and, because of that, have been requested simple radiographs in recumbent projection and dorsoventral projection of the cervical and thoracic esophagus that showed offset to right hemitorax of trachea in cervicothoracic portion and increased pulmonar opacity (image 1) [8].

To deepen the research, it was administered, oral pathway, barium sulphate [8] in dosage of 4 ml per kilo and, immediately, made a new radiograph that revel a severe esophageal distension in cervicothoracic portion to the heart base (image 2). The animal was, then, positioned on the vertical and radiograph again after 20 minutes [8].

Image 1 - trachea in cervicothoracic portion with offset to right hemitorax and increased of pulmonar opacity suggestive of aspirative pneumonia



Image 2 - Barium sulfate contrast passage, in cervical and thoracic esophagus evidencing severe anterior dilation of the cardiac base



In this radiograph it was observed there was still accumulation of contrast on the esophagus and small contrast volume passage to the stomach suggesting partial obstruction on the esophagus suggesting aortic arch persistence (image 3).

Image 3 - After 20 minutes of contrast management (15ml), there was a discreet volume pass through the cardia



According to the report, the heart silhouette was obliterated, the pulmonary fields diverted dorsally, with radiodensity discreetly increased (mixed pattern) and presence of pleural effusion. The animal was guided to the surgery where it was found the presence of the malformation, due to the fact that the animal get into suffering most likely as a result of the state of cachexia in which the animal was and the presence of the aspiration pneumonia developed in the weaning period [9], the animal came to death.

The death in the preoperative period presents itself as a significant risk especially in animals with severe degree of esophagus dilation an indicator of a bad prognosis, according with Lourenço [10].

III. Conclusions

Because there is a considerable risk of death in the preoperative period, concludes that the contrasted radiographic exam is fundamental for the early diagnosis in the aortic arch persistence.

References

- [1] J.W. Buchanan, Patent ductus arteriosus morphology, pathogenesis, types and treatment. *Journal of Veterinary Cardiology*, 3(1), 2001, p. 7-16.
- [2] T. Fossum, *Cirurgia de Pequenos Animais*, 4 (Rio de Janeiro: Elsevier Brasil, 2015).
- [3] R. Nelson, G. Couto, *Medicina Interna de Pequenos Animais* 5 (Rio de Janeiro: Elsevier Brasil, 2015).
- [4] A.R.P. França, *Análise comparativa da ligadura cirúrgica e da oclusão transarterial do ducto arterioso persistente em cães - estudo retrospectivo em 21 animais* masters diss., Universidade de Trás-os-Montes e Alto Douro Vila Real, PT, 2016.
- [5] R. Moraillon, Y. Legeay, D. Boussarie, O. Sénécat, *Manual Elsevier de Medicina Veterinária*, 7 (Rio de Janeiro: Elsevier Brasil, 2013).
- [6] S.E. Johnson, R.G. Sherding, Esofagopatias e Distúrbios de Engolição, in S.J. Birchard (Ed), *Clinica de pequenos Animais*, 2 (São Paulo: Roca, 2003) 791- 809.
- [7] D. Thrall, *Diagnóstico de Radiologia Veterinária*, 6 (Rio de Janeiro: Elsevier Brasil, 2014).
- [8] J. K. Kealy, H. Mcallister, J.P. Graham, *Radiologia e ultrassonografia do cão e do gato* (Rio de Janeiro: Elsevier Brasil, 2005).
- [9] S. Santalucia, C.R. Braseiro, J.L.C. Castro, L.F.D. Correa, Ducto arterioso persistente em um cão – relato de caso, *Revista da FZVA*, 19(1), 2013, 105-109.
- [10] S.I.P. Lourenço, *Persistência do quarto arco aórtico direito em cães: estudo retrospectivo da correção cirúrgica de 11 casos clínicos*, másters diss., Lisboa, Universidade de Lisboa, PT, 2016.

Marcelline Santos Luz. "Aortic arch persistence in Great Dane Puppy." *IOSR Journal of Agriculture and Veterinary Science (IOSR-JAVS)*, vol. 10, no. 9, 2017, pp. 22–24.