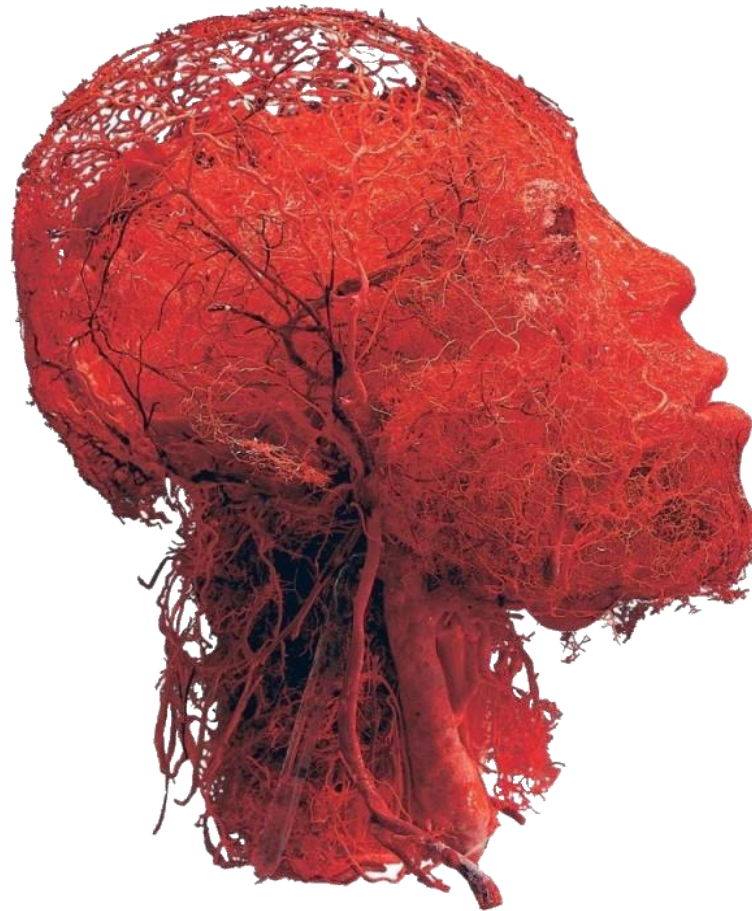


Carotid Artery Disease



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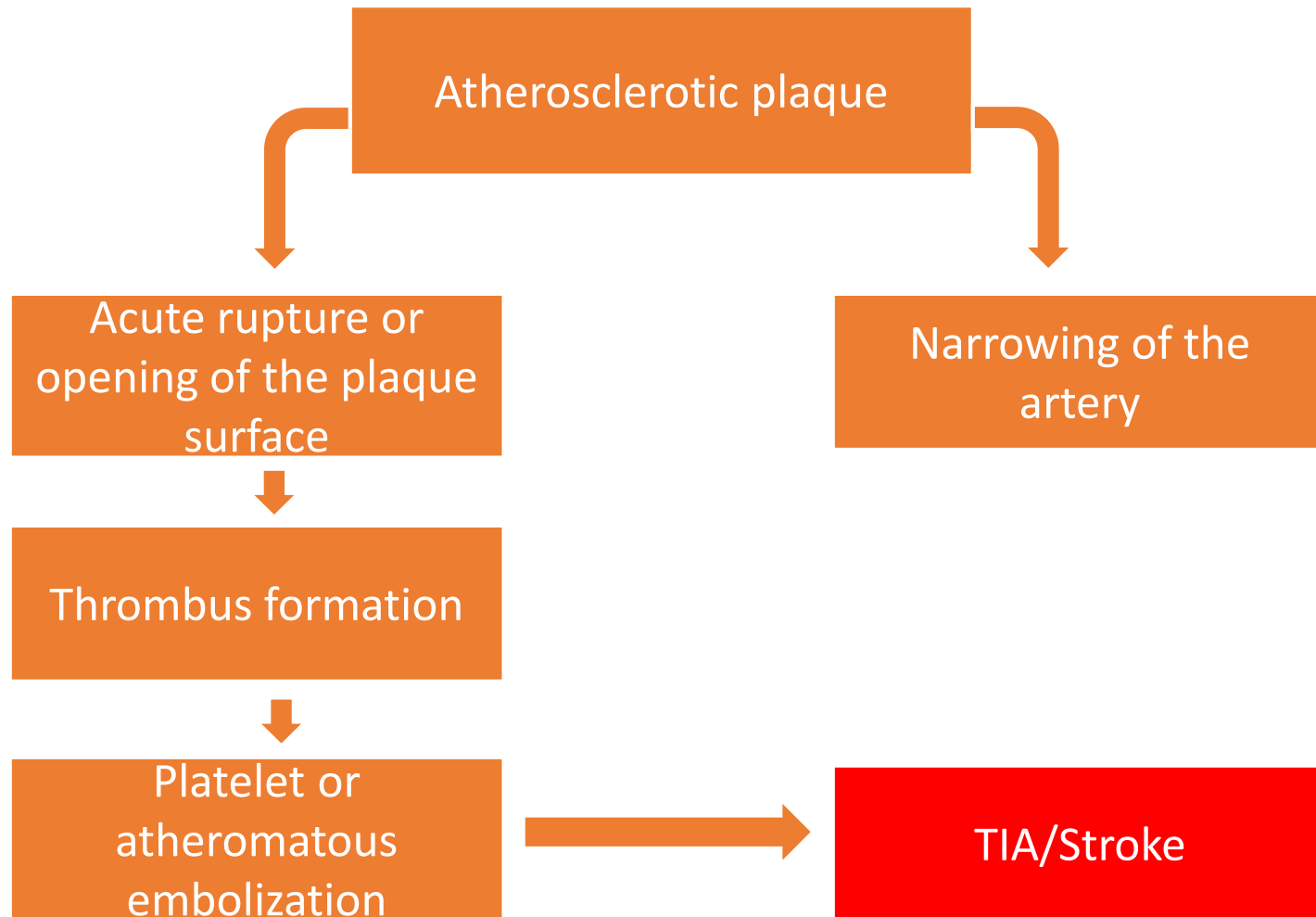
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CEREBROVASCULAR DISEASE

- A cerebrovascular accident (CVA) or 'stroke' is 'a rapidly developing neurological deficit lasting >24h'.
- A transient ischaemic attack (TIA) is 'an acute episode of focal (cerebral or visual) neurological deficit which resolves within 24h'.
- Incidence,
 - stroke 200 per 100 000.
 - TIA 35 per 100 000.
- Some 80% of strokes are ischaemic and 20% are haemorrhagic.



Pathophysiology



Risk factors

- Increasing age
- Smoking
- Hypertension
- IHD
- TIA
- DM
- Peripheral vascular disease.



Clinical features

1. Clinical variants of a classic CVA

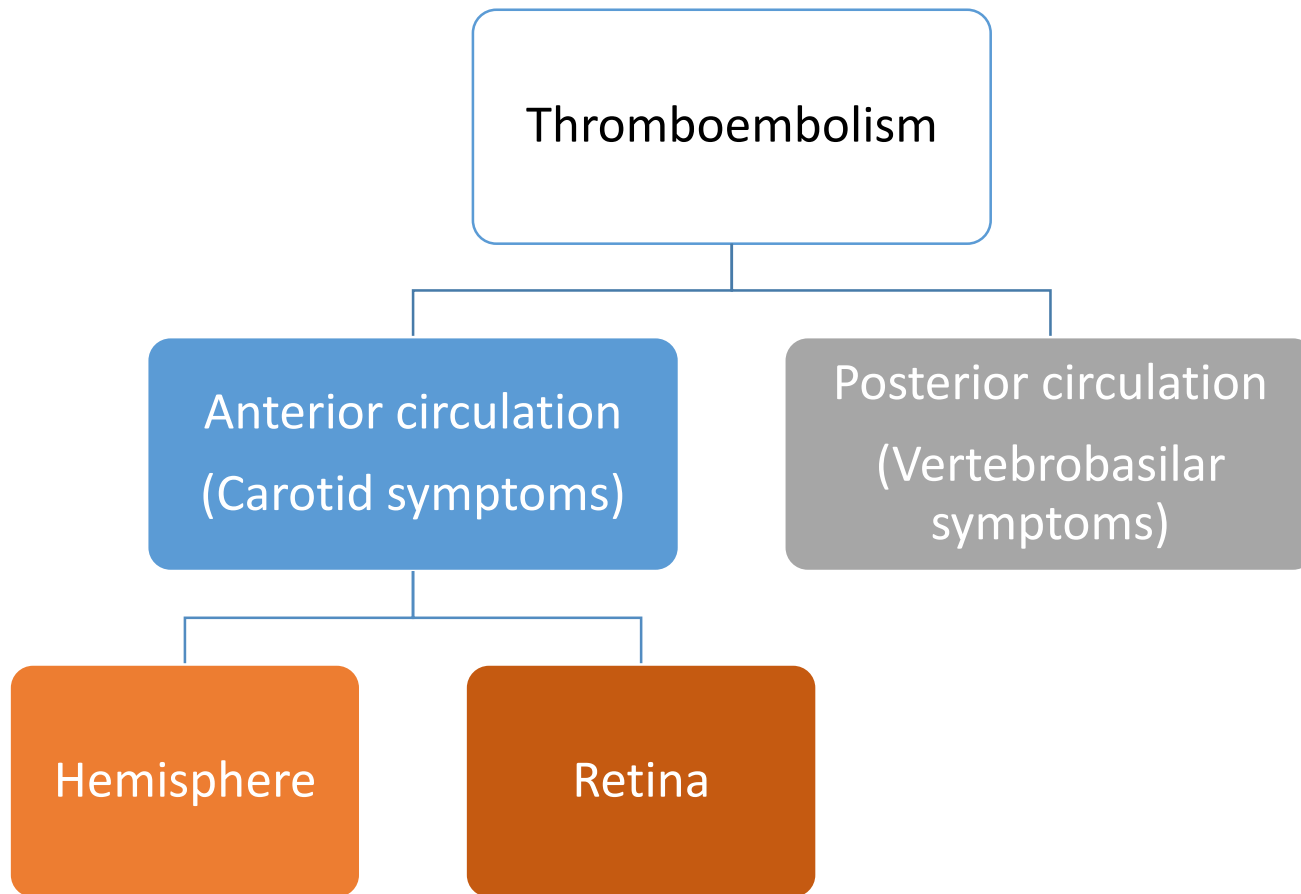
Stroke in evolution - Progressive neurological deficit occurring over hours/days.

Completed stroke - The stable end result of an acute stroke lasting over 24h.

Crescendo TIA - Rapidly recurring TIA with increasing frequency, suggesting an unstable plaque with ongoing platelet aggregation and small emboli.



2. Neurological features



Hemisphere

- Paralysis of the contralateral arm
- Numbness of the contralateral arm
- Hemianopia
- Dysphasia

Retina

- Amaurosis fugax - Transient monocular visual loss.

Vertebrobasilar system

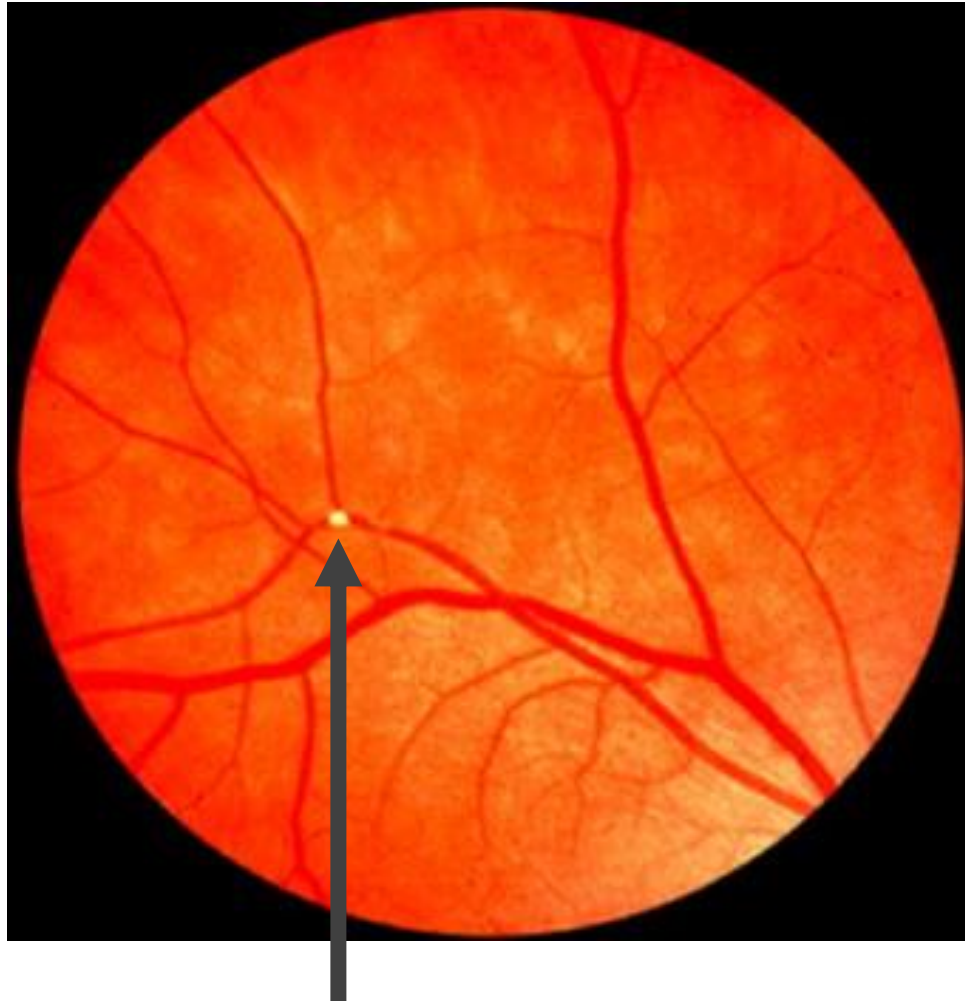
- Bilateral motor/sensory signs
- Dysarthria
- Bilateral visual loss
- Balance problem
- Nystagmus
- Homonymous hemianopia



Examination

- May reveal reduced carotid pulses or bruits over the carotid artery.
- Hollenhorst plaques - Yellow, orange refractile cholesterol emboli which occur at retinal arteriole bifurcations arising from carotid or aortic arch atheromatous disease.





Hollenhorst plaque



Investigations

Diagnosis

- **Colour duplex scan** - Identification of significant stenosis of the internal carotid artery on the affected side.
- **MRA or CT angiography** - Used when duplex is inconclusive or difficult due to calcified vessels.

Etiology

- **FBC | U&E | Cholesterol | Clotting screen | Glucose | Thrombophilia screen** (younger patient) | **Autoimmune screen** (younger patient).
- **ECG** - Arrhythmias may cause embolic strokes.
- **Echocardiogram** - if embolic source is suspected.

Complication

- **CT scan** – identify cerebral infarcts or haemorrhage or rare causes of CVA.



Management

1. Medical management

- Antiplatelet agent (e.g. aspirin).
- Smoking cessation.
- Optimization of BP and diabetes control.
- Statin - Irrespective of baseline cholesterol.
- Acute thrombolysis in CT-proven ischaemia indicated in specialized units if detected early.

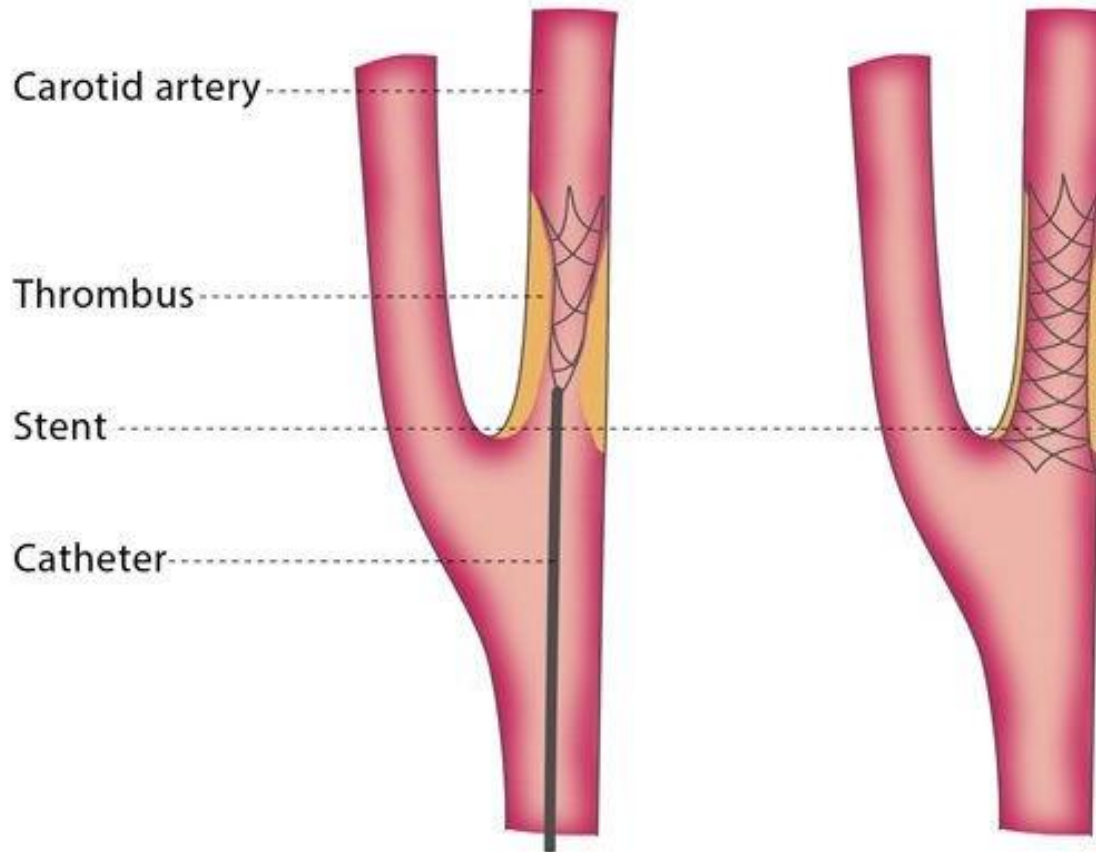


2. Endovascular

- Reserved for patients unfit for carotid endarterectomy or with contraindications to carotid endarterectomy such as previous neck radiotherapy or neck scarring around the operative site.



Carotid artery stenting



3. Surgery - Carotid endarterectomy

Indications for carotid endarterectomy in symptomatic patients

70% or greater carotid stenosis and:

- Ipsilateral amaurosis fugax or monocular blindness
- Contralateral facial paralysis or paraesthesia
- Arm/leg paralysis or paraesthesia
- Hemianopia
- Dysphasia (if dominant hemisphere)
- Sensory or visual inattention/neglect



Complications of carotid endarterectomy

- Death or major disabling stroke.
- Minor stroke with recovery.
- MI.
- Wound haematoma.
- Damage to hypoglossal nerve (weak tongue, moves to side of damaged nerve)
- Damage to glossopharyngeal nerve (difficulty swallowing)
- Facial numbness.

