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Cavernous angioma of the frontal bone : a case report

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ABSTRACT

Background :
Haemangioma or cavernous haemangioma is a rare vascular tumour that rarely affects bone, rarely in the bones of the skull, the clinical picture may mimic a benign tumour, management involves surgery often requiring reconstruction by cranioplasty.
Case presentation :
A 34-year-old female patient consulted for a frontal tumefaction, supra left eyebrow, evolving for several years, painless and fixed in relation to the frontal bone, the paraclinical examinations made by CT scan and MRI concluded to a vascular tumor, the exeresis in monobloc generated a loss of bone substance which necessitated a cranioplasty by calvarial bone.
Conclusion
Cavernous haemangioma of the calvarial bone is a rare vascular tumour and only isolated cases can be found in the literature or in small series.

KEYWORDS :

angioma, frontal bone , cranioplasty

MAIN ARTICLE

INTRODUCTION:

Hemangiomas are benign tumors of vascular origin that can be categorized as capillary or mixed based on their composition. Our focus is on cavernous angiomas of the cranial vault, which arise from the intrinsic vascularization of the bone and account for approximately 0.7% to 1% of bone tumors.

We present the case of a slowly progressing cavernous angioma of the frontal bone that resembled an exostosis in a young female patient.

CLINICAL CASE:

A north africain 34-year-old female patient with a depressive syndrome undergoing symptomatic treatment presented with a left frontal swelling that had been progressively enlarging for over 13 years. Upon clinical examination, the patient appeared to be in good overall health, alert and stable both hemodynamically and respiratorily. Facial examination revealed a 3 cm by 1.5 cm swelling located above the left superciliary arch. The swelling was hard and painless, with a rough surface. An ophthalmological examination showed no abnormalities, with no evidence of exophthalmos or other signs of orbital compression. Given this clinical presentation, a CT scan of the orbit and brain was ordered, which revealed an intraosseous tumoral process in the frontal bone, with enhancement following the injection of contrast medium (Figure 1).

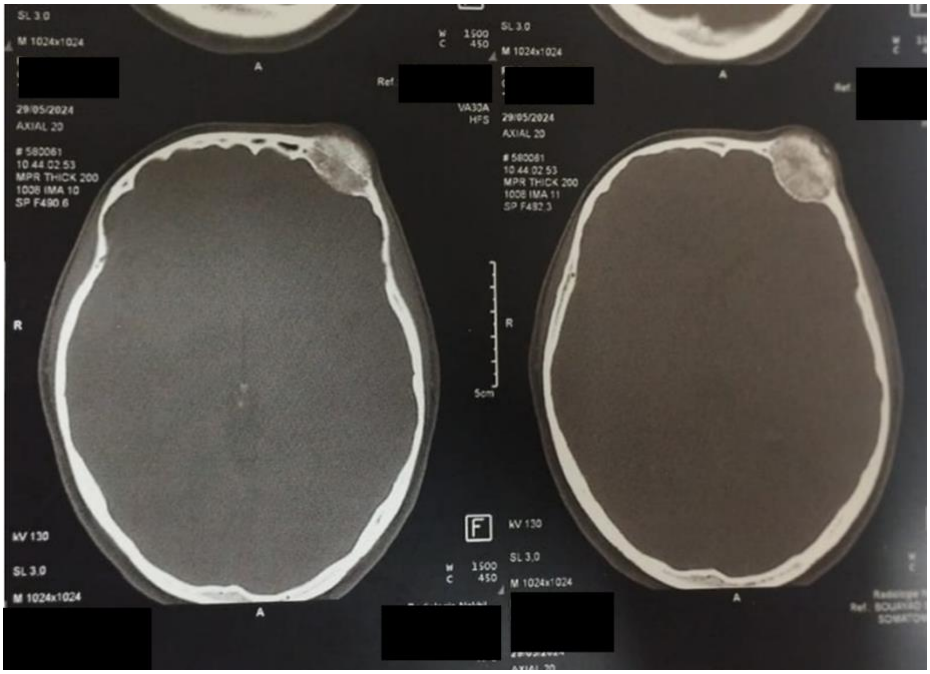

***Figure** 1:Frontal tumor on CT axial slices*

A complementary MRI was performed to examine the relationships between brain structures (Figure 2), to rule out any intracranial extension and to confirm the vascular nature of the tumor.

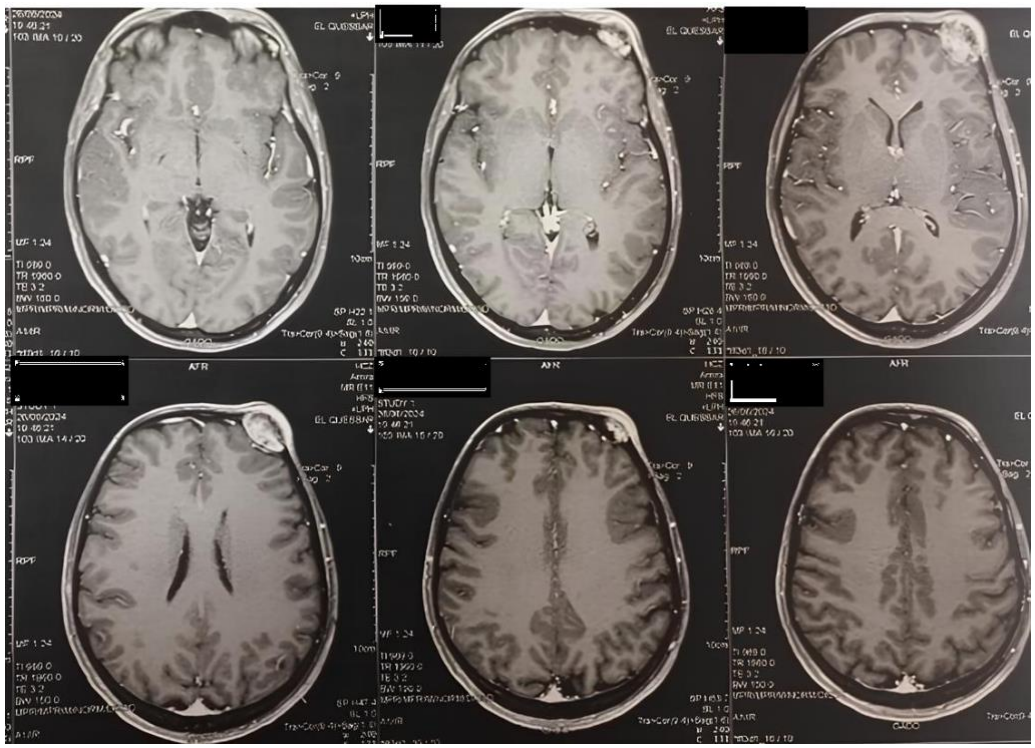

Figure 2*:Tumor appearance on MRI*

Given the vascular nature of the tumor, we chose to proceed with diagnostic and therapeutic surgery instead of a biopsy, which could lead to hemorrhagic complications. The patient was admitted to the operating theatre under general anaesthesia, and a bi-coronal approach was performed, revealing the purplish tumor (Figure 3).

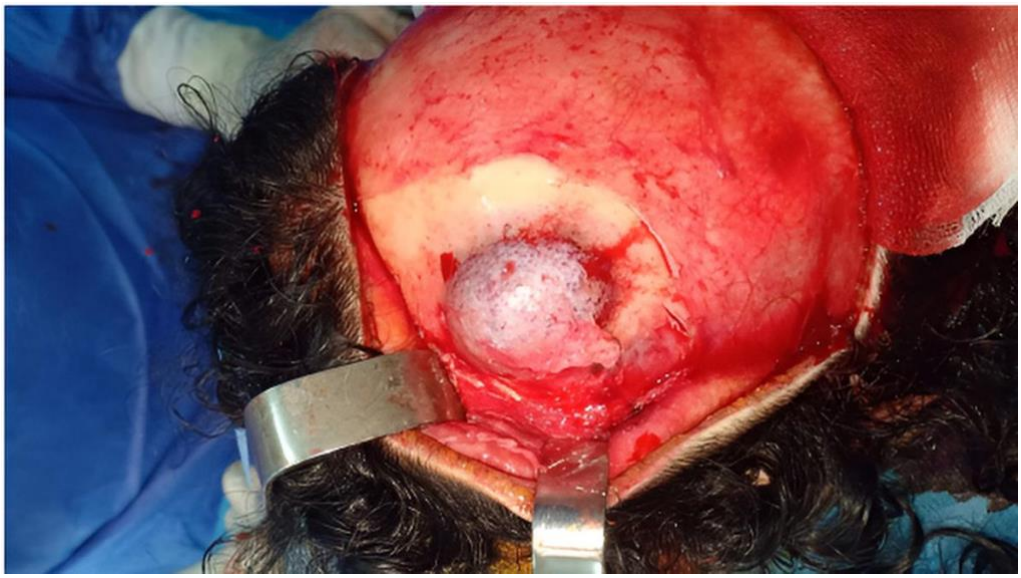

Figure 3: *Intraoperative appearance of the tumor*

To prevent any intraoperative hemorrhage, the excision was carried out through healthy bone, allowing for the detachment of the dura mater from the internal table, which was non-adherent at this level. This approach facilitated the complete removal of the tumor. (Figure 4).

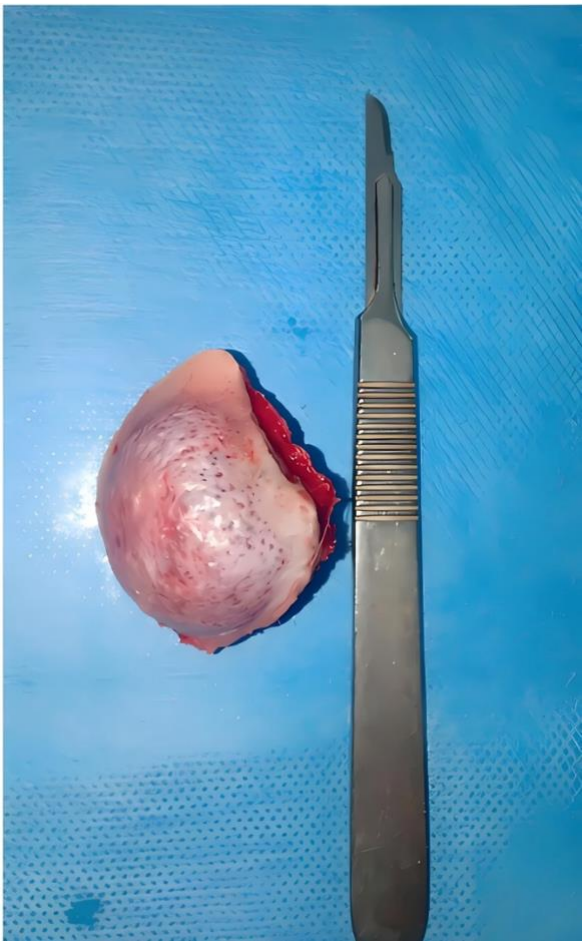

Figure 4: *Surgical specimen*

The removal of the tumor resulted in a loss of bone substance, which was reconstructed using two calvarial bone grafts harvested from the ipsilateral parietal bone. These grafts were secured with titanium microplates and covered with a galea flap (Fig. 5).

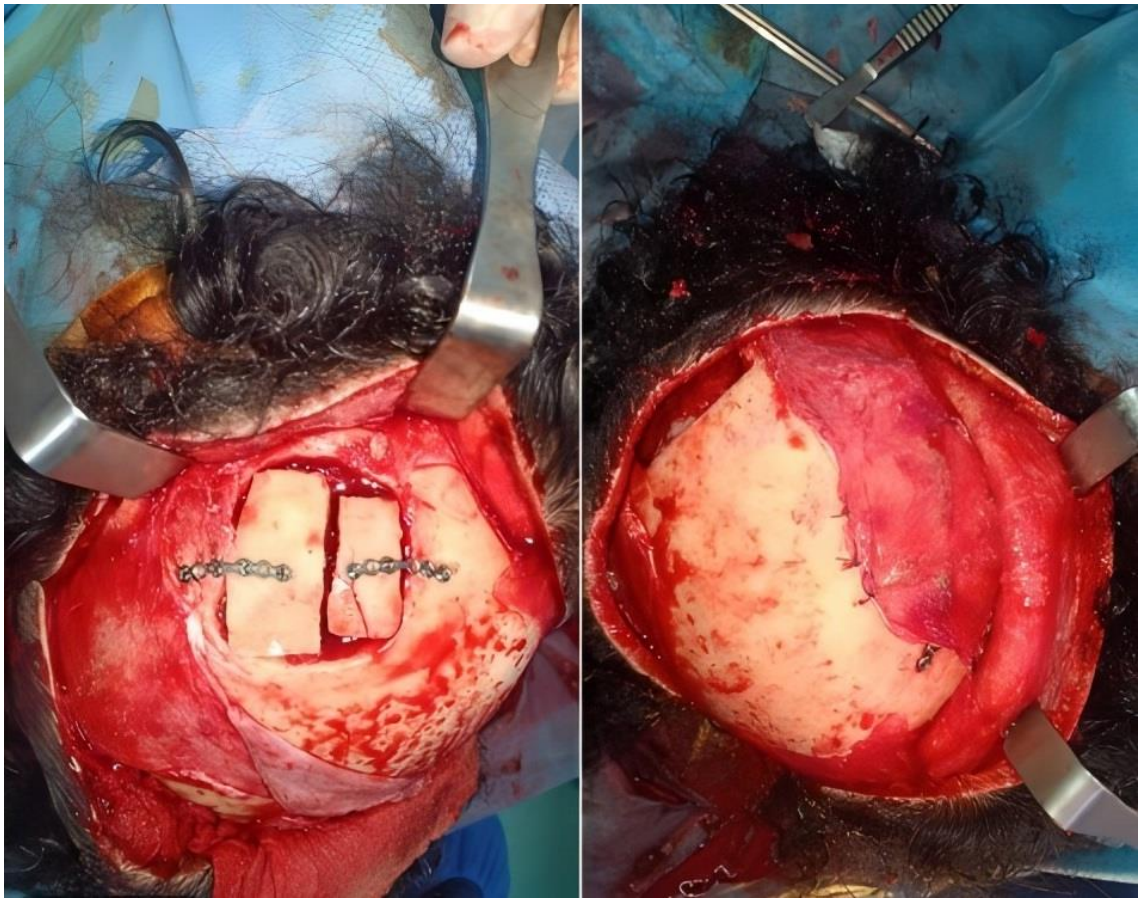

Figure 5: *Cranioplasty using calvarial bone + galea flap*

Closure was then performed in two layers using a suction drain, and the postoperative course was unremarkable, except for left-side paresis of the frontal ramus, which resolved within three weeks with full recovery. Anatomopathological analysis of the surgical specimen confirmed the vascular nature of the tumor, identifying it as a cavernous hemangioma histologically.

DISCUSSION :

Hemangiomas are rare entities, accounting for just 0.2% of all bone neoplasms, with the spine being the most common site [1]. In the calvarium, they develop within the diploë and can become symptomatic as they increase in size [2].

The most frequently affected areas are the parietal, frontal, and orbital regions. Multiple forms are uncommon, with only a few solitary cases documented in the literature [3][4] . The condition is most prevalent in women and almost exclusively occurs in young adults[3].

The most common mode of discovery is incidental during radiological examinations or through clinical observation of a hard, painless swelling covered by healthy, non-adherent skin. There are typically no associated neurological signs, as the tumor grows very gradually without encroaching on the brain parenchyma (intradiploic position)[5]. Patients may report headaches or experience ophthalmological or auditory symptoms depending on the tumor's location. In the literature, only one case of cavernous hemangioma has been reported with vital risk due to erosion of the internal table and dura mater, leading to subdural hematoma [6].

Imaging studies typically reveal standard X-rays showing a sharply defined, osteolytic, intradiploic lesion with a grid-like, or "honeycomb," appearance. This appearance is non-specific and may suggest a more aggressive pathology. Cerebral CT scans usually demonstrate a well-defined, lytic intradiploic lesion in the bone window, sometimes with erosion of the internal and/or external tables. This imaging aids in assessing the location of the cavernous hemangioma and its relationship with adjacent structures. MRI typically shows an isointense lesion on T1-weighted imaging and a hyperintense lesion on T2-weighted imaging, which enhances after gadolinium injection. The classic radiographic features may not be clearly apparent [3]. Due to their infrequent occurrence in the skull, vague symptoms, and lack of prototypical radiological signs, these tumors can often be overlooked or misinterpreted as more concerning lesions, such as multiple myeloma, osteosarcoma, or bone metastases [7].

Surgical management is indicated when there are pain, morphological changes, or functional repercussions related to the tumor's location. The preferred treatment consists of en bloc resection with tumor-free margins, followed by cranioplasty [8].

CONCLUSION:

Despite their low frequency, cavernous hemangiomas should be included in the differential diagnosis of slow-growing osteolytic lesions of the skull. Elective treatment of these tumors includes complete resection by craniectomy, with secure bone margins**.**

Despite their rarity, cavernous hemangiomas should be considered in the differential diagnosis of slow-growing osteolytic lesions of the skull. The preferred treatment for these tumors is complete resection via craniectomy, ensuring secure bone margins.

ACKNOWLEDGEMENTS

The authors declare that they have no conflicts of interest.

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