Increased Intracranial Pressure secondary to Straight Sinus Compression by a Tentorial Meningioma
A Case Report

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Disclosures:

• The authors declare to have no actual or potential conflict of interest in relation to this presentation.
Introduction

• Meningiomas are the most frequent primary intracranial tumor, with an estimated incidence of 4.52 cases per 100,000 person-years.

• Although frequently diagnosed as an incidental finding, focal neurological deficits, seizures and increased intracranial pressure (ICP) secondary to mass effect can occur.

• The natural course is characterized by slow growth by 2-4 mm/year, but some tumors exhibit sudden exponential enlargement while others maintain a stable size.

• Asymptomatic patients are observed with periodic surveillance imaging while maximal safe surgical resection or radiation therapy is indicated for rapidly growing tumors or symptomatic patients.
Methods

• A 32-year-old previously healthy female presented to our institution with a 4-month history of blurry vision and progressive cephalgia unresponsive to over-the-counter analgesics.

• Physical examination, including fundoscopy, was unremarkable.
Methods

• Magnetic resonance imaging revealed a dural-based, homogeneously enhancing and well-circumscribed lesion classified as a tentorial meningioma measuring 2 x 1.7 x 22 mm.

Figure 1. T1-weighted contrast-enhanced magnetic resonance imaging. A) Sagittal view. B) Transversal view. C) Coronal view.
Methods

• Cerebral angiography demonstrated significant stenosis of the straight sinus at the site of the tumor. No other apparent vascular alterations were found.

Figure 2. Digital subtraction angiography. A) Lateral view of the arterial phase of the left carotid artery. B) Venous phase.
Results

• The patient’s symptoms were determined to be secondary to increased ICP caused by high pressure in the venous system and surgical resection was planned.

• The subtotal resection of the meningioma was successfully achieved using an infratentorial approach. The capsule of the tumor was conserved in order to avoid injury to the adjacent venous sinus.

• The postoperative course was uneventful, and the patient reported immediate symptomatic improvement after surgery.
Discussion

• Tentorial meningiomas account for approximately 5% of intracranial meningiomas.

• Due to their slow growth and minimal morbidity, symptomatic tentorial meningiomas tend to be relatively large at the time of diagnosis, with the most common presenting symptom being cephalea, followed by visual and gait disturbances.

• It has been previously reported that 60.7% of cases have evidence of venous sinus involvement with either compression and/or infiltration of straight and torcular sinuses.

• Venous sinus involvement presents with significant functional impairment, with up to 48% of patients exhibiting symptoms due to elevated ICP and 33% with normal pressure hydrocephalus.
Summary Points

- This report demonstrates that even relatively small tentorial meningiomas can displace vascular structures, potentially altering cerebrospinal fluid dynamics and causing non-focal symptoms secondary to increased ICP.

- Based on this observation, we recommend that patients diagnosed with an intracranial tumor without apparent mass effect in whom increased ICP is suspected should undergo cerebral angiography in order to assess the presence of vascular alterations.

- In this patient, complete resolution of the symptoms was observed after removal of the meningioma.