

Transtemporal-Transchoroidal Approach Combined with Retrosigmoid Approach for Extensive Thalamopeduncular Tumor Resection: 3-Dimensional Operative Video

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INTRODUCTION

Thalamopeduncular tumors are a group of pediatric low-grade gliomas that arise at the junction of the thalamus and cerebral peduncle. They occur within the first 2 decades of life, presenting with a thalamopeduncular syndrome characterized by progressive spastic hemiparesis. Given their location and their pilocytic histology, obtaining a curative resection without injury to the corticospinal tracts (CST), oculomotor nerve or the optic tract can be challenging. Trans-cortical trans-choroidal resection of thalamopeduncular tumors through the middle temporal gyrus allows for a high rate of gross total resection (GTR) and disease control with acceptable surgical morbidity [1-3]. A 3 year old boy's thalamopeduncular mass was diagnosed after a typical presentation of progressive spastic hemiparesis. Tumor was partially resected and pathological diagnosis was pilocytic astrocytoma (PA). He progressed on chemotherapy and an Ommaya reservoir was placed into a tumor cyst, but the patient developed progressive hydrocephalus, bilateral trigeminal neuralgia and right hemiplegia. He was then referred us for tumor resection. The patient consented to publication of his images.

Preoperative diffusion tensor imaging (DTI) demonstrated anterolateral displacement of the CSTs. This video demonstrates the surgical technique used for the one-stage transcortical-transchoroidal and retrosigmoid approach to the extensive thalamo-peduncular PA.

The following are the main surgical pearls:

- Minimize the use of fixed retractors to avoid temporal cortical ischemic changes

- Protect the hippocampus when opening the choroidal fissure
- Protect the branches of the posterior communicating artery and anterior choroidal artery within the cistern
- Identify the optic tract and protect it as well.

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Video 1. Transtemporal-transchoroidal approach combined with retrosigmoid approach for extensive thalamopeduncular tumor resection: 3-Dimensional Operative Video

DISCLOSURE

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