

Management of Vertebral Artery Syndrome: A Conservative Approach

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Vertebral artery syndrome is considered synonymous with vertebral artery compression syndrome and vertebral-basilar artery insufficiency, and presents with recurrent transient episodes of cerebral symptoms, principal among which are dizziness, nystagmus, with sudden postural collapse without unconsciousness. These symptoms may be precipitated by rotation and hyperextension of the cervical spine which may result in temporary occlusion of the vertebral artery following which there is relative ischemia at the base of the brain. This syndrome commonly presents with a combination of cerebrovascular arteriosclerosis and cervical spondylosis as fundamental clinicopathological components.

To be brief, relative to this arterial anatomy, the vertebral artery ultimately supplies components of the brain via the basilar artery, and also provides for twigs to the cervical nerve roots which anastomose with the anterior and posterior spinal arteries. Since the internal carotids and vertebral arteries are the main tributaries to the basilar artery, occlusive arterial disease would gradually reduce arterial flow to a critical point at which further reduction in vascular caliber, prior to the development of an adequate collateral supply, would result in cerebral ischemia with respective clinical symptoms.

Normally, hyperextension with rotation of the cervical spine results in compression and occlusion of the vertebral artery on the contralateral side at the level of the atlas and axis. Occlusion may occur when vessels are subject to atheromatous disease and compression by osteophytes. If collateral blood flow is insufficient, symptoms develop with transient vertebral artery occlusion following rotation and/or hyperextension of the cervical spine. Symptoms are transient and subside as the arterial compression is released and blood flow is re-established. With degenerative disease of the cervical spine, arterial compression is increased due to encroachment by osteophytic projections at the level of the intervertebral foramina on the contralateral side during rotation/hyperextension movements. C5/6 is the site most often subject to osteophytic compression. With advanced degenerative disease, only a limited degree of motion may be necessary to produce complete vertebral artery compression. If the degenerative pathology develops slowly enough, the effects of vertebral artery stenosis may be offset by the formation of sufficient collateral circulation distal to the obstructive site to maintain adequate basilar arterial flow.

Symptoms may include, but not be limited to: dysarthria; headache; paresis of one or more of the extremities; blurred vision; and the "drop attack." Of course, referral for vertebral arteriography is necessary.

In the early stage, when periods of transient episodes are limited in time to only a few seconds and neurological orientation is not involved with "drop attacks" or paresis, conservative care may be initiated.

A cervical collar, or brace, to avoid cervical spine rotation/hyperextension may be applied. Again, in the early stage, cervical spine traction may be applied and should be a prolonged application with

the appropriate anterior angles for achieving patency of the intervertebral foraminae. The traction should be directed at 90 degrees to the base line, or straight up, to traction C1 (atlas) and C2 (axis), and a 20 to 30 degree anterior angle for the remainder of the cervical segments. This may be applied b.i.d., or t.i.d. for 30 minutes with as much weight as possible without resulting in counter tractional muscle spasm. Unless manipulation results in a significant clinical change in the patient's condition, it should be avoided, and never performed in the advanced degenerative disease or in the presence of pronounced neurological signs and symptoms. Moist heat therapy may be applied prior to administering traction in the form of hydrocollator packs, or silicone gel packs, and with the usual caution to avoid erythema ab igne. Thermal therapy may be applied for no more than 25 minutes per application.

This author recommends concomitant management of the patient with an internist in order to monitor the administration of an anticoagulant to avoid thromboembolic disease, especially in the presence of paretic extremities, or "drop attack" episodes. Dizziness following rotation of the head to one side, or by looking upward, are initial clinical warnings of vertebral artery syndrome.

References

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