5.5.2. Patient With Transient Visual Loss (II): Transient Monocular Visual Loss (TMVL) (II): Retinal Emboli

Clinical and laboratory evaluation

- increased rates of morbidity and mortality from
  - stroke
  - myocardial infarction
    - with carotid artery disease, a routine echocardiogram is mandatory
  - aortic aneurysm
- measurement of blood pressure
- cardiac auscultation
- auscultation for carotid bruits
  - best heard at the angle of the jaw
  - indicates turbulent flow within the vessel
  - if flow is undisturbed
    - if carotid occlusion is complete
    - a bruit will be absent
- angiography
  - gold standard for quantifying the degree of carotid stenosis
  - intra-arterial injection of iodinated contrast dye
  - invasive
  - risk of serious complications (such as stroke or death) is <1%
- noninvasive imaging modalities
  - used as screening tests
  - carotid ultrasonography (duplex scanning)
    - sensitive method of detecting ulcerated plaques
    - not accurate at detecting carotid artery dissection
  - magnetic resonance angiography (MRA)
  - computed tomographic arteriography (CTA)
  - MRA and CTA overestimate the degree of carotid stenosis
    - MRA, along with MRI, is extremely useful for detecting carotid artery dissection
    - allow visualization and characterization of the plaque, as well as of surrounding arterial wall
- echocardiography
  - useful for detecting
    - valvular and cardiac wall defects
    - intracardiac tumors
    - large thrombi
- transesophageal echocardiography
  - more sensitive
  - normal-appearing echocardiogram does not exclude the possibility of emboli
- prolonged inpatient cardiac monitoring or ambulatory Holter monitoring
- blood culture testing
  - suspected endocarditis
- if a cardiac or carotid source of embolism formation is not found, other systemic processes may be contributing
  - advanced age
  - hypertension
  - hypotension and syncope
  - ischemic heart disease
  - diabetes mellitus
  - hypercholesterolemia
  - smoking
  - sleep apnea
  - thyroid disease
  - hypercoagulable states
  - collagen vascular diseases
  - vasculitis
  - syphilis

amaurosis fugax ("fleeting blindness")

- due to retinal emboli
- visual loss is typically abrupt, painless, and descends (or ascends) like a curtain
- unilateral
- <1 hour
  - usually resolves in 10–15 minutes
- not associated with other neurologic deficits
- ocular examination is often normal

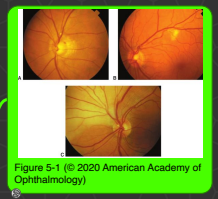

Figure 5-1 (© 2020 American Academy of Ophthalmology)

types of emboli

- cholesterol (Hollenhorst plaque)
- platelet-fibrin
- calcium
- less common types
  - cardiac tumors (myxoma)
  - fat (long-bone fractures, pancreatitis)
  - sepsis
  - talc
  - air
  - silicone
  - depot drugs (corticosteroids)
- See Table 5-2

sources of emboli

- atheromas
  - develop at
    - bifurcation of the common carotid artery into the internal and external carotid arteries
    - carotid siphon
  - remain stationary, become fibrotic, regress, ulcerate, narrow/occlude the lumen, or release emboli
    - lumen must be reduced by 50%–90% before distal flow is affected
  - risk factors
    - hypertension
    - diabetes mellitus
    - hypercholesterolemia
    - smoking
- cardiac emboli
  - causes
    - ventricular aneurysms
    - hypokinetic wall segments
    - endocarditis
      - infectious (associated with subacute bacterial endocarditis)
      - noninfectious (marantic)
    - valvular heart disease
      - mitral valve prolapse
      - atrial myxoma
    - cardiac arrhythmia
      - atrial fibrillation
      - paroxysmal arrhythmias
    - unsuspected patent foramen ovale with right-to-left cardiac shunt

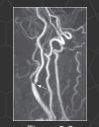

Figure 5-2

Ophthalmology Mind Maps/Arman Mashayekhi, MD