

# Brainstem compression

## Symptoms and signs

Are related to [brainstem](#) compression, such as diplopia, nystagmus, decreased gag, vertigo, and tinnitus, or to secondary obstructive hydrocephalus.

## Treatment

To relieve [brainstem compression](#) and [hydrocephalus](#), surgeons tend to favor [occipital craniectomy](#) or [occipital craniotomy](#) with hematoma evacuation in patients with a declining level of consciousness from cerebella hemorrhage <sup>1)</sup>.

## Case series

Brain-tissue shifts associated with [drowsiness](#), [stupor](#), and [coma](#) were studied by clinical examination and CT scanning in 24 patients with acute unilateral cerebral masses. Studies were performed soon after the appearance of the mass to detect the earliest CT changes associated with depression or [loss of consciousness](#). Contrary to traditional concepts, early depression of the level of alertness corresponded to distortion of the brain by horizontal displacement rather than [transtentorial herniation](#) with [brainstem compression](#). Horizontal displacement of the [pineal body](#) of 0 to 3 mm from the midline was associated with alertness, 3 to 4 mm with drowsiness, 6 to 8.5 mm with stupor, and 8 to 13 mm with coma. Moreover, drowsy or stuporous patients and some comatose patients had widened cisterns between the tentorial edge and the midbrain on the side of the mass, suggesting that the space was not filled by herniated medial temporal lobe. Downward displacement of the pineal body, indicating central transtentorial herniation, did not occur. Compression of one hemisphere by the other anteriorly (transfalcial herniation) was inconsistently related to alertness, though very large anterior displacements may have caused stupor in some patients. Current concepts of the pathoanatomical nature of depressed consciousness, based on pathological material obtained well after clinical examinations, may require revision, because they do not reflect early brain-tissue distortions <sup>2)</sup>.

<sup>1)</sup>

Wijdicks EF, St Louis EK, Atkinson JD, Li H. Clinician's biases toward surgery in cerebellar hematomas: an analysis of decision-making in 94 patients. Cerebrovasc Dis. 2000 Mar-Apr;10(2):93-6. PubMed PMID: 10686446.

<sup>2)</sup>

Ropper AH. Lateral displacement of the brain and level of consciousness in patients with an acute hemispherical mass. N Engl J Med. 1986 Apr 10;314(15):953-8. PubMed PMID: 3960059.

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