



Figure 14-13 (© 2020 American Academy of Ophthalmology)

**5.14.9. Systemic Conditions (IX):
Cerebrovascular Disorders (I):
Vertebrobasilar System Disease**

Transient Visual Loss

- transient neurologic or ophthalmic symptoms in middle-aged/elderly patients suggest a vascular origin
- vertebrobasilar artery territory
- carotid artery territory
- ischemia
- major cause of death in these patients is coronary artery disease
- control risk factors for cardiovascular disease
 - hypertension
 - diabetes mellitus
 - hyperlipidemias
 - cessation of smoking

vertebrobasilar system (posterior circulation)

- vertebral, basilar, and posterior cerebral arteries
- supplies
 - occipital cortex
 - brainstem
 - cerebellum

ocular motor and visual symptoms are prominent

visual symptoms

- almost as frequently as vertigo
- alone or in combination with the other symptoms of vertebrobasilar insufficiency
- sudden bilateral blurring/dimming/graying/whiting out of vision
- seconds to minutes
- repetitive
- ± flickering or flashing stars
- ± photopsia (closely mimicking the scintillating scotomata of migraine)
- migraine can produce similar symptoms, with or without an associated headache
- visual field changes
 - homonymous visual field changes without other neurologic symptoms suggest involvement of the posterior circulation
 - highly congruous homonymous visual field defects without other symptoms are typical of occipital lobe infarcts
 - reading difficulties without an obvious cause

perform visual field and Amsler grid examination ★ look for centrally located congruous homonymous visual field defects

clinical presentation

cortical blindness

- bilateral occipital lobe lesions
- amaurosis
- ★ normally reactive pupils
- unremarkable fundus appearance
- patients may deny their blindness (Anton syndrome)

ocular motor disturbances

- common with vertebrobasilar insufficiency
- diplopia is a frequent complaint
- horizontal or vertical gaze palsies
- internuclear ophthalmoplegia
- skew deviation
- ocular motor cranial nerve palsies
- nystagmus
- ipsilateral, central Horner syndrome
- pontine or medullary infarcts (Wallenberg syndrome)

monophthalmic TIA

- ataxia, imbalance, or staggering
- vertigo + other brainstem symptoms such as deafness or vomiting
- dysarthria and dysphagia
- hemiparesis, hemiplegia, and hemisensory disturbances
- drop attacks (patient suddenly falls to the ground with no warning and no loss of consciousness)

etiology

- atheromatous occlusion
- microembolization
- fluctuations in cardiac output
- hypertensive vascular disease (lacunar infarction)
- arterial dissection
- congenital aplasia or hypoplasia of a vertebral or posterior communicating artery
- mechanical factors
 - cervical spondylosis
 - chiropractic manipulation of the cervical spine
 - reversal of blood flow in the vertebral artery
 - subclavian steal (caused by a proximal occlusion of the subclavian artery)
 - vasospasm
 - polycythemia
 - hypercoagulable states
 - anemia

clinical and laboratory evaluation

- neuroimaging
 - all patients with homonymous visual field defects and other signs of brainstem or cerebellar dysfunction
 - MRA and CTA are the best noninvasive methods
 - ± conventional angiography
 - carotid Doppler imaging (not sufficient for evaluating suspected posterior circulation symptoms)
 - much less likely to find a treatable structural vascular abnormality with posterior circulation ischemia than with carotid system disease
- search for underlying cardiac or systemic disorders
 - hypercholesterolemia
 - hypertension
 - diabetes mellitus
 - postural hypotension
 - ± echocardiography
- treatment
 - antiplatelet therapy or anticoagulants
 - in select patients with either carotid artery or vertebrobasilar stenosis: intravascular stent placement