Re: Variations in the origin of the vertebral artery and its level of entry into the transverse foramen diagnosed by CT angiography

Dan Meila · Marcin Tysiac · Friedhelm Brassel

Received: 12 February 2013 / Accepted: 22 February 2013 / Published online: 8 May 2013
© Springer-Verlag Berlin Heidelberg 2013

Dear Sir,

We read with interest and pleasure the recently published article: “Variations in the origin of the vertebral artery and its level of entry into the transverse foramen diagnosed by CT angiography” by Uchino et al. [1]. Unfortunately, the authors forgot to mention or ignored our previously published work: “Origin and course of the extracranial vertebral artery: CTA findings and embryologic considerations” [2]. This paper deals exactly with the variations of the origin and course of the extracranial vertebral artery as described by Uchino and colleagues and demonstrates clearly the relationship to the level of entrance into the transverse foramen. We were able to demonstrate that the level of entrance into the transverse foramen indicates which metameric artery or arteries in case of duplication persist. Additionally, we illustrated the variations in modified schematic figures and a matrix for the vertebro-basilar system adapted from Lasjaunias et al. [3]. Uchino et al. found that 0.2 % of left vertebral arteries arose from the aortic arch distal to the left subclavian artery and entered the seventh transverse foramen. They state that their study is the first to report its prevalence. However, we previously showed in our large CTA study the frequency of this

variation to be 0.56 %, which is quite similar. Furthermore, the authors deal with the duplicated origin of the vertebral arteries. They stated that all patients in literature (including other works but not ours) demonstrate left vertebral arteries of normal origin and of aortic arch origin that fuse together. They believe that the duplicate origin of the left vertebral artery forms if both the seventh and sixth segmental arteries persist. This is a generalization that does not fit always. We showed one case with bilateral duplication of the vertebral arteries. On the left side, both vertebral arteries originated from the aortic arch with the distal segment entering the transverse foramen at the level of C5, corresponding to the sixth metameric or segmental artery and the proximal segment entering at the level of C4, corresponding to the fifth segmental artery, respectively. In our opinion, variations of the vertebral artery system can occur nearly at any level. The basic principles of metameric distribution should be mastered to understand and recognize these variations.

Conflict of interest We declare that we have no conflict of interest.

References

1. Uchino A, Saito N, Takahashi M, Okada Y, Kozawa E, Nishi N, Mizukoshi W, Nakajima R, Watanabe Y (2013) Variations in the origin of the vertebral artery and its level of entry into the transverse foramen diagnosed by CT angiography. *Neuroradiology* (in press)
2. Meila D, Tysiac M, Petersen M, Theisen O, Wetter A, Mangold A, Schlunz-Hendann M, Papke K, Brassel F, Berenstein A (2012) Origin and course of the extracranial vertebral artery—CTA findings, association with vascular lesions and embryologic considerations. *Clin Neuroradiol* 22(4):327–333, Epub 2012 Sep 1
3. Lasjaunias P, Berenstein A, Ter Brugge KG (2001) Surgical neuroangiography: clinical vascular anatomy and variations, 2nd edn. Springer, Berlin

An author's reply to this comment is available at DOI 10.1007/s00234-013-1168-3

D. Meila (✉) · M. Tysiac · F. Brassel
Department of Radiology and Neuroradiology,
Klinikum Duisburg—Sana Kliniken, Zu den Rehwiesen 9,
47055 Duisburg, Germany
e-mail: dmeila@yahoo.de

D. Meila
Department of Diagnostic and Interventional Neuroradiology,
Medical School Hannover, Carl-Neuberg-Str. 1,
30625 Hannover, Germany