Case report 680

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Clinical information

Case 1

A 41-year-old woman had been treated at our institution for sarcoma botryoides and breast cancer and had been without recurrence of either tumor for many years. She then presented with a 1-month history of a lump in the right temple that was intermittently painful. Physical examination confirmed the presence of a hard mass in this region. Proptosis was absent, and the neurological examination was normal. Computed tomography (CT) revealed a large area of dense, expanded bone involving much of the right sphenoid bone, including the lateral orbital wall (Fig. 1). The dura was mildly thickened anteriorly in the middle cranial fossa. No soft-tissue mass in the orbit was present.

Case 2

The biopsy specimen of another woman with a sclerotic, expanded sphenoid bone was sent to our institution for evaluation. ACT from the outside hospital demonstrated a bony mass protruding into the left lateral orbit with no associated soft-tissue component (Fig. 2). The adjacent dura of the middle fossa was minimally thickened.

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Diagnosis: Intraosseous meningioma of the sphenoid bone

Surgical resection of the abnormal bone in both patients revealed meningiomas, virtually entirely confined to the sphenoid bone. In the first patient there was a small nodule of soft-tissue tumor on the anterior surface of the sphenoid bone. The dura was easily dissected from the sphenoid bone, and the subdural space was not entered. The possibility of blastic metastasis or fibrous dysplasia was considered in the first patient.

Microscopic examination of the specimens from both patients revealed similar findings. The osseous fragments were characterized by thick, sclerotic, bony spicules similar to those of the outer cortex of the skull with little interosseous tissue. The meningiomatous proliferation was represented by collections of whorled meningothelial cells scattered between bony spicules (Fig. 3). These were not numerous but definitely more plentiful than seen in reactive hyperostosis associated with en plaque or globoid meningioma.

Discussion

The sphenoid bone is one of the sites most commonly affected by meningiomas arising in the adjacent dura. The most frequent bony change is hyperostosis. It is well-known that larger areas of hyperostosis are evoked by en plaque meningiomas than by the globoid form of the tumor [4, 7, 15]. Uncommonly, a meningioma may be entirely confined to the bone, with minimal or no associated dural tumor. Of the reported cases of intraosseous meningiomas, 25%-50% occur in the sphenoid bone [2, 6, 7, 17]. The intraosseous location of the tumor is thought to be due to arachnoid cell rests within the bone. In this connection a definite association of intraosseous meningioma with cranial sutures has been reported [2, 7, 11]. Molding of the head during birth may result in the entrapment of dura containing arachnoid cells within a suture, with possible later degeneration of this tissue into a meningioma [2, 7, 11]. We propose that the great number of articulations with the sphenoid bone (Fig. 4) correlates with the frequent occurrence of intraosseous meningioma in this region. Trauma to the head with fracture of the skull has also been correlated with the later occurrence of intraosseous meningioma in the area of the fracture as a result of the same mechanism of entrapment of dura within the fracture site [1, 14, 16].

The most frequent radiographic appearance of intraosseous meningioma is an area of thickened, sclerotic bone; a spiculated, sunburst