A Rare Anomaly of Vertebral Artery – a case report

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Abstract: During routine undergraduate dissection we have found a rare origin of left vertebral artery that is arising from superior aspect of arch of aorta in between left common carotid artery and left subclavian artery. Right vertebral artery having a normal origin from 1st part of subclavian artery. This topic is very helpful to various speciality persons like neurosurgeons, vascular surgeons, ent surgeons.

Key words: Arch of aorta, Left common carotid artery, Left subclavian artery, Left vertebral artery, Right vertebral artery.

I. Introduction

Normally vertebral artery is a branch of subclavian artery arising from its 1st part. Both right & left vertebral arteries coursing upwards and laterally to enter into the foramina transversarium of 6th cervical vertebra.

Case report:

In routine dissection of 35 cadavers (in Andhra Pradesh region) in our department we have observed that in one case, left vertebral artery is arising directly from superior aspect of arch of aorta in between left common carotid artery and left subclavian artery, the right vertebral artery having a normal origin. Transverse diameter & thickness of walls of cervical part of left vertebral artery are more compared with that of right vertebral artery. Narrowing of initial segment of thyro-cervical trunk is observed on left side. These two vertebral arteries are not giving any branches in neck.

Observation

<table>
<thead>
<tr>
<th>S.no</th>
<th>feature</th>
<th>right side</th>
<th>left side</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Site of origin of vertebral artery artery</td>
<td>from 1st part of subclavian</td>
<td>from arch of aorta</td>
</tr>
<tr>
<td>2</td>
<td>Transverse diameter at origin</td>
<td>0.7 cm</td>
<td>0.8 cm</td>
</tr>
<tr>
<td>3</td>
<td>Thickness of walls of cervical part of vertebral artery</td>
<td>comparatively thin</td>
<td>thick</td>
</tr>
<tr>
<td>4</td>
<td>Other Branches of Subclavian arterysegment of thyro-Cervical trunk</td>
<td>no such change</td>
<td>narrowing of initial narrowing</td>
</tr>
<tr>
<td>5</td>
<td>Branches of Vertebral artery</td>
<td>nil</td>
<td>nil</td>
</tr>
</tbody>
</table>
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Figure 1: anomalous origin of left vertebral artery.

A – Anomalous origin of left vertebral artery (LVA) from arch of aorta. AOA – arch of aorta, LCCA – left common carotid artery, LSCA – left subclavian artery, BCT – brachiocephalic trunk, RCCA – right common carotid artery, RVA – right vertebral artery, RVA – right vertebral artery.

B – Site of entry of left vertebral artery into foramina transversarium of 6th cervical vertebra (C6).

C – Narrowing of initial segment of thyrocervical trunk (TCT), ITA – inferior thyroid artery, SSA – suprascapular artery, TCA – transverse cervical artery.

Embryologically

a) The vertebral artery is formed by persistence of dorsal communication between 6th & 7th Intersegmental artery.

b) Sixth intersegmental artery connection with dorsal aorta gradually regresses.

c) The Arch of Aorta is formed by differential growth of embryo & merging of the 4th Aortic arch with left dorsal aorta till 7th intersegmental artery.

d) Therefore VA appears as a branch arising from 1st part of Subclavian artery in adults.

In the present case, the left VA is arising from arch of Aorta. This anomalous origin must be due to slightly excess merging of dorsal aorta & 7th Intersegmental artery while forming Arch of Aorta. The Vertebral artery coursed the 6th Foramen transversarium.

MC Donald JJ & Anson BJ have reported that such anomalous origin of left VA in 3% – 4% of cases of American whites & Negroes.

To conclude this anomaly is rare & that life is possible as long as the lumen is normal.

Any anomalous origin, course or termination & distribution of Carotids arteries & vertebral arteries can be clearly observed by MRI Technique to start any surgical procedures.

Acknowledgment

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References


