Tentorial meningioma

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- Adult tentorial medulloblastoma mimicking meningioma: A case report and systematic review
- Temporobasal Hemorrhage Following Retrosigmoid Resection of Cerebellopontine Angle Meningioma: A Rare Surgical Complication
- Diverse accessory techniques and working corridors to enhance the retrosigmoid approach: a versatile option for the treatment of meningiomas of the petroclival region
- Comprehensive analysis of the distribution of dural artery-derived tumor-feeding arteries in intracranial meningiomas
- Refining prognostic stratification of atypical meningiomas: significance of chromosome 1p deletion and brain invasion
- How I do it: Tentorial meningioma resection with combination of 3D exoscope and endoscope via subtemporal approach
- Short-lasting tentorial herniation may cause cortical blindness. A case report and systematic literature review
- Embolization of Posterior Fossa Meningiomas Supplied with Meningohypophyseal Trunk by Using n-BCA and Dual Balloon Protection

History

Tentorial meningiomas have been discussed in many articles devoted to posterior fossa meningiomas.

Cushing and Eisenhardt (1938) described 15 cases, Campbell and Whitfield (1948) five cases, Russell and Bucy (1953) reviewed 46 cases from the literature and described two of their own, Castellano and Ruggiero (1953) presented 21 cases of tentorial meningioma, Markham, Fagcr, Horrax, and Poppen (1955) described seven cases, and Tristan and Hodes (1958) eight cases.

These tumours are notorious for their ability to escape recognition clinically, a fact noted by many of the authors above [1].

Epidemiology

Meningioma of the tentorium represent about 5% of all intracranial meningiomas reported in the literature [2]

Approximately 70% - 80% of cases in women [3].

Classification

Tentorial meningioma classification.

Clinical features

Signs and symptoms of cranial hypertension are the most common findings, followed by cerebellar ataxia, psychiatric disturbances and cranial nerve dysfunction [4].

In 1962 Barrows and Harter reviewed a large series of cases of tentorial meningiomas. They divided the patients into three groups, of which the third presented with “ataxic, slow stiff gait”, slow mentation and urinary incontinence. The ventricles were dilated in all patients [5].

Diagnosis

In all patients with tentorial meningiomas, a contrast-enhanced CT scan and a magnetic resonance (MRI) of the brain should be ordered. The CT scan in axial and coronal views should be carefully evaluated to see the relations of the lesion with the falx and tentorium. The CT images still provide superior bone detail and are invaluable where tumors invade bones [6].

MRI

The MRI is more precise on revealing information about tumor localization, extension and its relations. Special attention should be given to where the tumor expands mostly into the two compartments. In fact with, MR and MR angiography (MRA) the size, dominance and collateralization of the transverse sinuses can be recognized. This factor is essential for this kind of approach. We should obtain all possible possible about the transverse sinus status. If infiltration is present, it should be quantified [7].

Cerebral angiography

Is sometimes necessary to obtain additional information about the arterial and venous system. Using the four-vessels angiography we are able to delineate the vascularity of the lesion and its relationship to the various arteries and veins in this area. The circulation supplying the tumor is carefully analyzed in order to plan both endovascular and surgical procedures. The vein of Galen, the internal cerebral veins and the basal vein of Rosenthal should be studied. As well as the superficial venous system, with the patency of the straight sinus, and the collateralization and enlargement of the normally present sinus should also be analyzed.

If the preoperative embolization is effective the surgical procedure become easier [8].

For Cerebral CT venography see Cerebral CT venography in surgical planning for a tentorial meningioma [9].

Differential diagnosis

Adult tentorial medulloblastomas are extremely rare tumors that may mimic meningiomas, posing significant clinical challenges. Accurate diagnosis necessitates advanced imaging techniques and histopathological confirmation [10]

A 72-year-old male presented with a primary hemangioblastoma of the posterior fossa with unusual dural attachment and meningeal arterial blood supply from the external carotid artery and marginal tentorial artery. Preoperative embolization facilitated complete resection of the tumor with no resultant neurological deficit. Hemangioblastoma must be included in the differential diagnosis of tumors with dural involvement. Preoperative embolization is very useful in such tumors [11].

Treatment

see Tentorial meningioma treatment.

Outcome

They tend to enclose, displace, or compress the adjacent cranial nerves and vascular structures. Due to their vicinity to crucial neural and vascular structures, they are a surgical challenge.

The first historic attempts at tentorial meningioma removal resulted in high rates of mortality and morbidity. In series published up to 1990, the mortality rate ranged from 14% to 44% [12] [13] [14] [15].

Following the development of diagnostic imaging and neurosurgical techniques, mortality rates fell, reaching rates of around 10% in most series published over the last two decades [16] [17].

Nonetheless, postoperative morbidity has continued to range from 18.9% to 77% [18] [19] [20].

Meticulously preserving venous sinuses is important since the risk of venous infarction cannot be predicted even with radiological good venous collaterization and apparent venous sinus blockade by tumor. Laterally situated tumors carry a better prognosis when compared to the medially situated ones. Leaving a small residual tumor in an effort to preserve important neurovascular structures does not obviate the expectation of a good long-term prognosis with minimal morbidity and low recurrence rates [21].

Case series

see Tentorial meningioma case series.

Case reports

Tentorial meningioma case reports.

Books

Signorelli, Francesco. (2013). Tentorial meningiomas by Thieme.

Case Report: Acute Neurological Deterioration in a Patient with Tentorial Meningioma and Hydrocephalus

1. Introduction

Hydrocephalus is a known complication of intracranial space-occupying lesions, particularly meningiomas located in the posterior fossa. This case describes a 69-year-old female with a history of multiple meningiomas, including a tentorial meningioma causing obstruction of the fourth ventricle, who presented with acute neurological deterioration secondary to obstructive hydrocephalus.

2. Case Presentation

2.1. Patient Information

- **Age/Gender:** 69-year-old female
- **Medical History:** Hypertension (HTN), type 2 diabetes mellitus (DM) with micro- and macrovascular complications, hypothyroidism, history of multiple meningiomas, and prior lacunar infarcts.
- **Functional Status:** Non-ambulatory, uses a wheelchair for mobility, dependent for most daily activities.

2.2. Chief Complaint

The patient was brought to the emergency department by family members due to **three days of progressive disorientation and incoherent speech**. No fever was reported.

2.3. Initial Assessment

Upon arrival, the patient was **clinically and hemodynamically stable**. Physical examination revealed:

- **Neurological Status:** Glasgow Coma Scale (GCS) 13 (O4V3M6), disoriented, incoherent speech, following commands by imitation, no evident paresis.
- **Vital Signs:** Blood pressure: 156/59 mmHg, heart rate: 98 bpm (regular), temperature: 35.5°C (tympanic), oxygen saturation: 98% on room air.
- **Laboratory Findings:**

1. Hyperglycemia: 314 mg/dL

2. Mild anemia: Hb **10.2 g/dL** (previous: 12 g/dL in January 2025)
3. Leukocytosis with neutrophilia: WBC **12.24 x10³/µL** (Neutrophils: 84.4%)
4. Elevated inflammatory markers: PCR **12.89 mg/dL**
5. Troponin I elevation: **31.9 pg/mL** (suggesting potential myocardial injury)
6. Urinalysis: Significant leukocyturia, hematuria, and bacteriuria, suggesting a **urinary tract infection (UTI)**.

2.4. Imaging and Diagnosis

A **CT brain scan** revealed:

- Growth of the **tentorial meningioma** (current size: **35 x 39 mm**, previously **29 x 35 mm in 2022**).
- Increased obstruction of the fourth ventricle, leading to **triventricular hydrocephalus** (Evans index: 0.32).
- Probable **transependymal edema**.
- Chronic lacunar infarcts in the basal ganglia, thalamus, and pons.

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BRAIN MRI with/without IV contrastCompared with the previous study

The tentorial meningioma in the posterior fossa persists, measuring 40 mm x 42 mm

Supratentorial white matter signal alterations in the periventricular region and semioval centers, compatible with severe chronic microvascular ischemic disease (Fazekas 3), pathological for the patient's age.

Chronic lacunar infarcts in the left capsulolenticular region and signs of chronic ischemic microangiopathy in the central pons.

3. Management

Given the **acute deterioration in mental status and new-onset hydrocephalus**, the case was discussed with the **Neurosurgery team**.

- **Infection Management:**
  1. Initiation of **IV ceftriaxone (2g) for UTI/sepsis**.
  2. Close monitoring for signs of sepsis resolution.
- **Metabolic and Coagulation Management:**
  1. Insulin therapy adjustment for **hyperglycemia** (6 IU rapid-acting insulin administered in the ED).
  2. **Low-molecular-weight heparin (LMWH)** at anticoagulant doses for deep vein

thrombosis (DVT) prophylaxis.

- **Neurosurgical Considerations:**
  1. Given the **pre-existing partial functional dependence, multiple comorbidities, and concurrent infection**, an **immediate neurosurgical intervention was deferred**.
  2. **Planned ventriculostomy (endoscopic third ventriculostomy - ETV) in a subsequent elective admission**.
  3. Preoperative workup and **pre-anesthesia assessment requested**.

4. Outcome and Follow-up

- **The patient was discharged under Neurosurgery (MIN) care with planned readmission for definitive surgical intervention.**
- **MRI of the brain was scheduled** to reassess tumor progression and ventricular dilatation.
- **Endocrinology consultation** for glycemic control optimization.
- **Close follow-up by Internal Medicine (MIN) for post-sepsis evaluation**.

5. Discussion

Obstructive hydrocephalus due to meningiomas is an uncommon but potentially serious complication. This case highlights the importance of timely neuroimaging in patients with space-occupying lesions and progressive cognitive decline. In this patient, **infection, metabolic disturbances, and hydrocephalus were all contributing factors** to her acute deterioration. Given her **underlying functional impairment**, the decision was made to **prioritize infection resolution before surgical intervention**. Future management will include monitoring for **further neurological decline, tumor progression, and hydrocephalus-related complications**.

6. Conclusion

This case underscores the complexity of managing **elderly patients with multiple comorbidities and pre-existing neurological deficits**. A multidisciplinary approach was essential to **stabilize the patient and plan definitive surgical treatment in a controlled setting**. Delaying surgery in favor of optimizing overall health status proved to be the most appropriate strategy in this case.

Key Learning Points: ✓ Hydrocephalus secondary to a meningioma requires prompt neuroimaging evaluation. ✓ Multifactorial contributors to cognitive decline should be assessed, including infection, metabolic derangements, and neurovascular status. ✓ In high-risk patients, stabilizing concurrent medical conditions before neurosurgical intervention may improve overall outcomes. ✓ A multidisciplinary approach involving Neurosurgery, Internal Medicine, and Endocrinology is crucial in managing complex cases.

[1)](#) [5)](#)
Barrows HS, Harter DH. TENTORIAL MENINGIOMAS. J Neurol Neurosurg Psychiatry. 1962

Feb;25(1):40-4. PubMed PMID: 21610905; PubMed Central PMCID: PMC495414.
2)
Arnold H, Hermann HD. Meningiomas at the tentorial edge. In: Dietz H, Brock M, Klinger M, editors. Advances in neurosurgery. Vol. 1. New York, Berlin Heidelberg: Springer; 1985. pp. 183–5.
3)
Frowein RA. Tentorial meningiomas. In: Klug W, Brock M, Klinger M, editors. Advances in neurosurgery. New York, Berlin, Heidelberg: Springer; 1975. pp. 108–15.
4)
Gokalp HZ, Arasil E, Erdogan A, Egemen N, Deda H, Cerci A. Tentorial meningiomas. Neurosurgery. 1995;36:46–51.
6) , 7) , 8)
Castro Id, Christoph Dde H, Landeiro JA. Combined supra/infratentorial approach to tentorial meningiomas. Arq Neuropsiquiatr. 2005 Mar;63(1):50-4. Epub 2005 Apr 13. PubMed PMID: 15830065.
9)
Eskey CJ, Lev MH, Tatter SB, Gonzalez RG. Cerebral CT venography in surgical planning for a tentorial meningioma. J Comput Assist Tomogr. 1998 Jul-Aug;22(4):530-2. PubMed PMID: 9676441.
10)
Eid SS, Ali A, Shah N, Alawadat AI, AbuHejleh M, Al-Bozom I, Al-Sulaiti G. Adult tentorial medulloblastoma mimicking meningioma: A case report and systematic review. Surg Neurol Int. 2025 Apr 18;16:143. doi: 10.25259/SNI_10_2025. PMID: 40353142; PMCID: PMC12065501.
11)
Tsugu H, Fukushima T, Ikeda K, Utsunomiya H, Tomonaga M. Hemangioblastoma mimicking tentorial meningioma: preoperative embolization of the meningeal arterial blood supply–case report. Neurol Med Chir (Tokyo). 1999 Jan;39(1):45-8. PubMed PMID: 10093461.
12)
Barrows HS, Harter DH. Tentorial meningiomas. J Neurol Neurosurg Psychiatry. 1962;25:40–4.
13)
Carey JP, Fisher RG, Pelofsky S. Tentorial meningiomas. Surg Neurol. 1975;3:41–4.
14)
Mac Carty CS, Taylor WF. Intracranial meningiomas experience at the Mayo Clinic. Neurol Med Chir (Tokyo) 1979;19:569–74.
15)
Sekhar LN, Jannetta PJ, Maroon CJ. Tentorial meningiomas: Surgical management and results. Neurosurgery. 1984;14:268–75.
16)
Sen C. Surgical approaches to tentorial meningiomas. In: Wilkins RH, Rengachary SS, editors. Neurosurgery. Vol. 1. New York: McGraw-Hill; 1996. pp. 917–24.
17)
Sugita K, Suzuki Y. Tentorial meningiomas. In: Al-Mefty O, editor. Meningiomas. New York: Raven; 1991. pp. 357–61.
18)
Asari S, Maeshiro T, Tomita S, Kawauchi M, Yabuno N, Kinugasa K, et al. Meningiomas arising from the falcotentorial junction. Clinical features, neuroimaging studies and surgical treatment. J Neurosurg. 1995;82:726–38.
19)
Bret P, Guyotat J, Madarassy G, Ricci AC, Signorelli F. Tentorial meningioma: Report on twenty-seven cases. Acta Neurochir (Wien) 2000;142:513–26.
20)
Ciric I, Landau B. Tentorial and posterior cranial fossa meningiomas: Operative results and long-term follow-up. Experience with 26 cases. Surg Neurol. 1993;39:530–7.
21)
Shukla D, Behari S, Jaiswal AK, Banerji D, Tyagi I, Jain VK. Tentorial meningiomas: operative nuances and perioperative management dilemmas. Acta Neurochir (Wien). 2009 Sep;151(9):1037-51. doi: 10.1007/s00701-009-0421-3. Epub 2009 Jul 2. PubMed PMID: 19572103.