Common Tumours In Dental Practice

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INTRODUCTION.

Tumours and tumour like lesions frequently occur in the head and neck region and the often present to the dentist. The head and neck region is formed by the fusion of many processes which leave epithelial remnants. These remnants predispose this region to the formation and cysts and tumours.

Many classification schemes (which go beyond the scope of this article) have been used to classify these lesions. Three classes will be discussed.
1. Odontogenic tumours.
2. Benign non-odontogenic tumours.
3. Malignant tumours.

ODONTOGENIC TUMOURS.

Odontogenic tumours arise from epithelial and mesenchymal remnants of tooth forming apparatus. They are restricted to the jaws and usually cause painless, slow growing lesions which tend to expand the jaw and resorb the roots of the teeth. They tend to resemble the tissues of the enamel organ or the dental pulp histology and they vary from relatively harmless hamartomas to malignant lesions which rapidly metastasize.
Odontogenic tumours are listed below according to their biologic behaviour.

A. Benign without potential for recurrence.
- ? Adenomatoid odontogenic tumour.
- ? Squamous odontogenic tumour.
- ? Cementoblastoma.
- ? Periapical cementoosseous dysplasia.
- ? Odontoma.

B. Benign with potential for recurrence.
- ? Cystic ameloblastoma.
- ? Calcifying epithelial odontogenic tumour.
- ? Central odontogenic fibroma.
- ? Florid cementoosseous dysplasia.
- ? Ameloblastic fibroma.

C. Benign and aggressive.
- ? Ameloblastoma.
- ? Clear cell odontogenic tumour.
- ? Odontogenic myxoma.

D. Malignant.
- ? Malignant ameloblastoma.
- ? Ameloblastic carcinoma.
- ? Primary intraosseous carcinoma.
- ? Ameloblastic fibrosarcoma.

Ameloblastoma and Odontogenic myxoma are the most frequently seen and they will be discussed briefly.

Ameloblastoma.

This is the commonest benign lesion of the jaws accounting for 58.5 % of all odontogenic tumours in a Nigerian study.
It originates from epithelial remnants in the jaws such as the enamel organ, rest cells of Malassez or Serres, lining of odontogenic cysts such as the dentigerous cysts and the reduced enamel epithelium. The mechanism by which these cells undergo neoplastic transformation is unknown, however, an overexpression of antiapoptotic and interface proteins such as Bcl-2 and FGF (fibroblast growth factor) has been observed.

While the tumour can occur in any age group, it predominantly affects adults in the fourth and fifth decades of life. Both sexes are equally affected. The mandible is affected in 80% of cases and tends to occur in the molar and angle region. Maxillary lesions though less common are associated with a worse prognosis due to extension to the cranial base and higher propensity for recurrence. If left untreated, ameloblastomas especially in the mandible can attain very large sizes and cause severe facial disfigurement and pain due to secondary infection.

Apart from the *solid multicystic type*, other biologic types include the *cystic ameloblastoma* which is commonly found in a younger age group and the *peripheral type* which is found outside the bone in the elderly.

Investigation involves plain radiographs, CT scans and MRI to determine the extent. It presents as a multilocular radiolucent lesion on plain radiography. An

incisional biopsy is needed to confirm the diagnosis. Several histologic features have been described. The most common is the follicular variety in which palisading columnar ameloblast like cells are arranged in a follicular pattern around cells that resemble the stellate reticulum of the developing tooth bud.

Treatment consists of resection with a safety margin and rehabilitation with bone grafts, implants and prosthesis to replace the teeth.

Ameloblastoma before and after surgery.

Odontogenic myxoma.

Unlike the ameloblastoma which is epithelial in origin, the myxoma is mesenchymal in origin. It affects box sexes equally and can occur anywhere in the mandible or maxilla. It is seen in the age range of 10 to 50 with a peak at 30 years of age.

Radiographically, it presents as a multilocular radiolucency, sometimes like a honeycomb- dubbed the *honeycomb* or *soap bubble* appearance. Histologically, the picture is that of a loose acellular myxomatous connective tissue. Fibroblasts with varying amount of collagen are found in the mucopolysaccharide matrix. When a large amount of collagen exists, it is often called *fibromyxoma*.

Surgical excision is the treatment of choice. It does not have a capsule and could recur if not excised with a safety margin.

BENIGN NON **ODONTOGENIC TUMOURS.**

The so called fibroosseous lesions are the most commonly found tumours of the jaws that do not originate from odontogenic tissues. Several classifications have also been proposed for fibroosseous lesions, however, only 2 of them, fibrous dysplasia and ossifying fibroma will be mentioned. Other benign non odontogenic tumours of note are the central giant cell granuloma, hemangioma and tori.

Fibrous dysplasia.

The normal medullary bone is replaced by abnormal fibrous connective tissue in this condition and it is thought that a genetic defect involving Gs-alpha proteins is responsible for this change.

Clinically, it presents as a slow growing and painless expansion of the involved bone. It is termed *monostotic* when a single bone is involved and *polyostotic* when multiple bones are affected. The polyostotic type when associated with melanotic pigmentation of the skin and endocrine abnormalities is referred to as the *McCune Albright syndrome*. When several adjacent bones of the facial skeleton are involved, it is termed *craniofacial fibrous* *splasia*. The maxilla is more often involved than the andible. The onset is usually in the first decade of life and sually pursues an insidious course.

A radiopaque radiographic picture usually referred as a *ground glass appearance* with a poorly defined margin is haracteristic. Young lesions may however present as a pure diolucency. The microscopic features consist of a fibrous nnective tissue with irregular trabeculae of bone which is ranged like Chinese characters. This feature is not eculiar to fibrous dysplasia and can occur in any other broosseous lesion. It is therefore necessary to combine to combine clinical, radiographic and histologic features to arrive at the diagnosis of any fibroosseous lesion.

Small lesions require no active treatment and treatment, which consists of paring down the lesion is usually delayed until after puberty.

Ossifying fibroma.

This lesion, identical with the cementifying fibroma tends to occur in the third and fourth decades of life. Lesions are often seen in the tooth bearing region of the mandible and affects women more than men. Growth is slow and painless and can destroy the affected jaw if left untreated.

They present with a radiopaque well circumscribed lesion when relatively dense and mature or as a radiolucent lesion with calcific specs while still young.

Treatment is by enucleation and the lesion shells out easily at surgery due to the well formed capsule. Recurrence is extremely rare.

Central giant cell granuloma.

The CGCG is a less common jaw lesion which was previously thought to be a reactive lesion but is now regarded as a true neoplasm due to a possible relationship with the giant cell tumour of the long bones. This is a benign proliferation of fibroblasts with prominent multinucleated giant cells.

It is found in the mandible in children and young adults. Females are more commonly affected. It presents as a painless expansion of the jaws which frequently extends into the adjacent soft tissues.

Surgical excision is the treatment of choice though intralesional injection of steroids and exogenous calcitonin

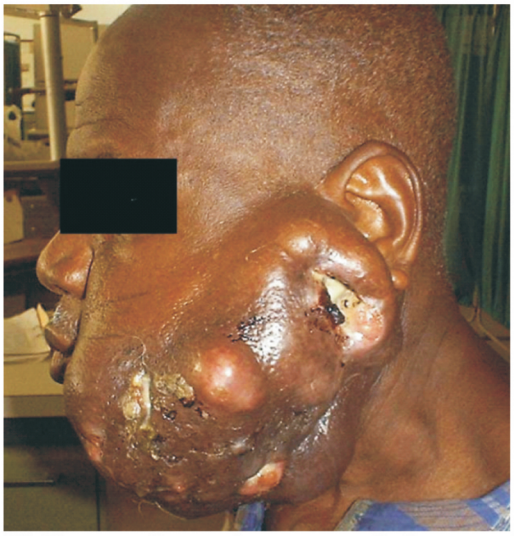
has showed varying degrees of efficacy in controlling the disease.

Pleomorphic adenoma.

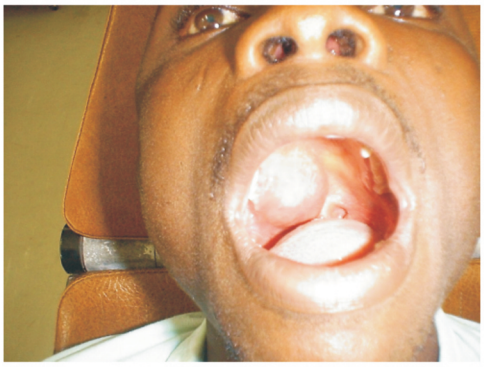
This is the commonest neoplastic change seen in dental practice affecting major and minor salivary glands. It is also known as the mixed tumour because of the histologic picture which displays a mixture of ductal and myoepithelial proliferation. The parotid gland is affected about 90% of cases. The commonest intraoral site is the palate when minor salivary glands are involved.

This lesion can occur in any age but peaks at the fourth and sixth decades with women being predominantly affected. It grows slowly and painlessly and can reach very large sizes. If left untreated, it can undergo a malignant transformation like the one below.

Surgical excision is the treatment of choice and can recur if not adequately excised beyond the pseudocapsule.



Malignant change in untreated pleomorphic adenoma



Pleomorphic adenoma of the palate.

Hemangiomas

Vascular anomalies are less commonly seen in dental practice and can affect the jaw bones or the peripheral soft tissues. Since they are rare, they will not be discussed further.

MALIGNANT TUMOURS.

Thankfully, malignant tumours are not as common as the benign lesions in dental practice.

Malignant changes are far more common in the skin and mucosa than in the jaw bones and most of these lesions are squamous cell carcinomas.

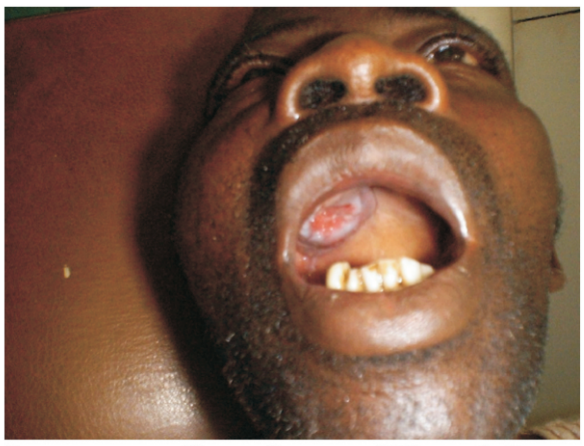
Principal etiologic factors include exposure to sunlight, ionizing radiation and other carcinogens. Alcohol consumption, the use of tobacco and chewing of pan (common in India) have been implicated as risk factors for intraoral squamous cell carcinoma.

Clinical presentation is usually an ulcer, fissure or plaque. The commonest extraoral site is the lower lip and the lateral tongue/ floor of the mouth intraorally.

Lesions are usually firm and indurated. An ulcer in the mouth that fails to heal after 2 months should be suspected and biopsied. Squamous cell carcinomas readily metastasize to regional lymph nodes if treatment is delayed.

Histologically, malignant epithelial structures invade the dermis and beyond. These cells show cellular atypia- nuclear hyperchromatism, increased nuclear-cytoplasmic ratio, abnormal mitotic figures, increased mitotic rate and individual cell keratinization.

Treatment is wide surgical excision. Neck dissection for the removal of regional nodes is indicated if their involvement is suspected. Radiotherapy and chemotherapy are also indicated for advanced disease. The 5 year survival rate for stage 1 disease is 90%.



Squamous cell carcinoma of the palate.

Burkitt's lymphoma.

This is the commonest malignancy seen in children in dental practice and would not be further discussed.

Osteogenic sarcoma.

This is seen affecting the jaw bones in adults. Jaw malignancies should be suspected if any of the following signs and symptoms are seen.

? Pain
? Paresthesia
? Loose teeth.
? Rapidly growing jaw swelling.
? Radiographic changes with a moth eaten pattern of destruction and poorly defined edges.

Early detection and prompt management is the key to a successful management of jaw tumours seen in dental practice. Early referral to a specialist is crucial to this process.

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