Meningioma of the frontal sinus

Report of two cases

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The authors report the successful treatment of two rare cases of primary meningioma of the frontal sinus.

KEY WORDS • meningioma • ectopic meningioma • frontal sinus

Extension of an intracranial meningioma into the frontal sinus occurs occasionally. Primary meningiomas of the frontal sinus are extremely uncommon. New and Devine reported three such cases. Ash and Raum described three cases of meningioma involving the frontal sinuses, of which only one appears to have arisen in the sinus. Majoros reported one case of meningioma of the left frontal sinus.

According to Kernohan and Sayre, ectopic meningiomas arise from fragments of arachnoid which have protruded through the dura mater to lie extradurally in various situations. New and Devine suggested that the tumors arise from embryonal arachnoidal cell rests pinched off and left behind during development.

In view of their extreme rarity, we are reporting two further cases of meningioma of the frontal sinus.

Case Reports

Case 1

A 20-year-old man was admitted on November 2, 1970, with a progressive proptosis and swelling of the left frontal region of 3 months' duration.

Examination. There was a swelling in the left frontal region involving the inner half of the superior orbital margin and the upper part of the medial orbital margin; the latter portion was yielding and produced egg-shell cracking with palpations. The rest of the swelling was bony hard (Fig. 1). The skin over the swelling was healthy. The left eyeball was pushed downward, outward, and forward. The movements of the eyeball were normal. Vision, fundi, and the rest of the nervous system were normal. Skull films showed wide destruction in the left frontal bone, which extended to the right of the midline as well (Fig. 2).

Operation. On November 24, 1970, a very muscular, grayish, encapsulated tumor occupying the left frontal sinus was removed en masse through an anterior bone flap. The roof of the orbit was thinned out and depressed. The posterior wall of the sinus was very thin and deficient over an area ¼ inch in diameter. The anterior bone flap was replaced and the wound closed. The tumor was a psammomatous meningioma.

Postoperative Course. The patient has since returned to his normal activities. At follow-up 3 months after operation, there had been no change in his clinical appear-
ance, namely, the proptosis and the bony bulge in the left frontal region.

Case 2

A 45-year-old woman was admitted on April 16, 1964, for treatment of a gradually increasing swelling in the frontal region and right-sided proptosis of 1 year's duration. The bony swelling was tender and 3 inches in diameter in the middle of the forehead, extending more toward the right and downward into the right orbit. Egg-shell crackling of the bone over the swelling was present. The right eyeball was pushed forward, downward, and outward. Upward movement of the eyeball was limited. Skiagrams of the skull showed rarefaction in the region of the frontal sinuses, with sclerosis inferiorly. The right supraorbital margin was depressed.

Operation. On April 25, 1964, the thin bone over the swelling was nibbled off, exposing a very vascular, reddish-brown, friable tumor which was removed completely. The posterior wall of the frontal sinus was intact. The tumor was a meningothelial meningioma.

Postoperative Course. At the latest follow-up on January 31, 1971, the patient was leading a normal life, except for depression in the forehead corresponding to the area of the tumor removed, and the proptosis which remained the same.

Summary

Two cases of meningioma of the frontal sinus, treated successfully, are reported. The surgical problems involved in their removal are much simpler than with the usual intracranial meningiomas. The deformity caused
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by the thinned out displaced bone does not correct itself despite complete removal of the benign tumors.

Acknowledgments

We are thankful to Dr. B. Shanmukheswara Rao, M.S., Superintendent, King George Hospital, Visakhapatnam, for permitting us to use hospital records. We thank Mr. N. Subbarayan for secretarial assistance and Mr. B. Ramarao for the photographs.

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Received for publication: March 15, 1971.
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