A Large Mass in the Maxilla: Clinical Features and Differential Diagnosis

Cagri Delilbasi, *DDS, PhD;* ***Metin Sencimen,*** *DDS, PhD;* ***Kemal Murat Okcu,*** *DDS, PhD*

A 21-year-old man was referred to our clinic with swelling and pain in the right maxillary region. The swelling had started 8 months previously and increased gradually. Clinical examination revealed facial asymmetry caused by swelling of the right buccal region, which was firm and covered with normal skin (**Fig. 1**). There was no buccal tenderness, history of epistaxis, nasal obstruction, headache or visual disturbance. Intraoral examination revealed a palpable mass in the right upper molar region, which had destroyed bone and caused a decrease in buccal sulcus depth. Large carious lesions were found in the premolars and first molar.

Panoramic radiography revealed a large radiolucent lesion containing a radiopaque structure in the right maxillary sinus. The lesion extended from the canine to the first molar and had caused a divergence in the canine root (**Fig. 2a**). Axial sections of a computed tomography image showed a large, unilocular, well-defined mass containing radiopaque material extending from the alveolar ridge into the maxillary sinus. The lesion had caused destruction of the alveolar bone, but no extension into the adjacent soft tissue was observed. The walls of both orbital and nasal cavities were intact. Sphenoid and frontal sinuses and osteomeatal complexes were not affected by the lesion (**Fig. 2b**). Blood tests yielded no significant information. An incisional biopsy was performed and a tissue sample was processed for histopathologic examination. After a provisional diagnosis had been made, the lesion was removed surgically with the patient under general anesthesia.

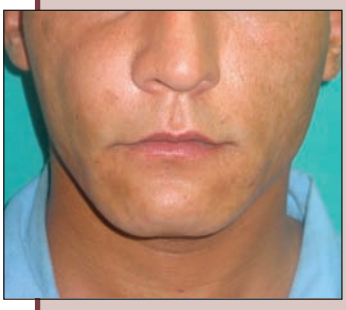

Figure 1: Frontal view of the patient showing facial asymmetry.

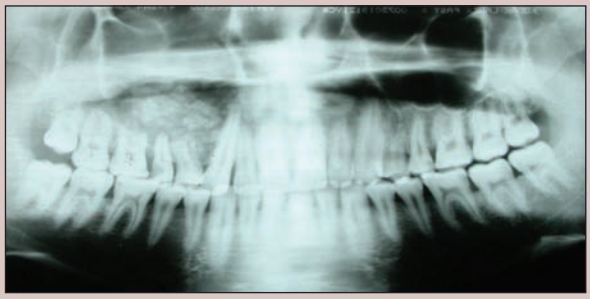

Figure 2a: Panoramic radiographic view of the lesion.

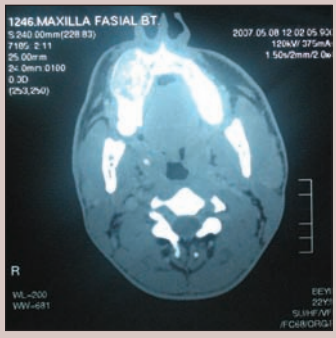

Figure 2b: Axial section of a computed tomography image of the lesion.

What is your provisional diagnosis?

Answer on p. 272

Answer to the Diagnostic Challenge (p. 269)

Differential Diagnosis

The differential diagnosis included calcifying odontogenic cyst (Gorlin cyst), adenomatoid odontogenic tumour, calcifying epithelial odontogenic tumour (Pindborg tumour), myxoma, osteoblastoma, cementoblastoma, osteosarcoma, Paget's disease and cemento-ossifying fibroma.

Calcifying Odontogenic Cyst (Gorlin Cyst)

Calcifying odontogenic cyst usually appears as a unilocular, well-defined radiolucency, although it may be multilocular. In about a third of cases, radiopaque structures are present within the lesion. This tumour occurs equally in the maxilla and mandible, particularly in the area of the incisors and canines. Most cases are found in patients in the second or third decade of life.

Adenomatoid Odontogenic Tumour

Adenomatoid odontogenic tumour is most common in patients under 30 years of age and occurs more often in females than males. It affects the anterior parts of the jaws, especially the maxilla. As it is generally asymptomatic, this tumour is often discovered during routine radiographic examination. It appears as a circumscribed, unilocular radiolucency that may involve an unerupted tooth (usually a canine). The radiolucent area may contain fine calcified deposits.

Calcifying Epithelial Odontogenic Tumour (Pindborg Tumour)

This uncommon tumour mainly affects patients 30–50 years of age; it has no predilection for either sex. Most cases occur in the posterior mandible as a painless, slow-growing swelling. Radiographically, the tumour appears as a unilocular or multilocular radiolucent area, which may contain calcified structures. It is frequently associated with an impacted tooth (often a third molar).

Myxoma

Myxoma of the jaw is found predominantly in young adults 25–30 years of age. This tumour, which has no predilection for either sex, usually affects the posterior mandible. Small lesions may be asymptomatic and are often diagnosed during routine radiographic examination. Larger lesions may cause painless expansion. Radiography shows a unilocular or multilocular radiolucency, which may cause displacement or resorption of adjacent teeth. The radiolucent area may contain thin trabeculae of residual bone, giving it a "soap bubble" appearance.

Osteoblastoma

Osteoblastoma is a rare tumour of long bones, but may also affect the jaws. It predominantly affects the posterior mandible, males and those under 30 years of age. As it may grow to a diameter of 10 cm, pain is often the presenting symptom. Radiographically, this tumour may appear as a well- or ill-defined radiolucent lesion, generally with patchy areas of mineralization.

Cementoblastoma

Cementoblastoma usually arises in the molar or premolar region. This tumour has no predilection for either sex and it occurs predominantly before 30 years of age. Pain and swelling are common symptoms. Radiographically, the tumour appears as a radiopaque mass fused to one or more tooth roots and surrounded by a thin radiolucent rim.

Osteosarcoma

This tumour is a malignancy of mesenchymal cells and can produce osteoid tissue or immature bone. A slight male predominance is noted among those 30–40 years of age. Maxilla and mandible are equally affected; lesions are commonly encountered in the inferior part of the maxilla (alveolar ridge, sinus floor, palate). Swelling, pain, loosening of teeth, paresthesia and nasal obstruction are common symptoms. The radiographic appearance of these lesions varies from dense sclerosis to mixed or entire radiolucency. The peripheral border is ill defined and root resorption is common. An important early radiographic change is symmetric widening of the periodontal ligament space around the teeth.

Paget's Disease

This disease is caused by abnormal resorption and deposition of bone and occurs most often in middle-aged adults. Jaw involvement occurs in almost 17% of patients. The maxilla, especially the middle third, is more commonly affected than the mandible. Nasal obstruction, enlarged turbinates, obliterated sinuses and a deviated septum are possible symptoms. Radiography reveals decreased radiodensity of the bone and alteration of the trabecular pattern. Paget's disease may resemble cemento-osseous displasia. Expansion of the jaws

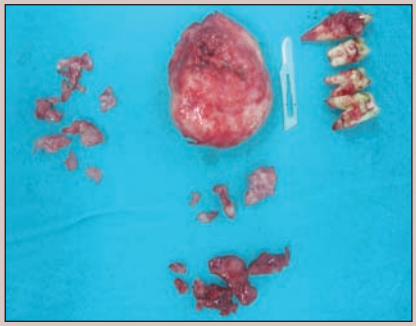

Figure 3: Clinical appearance of the excised lesion with extracted teeth.

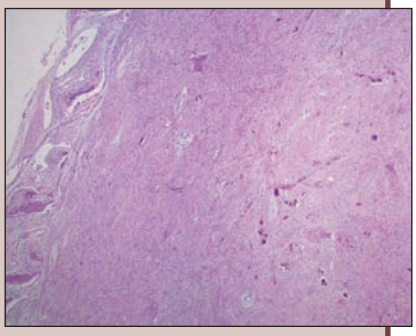

Figure 4: Histopathologic appearance of the specimen, typical of cemento-ossifying fibroma. Hematoxylin and eosin staining ×40.

should therefore be carefully evaluated in order not to overlook Paget's disease.

Cemento-ossifying Fibroma

This uncommon neoplasm usually occurs in the mandibular premolar or molar region. It mostly occurs in patients 20–40 years of age, with a predilection for females. The most common complaint is a painless swelling. Radiographically, cemento-ossifying fibroma appears as a radiolucent lesion containing calcified material. It has well-defined margins and root displacemet is common.

In the case described above, absence of rapid growth, paresthesia, nasal bleeding and obstruction allowed us to rule out malignancy. Except for osteosarcoma, the lesions included in the differential diagnosis are mainly treated conservatively and the prognosis is good. Although it is impossible to differentiate similar lesions radiographically, fine-needle aspiration and incisional biopsy are helpful in reaching a provisional diagnosis.

Treatment

Because of erosion of the buccal alveolar bone, incisional biopsy was easily performed and a provisional diagnosis of cemento-ossifying fibroma was made. With the patient under general anesthesia, the canine, first and second premolars and first molar were extracted and the lesion was completely removed. The dimensions of the excised tissue were 7 × 5 × 4 cm, which is considered a large mass (**Fig. 3**). Histopathologic examination revealed a well-demarcated neoplastic lesion containing spindle fibroblastic cells and irregular bone or cement-like structures. Reactive host bone surrounded the lesion (**Fig. 4**). The final diagnosis was consistent with the biopsy result. Follow-up examination 2 years later was uneventful. Although the lesion was completely removed, recurrence can be expected with this type of lesion.

THE AUTHORS

Dr. Delilbasi *is an associate professor in the department of oral and maxillofacial surgery, faculty of dentistry, Yeditepe University, Istanbul, Turkey.*

Dr. Sencimen *is an assistant professor in the department of oral and maxillofacial surgery, Gulhane Military Medical Academy, Center for Dental Sciences, Ankara, Turkey.*

Dr. Okcu *is an assistant professor in the department of oral and maxillofacial surgery, Gulhane Military Medical Academy, Center for Dental Sciences, Ankara, Turkey.*

Correspondence to: *Dr. Cagri Delilbasi, Yeditepe University, Faculty of dentistry, Department of oral and maxillofacial surgery, Bagdat Caddesi No: 238, 34728 Istanbul-Turkey. Email: cdelilbasi@yahoo.com*

Further Reading

Ertug E, Meral G, Saysel M. Cemento-ossifying fibroma: a case report. *Quintessence Int* 2004; 35(10):808–10.

Khandelwal N, Sodhi KS, Suri S, Radotra B. Cemento-ossifying fibroma of the maxilla. *J Otolaryngol* 2004; 33(2):122–4.

Sood V. A cemento-ossifying fibroma in the maxilla. *Dent Update* 2004; 31(10):590–3.