

GIT Pathology

LEC 1

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Oral pathology

1- Aphthous ulcer

- It is a common, self-limiting condition.
- It is small (less than 5mm), *painful, shallow, ulcer.*
- It affects the oral mucosa, soft palate, buccal and labial mucosa, floor of the mouth.
- *It is round, covered by gray- white exudate with erythematous rim.*

Etiology:

- Unknown, but it is triggered by stress, fever, ingestion of certain food. etc.
- Autoimmune base is suspected.

Aphthous ulcer



2- Herpes simplex virus infection

- Also Called fever blister or cold sore
- **Cause:** HSV type I
- The primary infection is usually asymptomatic, the virus will persist in a dormant state within the local ganglia (e.g. trigeminal) and get **reactivation by:**
 - Trauma
 - Fever or excessive cold
 - Exposure to ultraviolet light (sunlight)
 - Upper respiratory tract infections
 - Pregnancy
 - Menstruation
 - Immunosuppression

Herpes simplex virus infection

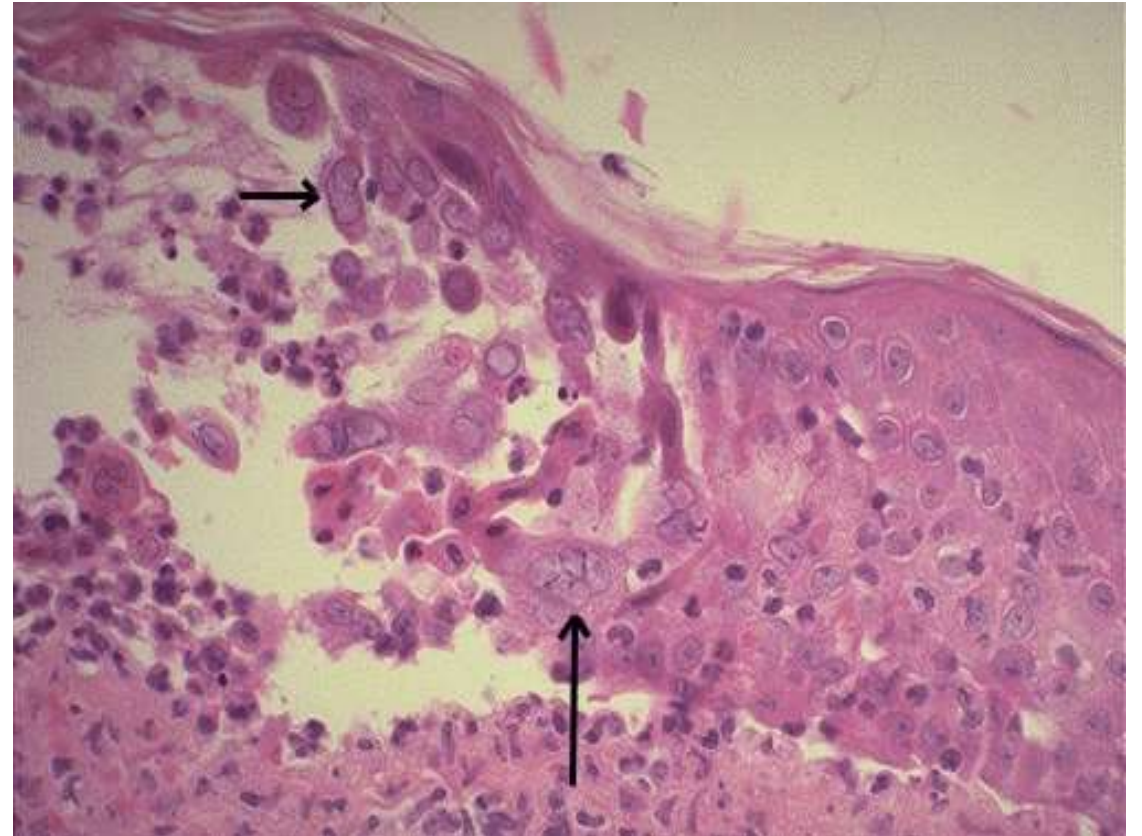
- Formation of **small vesicles** which rupture and leave a shallow painful ulcer located around the mouth, lips & nasal orifices.



Herpes simplex virus infection

➤ **Microscopically:**

- The infected cells become **ballooned** and have large eosinophilic **intranuclear inclusions**.
- Adjacent cells commonly fuse to form large multinucleated cell.



3- Oral candidiasis (Thrush)

- **Causative agent:** Candida albicans.
- **Etiological factors:** It is opportunistic infection, appear if there is any decrease in immunity e.g.
 - 1-Diabetes mellitus
 - 2-Immunodeficiency (congenital or acquired like AIDS)
 - 3-Some drugs like: glucocorticoid therapy, chemotherapy, Immunosuppressive treatment and broad spectrum antibiotic
 - 4-Debilitating diseases e.g. CA.

Oral candidiasis (Thrush)

Gross:

Adherent **white curd like plaque** (fibrino-suppurative exudate with matted micro-organisms) which is after scrapping will reveal an erythematous inflammatory base.



4- Oral cavity precancerous lesions:

- It is a benign, morphologically altered tissue that has a greater than normal risk of malignant transformation.
- Leukoplakia
- Erythroplakia

Leukoplakia

- Is a **white, well defined**, oral mucosal **patch** which can't be removed by scraping.
- Cannot be characterized clinically or pathologically as any other disease (like thrush or lichen planus).
- It is a **clinical term** and not a disease entity.



Etiological factors:

- The most important: **Tobacco, HPV**
- Others: alcohol, irritant food, irritation from rough teeth, or rough places of ill-fitting dentures.
- Approximately 3% of the world's population have leukoplakia, **5% to 25%** of these lesions are **pre-malignant** and may progress to squamous cell carcinoma.
- Thus, all leukoplakias must be considered **precancerous**, until proved otherwise by means of histologic evaluation.

Microscopically:

Microscopical features are highly variable:

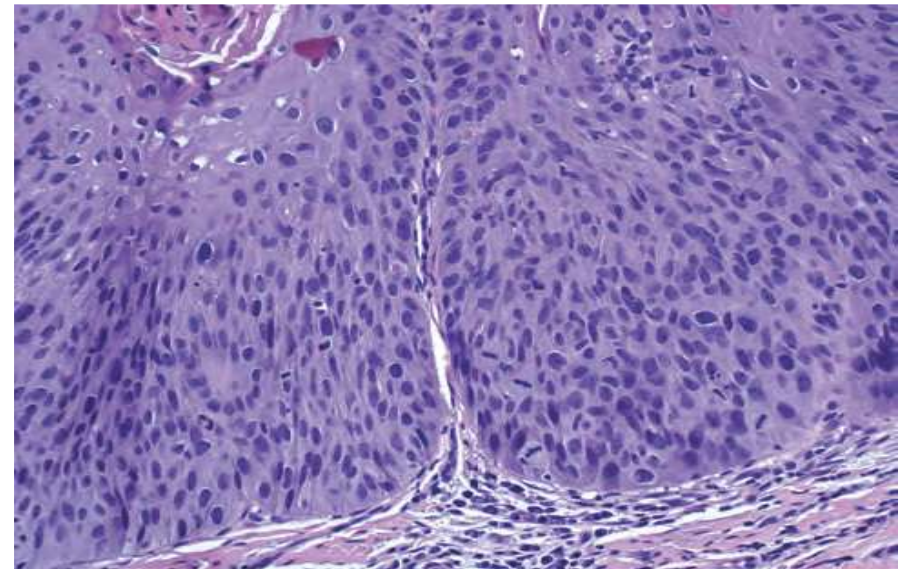
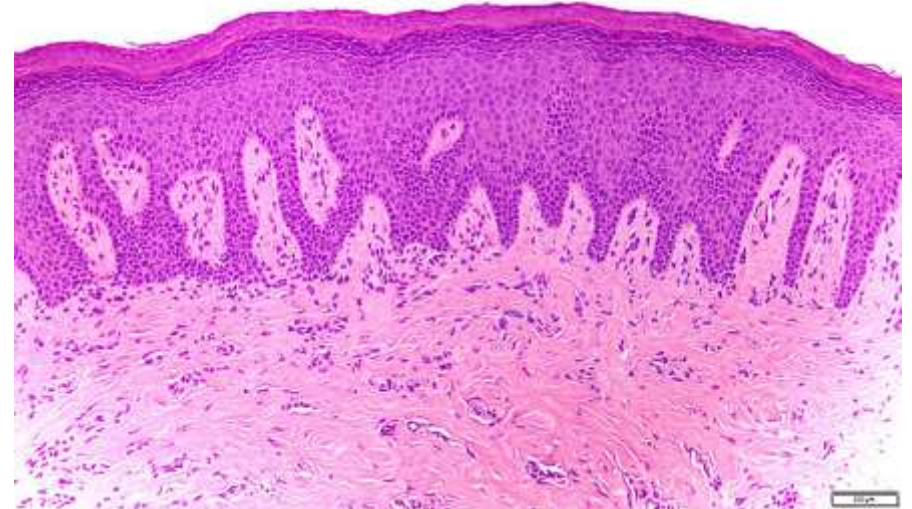
- **either just**

- * **Hyperkeratosis** , +/- **acanthosis** , +/-
variable number of chronic inflammatory
cell in the underlying connective tissue.

- **or**

- * **Dysplasia** (mild-moderate or severe) or

- * **5-6% carcinoma in situ.**



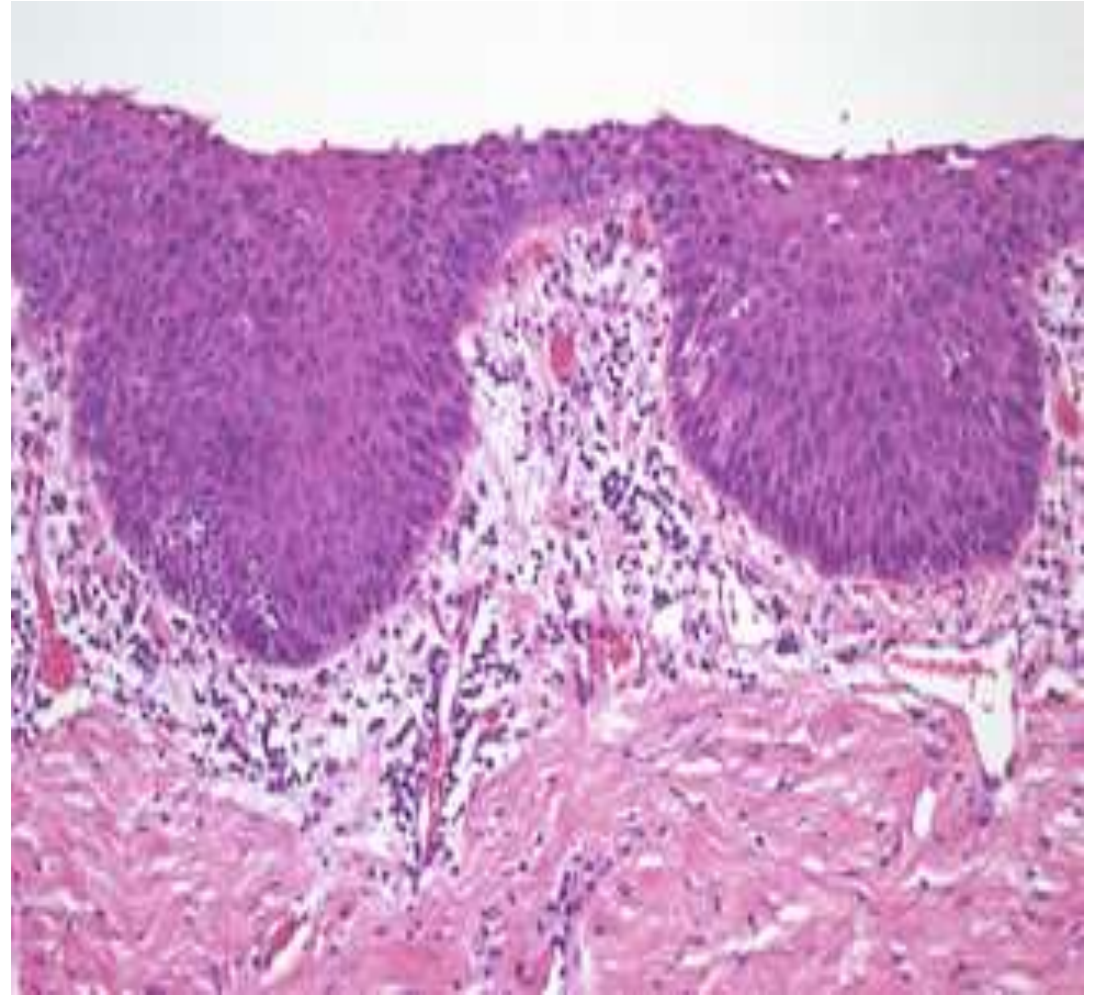
Erythroplakia

- Is a red, velvety, possibly eroded area that is flat or slightly depressed relative to the surrounding mucosa.
- **Age:** typically affect persons between the ages of 40 and 70 years (it may be seen in adults at any age)
- Male: female ratio is 2: 1
- Erythroplakia is associated with a much greater risk of malignant transformation than leukoplakia.



Microscopically:

- **90% shows** severe dysplasia, carcinoma in situ, or minimally invasive carcinoma.
- Often, an **intense subepithelial inflammatory reaction** with **vascular dilation** is seen that likely contributes to the reddish clinical appearance.



5- Carcinoma of the oral cavity

➤ *95% are squamous cell carcinoma.*

➤ **Predisposing factors:**

*Leukoplakia (the risk of transformation is 3-25%)

*Erythroplakia (the risk of transformation is 50%)

***Tobacco**

***Alcohol**

*Human papilloma virus 16 &18

➤ **Pathogenesis:**

• Mutations frequently involve **P53 or p63**

• Infection with oncogenic variants of human papillomavirus (HPV), particularly **HPV-16**

Grossly:

- In **early stages**, these cancers can appear as;
 - raised, firm, pearly **plaques**
 - or as irregular, roughened **mucosal thickenings**.
 - Either pattern may be superimposed on a background of a leukoplakia or erythroplakia.
- As these lesions **enlarge**, they typically form **ulcerated and protruding masses** that have irregular and indurated or rolled borders



Microscopically:

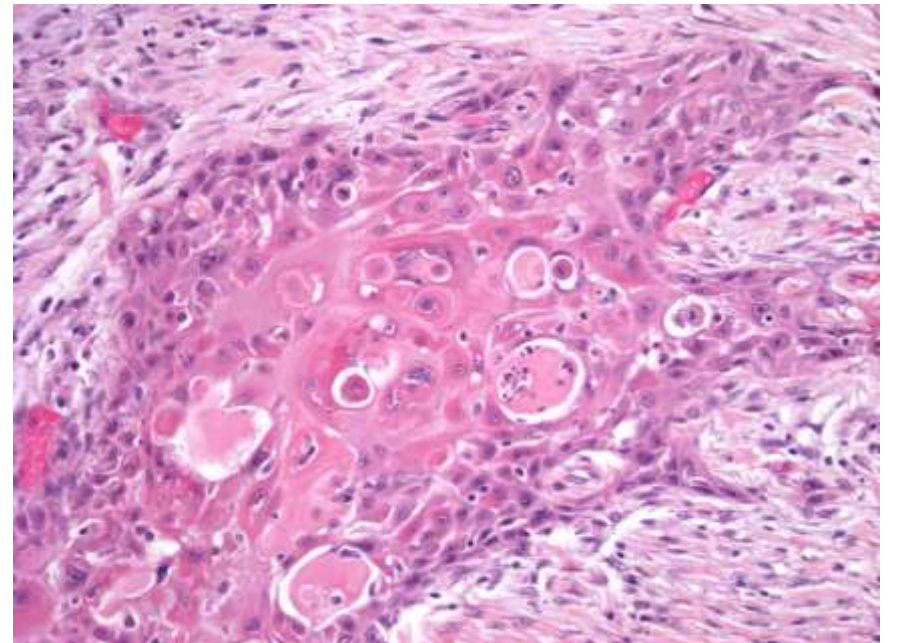
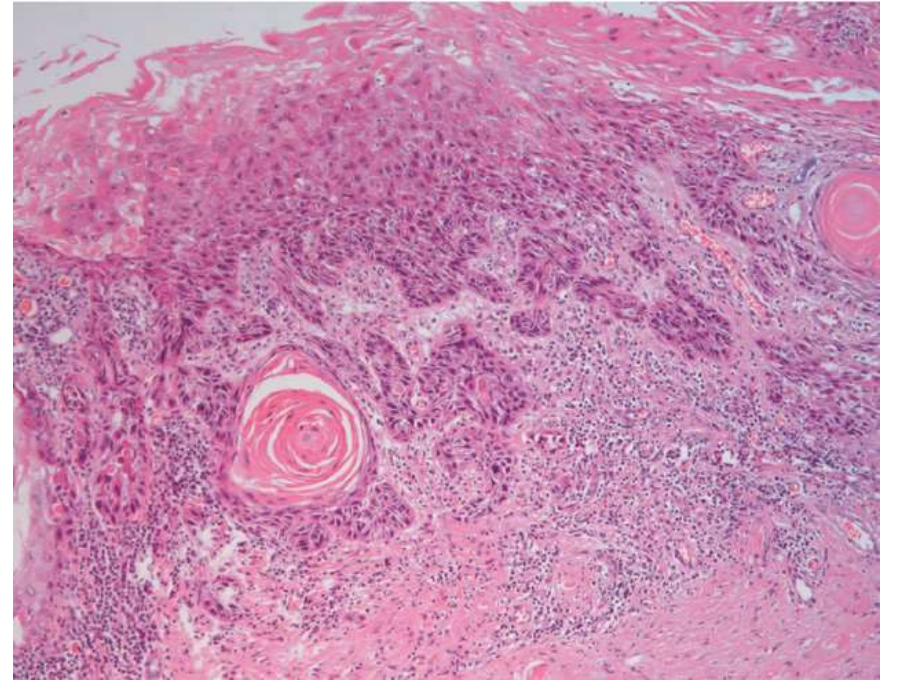
➤ A majority are **squamous cell carcinomas** with different grades (well, moderate or poorly differentiated).

➤ **Site:**

- Lower lip, floor of the mouth, tongue, hard palate, base of the tongue.

➤ **Prognosis:**

- Best, in lips lesion
- Poor, in floor of the mouth & tongue



The Salivary gland pathology

Sialadenitis (inflammation)

- **Causes:** Either: Viral, bacterial, or autoimmune.
- 1. Viral:** the most common virus is **mumps V.** which affect mainly the parotid gland.
 - In children it is self limiting disease.
 - In adult it may be accompanied by pancreatitis or orchitis causing sterility.
- 2. Bacterial:** Which is mainly **unilateral** involvement, **painful** enlargement.
 - Occur following an **obstruction** of major excretory duct by e.g stone (sialolithiasis).
 - Following major **surgical procedure** in old dehydrated patients.
 - Most common causative bacteria are **staph. aureus & strep. viridans**

3. Autoimmune

- Usually **bilateral**
- Seen in **Sjogren syndrome**: in which there is wide spread involvement of salivary glands, mucous secreting and lacrimal glands causing:
 - a- Dry mouth (xerostomia)
 - b- Dry eye (xeroconjunctivitis sicca)
 - c- Small % may evolve to malignant lymphoma.

Tumors of salivary glands

- About **80%** of the salivary gland tumors occur in the **parotid gland**.
- The likelihood of a salivary gland tumor being malignant is inversely proportional to the size of the gland. i.e. the **larger** the gland, the **less** likelihood to be malignant.
 - Parotid: 15-30% of the tumors are malignant
 - Submandibular gland: 40% are malignant
 - Sublingual: 70-90 % of the tumors are malignant
- **Benign tumors**: e.g.
 - Pleomorphic adenoma (mixed tumor) and Warthin tumor
- **Malignant tumors**: e.g.
 - Mucoepidermoid carcinoma and adenoid cystic carcinoma.

Benign tumors:

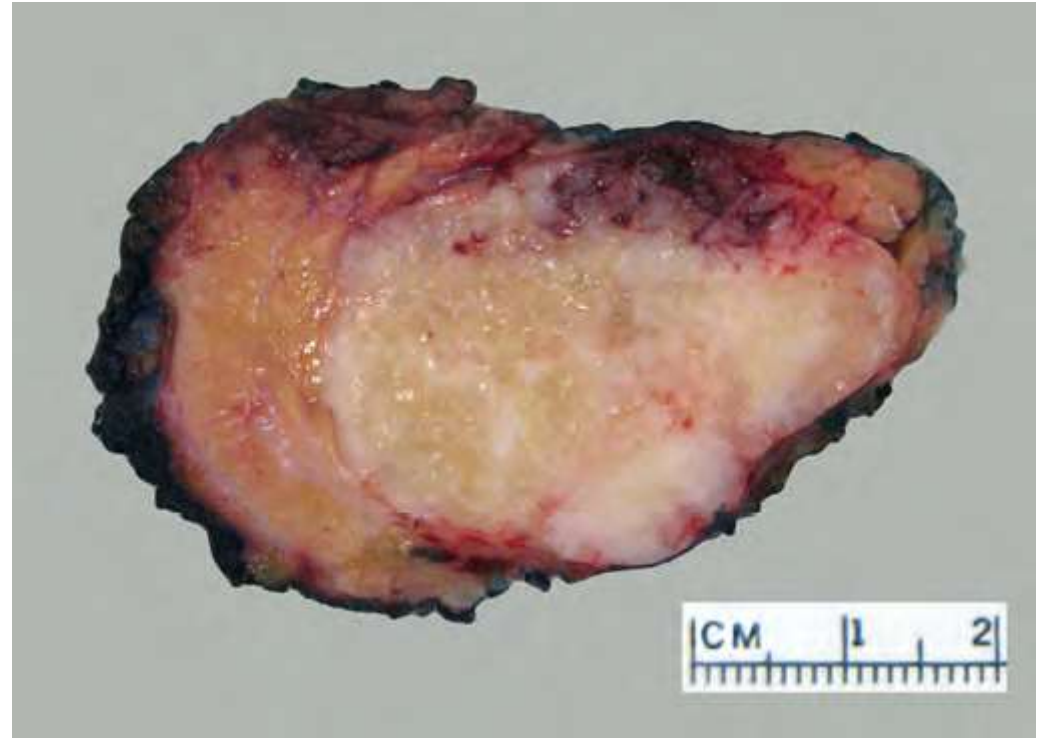
1. Pleomorphic adenoma (mixed tumor)

- Account for 90% of benign tumors of salivary glands
- Causes painless swelling at the angle of the jaw (in front of and below the ear (palpable discrete mass)).



Grossly:

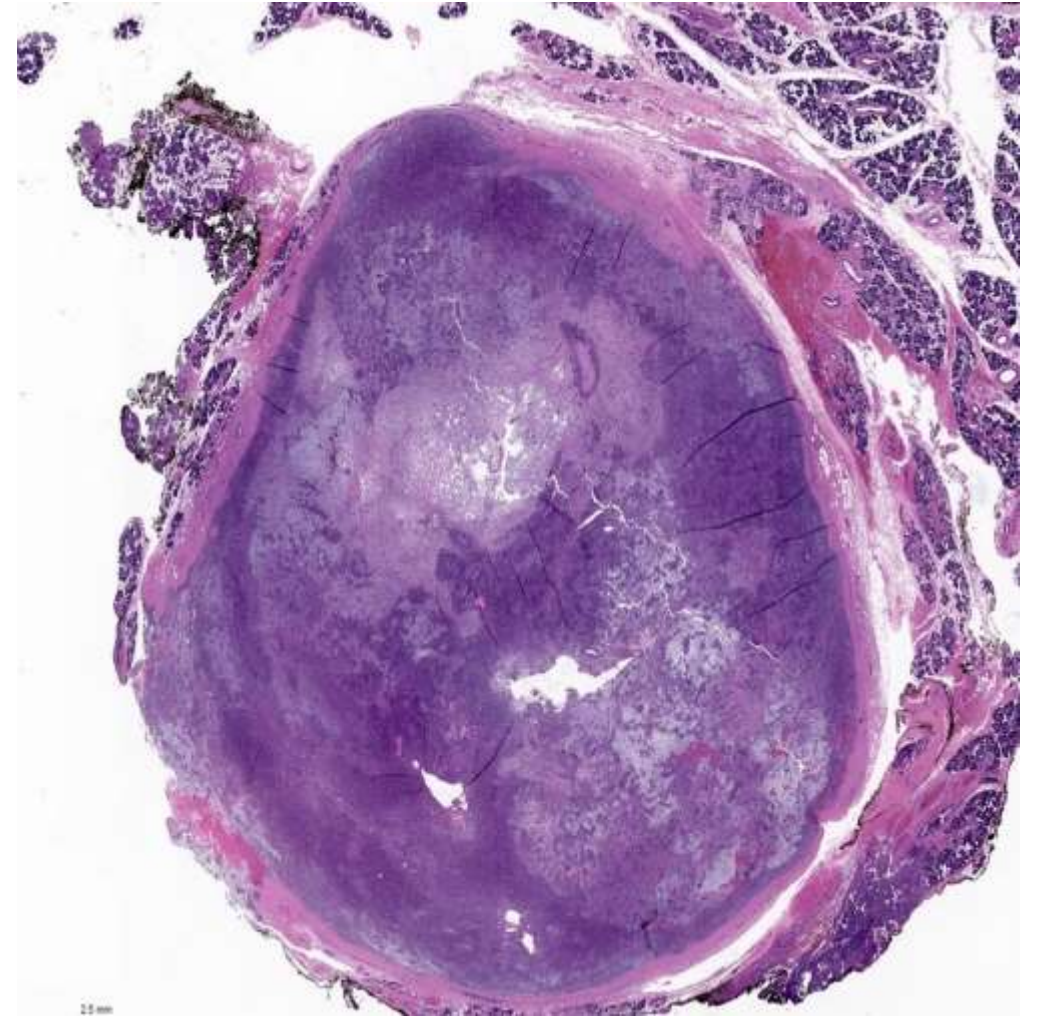
- **Encapsulated** but histological examination reveals capsular penetration which necessitates adequate resection margins to prevent **recurrence** which occur in **10%**.



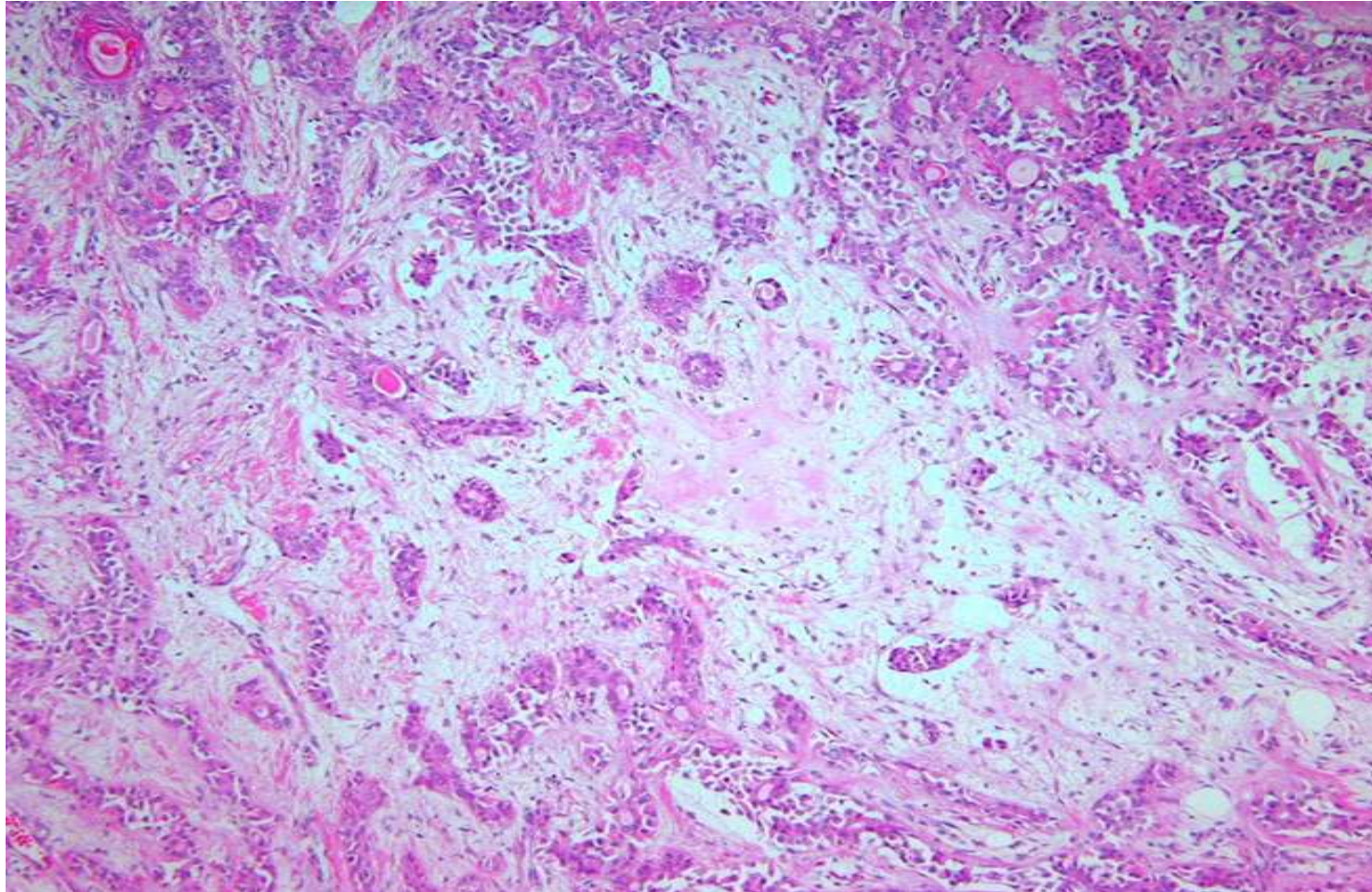
The tumor at the right side is **white gray well circumscribed, encapsulated lobulated mass without hemorrhage or necrosis**

Microscopically:

- The tumor cells are a mixture of *ductal epithelial and myoepithelial cells*, which are arranged as glands, ducts, acini, tubules, strands or sheets **intermingled with loose myxoid connective tissue** stroma containing cartilage & rarely bone



Pleomorphic adenoma (mixed tumor)



Mixed proliferation of both proliferated ducts (composed of epithelial cells and myoepithelial cells) found within myxoid stroma and sometimes chondroid matrix material.

These lesions are usually **slow-growing**, but can recur following incomplete resection. **Infrequently**, a carcinoma can arise in a pleomorphic adenoma

2. Warthin Tumor

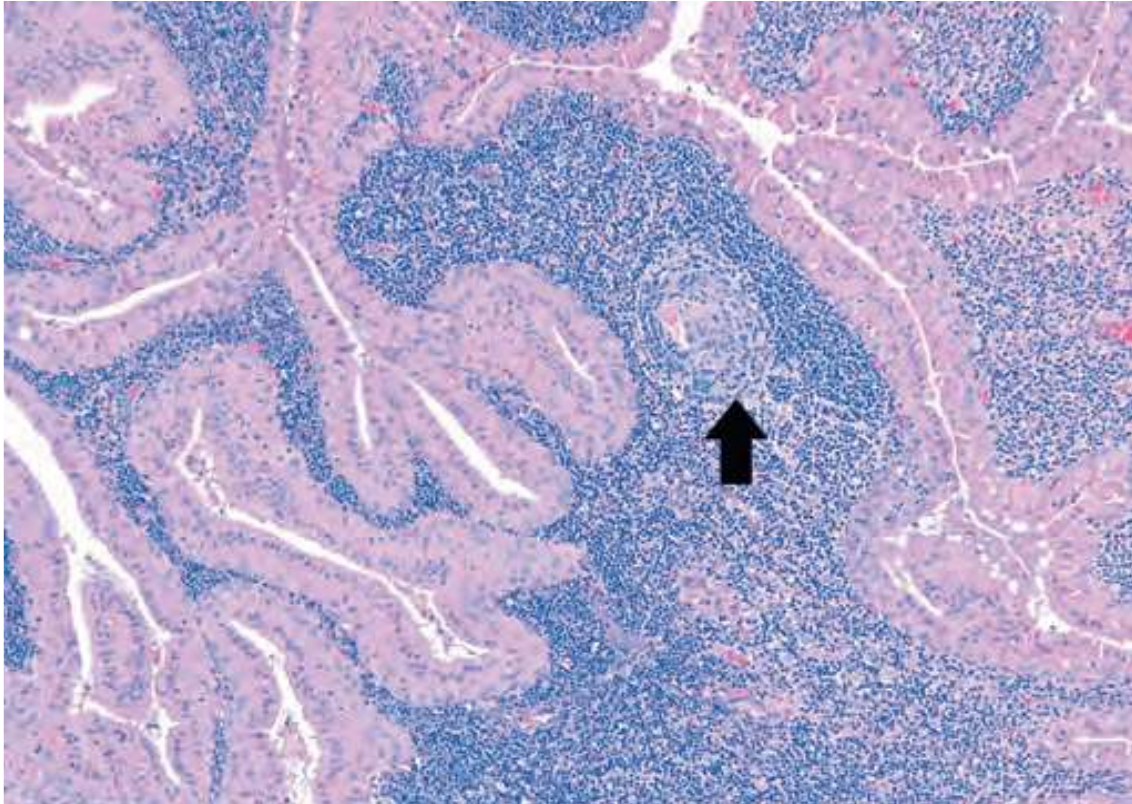
- **Second most common** benign salivary gland neoplasm.
- It arises almost **exclusively** in the parotid gland
- Male >female
- 5th to 7th decades of life.
- About **10%** are multifocal, and **10%** bilateral.
- **Smokers** have eight times the risk of nonsmokers for developing these tumors.

Grossly:

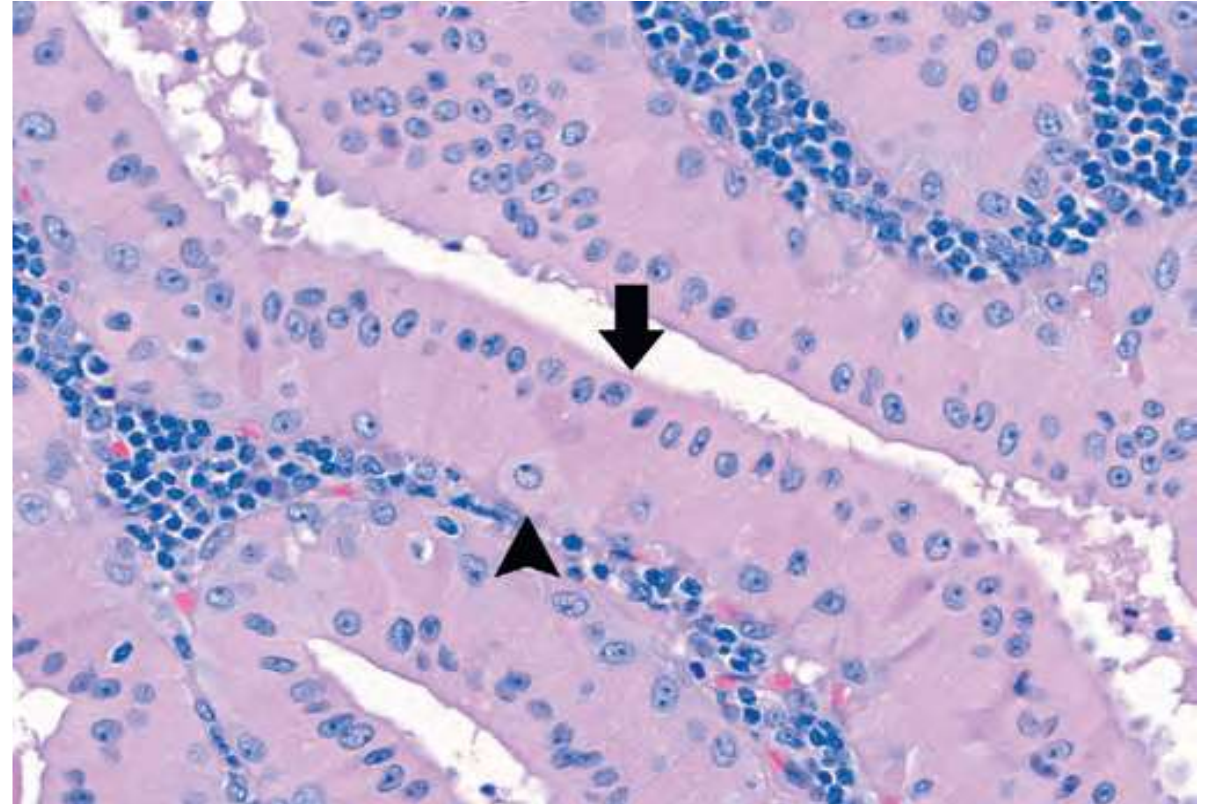
- It is small, well encapsulated, round to ovoid mass that on section reveal **mucin containing cystic spaces** within soft gray background.

Microscopically:

Spaces or clefts are lined by a double layer of neoplastic epithelial cells resting on a dense lymphoid stroma sometimes with germinal centers.



The upper layer consists of palisading columnar cells(*arrow*), while the lower layer is comprised of cuboidal to polygonal cells. (*arrowhead*).



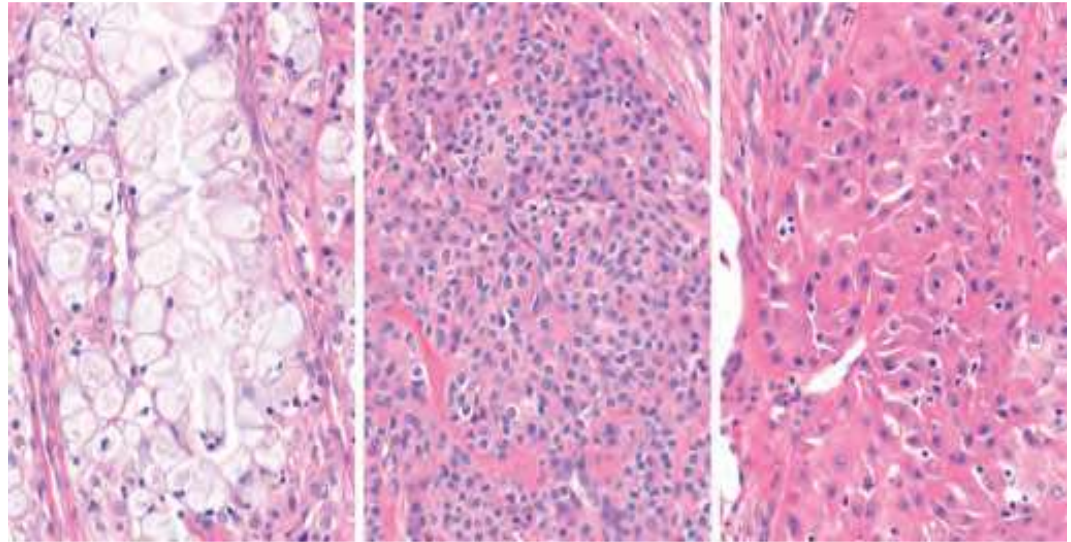
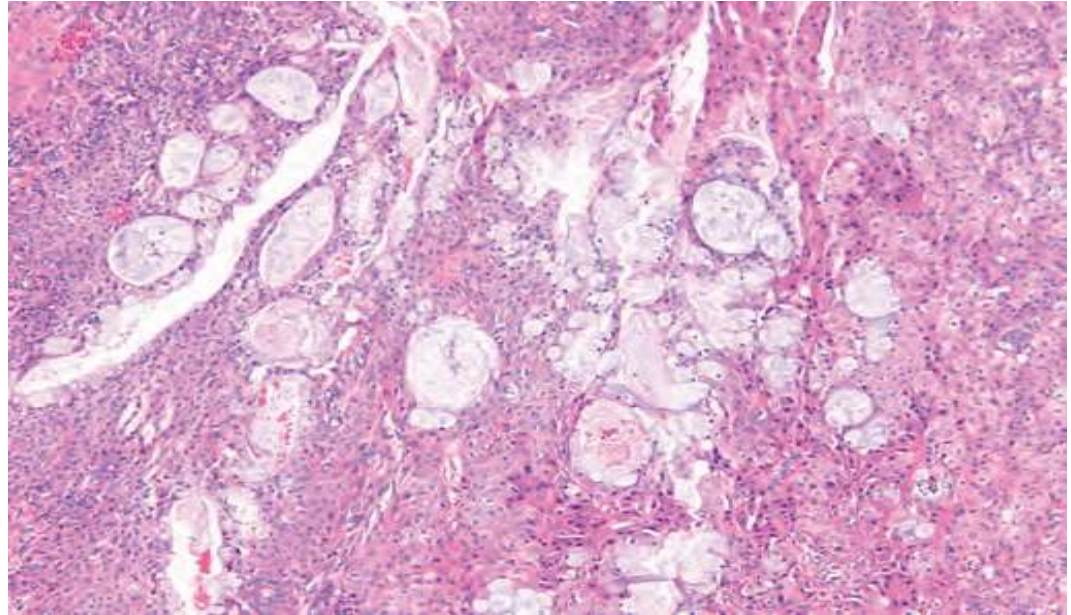
Malignant tumors

1. Mucoepidermoid Carcinoma

- These neoplasms are composed of variable mixtures of mucus-secreting cells (muco), and squamous cells (epidermoid).
- They are *the most common primary malignant tumor of the salivary glands*.
- They occur mainly in the **parotids**.
- Low-grade tumors may invade locally but do not metastasize. By contrast, high-grade neoplasms metastasize to distant sites in 30% of cases.
- **Grossly:** mucoepidermoid carcinomas are **gray-white, infiltrative tumors** that frequently show **small, mucin-containing cysts**.

Microscopically:

- Low-power view showing **sheets and microcysts** containing cells of varying morphologies.
- These cells vary from **mucinous** (*left*), to **intermediate** (*center*), to **squamous** (*right*).

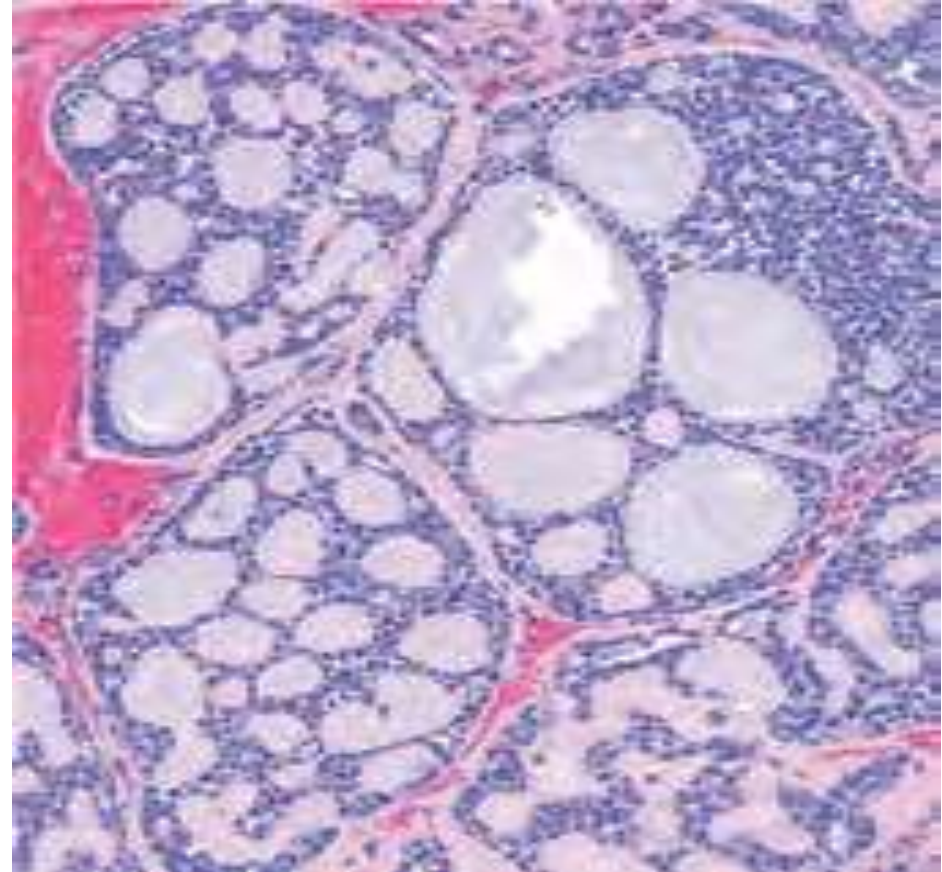


2. Adenoid cystic carcinoma:

- Half of the cases are found in the **minor salivary glands** (in particular the palate).
- Although slow growing, they have a tendency to invade perineural spaces and to recur.
- Eventually, 50% or more disseminate widely to distant sites such as bone, liver, and brain.

Microscopically:

- They are composed of **small cells** having **dark, compact nuclei** and **scant cytoplasm**.
- These cells tend to be disposed in sieve-like (**cribriform**) patterns.
- The spaces between the tumor cells are often filled with a **hyaline material** thought to represent excess basement membrane.



References

1. Robbins BASIC PATHOLOGY, TENTH EDITION
2. Robbins and Cotran, Atlas of Pathology, THIRD EDITION
3. pathologyOutlines.com

THANK YOU

