

Right transverse venous sinus thrombosis concomitant to an occipital basal meningioma

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Abstract

We refer the case of an Albanian female patient aged 50 years, which presented to the emergency department of with confusional state, profound headache, vomiting unrelated to meals, unstable gait and general malaise. The attending physician denoted a cerebellar syndrome and a slight papillary stasis, making the clinical diagnosis compatible with an event causing increased intracranial pressure. A CT scan performed detected a basal occipital meningioma, partially calcified, at the level of sagittal sinus confluent to the right transverse sinus. The latter was completely hyperdense in the respective images, suggesting a thrombotic occurrence that would explain the acuity of the situation. The patient was treated conservatively for one week with symptoms receding substantially, thereafter referred to a neurosurgical facility.

Keywords

Basal Meningioma, Venous Sinus Thrombosis, Increased Intracranial Pressure

1. Introduction

The concomitance of meningiomas grown in the vicinity of major cerebral venous sinuses with thrombotic events in the latter is a rarity [1]. Instead, invasion of parafalcine or elsewhere positioned meningiomas toward venous sinuses is a notorious occurrence, contributing substantially to the occlusion of these venous structures [2]. In fact, dural-based neoplasms will not infrequently invade the adjacent venous sinuses [3].

Meningiomas are generally considered as benign tumors, but their frequent recidives, and sometimes the multiplicity of their appearance, makes their treatment a challenging issue [4]. Even bone reaction vis-à-vis the growing tumoral mass will be a systematic problem, with a reactive hyperostosis in the majority of cases, albeit osteolytic meningiomas have been reported in the casuistics [5-7].

2. Case Report

An Albanian female patient aged 50 years, previously healthy, was emergently admitted due to severe headache, vomiting and confusion. The neurological examination suggested a cerebellar syndrome with unstable gait, but no major motor deficits. Her general situation was of a clear malaise, and the ophthalmologist suggested an initial papillary stasis.

A CT scan was performed in the premises, detecting a basal occipital meningioma partially calcified (Figure 1 & 4). The tumoral mass was close to the confluence of the sinuses, in between the straight and the right transverse sinuses. The latter was completely hyperdense (Figure 2) and hyperostotic changes of the occipital bone were evident (Figure 3).



Figure 1. Basal occipital meningioma close to the confluence of the sinuses (asterisk).

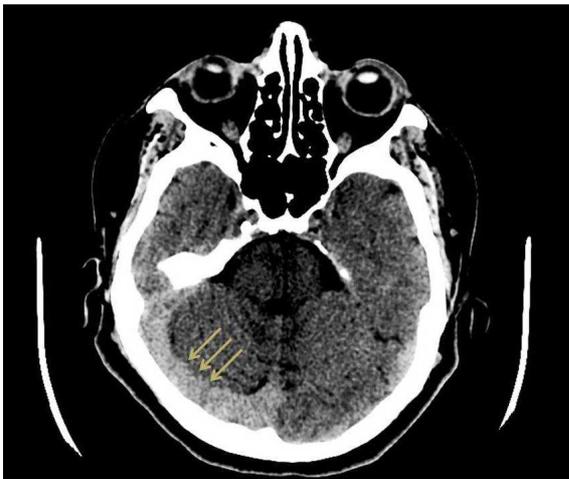


Figure 2. Hyperdense signal of the right transverse venous sinus (arrows).

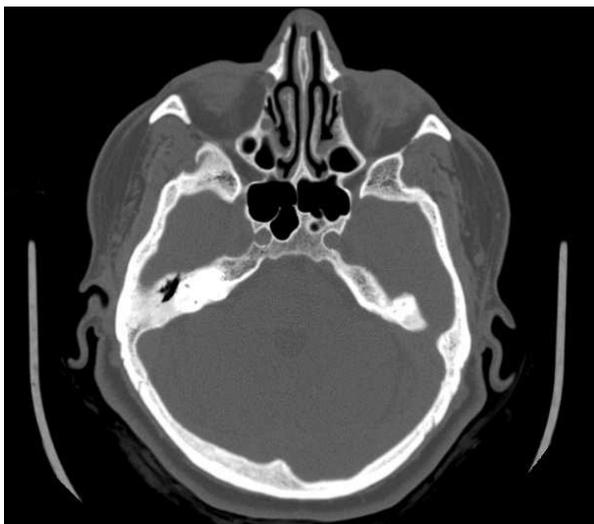


Figure 3. Hyperostosis of the occipital bone adjacent to the presence of meningioma.



Figure 4. Basal occipital meningioma; MRI image of control, two months after the thrombotic episode.

The diagnosis of a venous sinus thrombosis in the background of a skull base meningioma was made, and the patient was treated conservatively for one week. Anticoagulation drugs, infusions, headboard inclination and analgics were duly applied, in accordance with specialized opinions admitting the efficacy of the anticoagulants almost universally [8]. Under conservative therapy, the situation improved substantially, with the headache subsiding and the patient being able to walk freely without assistance. She was referred to a neurosurgical facility for definite treatment of the meningioma.

3. Discussion

The meninges are source of a very common intracranial tumor, the meningioma [9]. Tumoral cells might frequently infiltrate the subarachnoid spaces, but venous sinuses can be invaded as well. Meningiomas often calcify, and this makes the tumor suspicion suggestible even on plain radiographs [10]. Incidental thus asymptomatic meningiomas are as well a common finding, giving raise to controversies regarding their treatment and follow-up; all that mixed with a high degree of inter-author variability of approaches, and ethical dilemmas [11, 12]. The silent natural history of some meningiomas explains as well their detection only during autoptic studies, performed for completely other reasons [13]. However, its presence has been elsewhere imputed even as a cause for sudden death, related with intracranial tumoral pathologies [14].

The situation differs substantially when concomitant or etiologically inter-dependent pathologies are present, such as in our case report. The venous sinus thrombosis has been found present in ten out of eleven cases of cranial vault meningiomas, thus the concurrence cannot be merely a coincidental fact [15].

In fact, meningiomas growing in the vicinity of a venous sinus, or even expanding to the latter, will provoke local changes in the circulatory system, and the venous stasis

will predispose the thrombotic occurrence. Other sources, however, suggest that sinus occlusion might be entirely compensated, and the fact that meningiomas grow slowly, will favor such a conclusion [16]. The neurosurgical approaches are out of the scope of this paper, but Sindou et al, in an exhaustive report, have detailed the surgical pitfalls during the treatment of meningiomas invading the major dural sinuses; the same report offers as well a six-type classification of meningiomas with regard to their behavior toward venous sinus structures [17].

4. Conclusions

Our case report described a female patient with a basal occipital meningioma, admitted emergently due to the clinical picture of intracranial hypertension. The latter seem to be related with the occurrence of a large thrombotic involvement of the right transverse venous sinus of the brain, which might have predisposed the venous structure to such pathology, mainly on the grounds of a chronically raised intracranial pressure [18].

However, our case could not be explained merely with the acute character of a growing mass, since meningiomas generally grow slowly, albeit particular pathological forms can be extremely aggressive; and as a matter of fact, the natural history of incidental meningiomas remain still a mystery [19, 20]. The hyperostosis suggested from the bone windows in the computerized tomography (Figure 3) is compatible with the invasive character of the tumor, primarily toward the osseous structures, but the adjacent venous structures can be interested as well [21]. The importance and the acuteness of a venous sinus thrombosis warrant its conservative initial treatment, beforehand of a definite surgical solution of the main tumoral structure, causative or concomitant to the thrombotic event.

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