Aberrant internal carotid artery

Aberrant internal carotid artery is a variant of the internal carotid artery (ICA) and represents a collateral pathway resulting from involution of the normal cervical portion (first embryonic segment) of the ICA [1].

There is consequent enlargement of the usually small collaterals which course through the middle ear. The result of this enlargement is an artery that passes lateral to the cochlear promontory and appears during otoscopic examination as a retrotympanic vascular mass. If mistaken for a paraganglioma and biopsied, the results can be disastrous.

The two vessels that enlarge to form the aberrant ICA are:

Inferior tympanic artery.

Caroticotympanic artery: a branch of the petrous portion of the ICA known as the hyoid artery when enlarged

The two vessels enlarge, sometimes with a stenosis producing objective tinnitus, and rejoin the horizontal segment of the petrous portion of the ICA.

Radiographic features

CT

Findings of aberrant ICA on CT include:

Absent or hypoplastic vertical segment of the carotid canal enlarged inferior tympanic canal within the caroticojugular spine with reduced calibre aberrant ICA traversing through it.

Angiography

Characteristic findings of aberrant ICA on angiography include:

Enlarged tympanic branch of ascending pharyngeal artery.

More lateral and posterior route of petrous part of ICA than usual

Lateral extension of the ICA well (pinched contour of the vessel) beyond the vestibular line of Lapayowker

Differential diagnosis

Aneurysm of the petrous segment of the ICA

Glomus tympanicum

Glomus jugulare

Dehiscent jugular bulb

Identification of this rare aberrant prevertebral course of ICAs in a patient with a CVJ anomaly is critical because it precludes TOO as a treatment option. Correction of BI and AAD is possible even with a unilateral C1-C2 joint spacer when placement of a joint spacer on the other side is not technically feasible [2].

Doppler sonography accurately identifies occlusion of the internal carotid artery(ICA)and current surgical guidelines do not list an occluded ICA as an indication for carotid endarterectomy(CEA). We encountered an unusual case, for which we performed CEA. The left ICA was occluded by atherosclerosis, and was reconstituted via an aberrant branch of the occipital artery. A 71-year-old man was referred following brain infarction. Carotid duplex sonography(CDS) demonstrated occlusion of his left ICA, with flow in the distal ICA beyond the occlusion("Sandwich stump sign"). 3D computed tomography angiography and cervical angiography diagnosed ICA occlusion with flow in the distal ICA, and the patient underwent CEA. Careful evaluation is required when apparent occlusion of the ICA is detected to avoid overlooking a flow pattern beyond the occlusion and to determine whether repair is possible [3].

[1]

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[2]

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[3]

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