

**Lecture (7)**

**Cancer of the Oral Cavity and Tongue**

The mouth and associated structures may be involved in a wide variety of disease states that may be loosely divided **into three categories**.

**First**, many systemic diseases, particularly dermatological conditions, exhibit oral manifestations (e.g. *lichen planus*, *syphilis*).

**Second**, all oral tissues may be subject to acute or chronic inflammatory states, the most common being dental caries and its sequel periapical abscess formation, and periodontal disease (i.e. inflammation of the gums). Of more general histopathological interest is inflammation of the salivary glands leading to *chronic sialadenitis*.

**Third**, many benign and malignant tumors may arise in the oral tissues, the most common being **squamous cell carcinomas** of the lips, oral mucosa and tongue. Salivary tumors, both benign and malignant, can arise in both major and minor salivary glands.

**Squamous Cell Carcinomas:**

Approximately 95% of cancers of the oral cavity are squamous cell carcinomas, with the remainder largely consisting of adenocarcinomas of salivary glands. Squamous cell carcinoma, an aggressive epithelial malignancy, is the sixth most common neoplasm in the world today. Despite numerous advances in treatment, the overall long-term survival

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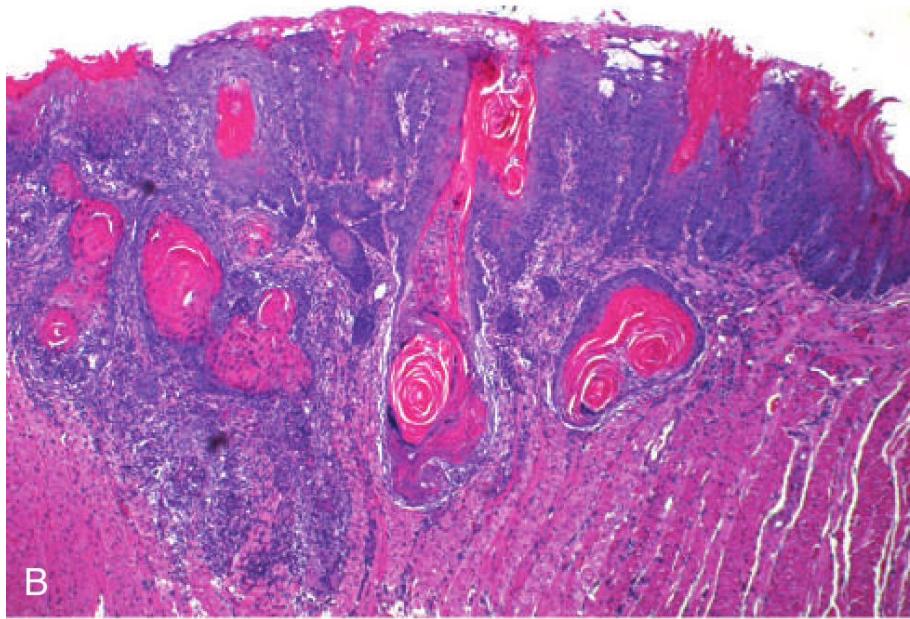
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rate has remained less than 50% for the past 50 years. This dismal outlook is due to several factors, in large part because oral cancer often is diagnosed at an advanced stage.

Squamous cancers of the oropharynx arise through two distinct pathogenic pathways, one involving exposure to carcinogens, and the other related to infection with high risk variants of human papilloma virus (HPV). Squamous cell carcinoma may arise anywhere in the oral cavity. However, the most common locations are the ventral surface of the tongue, floor of the mouth, lower lip, soft palate, and gingiva.





**Fig. (1) Oral squamous cell carcinoma.**

(A) Gross appearance demonstrating ulceration and induration of the oral mucosa. (B) Histologic appearance demonstrating numerous nests and islands of malignant keratinocytes invading the underlying connective tissue stroma.

### **Salivary Gland Tumors**

Despite their relatively simple morphology, the salivary glands give rise to at least 30 histologically distinct tumors (Table 1). A small number of these neoplasms account for more than 90% of tumors. Overall, salivary gland tumors are relatively uncommon and represent less than 2% of all human tumors. Approximately 65% to 80% arise within the parotid, 10% in the submandibular gland, and the remainder in the minor salivary glands,

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including the sublingual glands. Approximately 15% to 30% of tumors in the parotid glands are malignant. By contrast, approximately 40% of submandibular, 50% of minor salivary gland, and 70% to 90% of sublingual tumors are cancerous. Thus, the likelihood that a salivary gland tumor is malignant is inversely proportional, roughly, to the size of the gland.

Salivary gland tumors usually occur in adults, with a slight female predominance, but about 5% occur in children younger than 16 years of age. Whatever the histologic pattern, parotid gland neoplasms produce swelling in front of and below the ear. Benign tumors may be present for months to several years before coming to clinical attention, while cancers more often come to attention promptly, probably because of their more rapid growth. However, there are no reliable criteria to differentiate benign from malignant lesions on clinical grounds, and histopathologic evaluation is essential.

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**Table 1 Histopathologic Classification and Prevalence of the Most Common Benign and Malignant Salivary Gland Tumors**

Benign	Malignant
<b>Pleomorphic adenoma (50%)</b>	Mucoepidermoid carcinoma (15%)
<b>Warthin tumor (5%)</b>	Acinic cell carcinoma (6%)
<b>Oncocytoma (2%)</b>	Adenocarcinoma NOS (6%)
<b>Cystadenoma (2%)</b>	Adenoid cystic carcinoma (4%)
<b>Basal cell adenoma (2%)</b>	Malignant mixed tumor (3%)

***Pleomorphic Adenoma***

Pleomorphic adenomas are benign tumors that consist of a mixture of ductal (epithelial) and myoepithelial cells, so they exhibit both epithelial and mesenchymal differentiation

Pleomorphic adenomas typically manifest as rounded, well demarcated masses rarely exceeding 6 cm in the greatest dimension. Although they are encapsulated, in some locations (particularly the palate), the capsule is not fully developed, and expansile growth produces protrusions into the surrounding tissues.

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#### **Mucoepidermoid carcinoma**

Mucoepidermoid carcinomas are composed of variable mixtures of squamous cells, mucus-secreting cells, and intermediate cells.

Mucoepidermoid carcinomas can grow as large as 8 cm in diameter and, although they are apparently circumscribed, they lack well-defined capsules and often are infiltrative.

#### **Adenocystic carcinoma (MP)**

The most common malignant tumor of salivary tissue is the *adenocystic* or *adenoid cystic carcinoma*. This tumor is uncommon in the parotid glands but is seen in the other major glands and in the minor salivary glands. Histologically, it has a characteristic cribriform (sieve-like) appearance owing to the presence of small spaces S in a mass of tightly packed tumor cells. The tumor cells are arranged in clumps and cords separated by a fibrous stroma F which may exhibit a marked degree of hyalinization.

As well as occurring in the major salivary glands, adenocystic carcinomas can arise in the minor or accessory salivary glands of the palate. These tumors are locally invasive and prone to recurrence following surgical excision. Spread to regional lymph nodes is frequent and wide local spread is common, although the rate of growth is often slow.

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Perineural invasion, which is often extremely painful, is a common feature of this tumor.