EOSINOPHILIC granuloma is a benign lytic lesion of bone arising from the reticuloendothelial system. It is common in the calvaria, but rarely occurs in the base of the skull. A patient with eosinophilic granuloma arising in the region of the foramen rotundum is presented.

Case Report

This 15-year-old boy was referred to University Hospitals with a 3- to 4-week history of progressive numbness in the central third of the face on the left side. This was accompanied by dysesthesia with no particular pain. There were no other symptoms referable to the central nervous system, and the patient's general health had been good.

Examination. The patient had an area of virtually complete anesthesia, sharply confined to the distribution of the second division of the trigeminal nerve. Plain films of the skull showed a normal-appearing right foramen rotundum, while the left foramen rotundum was not identifiable (Fig. 1). An ill-defined lytic lesion was seen in the normal location of the left foramen rotundum. Polytomographic cuts confirmed an area of bone destruction on the left (Fig. 2 left). Computerized tomography of the brain, and a left carotid arteriogram were normal.

The patient was investigated for the possibility of a primary neoplasm in some other portion of the body, but none was found.

Operation. The region of the left foramen rotundum was explored extradurally by a left subtemporal craniotomy. No abnormalities were seen as far as the foramen spinosum. The middle meningeal artery was coagulated and transected, after which, fleshy abnormal tissue, gray in color, and appearing partially necrotic, was identified around the foramen rotundum. The foramen ovale was intact. The margins of the expanded foramen rotundum were ragged and irregular. The abnormal tissue was thoroughly curetted, and frozen sections showed a pleomorphic cellular
Eosinophilic granuloma of the base of the skull

Postoperative Course. There was rapid return of sensation in the previously anesthetic area. In view of the possibility of complications of radiation therapy in this area, and because the neurological deficit had cleared completely, the patient received no additional treatment. He remains asymptomatic 1 year postoperatively. A follow-up polytomographic examination showed reconstitution of the bone around the foramen rotundum.

Discussion

The foramen rotundum is a short canal in the root of the greater wing of the sphenoid lying just inferior to the superior orbital fissure. The canal extends obliquely forward and slightly downward, ending in the pterygopalatine fossa. It is directed somewhat laterally from posterior to anterior. The range of normal measurements obtained by Lindblom were $3 \times 3$ to $3.5 \times 4$ mm. The foramen transmits the maxillary branch of the trigeminal nerve and occasionally small emissary veins. The most common cause of bone destruction in this area is metastasis from a distant primary or direct extension from a nasopharyngeal tumor.

Eosinophilic granuloma is a part of the spectrum of the disease complex known as histiocytosis, or histiocytosis-X. The etiology of these diseases is obscure, but much of the

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**Fig. 1.** Preoperative posteroanterior film of the skull shows a normal right foramen rotundum (arrowhead). The left foramen rotundum cannot be identified.

**Fig. 2.** Anteroposterior polytomographic cuts at the level of the foramen rotundum. Left: Preoperative cut. The normal right foramen rotundum (single arrowhead) is projecting inferior to the superior orbital fissure. On the left, a fairly extensive area of lytic bone destruction can be seen in the base of the skull in and around the expected location at the left foramen rotundum. Right: Ten months after surgery at the same level. The lytic defect is no longer seen, and the foramen rotundum has reconstituted itself.
available data suggests an inflammatory cause. In infancy and early childhood, a fulminating form of this complex is designated as Letterer-Siwe disease. At the other end of the spectrum, the most benign form of the disease, eosinophilic granuloma, is encountered in older children, young adults, and occasionally even in middle-aged adults. Hand-Schüllern-Christian disease occupies an intermediate position, both in age and clinical course. The histological common denominator of these diseases is a proliferation of histiocytes with or without intracellular deposits of lipid material.²

In eosinophilic granuloma, skeletal involvement can occur in the pelvic bones, skull, thorax, spine, and major long bones. When the skull is involved, the lytic lesion is almost invariably in the membranous bones of the calvaria. Involvement of the base of the skull in histiocytosis is more likely to occur in Hand-Schüllern-Christian disease.² In summary, eosinophilic granuloma is an extremely rare cause of destruction in and around the foramen rotundum. However, in the pediatric and young-adult age group, this diagnosis should be considered.

References

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