Anterior third ventricle meningiomas. Report of two cases

E.R. Uygur; B. Deniz and K. Zafer

Ministry of Health Dışkapı Education and Research Hospital. Second Neurosurgery Clinic. Ankara. Turkey

Summary

Third ventricle meningiomas are rare, representing approximately 0.15% of all meningiomas. The majority of third ventricular meningiomas are located posteriorly in the pineal region. Less commonly, they arise in the anterior part of the third ventricle. We report the cases of two patients with large and giant meningiomas originating in the anterior part of the third ventricle.

KEY WORDS: Meningioma. Intraventricular tumor. Third ventricle

Meningiomas del tercer ventrículo. Presentación de dos casos

Resumen

Los meningiomas del tercer ventrículo son raros. Representan, aproximadamente, el 0,15% de todos los meningiomas. La mayoría de los meningiomas del tercer ventrículo se localizan en la parte posterior, en la región pineal. Menos frecuentemente se originan en la parte anterior del tercer ventrículo. Presentamos los casos de dos pacientes con meningiomas grandes y gigantes, con origen en la parte anterior del tercer ventrículo.

PALABRAS CLAVE: Meningioma. Tumor intraventricular. Tercer ventrículo

Meningiomas comprise 13-18% of all intracranial tumors; intraventricular meningiomas constitute 0.5-5.0% of all meningiomas. The majority of intraventricular meningiomas are found in the trigone of the lateral ventricle, predominantly on the left side. Those meningiomas arising in the third ventricle are rare, approximately 0.15% of all meningiomas, and are usually located posteriorly in the pineal region. Less commonly, third ventricle meningiomas arise in the anterior part of the third ventricle. We report two cases with large and giant meningiomas originating in the anterior part of the third ventricle and discuss the differential diagnosis and treatment options of this rare tumor.

Case 1

A 25-year-old woman was admitted with a three month history of headache and almost three weeks of left sided weakness. Neurological examination disclosed papilledema, 4/5 left hemiparesis, and left hemihypesthesia. Magnetic resonance (MR) imaging of the brain demonstrated an homogeneously enhancing midline mass within the third ventricle causing hydrocephalus (Figure 1 a,b). The tumor, which was adherent to the anterior portion of the third ventricle, was removed near totally via an interhemispheric transcortical approach (Figure 2 a,b). Postoperative course was uneventful. Pathological examination revealed a psammomatous meningioma.

Case 2

A 25-year-old woman was admitted with a four month history of headache and diplopia on right lateral gaze, and one week of vomiting. Neurological examination disclosed only papilledema. MR imaging of the brain demonstrated an homogeneously enhancing third ventricular mass (Figure 3 a,b). A right sided transcortical transventricular approach to the third ventricle was performed. The tumor was near totally removed (Figure 4 a,b). Postoperative course was uneventful. Pathological examination revealed a meningothelial meningioma.

Discussion

An heterogeneous group of lesions can be found in the third ventricle and a variety of neoplasms can occur within it. Astrocytomas, germinomas, craniopharyngiomas, choroid plexus papillomas, teratomas, ependymomas and colloid cysts can appear in this location. Most of these tumors are located much more frequently in the anterior
Anterior third ventricle meningiomas. Report of two cases

Figure 1. Preoperative axial (a) and coronal (b) T1-weighted contrast-enhanced MRI scans of case 1. The mass, filling the IIIrd ventricle, is well demarcated and shows solid, homogeneous enhancement.

Figure 2. Postoperative axial (a) and coronal (b) T1-weighted contrast-enhanced MRI scans of case 1. Approximately 8x6 mm of residual contrast-enhancement is seen.

part of the third ventricle compared with the posterior part\textsuperscript{20}. However, meningiomas are more commonly found posteriorly\textsuperscript{6,9,14,17,18}. Tumor location, age of the patient and imaging characteristics can help the differential diagnosis\textsuperscript{20}.

Third ventricle meningiomas arise from the stroma of the choroid plexus or from the tela choroidea which together constitute the membrana tectoria\textsuperscript{3,8,14,17,18}. The presence of arachnoid cell nests in the normal choroid plexus stroma has been illustrated in the literature and a thorough examination of the choroid plexus usually reveals small
or sometimes larger collections of these cells\(^4\). In the 7\(^{th}\) to 9\(^{th}\) gestational weeks, the telencephalic choroid plexus has started to develop a loose mesenchymal stroma, which is covered by a layer of cells derived from the ependyma.

![Image](http://www.revistaneurocirugia.com/)

**Figure 3.** Preoperative unenhanced axial (a) and contrast-enhanced coronal (b) T1-weighted MRI scans of case 2. Well demarcated, 2.5x3x3 cm. mass in the IIIrd ventricle is seen. The mass enhanced intensely after gadolinium administration.

**Figure 4.** Postoperative contrast-enhanced axial (a) and coronal (b) T1-weighted MRI of case 2. A 6x6 mm. minimally enhanced residual lesion is seen.

Arachnoid tissue is transported together with the choroid plexus as the ventricular system invaginates, and by 20 to 40 weeks, the central stroma of the choroid plexus contains meningocytes, connective tissue, and blood vessels. In a similar fashion, intraventricular meningiomas arise from arachnoid cells contained within the choroid plexus. Meningothelial inclusion bodies are normally found in the arachnoid and choroidal tela, and meningiomas arise from
Anterior third ventricle meningiomas. Report of two cases

The interhemispheric transcallosal approach permits to enter the third ventricle without a cortical incision. Ventriculomegaly is not a prerequisite for this approach. Hemiparesis, mental status changes, memory disturbances, confusion and mutism have been reported following this approach. Posterior transcallosal approach may be used for posterior third ventricular meningiomas without any major complication. In our view, transcallosal approach seems less traumatic and more straightforward independently of the surgeon’s habit.

Conclusion

Two cases of large meningiomas of the anterior third ventricle, which were successfully surgically removed, are presented. Although its incidence is rare, a confined round mass in the third ventricle revealed by CT or MRI, should raise the suspicion of meningioma as one of the possible diagnoses.

References

100-104.


Corresponding author: Uygur ER. Sogütözü Caddesi, 4. Sokak, No: 22/7, 06510, Ankara, Turkey.