Endoscope Assisted Supracerebellar Transtentorial Approach to the Temporomedial Structure: An Anatomic Study

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Introduction

Approaching to posterior temporomedial region pathologies such as tumors, vascular lesions and epilepsy surgery is challenging and many approaches to this region such as occipital interhemispheric, subtemporal, or temporal transventricular approaches are favored. Morbidity associated with this approaches are mainly visual field deficits and aphasia. Our aim is to study the endoscopic and microscopic anatomy of the supracerebellar transtentorial (EASCTT) transparahippocampal approach to temporomedial structures and to avoid the morbidities of approaches to this region

Methods

Five formalin fixed cadaveric head were used in this study. The vessels were injected with colored silicon. The specimens were stepwise dissected under surgical microscope and endoscope, each step was documented. The EASCTT approach to the temporomedial structure was performed.

Learning Objectives

By the conclusion of this session, participants should be able to: 1)describe endoscopic anatomy of the temporomedial structures and P2-P3 junction of PCA 2) describe endoscopic transtentorial transparahippocampal approach to temporomedial structure

Results

The EASCTT approach facilitates simple and minimally invasive access to temporomedial structures without requiring retraction of the temporal or occipital lobe. The craniotomy should be placed paramedian and transverse sinus should be retracted superiorly. At all specimen's both sides, at least one bridging vein from cerebellum to the tentorial sinuses were detected. All of the specimens both sides had temporal sinuses (6 of them were large, 4 of them were small size) were detected. After dividing the tentorium parahippocampal gyrus were reached. Dissection at the level of P2-P3 junction lead to atrium of the lateral ventricule. The mean distance from midpoint of the transverse sinus to the P2-P3 junction is 69.4 mm

Conclusions

The EASCTT transparahippocampal approach provides wide access to the parahippocampal gyrus, hippocampus, amygdala, and uncus allowing the surgeon to remove the structures under direct visualization throughout the operation in the cadeveric studies. It provides ease of access to the P2-P3 junction of the PCA.

References

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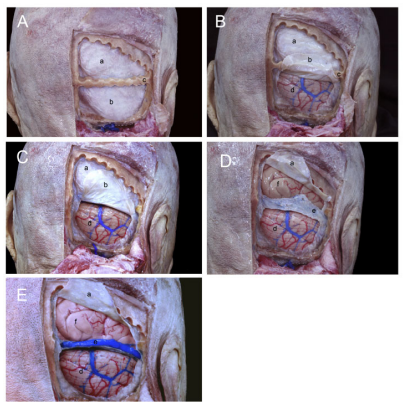
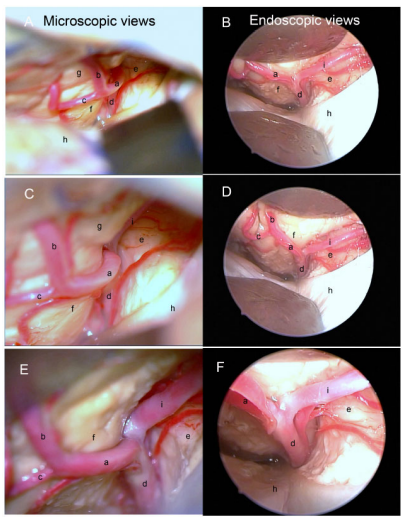
Figure 1



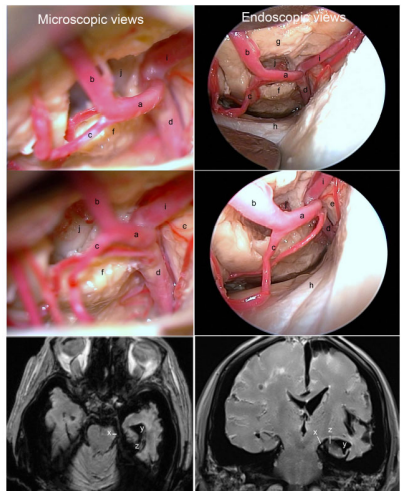
(Fig 1A) The transverse sinus. (Fig 1D,1E) The dura mater was opened in a U fashion (Fig. 1C) a; occipital dura, b; cerebellar dura, c; bone bar above transvers sinus, d; cerebellum, e; transfers sinus, f; occipital lob

Figure 2



The Comparison of microscopic and endoscopic views. (Fig 2A, 2B) However, we could inspected P2-P3 junction with endoscope more easily (Fig. 2B). Microscopic magnification was not enough to see P2-3 junction but, to proceed endoscope towards junction provided magnification and more clear view. (Fig. 2C, 2D) P2-3 junction could be seen with microscope (Fig. 2E) However, at this point endoscope provided more deep view to us. (Fig. 2F) a; lateral occipital artery, b; intermediet temporal artery c; posterior temporal artery, d; P2 branch of PCA, e; cerebral pedincule, f; parahippocampal gyrus, g; lingual gyrus, h; tentorium, i; P3 branch of PCA

Figure 3



When we resected the parahippocampal gyrus could entered atrium of the lateral ventricul and easily discerned the P2-P3 junction of PCA. (Fig. 3A, 3B) (Fig. 3C, 3D) Magnetic resonance imaging was taken after parahippocampectomy to comfirm localisation. (Fig 3E, 3F) a; lateral occipital artery, b; intermediet temporal artery c; posterior temporal artery, d; P2 branch of PCA, e; cerebral pedincule, f; parahippocampal gyrus, g; lingual gyrus, h; tentorium, i; P3 branch of PCA, j; atrium of lateral ventricule, X; PCA, Y; lateral ventricule, Z; parahippocampectomy area