

ANGIOBLASTIC MENINGIOMA WITH INTRAPARENCHYMAL HEMORRHAGE

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ABSTRACT

We report the case of a 37-year-old female patient harboring a right tentorial meningioma with bicompartamental growth who deteriorated while awaiting elective surgery. Both radiological and operative findings demonstrated intratumoral and intracerebellar hemorrhage. The tumor was removed totally in two sessions and was an angioblastic type. We discuss the frequency, presentation and outcome of such patients and point out to precautions that need to be taken.

KEY WORDS:

Angioblastic, Hemorrhage, Intracerebellar, Meningioma

INTRODUCTION

Meningiomas are slowly growing benign tumors having a gradual onset with a relatively chronic but progressive course (2). Hemorrhage, vascular changes, cerebral edema, high rate of malignancy and necrosis are factors held responsible of acute presentation of meningiomas (2,6,8). Acute presentation of a meningioma is so unexpected that most often it yields poor results (8). The purpose of this paper is to present a case who have bled while awaiting surgery for a recurrent tentorial meningioma and to discuss the etiology, precautions to be taken and outcome with a brief review of the literature.

CASE HISTORY:

A 37-year old female patient was first admitted in March 1988 with persistent headache of two months duration and a history of four seizures. Concomittantly she had experienced blurred vision. CT scan demonstrated an enhancing mass of 5 cm diameter at right parietotemporal region. On March 3, 1988 a craniotomy was performed. A pink mass with moderate

consistency which was found to originate from the tentorium was removed gross totally. The tumor bed was coagulated by bipolar and CO₂ laser. The histopathological diagnosis was a meningioma with sarcomatous degeneration. The patient made an uneventful recovery. To exclude any possibility of recurrence 50 Gy of radiotherapy by a Co60 source was also given. The patient stayed symptom- and recurrence free at 6-monthly clinical and yearly CT followups.

In June 1991, while the neurological examination was completely normal, a contrast enhanced CT scan as well as an MR scan showed recurrence on both sides of the tentorium. Supratentorial growth measured 15x15 mm and infratentorial extension was 30x15 mm (Fig. 1a). She was then hospitalized for surgery. While awaiting her operation day scheduled for 2 days later, she deteriorated suddenly with intense sweating, bradykardia and with decreased sensorium. A repeat CT scan with no contrast showed enlarging hyperdensity measuring 45x35 mm. in the posterior fossa. The fourth ventricle was distorted markedly towards left (Fig. 1b).



Fig. 1-a.: Postcontrast CT scan demonstrates an infratentorial recurrence with marked enhancement measuring 30x15 mm.



Fig.1-b.: Non-enhanced CT scan after deterioration shows enlargement of the same mass with a lobulation at its medial aspect which corresponds to intraparenchymal hemorrhage (Time interval between 1a and 1b is 10 days).

She was immediately taken to theatre and a right retroauricular retromastoid craniotomy was performed. The mass was first debulked intracapsularly. There was widespread hemorrhage within the tumor. The periphery of the tumor was giving cleavage because of the hemorrhage around it. The pia of the cerebellar hemisphere was found to be torn with only 2-3 ml of hematoma over the cerebellar cortex. Overall, a gross total removal of the infratentorial

portion was accomplished. The tumor bed on the underside of the tentorium was again coagulated. The patient made an unexpectedly good recovery and was up on her feet on the 3rd day. Histopathology this time was a diffusely angioblastic meningioma (Fig. 2). A week later the previous craniotomy was reexplored and the supratentorial portion and the tumor between the sheets of the tentorium was totally excised. The patient was discharged happy and symptom-free on the 10th postoperative day.

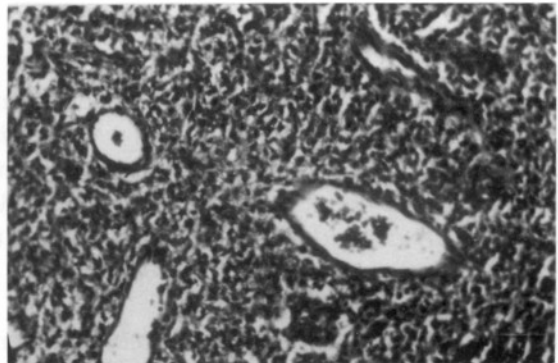


Fig. 2 : Photomicrograph of the angioblastic meningioma. Note hypercellularity and abundance of the blood vessels (Hematoxylin and eosin: x 110).

DISCUSSION

Brain tumors may occasionally present acutely. Such a presentation is mainly because of bleeding into or around the tumor (5,6,8,11). Intracerebral bleeding has been found particularly in malignant melanomas and metastatic brain tumors (5). Gliomas like anaplastic astrocytomas and less commonly oligodendrogliomas, choroid plexus papillomas and carcinomas and the pituitary tumors may present in an apoplectiform manner (5,8). Intracerebral hemorrhage from benign intracranial tumors is rare (6). The occurrence of hemorrhagic onset of a meningioma has been documented in the neurosurgical literature mostly in form of single reports. Martinez-Lage et al (8) have made a literature review only recently and found 57 cases including theirs out of which 55 were intracranial meningiomas. Wakai et al (12) reported an incidence of 1.3 % for the hemorrhagic manifestations of meningiomas and for Martinez-Lage et al this figure was up to 2.4% (8).

There appears few points that deserve mentioning. Meningiomas with hemorrhage manifest themselves during the fifth decade when the incidence of cerebral stroke is already high which makes the initial diagnosis quite difficult on clinical grounds (8). No preponderance related to sex has been noted (6). The clinical presentation is almost always that of sudden deterioration of sensorium accompanied by severe headache and/or hemiparesis. The occurrence of seizures and the finding of papilledema are rarely encountered.

The value of CT as the emergency imaging method can not be overemphasized. Non-enhanced and enhanced CT scans are necessary to visualize both the tumor and the hemorrhage (6).

Of the 55 cases reported to date (6,8), pure intratumoral bleed occurred in 2 (3.5%) and pure intracerebral in 6 (11%) cases. Intracerebral and intratumoral bleed with extension to subarachnoid and/or subdural space accounted for 17 (34%). Subdural space was involved alone in 4 (7%) while pure subarachnoid hemorrhage occurred in 15 (28%). The rest were subject to combinations of different locations as to hemorrhage. Major reviews on the subject (6,8), noted a correlation between the location of the meningioma and the likelihood of hemorrhage. Convexity (38%), parasagittal (16%) and intraventricular location in the decreasing order of frequency resulted in hemorrhagic onset in 55 cases upto date. To our knowledge, our case appears as the first tentorial meningioma case to bleed.

Though angioblastic type would be the most logical histological type to bleed, meningothelial meningiomas dominated the related literature (39%) (6). Only 9 (15%) cases of angioblastic meningioma cases with hemorrhage were reported (8).

The mechanism for production of hemorrhage is unknown. Goran et al (4) and Lazaro et al (7) stated that even nonangioblastic meningiomas may have more than one tissue pattern. As Goran et al (4), Modest et al (9) and Naka et al (10) pointed out, the meningiomas associated with hemorrhage showed an unusual vasculari-

ty near the site of hemorrhage and the rupture of these angiomatous vessels probably accounted for the hemorrhage in nonangioblastic subtypes. A transformation to angioblastic subtype after radiotherapy for sarcomatous meningioma might have been the case for our patient, but why the tumor bled infratentorially supports the view of Goran et al and Lazaro et al (4,7).

Anticoagulation (3), trauma (1,13) and hypertension (5) have all been implicated as contributory factors. Hamer (5) also speculated that hemorrhagic infarction due to compression of the brain and of cortical veins leading to erosion might be another cause (5).

The success rate of treatment depends only on prompt diagnosis. A high index of clinical suspicion is necessary. The overall mortality of the reported cases in the literature in up to 50% (8), in spite of easy availability of CT worldwide. The mortality figures for the angioblastic type has been even higher. The fact that our patient was a diagnosed meningioma patient contributed positively to the outcome since she was taken to theatre in few hours.

In conclusion, we have reported the case of a female patient with a bleeding meningioma. We stress the fact that clinical suspicion is necessary for prompt and accurate diagnosis of such patients and that the preoperative neurological state correlate well with the outcome.

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REFERENCES:

1. Bingas B, Meese M: Subdurales Hamatom seltener Aetiologie (Fallmitteilung). *Nervenarzt* 37:175-177, 1966
2. El-Banhawy A, Walter W: Meningiomas with acute onset. *Acta Neurochir (Wien)* 10:194-206, 1962
3. Everett BA, Kusske JA, Pribham HW: Anticoagulants and intracerebral hemorrhage from an unsuspected meningioma. *Surg Neurol* 11:233-235, 1979
4. Goran A, Ciminello VJ, Fisher RG: Hemorrhage into meningiomas. *Arch Neurol* 13:65-69, 1965

5. Hamer J: Meningioma of the foramen magnum presenting as subarachnoid hemorrhage and cerebellar hematoma. *Neurochirurgia (Stuttg)* 22:189-193, 1979
6. Kohli CM, Crouch RL: Meningioma with intracerebral hematoma. *Neurosurgery* 15:237-240, 1984
7. Lazaro RP, Messer HD, Brinker RA: Intracranial hemorrhage associated with meningioma. *Neurosurgery* 8:96-101, 1981
8. Martinez-Lage JF, Poza M, Martinez M, Esteban JA, Antunez MC, Sola J: Meningiomas with hemorrhagic onset. *Acta Neurochir (Wien)* 110:129-132, 1991
9. Modesti LM, Binet EF, Collins GH: Meningiomas causing spontaneous intracranial hematomas. *Neurosurg* 45:437-441 1976
10. Nakao S, Sato S, Ban S, et al: Massive intracerebral hemorrhage caused by angioblastic meningioma. *Surg Neurol* 7:245-248, 1977
11. Palaoğlu S, Özgen T, Önel B: Acoustic neurinoma with intratumoral bleeding. *J Neurosurg Sci* 34:65-67, 1990
12. Wakai S, Yamakawa K, Manaka S, et al: Spontaneous intracranial hemorrhage caused by brain tumor: its incidence and clinical significance. *Neurosurgery* 10:437-444, 1987
13. Yaşargil MG, So SC: Cerebellopontine angle meningioma presenting as subarachnoid hemorrhage. *Surg Neurol* 6:3-6, 1976