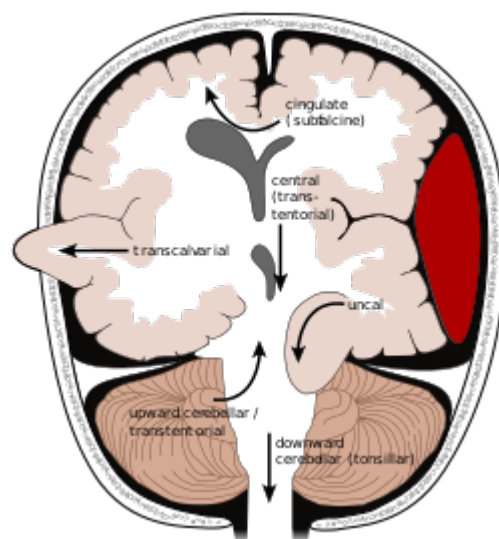


Transtentorial herniation



Transtentorial [herniation](#) can occur when the brain moves either up or down across the [tentorium](#), called ascending and descending transtentorial herniation respectively; however descending herniation is much more common.

Transtentorial herniation is a type of cerebral herniation.

Types

[Descending transtentorial herniation](#), more frequently known as [uncal herniation](#).

[Ascending transtentorial herniation](#), which is less common than uncal herniation.

Clinical features

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 ¹⁾.

After craniectomy, transtentorial herniation is possible even in the absence of increased ICP. It is related to a negative gradient between atmospheric and intracranial pressure, which is enhanced by changes in the CSF compartment following lumbar puncture. Lumbar puncture should be avoided if possible and, when necessary, only be performed in the head-down position. Acute therapy in these cases is quite simple; it requires flat or even head-down positioning and early cranioplasty ²⁾.

¹⁾

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.

²⁾

Schwab S, Erbguth F, Aschoff A, Orberk E, Spranger M, Hacke W. ["Paradoxical" herniation after decompressive trephining]. Nervenarzt. 1998 Oct;69(10):896-900. German. PubMed PMID: 9834480.

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