# Trigone ventricular meningioma case reports

The patient presented with several weeks of intermittent headaches. Magnetic resonance imaging (MRI) showed an enhancing intraventricular mass in the atrium of the left lateral ventricle. Three-dimensional reconstructions were created from a preoperative MRI, with 1-mm slices for neuronavigation. Diffusion tensor imaging (DTI) was obtained, and tracts were reconstructed in the patient's three-dimensional brain space. DTI tractography delineated a paramedian transparietal corridor devoid of functional white matter tracks. The patient was positioned supine, in a semi slouch position. A left parietal craniotomy was performed. Neuronavigation identified a gyrus posterior to the sensory cortex, anterior to the optic radiations, and medial to superior longitudinal and arcuate fasciculus fiber tracts. The tumor was debulked to allow mobilization to coagulate the capsular blood supply. Gross total resection was achieved. The patient was discharged postoperatively on day 3 without neurological deficits.

Lessons: A paramedian transparietal approach to a dominant hemisphere meningioma of the lateral ventricle can be a safe and effective way to resect tumors in this anatomically unique operative corridor [1)].

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a 28-year-old female with acute intracranial hemorrhage located in the trigone of the lateral ventricle who was initially thought to have suffered an acute cerebrovascular accident, but was subsequently confirmed to have a benign intraventricular meningioma. To clarify the clinical features of such a rare course of meningioma, we also present a short literature review of acute intracranial hemorrhage caused by intraventricular meningioma.

Conclusions: Ventricular meningioma presenting with hemorrhage such as acute stroke is a rare event, but recognition of such a pathogenesis is important. Although further accumulation of clinical data is needed, we suggest that early surgery should be undertaken in patients with lateral ventricular meningioma, even if it is not so large or asymptomatic [2)].

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A 19-year-old woman who presented with loss of consciousness. Radiological findings were compatible with a left ventricular trigone meningioma extending laterally in proximity to the Sylvian fissure. At initial surgery using the Transsylvian approach, main feeders originating from the anterior and lateral posterior choroidal arteries were occluded at the inferior horn; however, only a small section of the tumor could initially be removed because of its firmness. Over time, feeder occlusion resulted in tumor necrosis and a 20% decrease in its diameter; the mass effect was alleviated within 1 year. The residual meningioma was then totally excised in staged surgical procedures after resection became more feasible owing to ischemia-induced partial softening of the tumor. When a trigone meningioma is large and very hard, initial microsurgical feeder occlusion in the inferior horn can be a safe and effective option and can lead to necrosis, volume decrease, and partial softening of the residual tumor to allow for its staged surgical excision [3)].

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Chen et al described in 2013 an alternate approach involving temporal horn to prepontine cistern shunting followed by radiosurgery of the offending lesion. This 41-year-old woman with a history of

meningiomatosis presented with progressive, incapacitating headache. Magnetic resonance imaging (MRI) showed growth of a right trigone ventricular meningioma, causing entrapment of the right temporal horn. A ventricular catheter was placed using frame-based stereotaxy and image fusion computed tomography/MRI to connect the entrapped lateral ventricle to the prepontine cistern. The patient reported complete resolution of her symptoms after the procedure.

Postoperative MRI revealed decompression of the temporal horn. The trigonal meningioma was treated with stereotactic radiosurgery. The patient remained asymptomatic at the 2-year follow-up [4].

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A 44-year-old male presented to the outpatient clinic complaining of cephalalgia increasing in frequency and intensity over the last month. His neurological exam was normal, yet a brain computed tomography scan revealed a lesion in the right trigone of the ventricular system. The diagnosis of possible meningioma was set. After thoroughly informing the patient, tumor resection was decided. An intraparietal sulcus approach was favored without the use of any modern technological aids such as intraoperative magnetic resonance imaging or neuronavigation. The postoperative course was uneventful and a postoperative computed tomography scan demonstrated the complete resection of the tumor. The patient was discharged two days later with no neurological deficits. In a two-year-follow-up he remains recurrence-free.

In the current cost-effective era it is still possible to safely remove an intraventricular trigonal meningioma without the convenience of neuronavigation. Since the best neuronavigator is the profound neuroanatomical knowledge, no technological advancement could replace a well-educated and trained neurosurgeon [5].

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A 57-year-old, right-handed woman complained of numbness of the lower extremities and underwent magnetic resonance imaging, which incidentally demonstrated a trigonal meningioma in the left lateral ventricle with a maximal diameter of 4 cm. The patient's preoperative neurologic examination was normal. The tumor was successfully removed by a parieto-occipital interhemispheric approach with an incision of the left precuneus cortex. Postoperative motor, sensory, and visual functions were normal; however, recent memory disturbance developed, which gradually resolved in the following 3 months.

An interhemispheric precuneus approach is a useful alternative to trigonal tumors with few surgical complications, but postoperative memory disturbance can be one pitfall of this procedure [6].

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A case of trigonal meningioma in a 43-year-old woman who presented with intraventricular hemorrhage, and describe the CT, MRI and angiographic findings [7].

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The first case of a ventricular meningioma that was encapsulated by the dura-like membrane is reported. Magnetic resonance imaging (MRI) showed a heterogeneous mass with a low intensity rim in the trigone of the right lateral ventricle of a 63-year-old male. Histological examination revealed that the tumor was a transitional meningioma encapsulated by a thick dura-like membrane. Moreover,

abundant clusters of the dura-like connective tissue existed in the tumor, indicating that both the dura-like capsule and the dura-like clusters in the tumor were created by the tumor cells [8].

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