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Haemangioma of the frontal sinus

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Abstract
A 71-year-old lady underwent successful excision of a haemangioma of the frontal sinus, via an osteoplastic flap approach. Haemangioma of the paranasal sinuses is an extreme rarity. A case is presented and the literature reviewed.

Key words: Haemangioma; Paranasal sinuses

Introduction

Haemangioma of the bone is rare, with the spinal column being the commonest site, followed by the skull. It accounts for about one per cent of all bony neoplasms.[1] A haemangioma of bony origin is seen rarely in the nose and paranasal sinuses. In Eggston and Wolff's series of 359 neoplasms of nasal and paranasal sinus origin only 14 were haemangiomatous, and none of these occurred in the paranasal sinuses.[2] Haemangioma of the paranasal sinuses is extremely rare. A search of the literature reveals 17 reports of maxillary sinus haemangioma,[2–11] 15 of ethmoid sinus haemangioma,[12–15] two of combined ethmoid and maxillary sinus haemangiomas,[16,17] two of frontal sinus haemangioma[18,19] and two of sphenoid sinus haemangioma.[4]

Case report

A 71-year-old lady was seen with a tender bony swelling over her forehead. This had grown slowly over a two-year period. There were no rhinological or neurological symptoms. Examination revealed a 1 cm by 1 cm bony hard swelling, just above her left eyebrow, which was tender on percussion. There were no other positive findings in the rest of the head and neck examination. A computed tomography (CT) scan revealed a calcified mass in the left frontal sinus, that had eroded the outer table and thinned the inner table of the sinus. There was no evidence of intracranial extension (Figures 1 and 2). This tumour was explored via an osteoplastic flap.

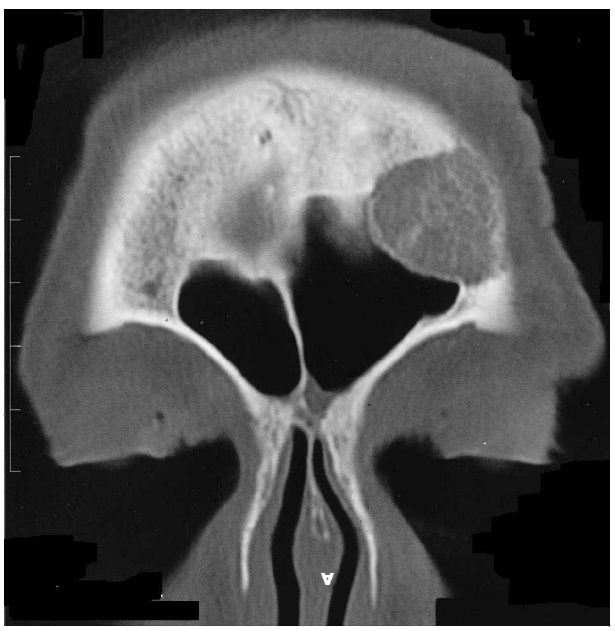

Fig. 1
Coronal CT image showing mass in left frontal sinus.

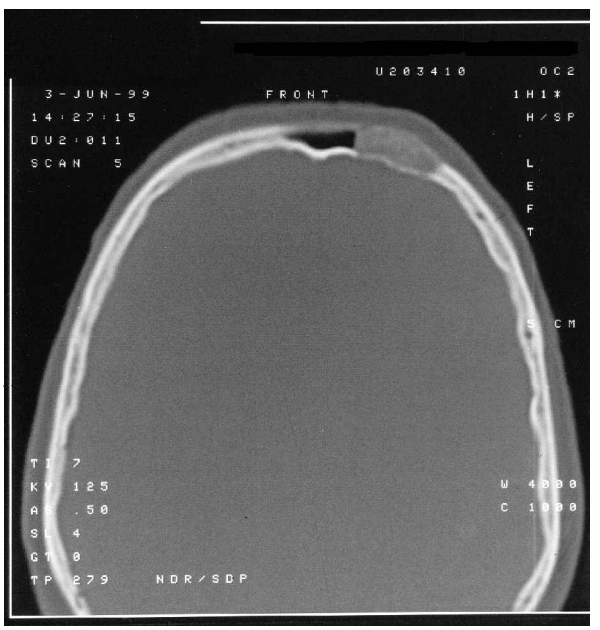

Fig. 2
Axial CT image demonstrating lesion of left lateral frontal sinus, with intact, but thinned posterior sinus table.

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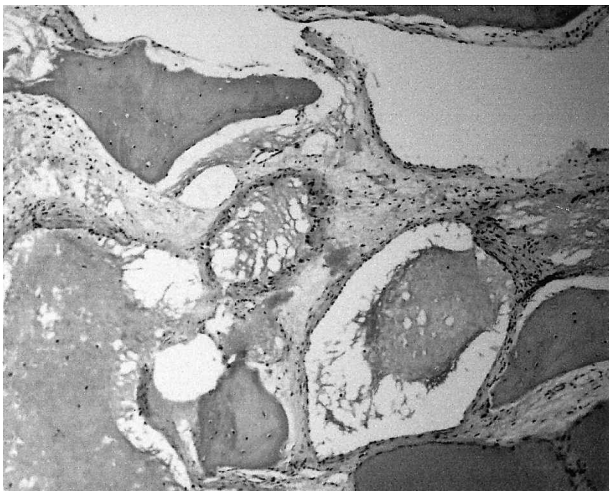

FIG. 3

Histological appearance of calcified haemangioma (trabeculae of woven and lamella bone, surrounded by loosely cellular tissue, with numerous dilated vascular and lymphatic channels) (H&E; ×200)

The tumour was found to involve the lateral half of the anterior table of the frontal sinus, and to a lesser degree the inner table. A bony flap was raised and a firm, bluish mass was excised piecemeal, with minimal blood loss. The posterior table of the frontal sinus was preserved. Any residual tumour was removed with a diamond burr. The bone flap was secured with microplates and screws, and periosteal continuity was restored.

The post-operative period was uneventful and she made a complete recovery. At one year post-operation, she is well, with no evidence of recurrence. Histology revealed multiple trabeculae of woven and lamella bone, surrounded by loosely cellular fibrous tissue, with numerous dilated vascular and lymphatic channels (Figure 3). The histology underwent expert review which concurred with our diagnosis of a calcified haemangioma of the frontal sinus.

Discussion

Haemangioma was originally classified as a true neoplasm of blood vessels. However, pathologists now consider these to be hamartomas or hamartomatous malformations. There are two types of bony haemangioma – peripheral that develop from vessels in the periosteum, with secondary involvement of bone itself, and central haemangioma that develops within the spongiosum. Histologically haemangiomas are sub-classified as cavernous, capillary, mixed, cellular or sclerosing. Most haemangiomas of the bone are cavernous, although sometimes a capillary component is present. While haemangiomas of soft tissue are most common in children, haemangiomas of bone occur more often in adults.

Maxillary haemangiomas may present with a facial mass, anaesthesia or paraesthesia, hemifacial pain, rhinitis, sinusitis, proptosis, diplopia, oroantral fistula, loose teeth, ill-fitting dentures or bleeding gums.[2–11] Ethmoidal haemangiomas may erode into the orbit, resulting in retro-orbital pain, proptosis and ipsilateral optic atrophy. Other presentations include nasal obstruction, epistaxis and epiphora.[12–15] In the sphenoid sinus there have been only two reported cavernous haemangiomas both with fatal outcome. The tumours caused extensive skull base destruction and intra-operative haemorrhage was severe.[4]

Of the two frontal sinus haemangiomas in the literature, one occurred in an 18-year-old who presented with orbital pain, exophthalmos and impaired vision. He was reported to have a capillary angioma.[18] The same authors also reported a case of a malignant haemangioendothelioma in a 43-year-old, who presented with exophthalmos, unilateral nasal obstruction and frequent epistaxis. The patient underwent excision of a large tumour extending from the frontal sinus into the frontal cranial fossa, anterior ethmoid sinuses and nasal fossa.[18] The final case was similar to ours and was one of a 43-year-old man who presented with severe frontal headache and a hard glabella swelling. He underwent excision of an ossifying angioma of the right frontal sinus, which had thinned the anterior table of the frontal sinus. As in our case there was little per-operative bleeding.[19]

As with most sino-nasal tumours, an exact pre-operative diagnosis is not usually possible, unless the vascular nature is suspected clinically (epistaxis or severe haemorrhage on out-patient biopsy) or on imaging. Except for haemangiofibromas, most nasal neoplasms produce scanty blood-tinged discharge, rather than profuse epistaxis. In those cases where vascularity is a feature, an angiogram may be diagnostic.[16] However, the ratio of vascular to osseous tissue is variable and in many, as in our case, these lesions will be of limited vascularity and unlikely to have direct connection with the major vessels of the neck. Intra-operative haemorrhage is variable with some authors reporting minimal primary haemorrhage, whereas one had to abandon surgery due to severe blood loss. The latter case was successfully excised at a later date after pre-operative embolization,[16] although the possibility of a malignant haemangioendothelioma should be considered in this example. Malignant haemangioendotheliomas may be mistaken for haemangioma and reports of sinus 'haemangioma' with intracranial invasion and fatal outcome may actually be malignant haemangioendothelioma.[4] The ossifying and sclerosing nature of these tumours usually limits intra-operative haemorrhage. Long-term follow-up is not reported in the literature, but one would expect complete excision to be curative.

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Mr R. Harar takes responsibility for the integrity of the content of the paper.
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