NASAL AND PERINASAL FIBRO-OSSEOUS LESIONS

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ABSTRACT

Three cases of nasal and perinasal fibro-osseous lesions were described. Two cases of ossifying fibroma appeared in a 12 year old boy and a 23-year old female patient. One case of cementifying fibroma was seen in a 60-year old female patient. The imaging appearance of the first case of ossifying fibroma and of the cementifying fibroma was similar. It appeared as a well defined border ossified mass with expansion of the structures that contain it without destruction of the surrounding structures. The second case of ossifying fibroma showed a huge invasive mass, however, maintaining the expanded behavior and containing ossified or calcified area. The images studied included plain films and CT scan.

INTRODUCTION

Fibro-osseous lesions of the craniofacial bones are a challenging group of pathologic conditions that are difficult to classify and treat (1,2). A common denominator to all is the replacement of the bone with a benign fibrous tissue containing various amounts of mineralized (calcified) structures (1,2). Margo et al (3) have offered the following classifications of the various fibro-osseous lesions: fibrous dysplasia, ossifying fibroma, psammomatoid (juvenile) ossifying fibroma (active juvenile ossifying fibroma), cementifying fibroma, cemento-ossifying-fibroma, osteoma and osteoblastoma.

We reported two cases of nasal and perinasal ossifying fibroma and one case of cementifying fibroma, demonstrated by plain film and CT scan.

CASE REPORTS

CASE 1

A 12-year-old boy, had a mass in his left nasal cavity for one year and has left exophthalmos. Plain film showed an expansion of the left nasal cavity, and left ethmoid sinus. Haziness of the left nasal cavity, left frontal, left ethmoid and left maxillary sinuses was noted. Axial and coronal enhanced CT scan of the facial bones showed a well defined border mass with dense calcification in left nasal cavity extending to left maxillary sinus, left anterior and posterior ethmoid sinus and medial aspect of left orbital cavity. The size of the mass is $4 \times 6 \times 6$ cm. Retention of fluid in left maxillary sinus was due to obstruction of the ostium by mass (Fig. 1). Left exophthalmos was due to extrinsic compression by this mass. Biopsy of the lesion revealed ossifying fibroma.

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CASE 2

A 23-year-old female patient had the problem of progressive exophthalmos for 5 years, chronic upper respiratory tract infection and epitaxis for similar duration. The eye pain was very severe 4 days prior to the admission and the patient has pus discharge from both nasal cavities. Plain films showed a large ground-glass like density mass in both nasal cavities, both ethmoid sinuses, both maxillary sinuses, extending to base of the skull, to the anterior and middle cranial fossa. The sella turcica and sphenoid sinuses, the clivus was destroyed. The involved structures were expanded. Internal and rim calcification was shown. A coronal and axial CT scan of the brain, base of the skull and the facial parts showed a large calcified expanding lesion in both nasal cavities,both maxillary, ethmoid, sphenoid and frontal sinuses, both orbital cavities, anterior cranial fossae, clivus sella and suprasellar area. A more or less soap-bubble appearance of the mass was observed (Fig. 2). Surrounding brain edema was not seen due to the lesion. Biopsy showed ossifying fibroma. The size of the mass was about 10 cm in diameter.

CASE 3

A 60-year-old female patient had a mass adjacent to the medial left eye-brow for one year. She had been operated due to intra-nasal mass twice between 7-10 years of age. Plain film showed a ground-glass expanding lesion in left nasal cavity, medial part of left maxillary, left ethmoid and left frontal sinus and left orbital cavity. Axial plain and i.v. enhanced CT scan of the facial part showed a well defined border mass with ossification in the mass. The mass was in left nasal cavity, medial left maxillary sinus, left ethmoid sinus, medial left orbital cavity. There was no destruction of the bony structures (Fig. 3). The size of the mass is $4 \times 5 \times 6.5$ cm. Biopsy showed cementifying fibroma.

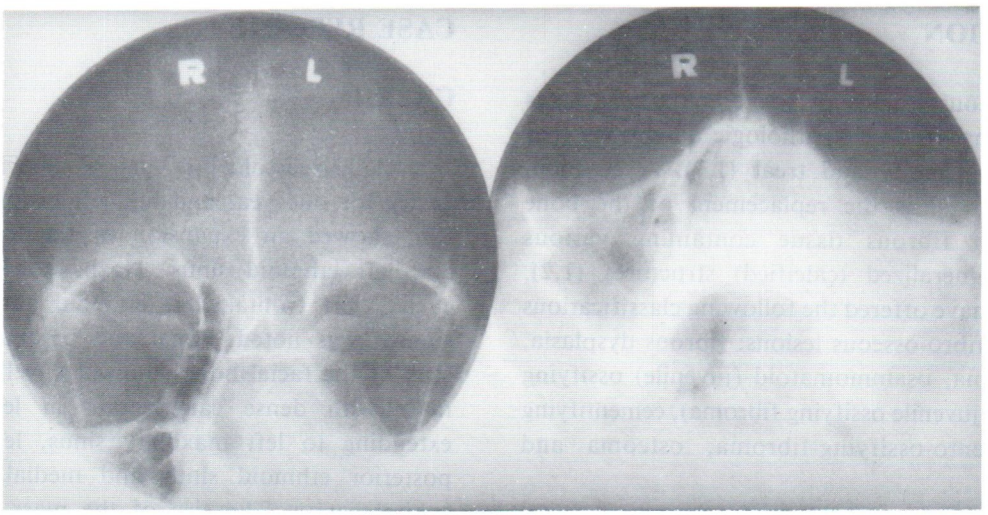

Fig. 1A Case 1. Plain film of the paranasal sinuses showed an expansion of the left nasal cavity and left ethmoid sinus with haziness. Left maxillary sinus was not expanded but cloudy. Disappearance of the medial left orbital wall was noted.

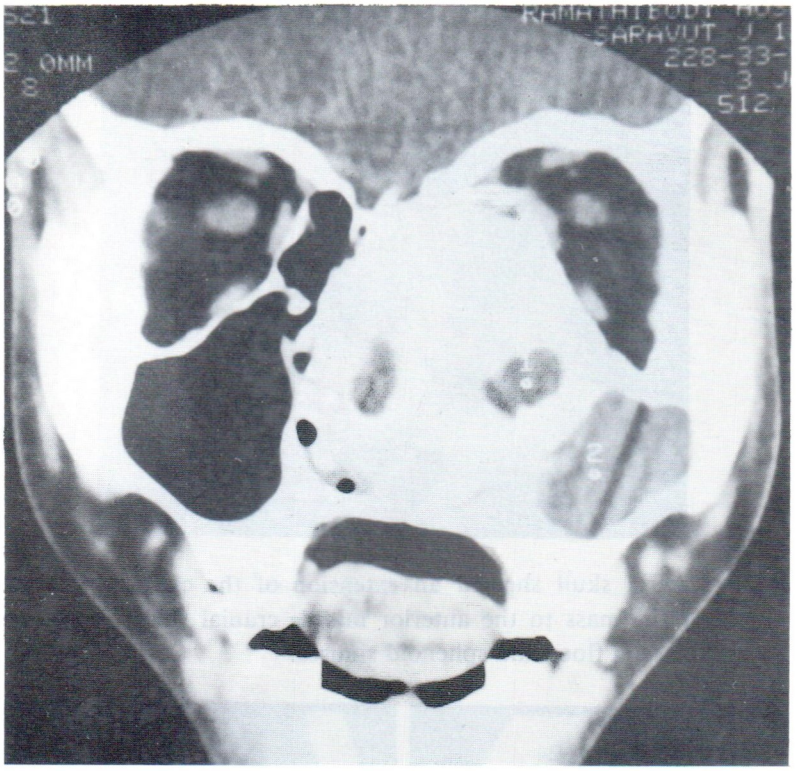

Fig. 1B. Case 1. Coronal CT scan of the face showed a well defined border mass, size 4.5×5×5 cm, in the left nasal cavity, extending to left ethmoid sinus, left maxillary sinus and left orbital cavity. The mass was densely calcified or ossified. Retention of fluid in left ethmoid and left maxillary sinus was observed. There was no destructive behavior of the mass

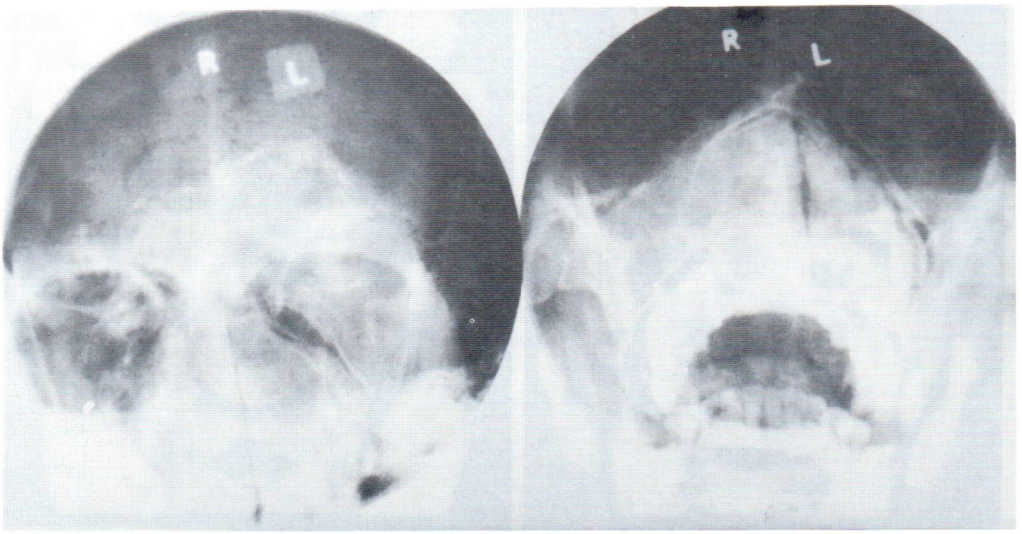

Fig. 2A Case 2. Plain film of the face in AP and Water's views showed a densely and both frontal sinuses. There was an expansion of both nasal calcified or ossified mass in the region of both ethmoid sinuses, cavities and ethmoid sinuses.

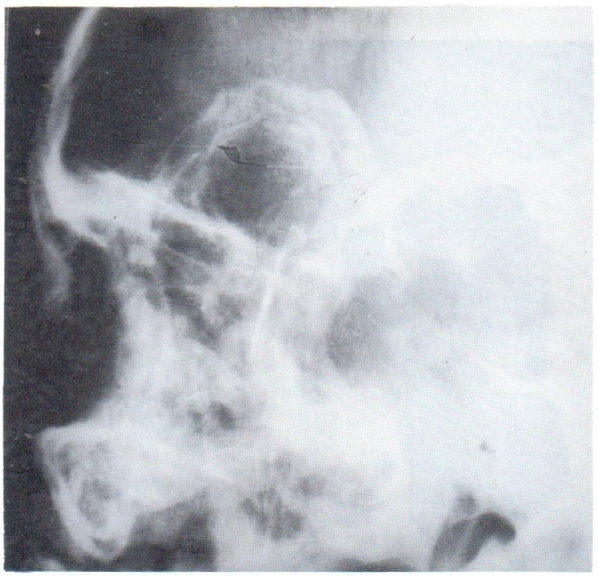

Fig. 2B. Case 2. Lateral skull showed an extension of the calcified or ossified protion of the mass to the anterior middle cranial fossa with destruction of the sella floor and sphenoid sinuses.

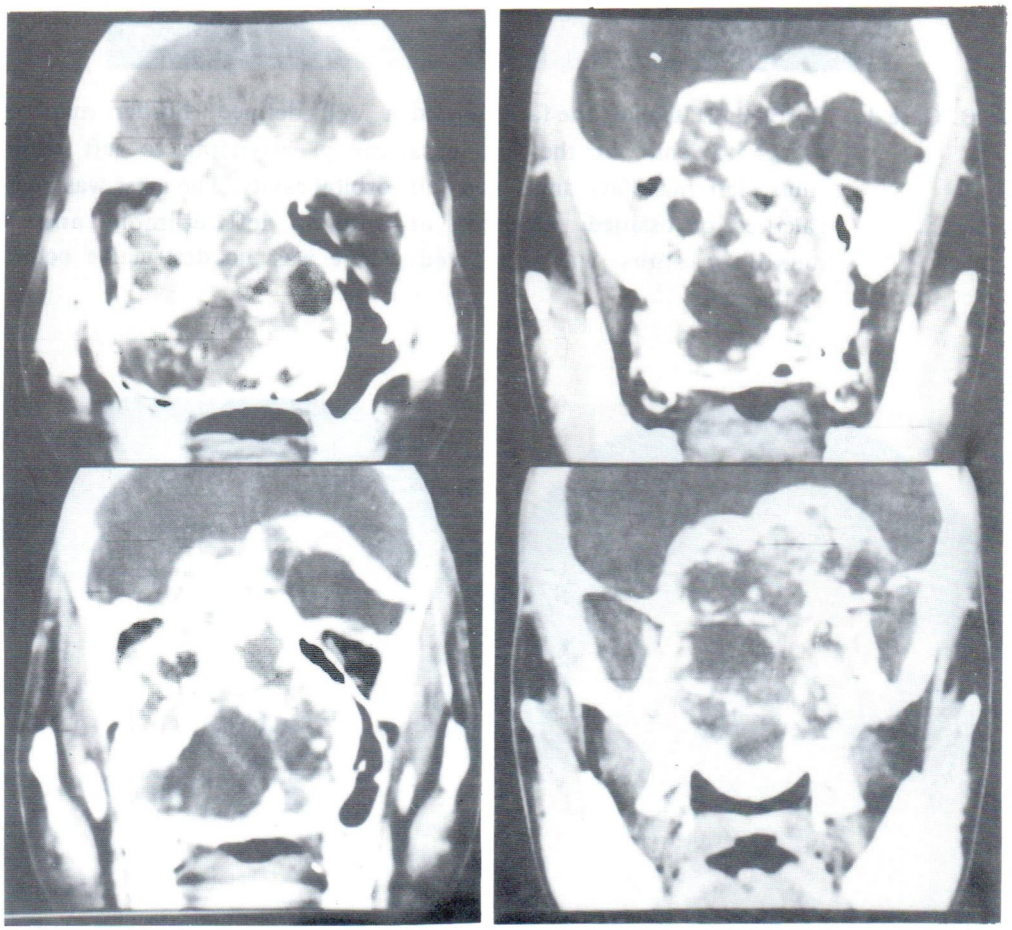

Fig. 2C Case 2. I.V. enhanced coronal CT scan of the brain and face portion showed a large calcified or ossified mass in the nasal cavities, both maxillary sinuses, both orbital cavities, sphenoid sinuses, pituitary fossa, suprasellar cistern, anterior and middle cranial fossae. The mass was less dense than the mass of the case 1. There was as aggressive behavior, judging from the destruction of the involved bones.

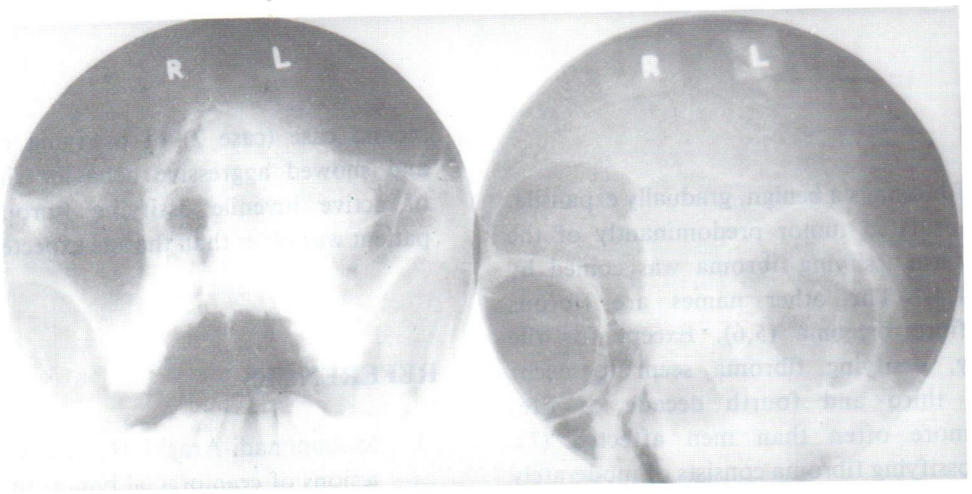

Fig. 3A Case 3. Plain film of the paranasal sinuses showed an expanding lesion in the left nasal cavity, left ethmoid sinus with haziness of left nasal cavity, left maxillary sinus, left ethmoid sinus, medial left orbital cavity and left frontal sinus. The margin of the lesion was well defined.

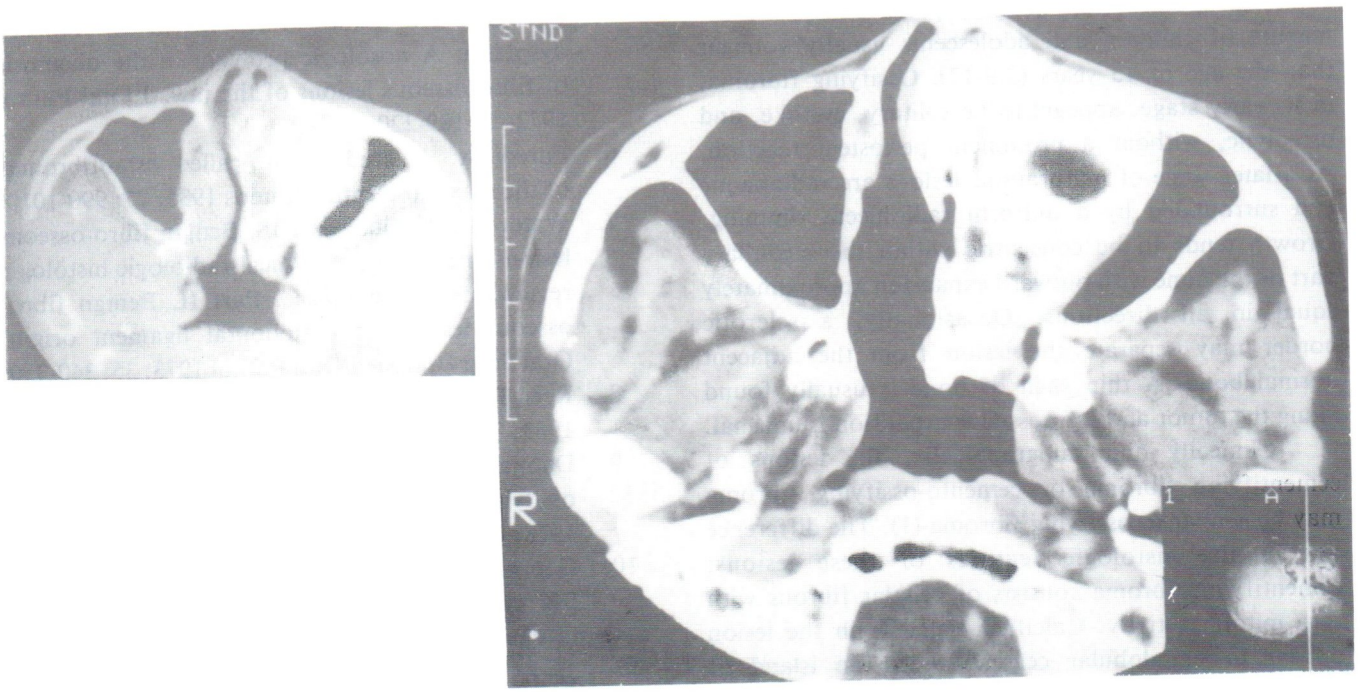

Fig. 3B Case 3. Axial CT scan of the mass showed a densely calcified or ossified mass in the left nasal cavity, left maxillary-frontal sinus, and medial left orbital cavity. Lack of destructive behavior was obvious, which was similar to the lesion of Case 1.

DISCUSSION

Ossifying fibroma is a benign, gradually expansile, and fairly encapsulated tumor predominantly of the jawbones. The term ossifying fibroma was coined by Montgomery (1,4). The other names are fibrous osteoma and fibro osteoma (5,6). Except for the juvenile variety, ossifying fibroma seem to occur mostly in the third and fourth decade of life, with women more often than men affected (7). Histologically, ossifying fibroma consists of moderately cellular, delicately interlacing collagen fibers and usually well vascularized stroma containing various amounts of calcified materials. Calcification may appear as irregular bony structures (woven or lamellar) and spicules. Lamellar bone formation and osteoblastic rimming found in ossifying fibroma are believed by some pathologists to be differentiating features of fibrous dysplasia (1,8). A variant of ossifying fibroma, active juvenile ossifying fibroma, has been described in children. This tumor is a rapidly enlarging as well as destructive process, occurring predominantly in the maxilla of children and adolescents usually younger than the age of 15 years (3,9-12). Ossifying fibroma, in its early stage, appears to be solitary, cystlike, and osteolytic, without a prominent periosteal reaction. At a later stage of maturation, lesions are radiopaque and surrounded by a uniform radiolucent rimming. Growth tends to be concentric within the medullary part of the bone with outward expansion approximately equal in all directions. Occasionally, a sclerotic border may separate the lesion from the adjacent normal bone. A thin shell of bone is usually found along the tumor and extraosseous expansion is unusual.

Clinically and raiographically, the lesions of cementifying fibroma or cemento-ossifying fibroma may be similar to ossifying fibroma (1). The difference lies in the histologic features of these lesions; cementifying fibroma consists of cellular fibrous with rare mitotic activity. Calcified elements in the lesion appear to be globular cementum (or an island of calcified materials surrounded by cementoid and cementoblasts). The difficulties in separating ossifying fibroma from cementifying fibroma has resulted in the term cemento-ossifying fibroma to encompass these identical tumors (1).

Our first case of ossifying fibroma and the case of cementifying fibroma had similar images. The second case (case 2) of ossifying fibroma was large and showed aggressive behavior similar to the case of active juvenile ossifying fibroma, however, the patient was older than the age expected in the literature.

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