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Giant Ossifying Fibroma of the Nasal Cavity
with Intracranial Extension

By

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With 3 Figures

Summary

A 12-year-old white male presented with an ossifying fibroma of the maxillary sinus. The tumour recurred following incomplete excision through a maxillary approach. Computerized tomography revealed an extensive tumour involving the paranasal sinuses, which extended intracranially through the cribriform plate. The tumour was successfully excised through a combined craniofacial approach. This approach should be used whenever there is radiological involvement of the base of the skull from paranasal sinus tumours. Accurate radiological delineation of the extent of the tumour is only possible by computerized tomography in the axial and coronal planes.

Introduction

Ossifying fibroma is a rare fibro-osseous tumour, usually occurring in the second and third decades of life. The most frequent sites of origin are the mandible and maxilla, but occasionally other cranial bones may be involved. Clinical manifestations are usually those of a painless mass over the affected region. Nasal stuffiness or obstruction, epistaxis, or diplopia may be present in those tumours arising from the paranasal sinuses. Despite their benign histological appearance, they may, on occasion, behave quite aggressively, destroying bony structures by pressure erosion. Since most of these tumours are diagnosed early, they can be successfully excised from the nasal cavity or paranasal sinuses by the conventional lateral rhinotomy or maxillary (Caldwell-Luc) approaches. For tumours extending to or through the base of the skull, these approaches are less than optimal. Incomplete or piecemeal removal of tumour may be performed for fear of injury to dura, with resulting cerebrospinal fluid leak. Intracranial extension of a
nasal ossifying fibroma has only rarely been reported. Even in those cases in which the base of the skull has been involved without apparent intracranial extension, incomplete excisions have been performed. Total resection of this tumour is essential if local recurrences are to be prevented. In order to accomplish this, we believe a simultaneous cranial and facial approach should be used whenever there is involvement of the base of the skull on radiographic studies. The following case report describes the surgical management of a patient with massive recurrent ossifying fibroma of the nasal cavity with intracranial extension.

**Case Report**

A 12-year-old white male presented in July 1979 with nasal stuffiness, proptosis of the left eye, and diplopia on lateral gaze. Radiographic examination revealed a mass lesion involving the left maxilla, nasal cavity, and ethmoid sinus. Through a lateral rhinotomy and partial maxillectomy, the tumour was initially operated on elsewhere. Histology revealed a benign ossifying fibroma. The patient was well until June 1980, when he again developed diplopia and swelling extending to the right side of the face. Re-exploration was again attempted though a right Caldel-Luc approach. However, extensive tumour was noted filling both ethmoid and sphenoid sinuses. A partial removal was performed due to limited access, and the patient was referred to Memorial Sloan-Kettering Cancer Centre for further treatment.

Initial examination revealed displacement of the left orbit downward and outward, with diplopia on left lateral gaze. Posterior rhinoscopy revealed a large tumour occupying the entire nasal cavity. Computerized tomography showed an extensive tumour as shown in Figs. 1a and b. Cerebral angiography revealed a relatively avascular mass.

The patient was taken to surgery where he underwent a simultaneous craniotomy and partial maxillectomy, for the purpose of total resection of the tumour. Following a bifrontal craniotomy, an extradural exposure of the anterior cranial fossa was performed. A well-encapsulated mass, adherent to the dura, was seen eroding through the cribiform plate. This tumour was dissected free from dura, and the entire cribiform plate was resected with a high speed drill. Through the facial approach, the tumour was further dissected from the sinuses, and a total resection was accomplished. Postoperatively the patient did well, and computerized tomography confirmed total excision of the tumour (Fig. 2).

**Pathology**

Gross examination revealed a lobulated, pinkish-tan mass measuring \(8 \times 5.5 \times 3.5\) cm. The external surface was smooth and glistening, and on cut section a homogenous white fibrous appearance was visible. Microscopically, a highly cellular fibroblastic proliferation with scant foci of ossification and calcification was seen (Fig. 3a). The fibroblastic spindle cell proliferation was arranged in a herringbone pattern, with some areas showing matted, pinwheel traits. Mitoses were scant and, when present, were not atypical. Bone production was minimal; some calcified osseous trabeculae were present showing osteoblastic cells in the periphery (Fig. 3b). The cellular atypia of the stroma was not worrisome enough to suggest the possibility of osteogenic sarcoma.