Available online at www.scholarsresearchlibrary.com

Scholars Research Library

Scholars Research Library

Annals of Biological Research, 2012, 3 (9):4528-4530
(http://scholarsresearchlibrary.com/archive.html)

Annals of Biological Research
Scholars Research Library
ISSN 0976-1233
CODEN (USA): ABRNBW

Anatomical variation of the left suclavian artery in a Calf

Mohammad reza Paryani[*†], Hassan Gilanpour[**], Somaye Hamedi[*], Seyed mehdi Rajaei[***], Reza Sadjadi[***]

**Department of Basic Sciences, Faculty of veterinary medicine, Karaj branch, Islamic Azad University, Karaj, Iran.*
***Department of Basic Sciences, Faculty of Specialized veterinary sciences, Science & Research branch, Islamic Azad University, Tehran, Iran.*
****Department of Clinical Sciences, Faculty of Specialized veterinary sciences, Science & Research branch, Islamic Azad University, Tehran, Iran.*

ABSTRACT

In ruminants, brachiocephalic trunk forms a common trunk with the left subclavian artery. This report describes a variation in the origin of left subclavian artery in an embalmed calf. In this case, the origin of the left subclavian artery was different as it was originated separately from the convexity of the aortic arch after separation of brachiocephalic trunk. This branching pattern is similar to carnivores and it seems that the existence of left subclavian branching from the aortic arch in calf should be considered as a rare condition.

Key words: Calf, Left subclavian artery, Variation

INTRODUCTION

The arcus aortae gives rise to arteries which supply the head, the neck, the forelimb and the cranial region of the thorax as well as some of the thoracic organs. These arteries are the right and left a. subclavia and the right and left a. carotis communis. These arteries are united into the truncus brachiocephalicus except in carnivores and pigs in which the left subclavian artery is not included in the brachiocephalic trunk but arises directly from the aorta. In ruminants and horses the left subclavian artery originates from the brachiocephalic trunk before the right subclavian artery [1].

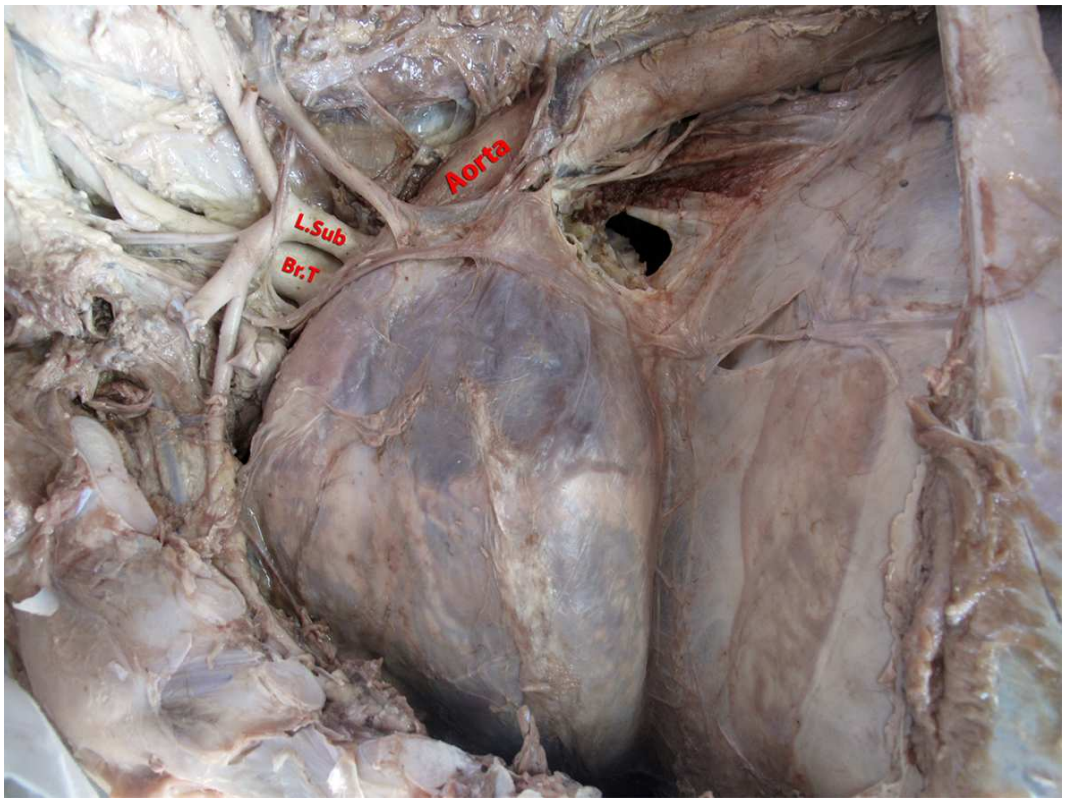
The incidence of these malformations is higher in cattle as compared to other domestic species [2].

Case History: This report describes a variation in the origin of the left subclavian artery in an embalmed calf. She was embalmed for anatomy class. In dissection of the thoracic cavity and the subsequent dissection of the aorta and its branches this variation was observed and recorded.

RESULTS AND DISCUSSION

The ascending aorta ran almost straight cranially at first and then turns caudally, forming a very sharp, curved aortic arch. In this calf the origin of the left subclavian artery was different as it arouse separately from the convexity of the aortic arch after separation of brachiocephalic trunk. This branching pattern is similar to carnivores and it seems that the existence of left subclavian branching from the aortic arch in calf should be considered as a rare condition (Figure 1).

Figure 1 - Heart of calf, Auricular (Left) view.
L.Sub = Left Subclavian artery, Br.T = Brachiocephalic Trunk



Veterinary textbooks routinely define three patterns of arterial branching along the arch of the aorta in the dog, pig, and cow [3]. Santos et al [2] reported that in the left heart of two calves with cervico pectoral ectopia, a brachiocephalic trunk originates from bicarotid trunk, where it initiates the both common carotid arteries (left and right) and the left subclavian artery [2].

Culau et al [4] reported ectopic origin of the right subclavian artery and the bicarotid trunk in eight dogs. All cases presented three large arteries that left the aortic arch. The first one to arise was a trunk for common carotid arteries, then a left subclavian artery and finally a right subclavian artery. The bicarotid trunk originated from the aortic arch at the left side of the trachea [4].

Özturk et al [5] reported that the brachiocephalic trunk and the left subclavian artery originated from aortic arch in rabbits. Whereas the innominate artery, the left common carotid arteries and the left subclavian artery originated from the aortic arch in rats. The brachiocephalic trunk in rabbits were observed to give rise to the common root of the left common carotid artery and the right subclavian artery with the right common carotid artery. However, the right common carotid and right subclavian arteries in rats were originated from the brachiocephalic trunk [5].

Balogh et al [6] observed the multiple cardiac anomalies in sheep. They found developmental abnormalities in the distal portion of the bulbus, aortic arches and the interatrial septum as well as coarctation of the aorta and absence of ductus arteriosus [6].

Hiraga et al [7] reported that the arterial branching pattern from the aortic arch in two Holstein calves that was intermediate between the patterns of the dog and pig [7].

CONCLUSION

To obtain more precise description of this variation, more macroscopic and embryologic data is needed.

REFERENCES

[1] H. Wilkens, W. Munster, In*:* R. Nickel, A. Schurnrner, E. Seiferle (Ed.), Lehrbuch der Anatomic der Haustiere, (Paul Parey, Berlin, **1976**) 76- 190.
[2] A.S. Santos, P.P.F Albuquerque, O.L.S Neto, M.B. Silvia, R.M.B Santos, *Braz. J. Morphol. Sci*.,**2008**,25,1-34
[3] R. Getty, Sisson and Grossman's Anatomy of the Domestic Animals, WB Saunders, Philadelphia, **1975**, 5, pp. 565-566, 962-963, 1309-1310, 1598-1599. WB Saunders, Philadelphia , PA,
[4] P. Culau, J. Oliveria, S. Reckziegel, T. Lindermann, *Cienc. Rura.*, **2004**,34,1615-1618.
[5] C. Özturk, Z. Özudogru, H. Yesilyurt, *Euroasian. J. medic*. **2003**,35,49-52.
[6] E. Balogh, and P. Sontony, *Acta Vet Hung* **2003**, 51, 15-27.
[7] T. Hiraga, M. Abe, K. Iwasa, K. Takehana, A. Tanigaki, *VetPathol.*,**1993**,30,529.