Stroke Syndromes

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Objectives

After this lecture attendees should be able to:

1. Identify the basic anatomic structures involved in a stroke.
2. Analyze stroke symptoms/syndromes based on the territory of the stroke
3. Evaluate small vessel vs large vessel strokes
Anatomy Review

Circle of Willis:

- anterior communicating artery
- anterior cerebral artery
- middle cerebral artery
- ophthalmic artery
- internal carotid artery
- anterior choroidal artery
- posterior communicating artery
- posterior cerebral artery
- superior cerebellar artery
- pontine arteries
- basilar artery
- anterior inferior cerebellar artery
- vertebral artery
Anatomy Review
Vascular Territories
Sensory & Motor Homunculus
Large artery vs Small artery

- Large vessels are blocked by atherosclerosis vs embolus
  - Symptoms more devastating

- Small vessel disease
  - Small perforating arteries
    Blocked due to uncontrolled risk factors
Anterior Circulation Stroke

- **Anterior Cerebral Artery**

- Can be caused by large artery (internal carotid) vs embolic

- Contralateral leg weakness

- Contralateral sensory loss

- Variable degree of frontal lobe symptoms
  - Flat affect, apraxia, abulia, Incontinence, impaired judgment
Anterior Circulation Stroke

- **Left MCA Syndrome**
  - Hemiparesis or hemiplegia of lower half of contralateral face
  - Hemiparesis or hemiplegia of contralateral upper and lower extremity
  - Sensory loss of contralateral face, arm and leg
  - Global Aphasia (dominant)
  - Right homonymous hemianopia
  - Left gaze preference
Anterior Circulation Stroke

- **Right MCA Syndrome**
  - Hemiparesis or hemiplegia of lower half of contralateral face
  - Hemiparesis or hemiplegia of contralateral upper and lower extremity
  - Sensory loss of contralateral face, arm, and leg
  - Left hemineglect
  - Right gaze preference
Posterior Circulation Strokes

- Can be difficult to recognize due to varying degree of symptoms

- “D Symptoms”
  - Diplopia, Dizziness, dysphagia, dysarthria, drop attack

- Contralateral homonymous hemianopia

- If involves the thalamus
  - Contralateral hemiparesis or hemisensory loss

- Ataxia
Posterior Circulation Strokes

- Locked in Syndrome
  - Complete paralysis of all voluntary movements except for eyes (vertically)
  - Cognition and consciousness is spared
- Occlusion of basilar artery
- Damage to the Pons
Lacunar syndromes

- Small vessel occlusion from risk factors such as hypertension, hyperlipidemia, diabetes
- Pure motor-contralateral face/arm/leg- (internal capsule, pons)
- Pure sensory-contralateral face/arm/leg-(thalamus)
- Ataxia hemiparesis-ipsilateral pure motor (leg) with ataxia arm and leg (pons, basal ganglia)
- Clumsy hand dysarthria - facial weakness, severe dysarthria, and dysphagia, with mild ipsilateral hand weakness and clumsiness (Internal Capsule)
Questions?

Thank you!