

측두엽의 수술적 해부학

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장 종 희 · 장 진 우

Surgical Anatomy of the Temporal Lobe

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The temporal lobe is a unique structure in the human brain and one of the most important structures involved in the surgical treatment of intractable epilepsy. Knowledge of the temporal lobe's structures and function allow us to better understand the complex phenomenology of temporal lobe seizures and the positive and negative effects of surgical resections in the area. We reviewed the parenchymal and vascular anatomy and the white matter tracts of temporal lobe, and the relationships to surrounding structures such as dural structures and cistern.

KEY WORDS: Amygdala · Anatomy · Epilepsy · Hippocampus · Temporal lobe.

서 론

ieto - temporal line) .¹⁾⁹⁾¹⁵⁾¹⁸⁾¹⁹⁾

(lingual gyrus)

2/3 ,

가 (cingulate gyrus)

가 (isthmus)

(amygdala) (globus pallidus) ,

(temporal stem) (insula), (limen insulae)

가 (ambient cistern) (basal frontal lobe) .

(choroidal fissure) (thalamus)

⁹⁾¹⁸⁾¹⁹⁾

(parieto - occipital sulcus)

(preoccipital notch) (parieto - temporal line) ,

(hippocampus) (sclerosis)가

(temporo - occipital line)

가 가 ,

(parieto - occipital fissure) 3 (allocortex)

(prepiriform area), (uncus) (semilunar gyrus), , 6 (mesocortex)

(parahippocampal gyrus), 6 (isocortex) (superior temporal gyrus), , (transverse temporal

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(basal temporal language area)가 .¹⁰⁾ , .

위쪽 면 (opercular surface) (temporal operculum) Heschel (Heschel ÷ gyrus) (platinum temporale) Heschel .

(hippocampal formation) S (neocortex) (presubiculum), (prosubiculum) (peri - allocortical) 3 (subiculum), (transitional) (dentate gyrus) 6

tonotopic (entorhinal cortex) 가 (tentorial incisura) 1/3

(elementary auditory hallucination) .²¹⁾ Heschel (language processing) .⁶⁾ (temporal amygdala) .³⁾⁷⁻⁹⁾¹¹⁾¹²⁾¹⁷⁾¹⁸⁾ (rhinal sulcus) (Fig. 3). 6

내측 면 (isocortical association cortex) (Fig. 3). (hippocampus proper) 1 (cornu ammonis1 ; CA1), 2 (CA2), 3 (CA3), 4 (CA4) "C" CA4

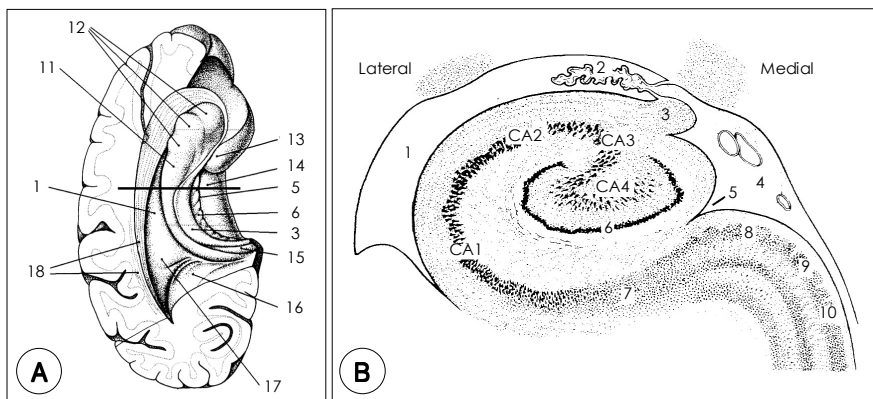


Fig. 3. A : Longitudinal sectional anatomy of temporal lobe after opening of temporal horn of lateral ventricle to expose hippocampal formation. B : Cross sectional anatomy of the hippocampus along the line of A. CA1 : cornu ammonis 1, CA2 : cornu ammonis 2, CA3 : cornu ammonis 3, CA4 : cornu ammonis 4, 1 : temporal horn of lateral ventricle, 2 : choroids plexus, 3 : fimbriae hippocampi, 4 : sub-arachnoid space, 5 : hippocampal sulcus, 6 : dentate gyrus, 7 : prosubiculum, 8 : subiculum, 9 : presubiculum, 10 : parasubiculum, 11 : hippocampus, 12 : pes hippocampi, 13 : unculus, 14 : parahippocampal gyrus, 15 : crus fornicis, 16 : calcar avis, 17 : collateral eminence, 18 : tapetum. From ref. 9 with permission.

organization) . 가 (synaptic re- organization) . 가 (hippocampal sulcus)가 (head), (body), (tail) , 가 (fimbria), (atrium) (calcar avis) (splenium) (subsplenial gyrus) CA1 (alveus) (septal

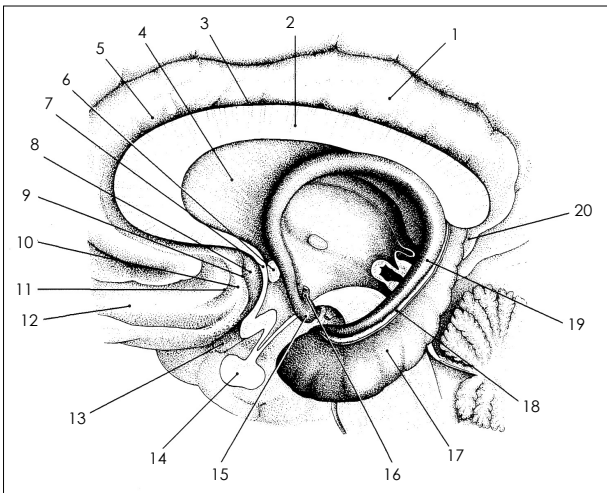


Fig. 4. Medial aspect of hippocampal formation and surrounding structures. 1 : cingulate gyrus, 2 : corpus callosum, 3 : sulcus of corpus callosum, 4 : septum pellucidum, 5 : indusium griseum, supracallosal gyrus, 6 : anterior commissure, 7 : lamina terminalis, 8 : paraterminal gyrus, subcallosal gyrus, 9 : posterior parolfactory sulcus, 10 : subcallosal area, parolfactory area, 11 : anterior parolfactory sulcus, 12 : medial frontal gyrus, 13 : optic nerve, 14 : pituitary gland, 15 : mammillary body, 16 : mammillothalamic tract, 17 : pes hippocampi, 18 : alveus hippocampi, 19 : fornix, 20 : fasciolar gyrus. From ref. 9 with permission.

nuclei) (fornix) (subcortical radiation) CA1 (Fig. 3).³⁾⁷⁻⁹⁾¹¹⁾¹²⁾¹⁸⁾ 가 (collateral eminence) 가 가 (calcar avis) 2/3 가 (3)8)11)12)19) CA1 (alveus) 가 (optic radiation) (lateral geniculate body) 가 (groove) (pes hippocampi) (basal ganglia) (principal amygdala) (basal forebrain) (extratemporal amygdala) (extended amygdala) 가 (oroalimentary automatism)²⁰⁾ (caudate nucleus) (stria terminalis)

(central nucleus)
 가 ,
 (corticomedial)
 가 .
 가
 (cerebral peduncle)
 (uncinate gyrus), Giacommini
 (band of Giacommini), (intralimbic gyrus)
 (olfactory hallucination)
 (Fig. 4).

측두엽의 혈관 분포

동 맥
 가
 (bifurcation)
 (uncal artery), (temporopolar artery),
 (anterior temporal artery)
 가
 “ (manipulation hemiplegia) ” 가
 (subpial
 resection)
 (anterior choroidal artery)
 가
 2 3
 (hippocampal artery)
 (fimbriodentate sulcus),
 가 가 (radial branch)
 (lateral posterior choroidal artery)

가 ,
 가 .
 가 ,
 (Fig. 5).³⁾⁵⁾⁸⁾¹¹⁾¹²⁾¹⁶⁾¹⁸⁾¹⁹⁾
 정 맥
 (superficial sylvian vein)
 (cavernous sinus)
 (sphenoparietal sinus)
 La-
 bbe (vein of Labbe) (transverse sinus)
 Labbe
 (venous infarction) 가
 Trollard (vein of Trollard)
 (superior sagittal sinus)

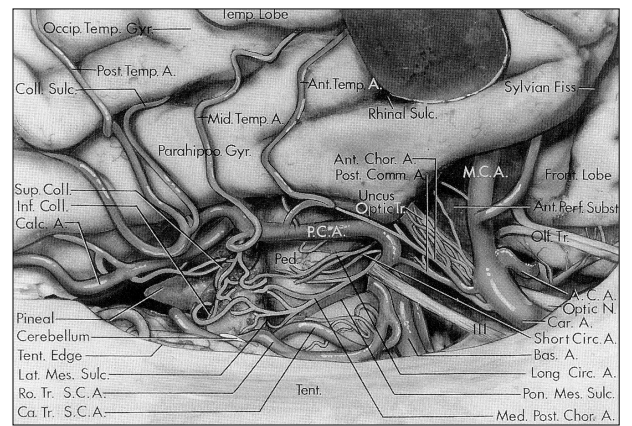


Fig. 5. Subtemporal view of the contents of the ambient cistern. Ant Chor A : anterior choroidal artery, Ant Mid, and Post Temp A : anterior, middle, and posterior temporal artery, Ant Perf Subst : anterior perforated substance, Bas A : basilar artery, Calc A : calcarine artery, Car A : carotid artery, Ca and Ro Tr SCA : caudal and rostral trunk of the superior cerebellar artery, Coll Sulc : collateral sulcus, Inf and Sup Coll : inferior and superior colliculus, Lat Mes Sulc : lateral mesencephalic sulcus, Long and Short Circ A : long and short circular artery, MCA and PCA : middle and posterior cerebral artery, Med Post Chor A : medial posterior choroidal artery, Occip Temp Gyr : occipitotemporal gyrus, Olf Tr : olfactory tract, Optic Tr : optic tract, Parahipp Gyr : parahippocampal gyrus, Ped : cerebral peduncle, Pon Mes Sulc : pontomesencephalic sulcus, Post Comm A : posterior communicating artery, Tent : tentorium. From ref. 16.

(deep middle cerebral vein)
 Rosenthal (basal
 vein of Rosenthal)
 (anterior hippo-
 campal artery), (uncal vein), (an-
 terior and posterior longitudinal hippocampal veins),
 (inferior ventricular vein), (in-
 ferior choroidal vein) Rosenthal
 Rosenthal (optic tract)
 (in-
 ternal cerebral vein)
 Galen (vein of Galen)
 (Fig. 5).³⁾⁸⁾¹¹⁾¹²⁾¹⁶⁾¹⁸⁾¹⁹⁾

측두엽의 백질로

교련로(commissural tracts)
 (corpus callosotomy)
 가 (anterior commissure)
 (hippocampal commissure)
 가 (Fig. 4).
 연합로(association tracts)
 (uncinate fas-
 ciculus) (infero - orbital frontal
 lobe) (arcuate fasciculus)
 (inferior longitud-
 inal fasciculus)
 (cingulum)
 (in-
 sula)
 가
 (primary visual cortex)

(geniculocalcarine tract)
 Meyer (Meyer s loop)
 가
 (contralateral upper homony-
 mous quadrantanopsia)
 가 가
 (hem-
 ianopsia)

주변 구조물과의 관계

경막 구조물(dural structures)
 (oculomotor nerve), (trochlear
 nerve), (ophthalmic nerve), (maxillary
 nerve)
 , Meckel (Meckel s
 cave), Gasser (gasserian ganglion),
 (maxillary nerve)
 (greater petrosal nerve)
 (awake cranio-
 tomy)
 수조(cistern)
 (crural cistern) (crus cerebri)
 (interpeduncular cistern)가
 Rosenthal (cis-
 ternal segment),
 4 (P1)

(posterior communicating artery) ,
 (P2) 가 가 가
 (P3) 가 가 가 가
 (calcarine fissure)
 (parieto - occipital artery)
 (calcarine artery)
 (quadrigeminal cistern) ,
 가 (P4) 가
 (medial and lateral choroidal artery),
 (thalamogeniculate artery), (posterior
 thalamoperforating artery) 가
 (pulvinar),
 (lateral mesencephalon)
 (Fig. 5).⁵⁾¹¹⁾¹⁶⁾¹⁸⁾¹⁹⁾
 (perimesencephalic cistern)
 가 (plexal segment)
 (posterior limb of internal capsule)
 2/3, 1/3,
 (caudate nucleus) (substantia nigra),
 (red nucleus), (corpus subthalamicus),
 가
 (midbrain tegmentum)
 , Rosenthal
 5mm
 (Fig. 5).
 T
 (sylvian cistern) (anterior sphenoidal compartment) (posterior operculoinsular compartment) . Reil
 (insula of Reil)
 (circular sulcus)

결 론

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