Uncus

The uncus is an anterior extremity of the Parahippocampal gyrus. It is separated from the apex of the temporal lobe by a slight fissure called the incisura temporalis.

1/2

Although superficially continuous with the hippocampal gyrus, the uncus forms morphologically a part of the rhinencephalon.

The term uncus was coined by Felix Vicq d'Azyr (1748-1794).

The uncus has an anterior segment, an apex, and a posterior segment that has an inferior and a posteromedial surface; the uncus is related medially to cisternal elements and laterally to intraventricular elements. The anterior segment is related to the proximal sylvian fissure, internal carotid artery, proximal M1 segment of the middle cerebral artery, proximal cisternal anterior choroidal artery, and amygdala. The apex is related to the oculomotor nerve, uncal recess, and amygdala; the posteromedial surface is related to the P2A segment of the posterior cerebral artery inferiorly, to the distal cisternal anterior choroidal artery superiorly, and to the head of the hippocampus and amygdala intraventricularly.

Clinical significance

The part of the olfactory cortex that is on the temporal lobe covers the area of the uncus, which leads into the two significant clinical aspects of the uncus: uncinate fits and uncal herniations.

Seizures, often preceded by hallucinations of disagreeable odors, often originate in the uncus.

In situations of tumor, hemorrhage, or edema, increased pressure within the cranial cavity, especially if the mass is in the middle fossa, can push the uncus over the tentorial notch against the brainstem and its corresponding cranial nerves. If the uncus becomes herniated the structure lying just medial to it, cranial nerve III, can become compressed. This causes problems associated with a non-functional or problematic CN III - the pupil on the ipsilateral side fails to constrict to light and absence of medial/superior movement of the orbit, resulting in a fixed, dilated pupil and an eye with a characteristic "down and out" position due to dominance of the abducens and trochlear nerves. Further pressure on the midbrain results in progressive lethargy, coma and death due to compression of the mesencephalic reticular activating system. Brainstem damage is typically ipsilateral to the herniation, although the contralateral cerebral peduncle may be pushed against the tentorial notch, resulting in a characteristic indentation known as Kernohan's notch and ipsilateral hemiparesis, since fibers running in the cerebral peduncle decussate (cross over) in the lower medulla to control muscle groups on the opposite side of the body.

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