Middle Cerebral Artery Stroke Assessment

The middle cerebral artery (MCA) is a major cerebral artery in the brain and the most common vascular territory affected by ischemic stroke. The MCA supplies oxygenated blood to the lateral aspects of the cerebral hemispheres, which include portions of the frontal, parietal, and temporal lobes, as well as the deep subcortical brain structures. Because each cerebral hemisphere controls the opposite side of the body, an MCA stroke involving one cerebral hemisphere may cause contralateral facial and upper limb weakness, paralysis, and sensory loss, along with contralateral homonymous visual field defects and ipsilateral conjugate gaze deviation. An MCA stroke involving the dominant cerebral hemisphere, usually the left hemisphere, may present with aphasia, such as Broca's or Wernicke's aphasia. An MCA stroke involving the nondominant hemisphere, usually the right hemisphere, may present with hemineglect, in which the patient may neglect or ignore the contralateral side of the body and surrounding environment.



PLAY PICMONIC

Characteristics

Contralateral Weakness or Paralysis of Upper Limb and Face

Opposite-side Wheelchair with Upper Limb and Face

An MCA stroke involving one cerebral hemisphere may result in contralateral weakness or paralysis of the face and upper extremity due to involvement of the lateral primary motor cortex.

Contralateral Sensory Loss of Upper Limb and Face

Opposite-side Broken Sensor with Upper Limb and Face

An MCA stroke involving one cerebral hemisphere may result in contralateral sensory loss of the face and upper extremity due to involvement of the lateral primary sensory cortex.

Contralateral Homonymous Visual Field Defects

Opposite-side Visual Field Same-side Defect

In an MCA stroke, patients may present with contralateral homonymous visual field defects, commonly homonymous hemianopsia, or loss of the same visual field in both eyes opposite the side of the stroke. For instance, a right-sided MCA stroke may cause loss of the left visual fields in both eyes. This occurs due to involvement of visual pathways supplying the contralateral visual field.

Ipsilateral Conjugate Gaze Deviation

One-side Eye Deviation

In an MCA stroke, patients may also present with ipsilateral conjugate gaze deviation in which the eyes deviate, or look, toward the side with the brain lesion and away from the side of hemiplegia. For instance, if the MCA occurs in the right hemisphere, as seen in this Picmonic, the eyes will deviate horizontally to the right (away from the left-sided facial and upper limb hemiparesis). This commonly occurs due to involvement of the frontal eye fields, which disrupt normal voluntary eye motor control.

Dominant Hemisphere

Aphasia

Domino A-fish with Aphasia

An MCA stroke involving the dominant cerebral hemisphere, usually the left hemisphere, may present with aphasia, such as Broca's or Wernicke's aphasia. When Broca's area is affected, patients may develop expressive aphasia with relatively preserved speech comprehension and non-fluent, halting, laborious, and effortful speech. When the Wernicke's area is affected, patients may develop receptive aphasia, characterized by impaired language comprehension and fluent, but incoherent speech that may include neologisms (made-up words) and jargon.

Nondominant Hemisphere

Hemineglect

Half-neglectful Nun-domino

An MCA stroke involving the nondominant hemisphere, usually the right hemisphere, may present with hemineglect, in which the patient may neglect or ignore the contralateral side of the body and surrounding environment.

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