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IMAGES IN CLINICAL RADIOLOGY

Occipital Hemangiopericytoma 10 Years after Initial Manifestation

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Teaching Point: Cranial hemangiopericytoma is a rare neoplasm that can be differentiated from meningioma on imaging by its lobulated, mushrooming contours and adjacent osteolysis rather than hyperostosis.

Keywords: Hemangiopericytoma; Solitary Fibrous Tumor; Central nervous system; metachronous; meningioma

Case Presentation

A 54-year-old woman was referred to our hospital for occipital soft tissue swelling and headache. The patient's history was remarkable for resection and radiation therapy for a hemangiopericytoma (HPC) in the left gluteal musculature 10 years previously. The patient had also undergone multiple pulmonary metastases resections. An ultrasound of the occipital region revealed a heterogeneous soft tissue mass with destruction of the occipital bone of up to 6 cm (**Figure 1**). Computed tomography (CT) of the brain showed an extra-axial mass in the fossa posterior extending through the tentorium and lysis of the overlying occipital bone (**Figure 2**). On MRI the mass was isointense to grey matter on both

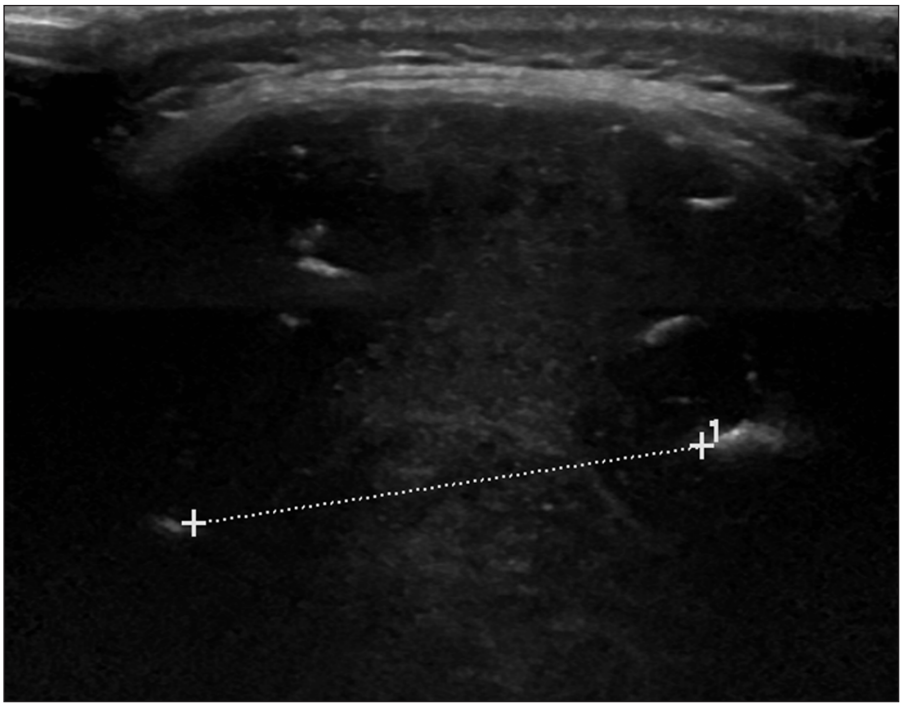

Figure 1: Ultrasound examination of the occipital region shows a heterogeneously hypoechoic mass measuring up to 6 cm.

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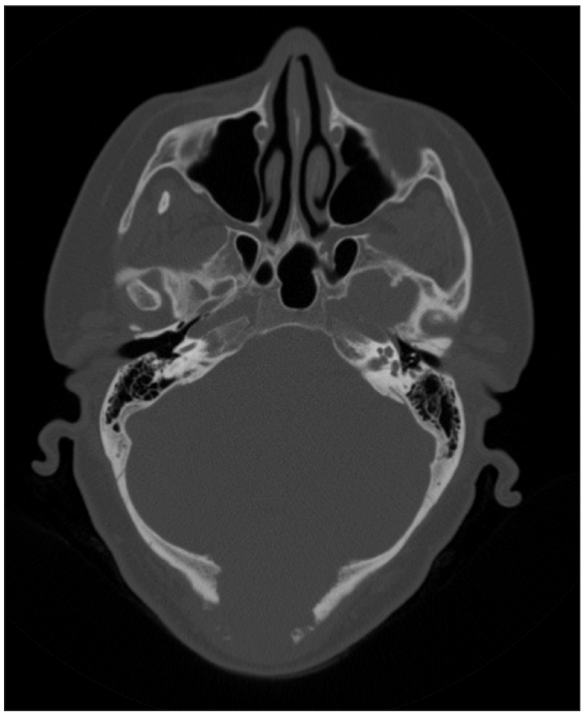

Figure 2: Axial CT reformat (bone window) depicts an extensive osteolysis centrally in the occipital bone with an outward bulging soft tissue mass.

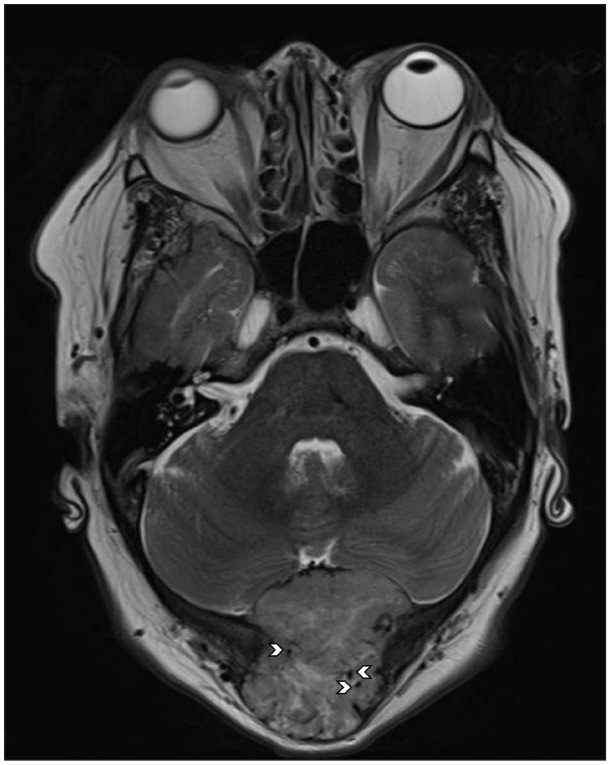

Figure 3: Axial TSE T2-WI shows a heterogeneously iso- to hyperintense lesion centered around the occipital bone. Note the discrete vascular flow voids (arrowheads). Brain edema was absent.

T1- and T2-weighted images (WI), flow voids were noted (**Figure 3**, arrowheads). The lesion demonstrated mildly heterogenous, avid contrast enhancement (**Figure 4**).

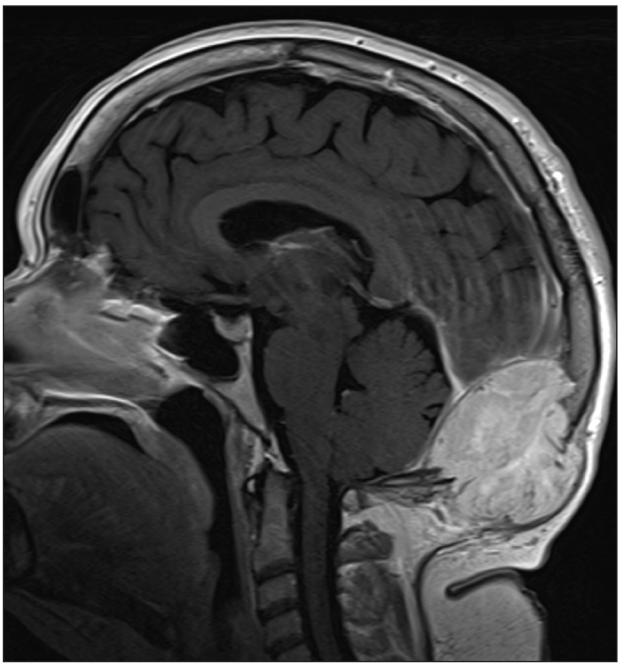

Figure 4: Sagittal T1-WI after injection of gadolinium contrast depicts a vividly enhancing mass with sharply delineated borders.

There was no restricted diffusion. The patient underwent selective intra-arterial embolization before surgical resection to minimize blood loss. Afterwards the patient received adjuvant radiotherapy.

Comment

HPC arise from the mesenchymal spindle cells and histologically demonstrate considerable overlap with *Solitary Fibrous Tumors*. They are hence grouped in the WHO 2016 classification of tumors of the central nervous system under mesenchymal, non-meningothelial tumors, ranging from grade I to III. HPC/SFT can occur in soft tissue and intracranially. It is an exceedingly rare tumor representing only <2% of the soft tissue tumors and 0.4% of CNS tumors. On imaging CNS HPC/SFT shows vivid, heterogeneous enhancement and may exhibit a dural tail. Due to these similarities with meningioma, this lesion was previously termed 'angioblastic meningioma'. Only later the histologic similarities with the HPC/SFT were discovered. HPC/SFT occurs more often in younger male patients, in contrast to meningioma, which is more prevalent in older, female patients. Imaging clues in favour of HPC/SFT over meningioma are lobulated, mushrooming contours; lysis of the adjacent bone; absence of calcification or hyperostosis; and edema in the adjacent brain parenchyma in most cases. MRI spectroscopy may help in differentiation as HPC/SFT can exhibit a high myo-inositol peak [1]. The treatment of choice is local resection and adjuvant radiotherapy. HPC/SFT is known to recur and produce distant metastases after long periods of time, typically in lung or bone. Our patient presented with typical imaging findings for CNS HPC/SFT, namely an extra-axial intracranial enhancing tumor with flow-voids and lysis of the underlying occipital bone. The

occurrence of CNS manifestation of HPC/SFT in a patient with history of musculoskeletal HPC could be either coincidental, syndromic (unknown genetic defect), or metastatic.

Competing Interests

The authors have no competing interests to declare.

Reference

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