Vertebral artery dissection

Classification

Traumatic vertebral artery dissection.

Spontaneous dissections tend to be intracranial and commonly occur on the dominant VA. Unlike cervical ICA dissections, which tend not to propagate intracranially through the carotid canal, high cervical VA dissections can readily propagate intracranially through the foramen magnum.

Spontaneous VA dissections have been associated with FMD, migraine, and oral contraceptives. Unrecognized or forgotten trauma or sudden head motion may have occurred in some cases reported as spontaneous. Commonly occurs in young adults (mean age: 48 yrs). With spontaneous dissections, 36% of patients have dissections at other sites, 21% of cases have bilateral VA dissections.

Dissecting aneurysms of the VA (possibly a distinct entity) are also described.

They tend to be fusiform, and may be amenable to clipping, and were associated with vertebral dissections in 5 of 7 cases reported in one series. As of 1984, only ≈ 50 cases of dissecting aneurysms were published.

Vertebral artery dissection (VAD) is a relatively rare but increasingly recognized cause of stroke in patients younger than 45 years. Although the term spontaneous VAD is used to describe cases that do not involve significant blunt or penetrating trauma as a precipitating factor, many patients with so-called spontaneous VAD have a history of trivial or minor injury involving some degree of cervical distortion.

Clinical features

In spontaneous extradural dissections, neck pain is a prominent early finding in most patients and is commonly located over the occiput and posterior cervical region. A generalized severe headache is also common. TIAs or stroke (usually lateral medullary syndrome or cerebellar infarction, especially in patients with occlusion of the third or fourth portion of the VA). None of 5 patients developed new neurologic symptoms after the original stroke in an average of 21 months follow- up.

In 3 of these 5, VA dissection was bilateral.

Dissecting aneurysms may present with altered consciousness, and may cause SAH (seen in 6 of 30 cases of vertebrobasilar complex dissections).20 Rebleeding occurs in 24–30% of those cases presenting with SAH,16 making these lesions treacherous, with very high mortality.

Traumatic extradural dissections or pseudoaneurysms may have a similar presentation, but can also produce massive external hemorrhage or neck hematomas.

see Tapia syndrome

Diagnosis

Vertebral artery dissection (VAD) has been recognized as a cause of headache and stroke. Accurate evaluation of dissection using several modalities such as catheter-based angiography, CT angiography (CTA), and magnetic resonance imaging (MRI) is essential for subsequent management.

SWI was able to accurately detect VAD with stenosis and UIA larger than 7 mm with substantial interobserver agreements [1)].

The aim of this retrospective study is to compare cone-beam computed tomography angiography (CBCT-A) with other image modalities for the evaluation of the detailed structures of VAD. Twenty-five consecutive cases identified as having VAD were included. They underwent catheter-based angiography (2D-digital subtraction angiography [DSA], 3D-DSA, and CBCT-A), CTA, and MRI for the diagnosis of VAD. CBCT-A was performed following conventional angiography. Dissecting lesions were evaluated for the presence of intimal flap/double lumen, wall thickening, and enhancement of outer wall. This study results showed that CBCT-A was the most superior modality to detect intimal flap/double lumen (found in 56% of the cases) due to its high spatial resolution. MRI was superior for the assessment of wall thickening as an intramural hematoma in 76% of the cases. However, wall thickening was detected in 44% of cases using CBCT-A. In 5 cases, enhancement of outer wall was identified only in CBCT-A. In conclusion, CBCT-A provides detailed luminal and wall morphology of VADs. CBCT-A is useful for the accurate diagnosis of VADs [2)].

Treatment

Vertebral artery dissection treatment.

Case series

Vertebral artery dissection case series.

Case reports

Yoshino Y, Takaoka H, Oishi H, Aoki S, Goto H, Takahashi M, Yashima S, Suzuki-Eguchi N, Sasaki H, Kinoshita M, Kitahara H, Kobayashi Y. Spontaneous Coronary Artery Dissection at 3 Years After Vertebral Artery Dissection Without Relationship to Pregnancy. Circ J. 2022 Aug 20. doi:

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1)
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2)
Fukuda K, Higashi T, Okawa M, Matsumoto J, Takano K, Inoue T. Utility of cone-beam computed tomography angiography for the assessment of vertebral artery dissection. J Clin Neurosci. 2017 Nov 24. pii: S0967-5868(17)30746-4. doi: 10.1016/j.jocn.2017.11.010. [Epub ahead of print] PubMed PMID: 29257748.