

## Case Report

# Anterior Interhemispheric Approach for Aggressive Rhabdoid Tuberculum Sellae Meningioma: Report of a Rare Case and Literature Review

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**Abstract**

Tuberculum Sellae Meningioma (TSM) is one of the most challenging operations among neurosurgeons. Many approaches have been proposed in the attempt of total removal of the tumor. Rhabdoid meningioma is a rare subtype of meningiomas accounting for 2-3% of all intra-cranial meningiomas, an aggressive tumor classified as World Health Organization (WHO) grade III; it occurs mainly in the early childhood, but also rarely in teenagers and adults. It is an aggressive tumor and needs to be treated using both surgery and radiotherapy. We describe the case of a 16-year-old girl with bilateral progressive visual loss. Imaging studies show a tumor mass in the sellae region. Surgery using an anterior interhemispheric approach was performed, and gross total removal was achieved. Histopathological findings established a diagnosis of rhabdoid meningioma. The visual function was improved postoperatively within a week. Rhabdoid tuberculum sellae meningioma, a rare clinical entity in teenagers and adults, had been treated with excellent clinical outcome. This case report supports the suitability of the anterior interhemispheric approach for resection of rhabdoid TSM, followed by radiation therapy.

**INTRODUCTION**

The Tuberculum Sellae Meningioma (TSM) arises from the tuberculum sellae, chiasmatic sulcus, and limbus sphenoidale. They represent approximately 3-10% of all intracranial meningiomas [1]. The extent of visual deficit is the single most important reason for surgical treatment, and visual outcome is the major concern after surgery. TSM is one of the most challenging operations in neurosurgical field. The tumor has a dural attachment generally at the tuberculum sellae, which may extend anteriorly to the limbus sphenoidale, superiorly to chiasmatic sulcus, and posteriorly to diaphragm sellae. The tumor mass could expand to fill the sellar and suprasellar area, and could displace, stretch, or even encase vital structures; the optic chiasm could be displaced superiorly, the internal carotid arteries may shift laterally, and if the tumor extends posteriorly it may push on the pituitary stalk [2,3]. Based on an anatomical

point of view, the safest, most direct surgical access can be achieved through the tumor's anterior. The bifrontal, unilateral frontal, supraorbital keyhole, and pterional approaches were proposed to resect this tumor; we truly understand that the preferred surgical approach, surgical tactics, and strategies is every individual surgeon's authority [2,4-6]. The anterior interhemispheric approach was originally developed for anterior communicating artery aneurysms [7], but with several technical modifications, this approach yields minimal morbidity and maximizes visualization around the tuberculum sellae.

From a histopathological point of view, meningiomas are tumors of meningotheelial origin and are mostly slow growing tumors with a wide range of histological appearances. Some subtypes, however, are recognized in World Health Organization (WHO) classification as displaying aggressive behavior, including atypical, clear cell, and chordoid meningiomas (WHO grade II);