Benign Oral Tumors and Tumor-like Conditions*

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The discovery of leukoplakia, erythroplakia, ulceration, ulcerated masses or a brownish-black pigmentation in the oral cavity alerts the physician and dentist to the possible presence of oral cancer—highly curable if detected at an early stage. However, many benign conditions may also be encountered in the oral cavity which require therapy or at least recognition. Some of the following conditions are true benign neoplasms; others are non-neoplastic but may be confused with tumors.

Mucocele: The mucocele, a retention cyst caused by occlusion of the ducts of the mucous glands in the oral cavity, is a thin-walled, tense mass of bluish color noted most often on the inner aspect of the lower lip or the floor of the mouth. (Fig. 1.) Mucoceles vary in size from a few millimeters to several centimeters. A larger retention cyst in the floor of the mouth, caused by obstruc-

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tion of the ducts of the submaxillary or sublingual glands, is called a ranula. Mucoceles are managed by simple excision; ranulas are unroofed and marsupialized.

Papilloma: The papilloma, a benign epithelial neoplasm with little malignant potential, may occur as a single or multiple growth. It appears as a small, warty elevation in the mucosa of the oral cavity, most frequently on the tongue. (Fig. 2.) Excision is indicated.

Fibroma: This benign, soft tissue neoplasm of the oral cavity, is often pedunculated and covered with normal mucous membrane. The fibroma is found most often in the buccal mucosa where it is frequently bitten by the patient. (Fig. 3.) Treatment is simple excision.

Denture Fibroma: The denture fibroma, or epulis fissuratum, a benign fibrous tissue hyperplasia due to impingement by a poorly fitting denture, may become ulcerated and quite painful for the patient. This lesion is most often noted in the gingivolabial or gingivobuccal sulcus. (Fig. 4.) Small fibromas may regress when the denture is corrected; larger ones require excision as well as revision of the denture.

Pyogenic Granuloma: The pyogenic granuloma, most often found in a mouth with advanced dental caries, is a friable, red, soft, easily bleeding mass which appears suddenly in the oral cavity and often follows trauma. (Fig. 5.) Microscopically, the lesion resembles granulation tissue. Treatment is excision and cauterization of the base.
Benign Mixed Tumor: This benign tumor, which may arise from minor salivary glands in the oral mucosa, typically appears as a rounded mass in the palate covered by normal mucosa. (Fig. 6.) Often, it cannot be distinguished clinically from a malignant tumor of minor salivary tissue; the diagnosis is made only after excision or biopsy.

Granular Cell Myoblastoma: This tumor, once thought to originate from striated muscle and now believed to be of neural origin, characteristically appears as a well-circumscribed, firm, rounded mass within the muscle of the tongue, frequently covered by hyperplastic epithelium. (Fig. 7.) It is usually a benign neoplasm; rarely is a malignant counterpart encountered. Treatment is local excision of the mass.

Hemangioma: The hemangioma is a benign, usually congenital proliferation of vessels which may involve the mucosa and deeper tissues of the oral cavity, most often the tongue. (Fig. 8.) Its counterpart, the lymphangioma, may also be seen. Treatment is usually not necessary unless swelling or troublesome bleeding—which occasionally occurs—indicates total or partial excision.

Reparative Giant Cell Granuloma: This tumor-like, expansile lesion of the bone of the alveolar ridge, which ap-
pears in children and adolescents, may reach a large size with resorption of bone and visible deformity. Microscopically, the lesion resembles a benign giant cell bone tumor and is indistinguishable from the bone lesion known as osteitis fibrosa cystica seen in hyperparathyroidism. In fact, the reparative giant cell granuloma may be an early manifestation of a functioning parathyroid adenoma. Therefore, when this condition is seen, parathyroid disease must be ruled out with serum calcium and phosphorus studies. (Figs. 9 and 10.)

The lesion is treated by excision and curettage of the adjacent bone.

**Torus:** The torus is a benign exostosis-like overgrowth of bone most commonly seen as a lobulated bony mass in the midline of the hard palate, covered by intact mucosa. (Fig. 11.) Mandibular tori appear less frequently as bony nodules projecting from the inner aspect of the mandible in the canine region. While treatment is not often indicated, palatine tori may require excision due to recurrent traumatic ulceration of the overlying mucosa or to allow better fitting of an upper denture.

**Fig. 9.** Giant cell reparative granuloma. X-rays revealed an expansile, bony lesion. When this condition is encountered, rule out parathyroid disease.

**Fig. 10.** The expansile, cystic bony lesion of the anterior arch of the mandible proved to be a giant cell reparative granuloma which was treated by excision and curettage.

**Fig. 11.** Palatine torus. Note the benign bony mass in the middle of the hard palate.
Median Rhomboid Glossitis: This developmental anomaly of the tongue, which represents planes of embryonic fusion between the tuberculum impar and the first and second brachial arches, may cause concern to the examiner. It characteristically appears as a diamond-shaped, reddened, slightly elevated area in the mucosa of the midline of the tongue, just anterior to the circumvallate papillae. (Fig. 12.) Its consistency on palpation is the same as that of the surrounding normal mucosa. A malignant tumor of the tongue practically never arises in this posterior midline location. No treatment is indicated.

Lingual Thyroid: A lingual thyroid, resulting from the failure of the fetal thyroid tissue to descend into the neck, presents as an elevated, rounded, midline mass in the posterior tongue, in the region of the foramen caecum. The mass generally must be removed since it enlarges and interferes with speech and swallowing. Thyroid tissue is usually absent in the neck of these patients and maintenance thyroid therapy is required once the lingual mass is removed. (Fig. 13.)
Tumors of the Jaw

Local extension of oral cancer may involve the mandible or maxilla. Other conditions involving the jaw include primary tumors of the bone, odontogenic or developmental cysts and tumors, and metastatic cancer from tumors elsewhere in the body.

Involvement of Bone by Oral Cancer: Obviously, any cancer arising in the oral cavity may involve adjacent bone as it progresses. Bony involvement—caused by direct invasion through the periosteum rather than by metastasis—occurs early in cancers directly overlying bone, such as lesions of the gum or palate, and later in cancers of the tongue, floor of the mouth or buccal mucosa. Therefore, bone involvement must be suspected whenever a tumor seems adherent to the maxilla or mandible.

Since bone invasion has therapeutic and prognostic implications of great importance, appropriate roentgen studies should be obtained for its detection. (See "Roentgen Diagnosis," page 108.)

The earliest cortical involvement by neoplasms overlying the alveolar ridges is detected by small bite-wing dental films. (Fig. 14.) Panorex films of the mandible are most useful in demonstrating the extent of more advanced bone destruction and enlargement of the medullary canal. (Fig. 15.) Stereoscopic X-rays of the jaws and paranasal sinuses are indicated for evaluation of tumors of the palate and maxillary regions. (Fig. 16.)

Primary Bone Tumors: Most primary neoplasms of the skeletal system may arise in the jaws, including osteogenic sarcomas, chondrosarcomas and periosteal fibrosarcomas, as well as such be-

Fig. 14. This bite-wing dental film depicts bone invasion by squamous cell carcinoma of the gum.

Fig. 15. Panorex film of the mandible illustrates an osteolytic lesion. Biopsy disclosed a malignant tumor classified as mesenchymal chondrosarcoma.

Fig. 16. This stereoscopic film illustrates opacification of the left maxillary sinus by adenoid cystic carcinoma of the hard palate.
Roentgen Diagnosis

Roentgen examination obviously plays an important role in the evaluation of tumors of the oral cavity, particularly when the tumor arises in bone or in mucous membrane overlying bone. A number of diagnostic procedures may be utilized; each has its own particular advantages. The small bite-wing X-ray films taken in dental offices are useful for study of the teeth and supporting bone. Their fine detail may also give the earliest clue to erosion of cortical bone by adjacent tumors. Panorex films of the jaws are taken by rotating the X-ray tube in a half circle about the patient. These films portray both sides of the mandible and the maxillae on one view and allow easy comparison and detection of bone abnormalities. Stereoscopic films of the jaws, paranasal sinuses and the base of the skull are important in evaluating the extent to which a tumor has involved the bone and invaded the maxillary sinus. Occasionally, specialized procedures such as soft tissue films, laminograms and angiograms are helpful in determining the extent of deeply lying inaccessible lesions.

Benign conditions as giant cell tumor, eosinophilic granuloma and fibrous dysplasia.

Malignant tumors of the jaw usually present as rapidly enlarging and frequently painful bony masses with ulceration of the adjacent mucous membrane as the tumors progress. Roentgen studies usually reveal extensive bone destruction.

Benign bone lesions have a much more sluggish growth rate and seldom cause symptoms. They are generally noted when asymmetry of the face or deformity of the jaws has occurred. Fibrous dysplasia, one of the benign conditions more commonly encountered in the jaws, particularly in children, is a diffuse, expansile lesion which may involve the maxilla, mandible or both. Bone expansion in the juvenile form usually ceases after puberty. Surgical procedures to shave away excess bone for cosmetic reasons are occasionally required.

Odontogenic Tumors and Cysts: The odontogenic epithelium may also give rise to a number of tumors and cysts which are peculiar to the jaws. The commonest and most important tumor is the ameloblastoma or adamantinoma. This slow growing expansile tumor, encountered most often in the molar region of the mandible, is invasive and, if neglected, can cause great deformity. On rare occasions, it has spread to regional lymph nodes. The tumor has a characteristic multiloculated cystic appearance on roentgen films. (Fig. 17.) Since recurrence of ameloblastomas after curettage is frequent, the preferred treatment is segmental excision of the involved mandible and replacement with a bone graft. Ameloblastoma of the upper jaw is treated by bloc excision of the involved portion of the maxilla.
Metastatic Tumors of the Jaws: Occasionally, malignant tumors arising elsewhere in the body spread to the jaws via the bloodstream. The most frequent primary sites are cancers of the lung, breast and prostate; less commonly, cancers of the thyroid and the kidney have also metastasized to the jaws. (Fig. 18.) On rare occasion the bony metastasis may be the first manifestation of the primary tumor; biopsy of the bony lesion may be required if the primary tumor is not already evident. Palliative radiation and occasionally palliative resection may be indicated for relief of symptoms caused by the expanding metastatic mass.

Odontogenic tumors other than the ameloblastoma, including cementomas and odontomas of various types, are quite rare and benign in their behavior with a generally slow growth rate.

The most common cysts encountered in the jaws arise from odontogenic epithelium. These include radicular cysts, which form about the root of a tooth, usually as the result of infection; dentigerous cysts, a dysplastic lesion which forms about an unerupted tooth, usually the third molar; and primordial cysts, similar to the dentigerous cyst in origin but arising before the tooth has developed. Conservative decompression of these cysts with curettage of their epithelial linings usually results in cure.

In addition to odontogenic cysts, a number of developmental or fissural cysts occur in the jaws in planes of embryonic fusion. These include median palatine cysts, globulomaxillary cysts and mandibular midline cysts. These cysts are unrelated to the teeth—although they may displace teeth as they expand—and present as simple epithelial-lined cavities in the jaws which are usually recognized by their typical locations.

Fig. 17. Note the multiloculated destructive ameloblastoma of the mandible. This tumor had been treated by simple curettage four years previously.

Fig. 18. The X-ray depicts metastatic cancer of the mandible. This patient had bronchogenic carcinoma as the primary site and later developed an enlarging painful mass in the jaw.