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Cas clinique

CAVERNOUS HEMANGIOMA OF THE PARIETAL BONE
Case report and review of the literature

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SUMMARY : **Cavernous hemangioma of the parietal bone. Case report and review of the literature.**

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Intraosseous cavernous hemangiomas are a rare finding in the calvarium. It is a benign tumor arising from the intrinsic vasculature of the bone. We report one case observed in a 20 year-old male. The diagnostic peculiarities and therapeutic implications of this lesion are discussed and the available literature on this subject is reviewed. These tumors do not recur once a radical surgical removal is performed.

Key words : *hemangioma, skull, tumor.*

RÉSUMÉ : **Hémangiome caverneux de l'os pariétal. Revue de la littérature, à propos d'un cas.**

L'hémangiome caverneux se localise rarement à la voûte du crâne. Il s'agit d'une tumeur à croissance lente qui a son origine dans la vascularisation intrinsèque de l'os.

Nous décrivons un cas observé chez un jeune homme de 20 ans, accompagné des caractéristiques diagnostiques et des implications thérapeutiques de cette lésion selon les données de la littérature internationale.

Pour ces tumeurs il n'y a pas de risque de récidive lors qu'une excision chirurgicale totale est realisée.

Cavernous hemangiomas of the skull may represent a diagnostic challenge for its rare frequency and the ambiguous clinical and radiological features. The aim of this paper is to point out the pathological and clinical keypoints to better address the diagnosis of such entity, on the basis of the relevant literature and the observation of a personal case localized in the parietal bone.

CASE REPORT

A 20 year-old male came to our observation for a small, painless subcutaneous bulging in the left frontoparietal region. It was reported to take 4 weeks to grow to the actual size (2 cm. in diameter). Physical examination confirmed the finding of a bony firm, dome-shaped protrusion of the skull, covered by normal skin. No neurological signs were present. A plain x-ray film of the skull *(figure 1)*, and a cranial CT scan *(figure 2)* showed the lesion with a totally intradiploic « honeycomb » pattern.

Surgical removal was achieved with the help of a microdrill circumscribing the dome-shaped protrusion, right through the entire skull, finally obtaining a cylindrical « en bloc » resection. Cranioplasty with methyl-metacrilate completed the procedure.

The patient was discharged three days after surgery.

Histological examination revealed a cavernous hemangioma of the diploë. In particular bone tissue was described characterized by the presence of large thin-walled vessels, filled with erythrocytes, which replaced the normal marrow elements. No recurrence of disease was present at cranial CT performed two years post-operatively.

DISCUSSION

Bone hemangiomas represent a rare finding [1, 2, 8-10]. Their extimated incidence is about 0.7 %

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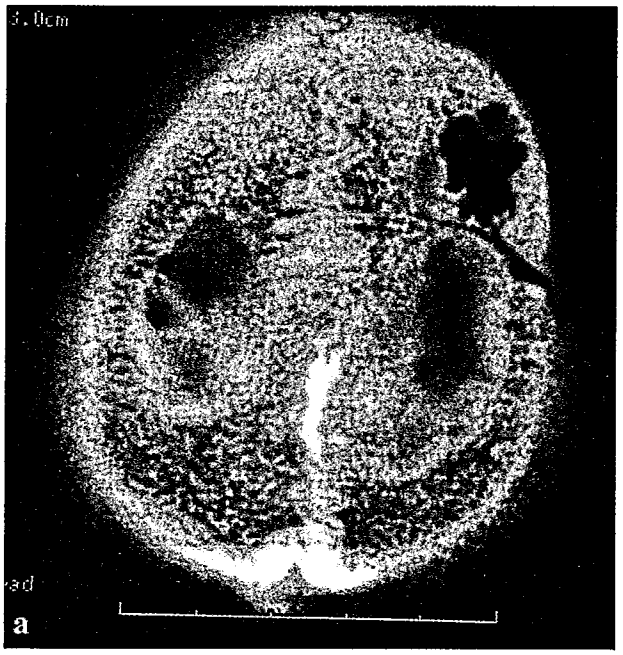
FIG. 1. — Plain X-ray film of the skull shows a small lytic lesion of the parietal convexity.

FIG. 1. — Radiographie du crâne : petite lésion lytique dans l'os pariétal.



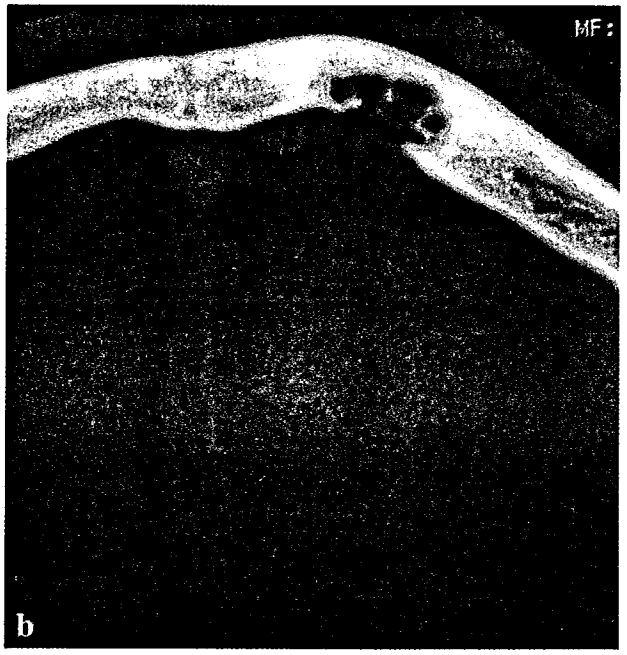


FIG. 2. — a et b : Cranial TC performed with « bone window » technique clearly shows the « honeycomb » pattern of the intraosseous lesion.

FIG. 2. — a et b : Scanner du crâne (en fenêtre osseuse) : aspect « en ruche » de la lésion.

of all bone neoplasms [10]. The skull is the second most frequently affected site after the spine, accounting for about 10 % of all calvarial benign tumors [10].

The first hemangioma of the skull reported in the literature was described by Toybee in 1845 ; in 1847 Ehrmann reported the first attempt of surgical removal of a skull hemangioma (unfortunately, the patient died of postoperative meningitis) ; the first successful removal of such a lesion with survival of the patient is the one reported by Pilcher in 1894, while Cushing described a case in 1923, reccommending « en bloc » resection for a successful outcome [10]. Wyke's review [10] still remains the most relevant, accounting for 61 reported cases, including one case operated on by him, from 1845 to 1946 (101 years).

The parietal and frontal bones appear to be more often involved [1, 3] ; multiplicity is an exceptional event in the skull [4, 5, 8, 10].

Women are more frequently affected (approx. 2:1 ratio) and a somewhat higher incidence is observed in young adults [1].

The typical clinical presentation of these lesions is usually a solitary, palpable, bony hard mass, slowly growing, covered by normal skin. Headache may occur as the mass grows up [1]. As a rule, hemangiomas located in the vault grow outwards, so that neurological symptoms and signs are unusual ; rarely lesions locate at the

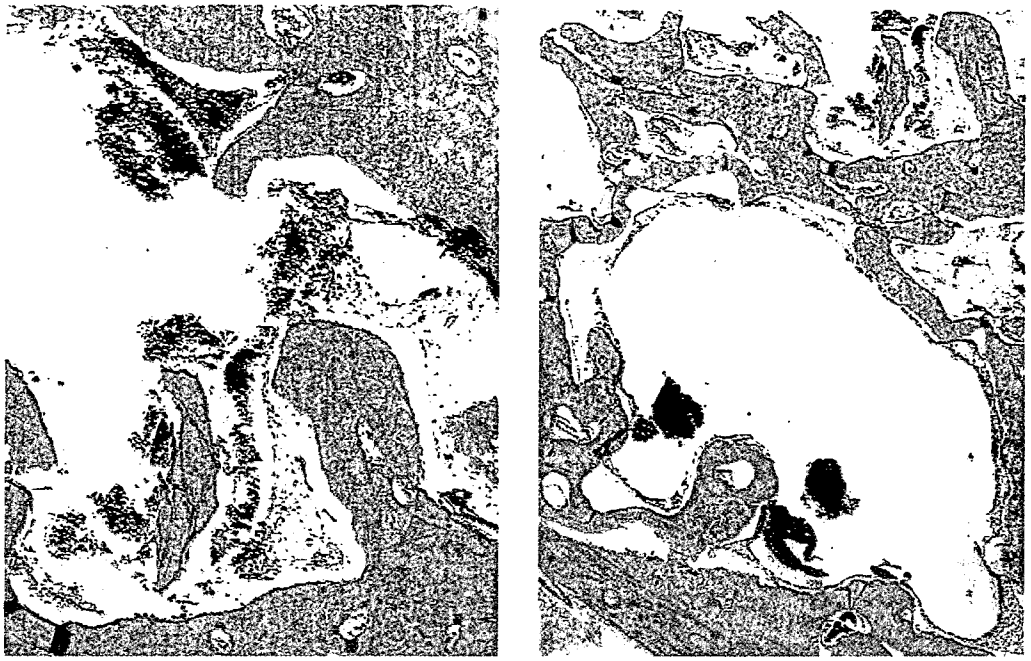


FIG. 3. — Cavernous hemangioma (HE, × 4).
FIG. 3. — *Hémangiome caverneux (HE, × 4).*

petrous bone, and a VII or VIII cranial nerve involvement may be observed [9] ; another unusual location is the orbital one , causing proptosis, strabismus and diplopia [3, 10].

Hemorrage as a presenting symptom is rare [10].

The usual radiological finding is an osteolytic lesion, with a typical « honeycomb » or « sunburst » pattern at plain X-ray films [10]. Using appropriate windowing, CT scan usually shows the presence of a radio-lucent lesion totally intradiploic, and confirms the above described specific roentgenographic features.

Hemangiomas of the bone are benign lesions. They may be histologically classified into cavernous, capillary and venous lesions [1, 9] ; in the excellent review of Paillas *et al.* [6] some rarer, atypical forms are described (lacunar, pseudomeningiomatous, hyperostotic).

Differential diagnosis must take into account cholesteatoma, metastatic carcinoma, meningioma, eosinophilic granuloma, osteoma, aneurismatic bone cyst, Paget disease ; in cavernous hemangiomas the lack of sclerotic margins at roentgenograms, as well as the radiological and histological finding of a completely intradiploic lesion (which usually causes the erosion of the sole outer table) are features distinctive enough to rule out the majority of such diagnoses [1, 8].

The natural history of untreated lesions is poorly described in the existing literature, which mainly debates on operated cases ; bleeding, cosmetic alterations and cranial nerve(s) progressive involvement (in tumors of the skull base) as well as progressive exophtalmos and impairment of ocular movements (in orbital lesions) do constitute the natural course of such cases.

Monobloc resection is the procedure of choice in these tumors, and it is usually accomplished without difficulties in convexity tumors [7]. Petrous-temporal or orbital lesions may require a more complex surgical effort [3-5,10].

CONCLUSIONS

Skull cavernous hemangiomas are rare, benign tumors and are best treated by surgical complete resection, which is the first therapeutic choice and, at least in convexity lesions, is quite easily achieved. Surgery allows histologic confirmation of the diagnosis, helps to reduce cosmetic impairment (if present), and, especially in skull base tumors, prevents the risk of bleeding and the impairment of cranial nerve(s) function.

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