Giant complex odontoma of the maxillary antrum

A case report

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Summary

Complex odontomas are rare benign jaw neoplasms, generally small and asymptomatic. We present an unusual case of a giant complex odontoma which completely filled the maxillary antrum, resulting in elevation of the orbit and facial asymmetry.

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An odontoma is a hamartoma of odontogenic tissue composed of dentine and enamel in which pulp and cementum are also present. According to Gorlin[1] odontomas may be classified as follows: (*i*) ameloblastic odontoma (odonto-ameloblastoma); (*ii*) ameloblastic dentinosarcoma; (*iii*) complex odontoma; and (*iv*) compound odontoma.

The complex and compound odontomas together represent the most common odontogenic tumours. The complex odontoma appears to be less common than the compound odontoma but far more prevalent than the ameloblastic odontoma.

Case report

A 9-year-old boy presented with a history of longstanding nasal obstruction and purulent nasal discharge. He also reported several episodes of epistaxis.

Marked facial asymmetry due to elevation of the right eye and swelling over the right maxilla was noted. The right lateral nasal wall was medially displaced and the hard palate was depressed on the right side. There was a gap in the dentition with an absent right upper premolar tooth. Sensation in the cheek was intact. No other abnormalities were noted.

Routine paranasal sinus radiographs showed the presence of a large calcified expansile mass involving the entire right maxillary antrum (Fig. 1). Frontal tomography showed a tooth in the superior aspect of the mass. A thin radiolucent band surrounded the tumour (Fig. 2).

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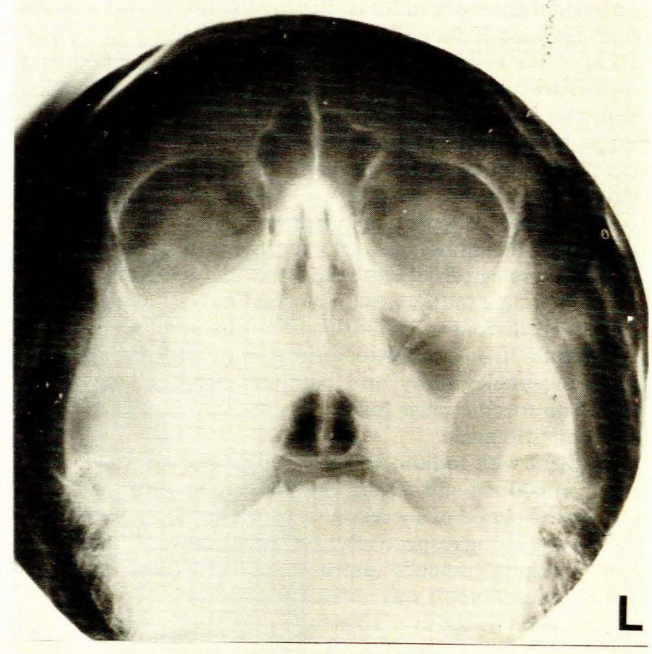

Fig. 1. Occipitomental and lateral sinus radiographs showing a large calcified mass filling and expanding the entire right maxillary antrum.

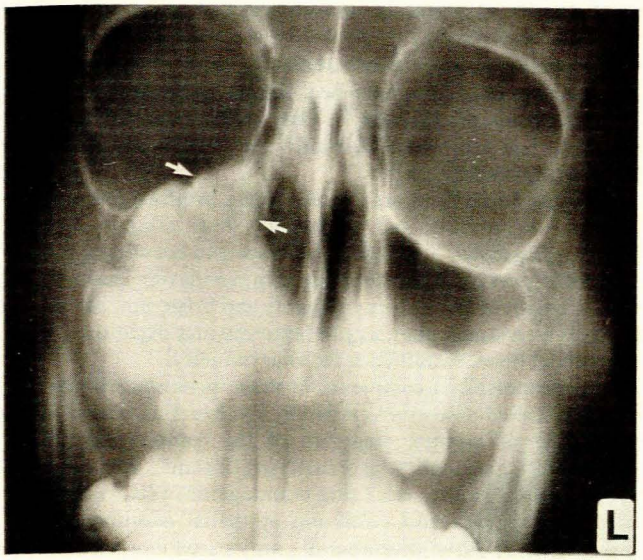

Fig. 2. Frontal tomogram clearly demonstrating complete tumour replacement of the maxillary antrum. Note marked elevation of the orbital floor and encroachment onto the right nasal cavity. A normal molar tooth has been displaced from the alveolar margin and abuts the orbital floor (arrowed)**. A well-defined radiolucent band surrounds the tumour.**

Surgery was performed via a Caldwell-Luc approach to the right maxillary antrum. An irregular hard tumour was removed piecemeal from the sinus.

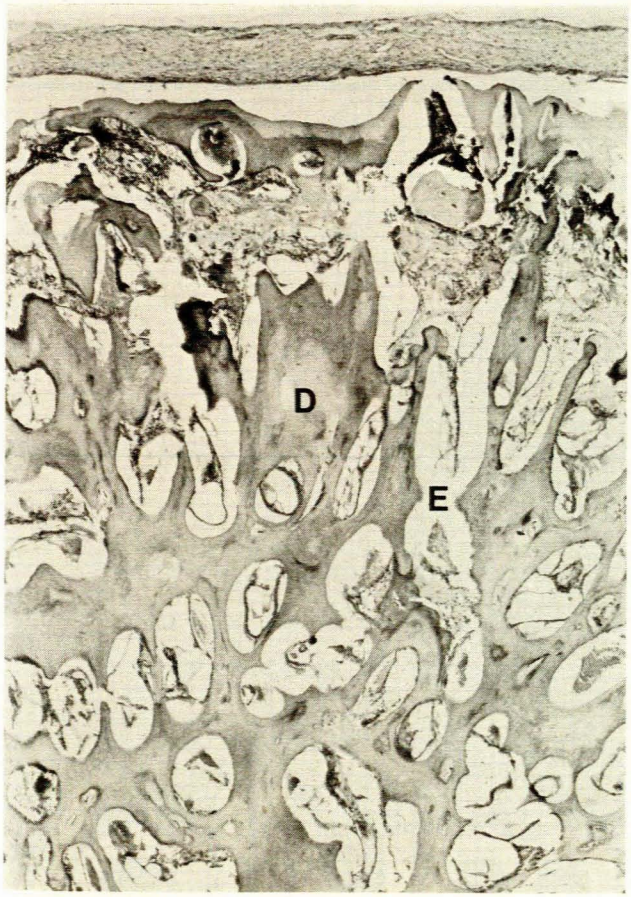

Fig. 3. The lesion is well encapsulated and consists of sheets of dentine (D), enamel (E), cementum and pulp arranged in a haphazard fashion (H and E x 40).

The surgical specimen consisted of one piece of hard tissue measuring 4,5 x 4 x 2,5 cm and twelve smaller pieces of hard tissue, the largest measuring 1 x 1 x 1 cm. Histological examination of decalcified sections showed an encapsulated lesion consisting predominantly of dentine but containing significant amounts of enamel, cementum and pulp (Fig. 3). Reduced enamel epithelium could also be seen in some areas. The various tooth components were arranged in a totally haphazard fashion, having no specific relationship to one another. The enamel had for the most part dissolved in the decalcification process leaving only empty enamel spaces (Fig. 4), but some enamel matrix could be seen in parts. The dentine was mainly tubular in type, but extensive areas of atubular dentine could also be seen (Fig. 5). There was no inflammation or evidence of malignancy. The histological features were those of a complex odontoma.

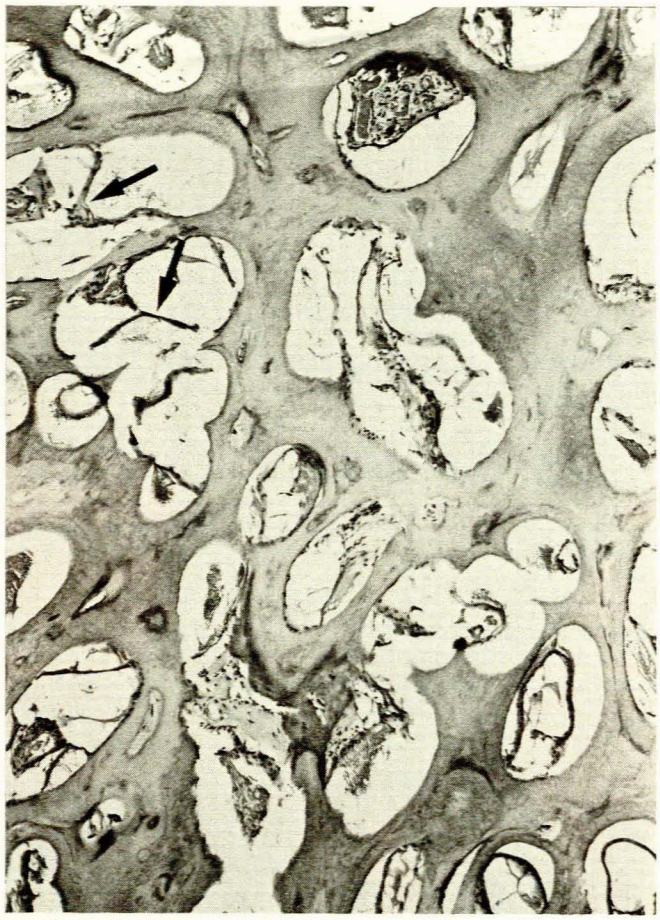

Fig. 4. Most of the enamel has dissolved in the decalcification process, leaving predominantly empty spaces. Odontogenic epithelium is clearly seen (arrowed) **(H and E x 64).**

The patient has had no recurrence of the tumour or sinusitis during a follow-up period of $2^1/_2$ years. The facial asymmetry has almost completely disappeared.

Discussion

Odontomas may develop from the enamel organ or the dental lamina, either in place of a normal tooth or a supernumerary lamina or even in association with the follicle of an unerupted tooth.[2] The aetiology is unknown but there is some evidence in favour of a genetic basis for odontomas.[3] In contrast to compound odontomas the complex odontoma reflects poor dental differentiation, bearing no resemblance to teeth. It presents as an

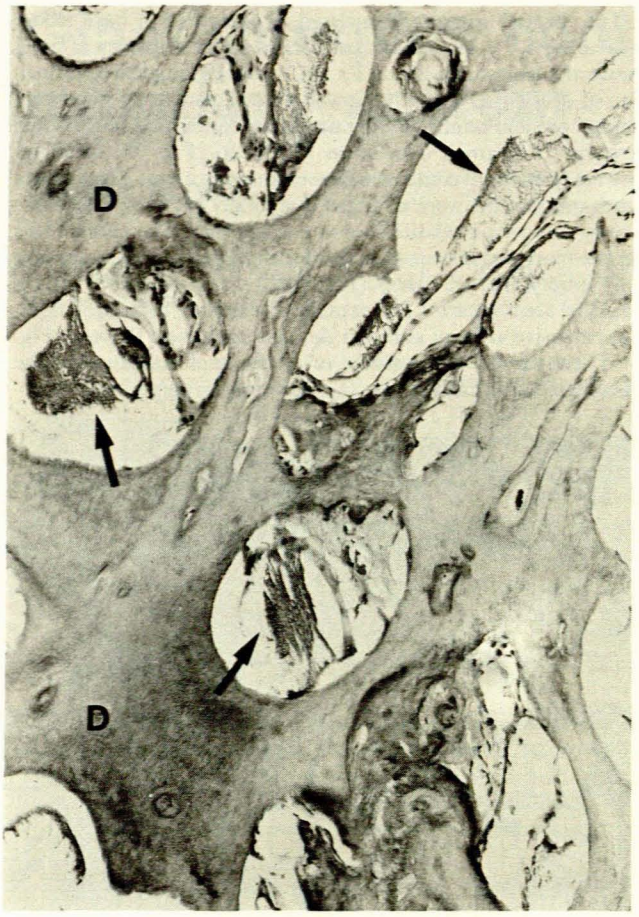

Fig. 5. Dentinal tubules can be seen (D). Remnants of organic matrix of enamel (arrowed) **have persisted in parts (H and E x 100).**

amorphous calcified expansile mass which may be confined to the alveolus or may expand to fill the maxillary sinus. Microscopically, complex odontomas appear to consist mainly of calcified dental tissues haphazardly distributed with no semblance of individual tooth form, surrounded by a fibrous capsule.[4]

Complex odontomas most commonly occur in the second to third decades of life but have been known to occur at any age.[5] There is no sex predilection.[6,7] They are more common in the mandible than in the maxilla, usually occurring in the mandibular premolar-molar area.[7]

Complex odontomas are usually small, produce few clinical signs and symptoms, and are usually discovered on routine dental radiographs. They could be suspected because of failure of a tooth to erupt. When they occur in the maxilla they tend to push the floor of the antrum upwards and bulge into the antral cavity.[8] Occasionally they may be large and may expand and thin out cortical bone, resulting in facial asymmetry.

Radiographically, a complex odontoma appears as an irregular mass of calcified tissue surrounded by a well-defined radiolucent band. The differential diagnosis of the complex odontoma should include cementifying or ossifying fibromas, adenomatoid odontogenic tumours, calcifying odontogenic cysts, peri-apical cemental dysplasia and calcifying epithelial odontogenic tumours. A clue to the diagnosis of complex odontomas is their tendency to be associated with unerupted molar teeth.[7]

Since they do not recur, treatment is by surgical removal. When small they shell out easily owing to the presence of a surrounding capsule. However, when large and irregular in outline they must be sectioned and removed, otherwise a fracture of the containing bone may result.[9]

REFERENCES

1. Gorlin RJ. Odontogenic tumors. In: Gorlin RJ, Goldman HM, eds. *Thomas' Oral Pathology*. 6th ed. St Louis: CV Mosby, 1970: 481-501.
2. Caton RB, Fla G, Marble HB jun, Topazian RG. Complex odontoma in the maxillary sinus. *Oral Surg* 1973; **36:** 658-662.
3. Hitchin AD. The aetiology of the calcified composite odontomas. *Br Dent J* 1971; **130:** 475-482.
4. Robbins SL. *Pathology*. 3rd ed. Philadelphia: WB Saunders, 1969: 786.
5. Minderjahn A. Incidence and clinical differentiation of odontogenic tumours. *J Maxillofac Surg* 1979; **7:** 142-150.
6. Dodd GD, Jing B. *Radiology of the Nose, Paranasal Sinuses and Nasopharynx*. Baltimore: Williams & Wilkins, 1977: 205.
7. Goaz PW, White SC. *Oral Radiology: Principles and Interpretation*. St Louis: CV Mosby, 1982: 463-468.
8. Samuel E, Lloyd GAS. *Clinical Radiology of the Ear, Nose and Throat*. 2nd ed. London: HK Lewis, 1978: 88-89.
9. Archer WH. *A Manual of Oral Surgery*. 2nd ed. Philadelphia: WB Saunders, 1956: 364-367.