

# 16 - B. Effect of lesions

## B. Effect of lesions

© SPMM Course 2. Blood supply to the brain A. Major branches The internal carotid artery enters the circle of Willis and divides to form the anterior cerebral and middle cerebral arteries. The anterior cerebral artery supplies the medial and superior strip of the lateral aspect of the cerebral cortex up to the parietal/occipital border. The middle cerebral artery supplies most of the lateral aspect of the cerebral cortex. This includes the Broca's and Wernicke's areas in the dominant hemispheres. The posterior cerebral artery arises from basilar artery and supplies the inferomedial temporal lobe and the occipital lobe. The medulla is supplied by posterior inferior cerebellar arteries and anterior spinal branches of vertebral arteries. Pons is supplied by the basilar artery that runs along the midline of the pons.

### B. Effect of lesions

Artery Supply Lesion effects Anterior Cerebral Artery (ACA) Medial surface (ventromedial frontal lobe, the cingulum, the premotor cortex, and medial motor strip) Bilateral infarct produces quadriparesis (legs weaker than arms) and akinetic mutism (ventromedial or cingulate syndrome) Recurrent artery of Huebner (branch of ACA) Head of the caudate nucleus Initially an agitated, confused state; evolves to akinesia, abulia, with mutism and personality changes Anterior branches of the upper division of the Middle Cerebral Artery Lateral prefrontal cortex Planning deficits, impairment of working memory, and apathy. (DLPFC dysfunction)

Anterior communicating artery Basal forebrain Akinesia and personality change (orbitofrontal dysfunction) with a confabulatory amnesia resembling Wernicke-Korsakoff syndrome. Posterior inferior cerebellar artery (PICA) thrombosis Lateral medulla Wallenberg's lateral medullary syndrome. Acute vertigo with cerebellar signs. Ipsilateral face numbness, diplopia, nystagmus, Horner's syndrome and IX/X nerve palsy with contralateral spinothalamic sensory loss and mild hemiparesis. Carotid system TIA Carotid system TIA • Amaurosis fugax (due to blockade of retinal arteries) • Aphasia • Hemiparesis • Hemisensory loss • Hemianopic visual loss Vertebrobasilar TIA Vertebrobasilar TIA • Diplopia, vertigo, vomiting • Choking and dysarthria • Ataxia • Alexia without agraphia • Hemisensory loss • Hemianopic visual loss • Transient global amnesia • Tetraparesis • Loss of consciousness (rare)

---

Revision #1

Created 2026-01-04 20:02:38 UTC by Omar Ayman

Updated 2026-01-04 20:02:38 UTC by Omar Ayman