Lec. 22 *Dr. Ali H. Murad*

Salivary Gland Diseases

Classification of salivary glands diseases:

1- Obstructions: this could be by calculi or cystic type (stone, mucocele)
2- Infections: viral (Mumps), bacterial (acute & chronic Sialadenitis)
3- Degenerative changes: Sjogren syndrome, radiation.
4- Functional disorders.
5- Neoplasms.

1- Obstructions:

duct obstruction may result from either:
A- blockage of the lumen (calculi, mucocele)
B- disease in or around the duct wall (fibrosis, neoplasia)

A- Sialoliths (S.G. stone):

Mean presence of calculi or stones within the duct. The calculi believed to arise from the deposition of ca $^{++}$ salt around a nidus of debris within the duct lumen, these debris include bacteria, ductal epith cells, or foreign bodies. 70-90% of stones occur in the submandibular gland, & this due to long tortuous path of the duct & thick secretion of the gland. about 6% in parotid gland & 2% in sublingual gland & minor S.G. Mainly occur in adult male & is usually unilateral.

Symptoms: pain, sudden enlargement specially at meal time.

Radiography:

There will be radiopaque mass, however, about 40% of parotid & 20% of submandibular stones are not radiopaque, and therefore Sialography may be needed to locate them.

Treatment:
Removing the calculi by manipulation or incision of the duct.

B- Mucocele

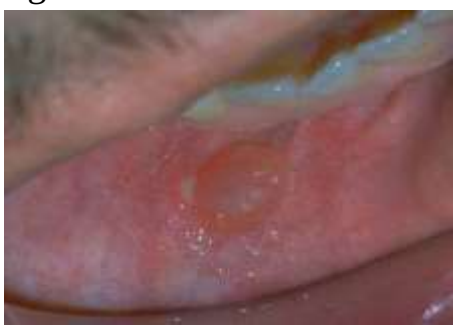
A common lesion of the oral mucosa it is of 2 types:

1- Mucus extravasation cyst:

Result from rupture of a S.G. duct & spillage of mucin into the surrounding soft tissue, as a result of local trauma.

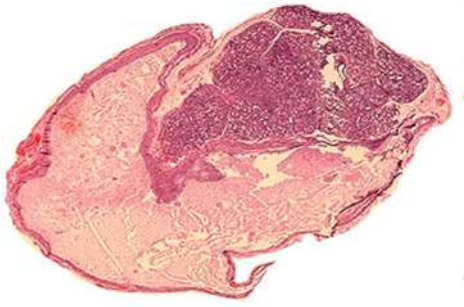
Clinically:

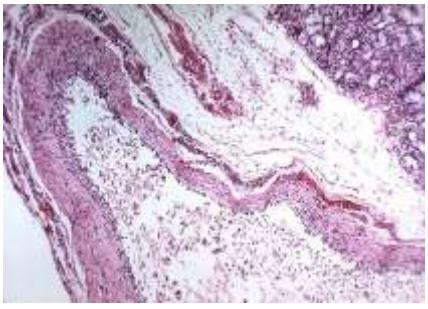
Appear as a bluish or translucent swelling, soft, fluctuant, range from mms to cms. mostly in child & adult. The lower lip is the most common site usually lateral to the midline. The duration of the lesion can vary from a few days to several years & many patients relate a history of a recurrent swelling that may periodically rupture & release its fluid contents. Mucus extravasation cyst is not true cyst, because it lacks an epith lining.



Histopathology:

An area of spilled mucin surrounded by a granulation tissue response. The inflammation includes numerous neutrophils & foamy macrophages. In some cases, a ruptured salivary duct may be identified feeding into the area.





Treatment: surgical excision.

2- Mucus retention cyst:

This derived from cystic dilatation of a duct, due to partial or complete

obstruction of the duct, that make the mucin to remain (retention) within the duct.

Clinically, like the extravasation type.

Histopathology:

Cyst lining is variable (ductal epith in origin) composed of cuboidal, columnar or squamous epith, surrounding the mucoid secretion in the lumen.

Treatment:

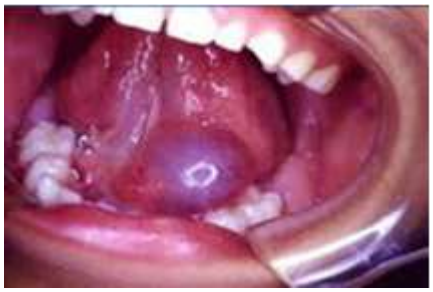
Surgical excision.

3- Ranula

It is a type of extravasation mucocele, the source of mucin spillage is usually the sublingual gland or from submandibular duct or possibly from minor S.G. in the floor of the mouth.

Clinically:

Appear as swelling in the floor of the mouth resembles a Frog's belly. It may interfere with the speech or mastication, because it causes pushing of the tongue up toward the palate.



Treatment:

By total or partial removal or marsupialization.

2- Infections

A- Viral infection (Mumps):

Is an acute, contagious infection which often occurs in minor epidemics & is caused by Paramyxovirus. It is the commonest cause of parotid enlargement & may affect the submandibular & sublingual glands. The virus transmitted by direct contact with infected saliva & by droplet spread. Mostly affect the children & the incubation period is about 2-3 weeks.

Clinically:

The disease starts with fever, malaise, followed by painful swelling of sudden onset behind the ear. The bilateral parotid involvements occur in about 70%. Then the swelling gradually subsides over a period of about 7 days. Occasionally, in adults' other internal organs are involved, such as testes, ovaries, CNS, & pancreas. Orchitis is the most common complication, occurring in about 20% in adult males. After the attack, immunity is long-standing, & with use of vaccine, childhood mumps becomes infrequent.

B- Pyogenic bacterial infections:

Are common & may be seen after major abdominal surgery or in glands that have been obstructed.

3- Degenerative disease

Sjogren Syndrome:

Is an immune-mediated chronic inflammatory disease, characterized by lymphocytic infiltration & acinar destruction of salivary & lacrimal glands. Mainly affects middle-aged females, & symptoms related to dryness & soreness of the

mouth & eyes are common clinical presentations.

The patient also complain from difficulty in swallowing & speaking, increased fluid intake, disturbance of taste, & rapidly progressive caries.

S.G. enlargement is usually bilateral without pain, & predominantly affects the parotid gland.

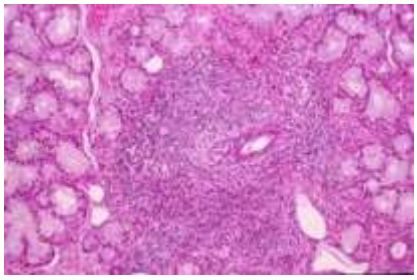
The disease classified into 2 types:

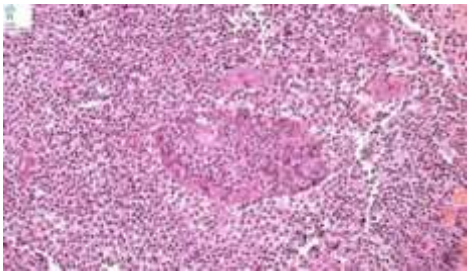
1- Primary: xerostomia + xerophthalmia

2- Secondary: xerostomia + xerophthalmia + C.T. disease usually rheumatoid arthritis.

Histopathology:

Initially, the S.G. show lymphocytic infiltration around intralobular ducts with acinar atrophy & obliteration of the duct lumen by proliferation of ductal epith, lead to formation of islands of epith tissue, termed epimyoepithelial islands. Finally, the lesion consists of sheets of lymphoid cells surrounding the epimyoepithelial island & replacing entire S.G. lobules.





Tumors of the major salivary glands:

are far more common than that of the minor glands which account for only about 20%. Furthermore, about 90% of major glands tumor occurs in the parotid gland, while the minor glands tumors mostly seen in the palate & upper lip. The proportion of malignancies in the minor glands is higher than in major glands.

The etiology of salivary gland tumors is unknown, except they can result from radiation to the head & neck area.

Classification:

The salivary gland tumors are classified into:

1-Epithelial tumors

(a) Adenoma: which is in turn divided into

pleomorphic adenoma, monomorphic adenoma

(b) Carcinoma: such as

Mucoepidermoid carcinoma

Acinic cell carcinoma

Adenoid cystic carcinoma

adenocarcinoma

Epidermoid carcinoma

Carcinoma in pleomorphic adenoma

Undifferentiated carcinoma

2-Non-epithelial tumors:

Lymphoma & sarcoma

Benign epith. tumor (adenoma):

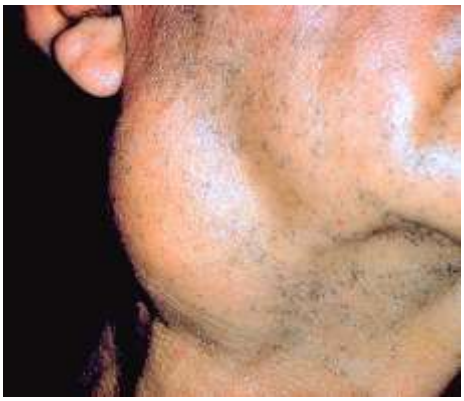
1-Pleomorphic adenoma: (benign mixed tumor)

It is the commonest benign tumor of the S.G., mostly affect the parotid gland (65%). The origin of the tumor cell, it is thought to be arising from the myoepithelial cells or ductal epithelium.

Clinically

The tumor present as a slow growing, painless, rubbery swelling, & may reach to several cms. The tumor show no fixation to the deeper tissue & the overlying skin or mucosa is usually intact. Intraorally, mostly affect the palate & appear as smooth surface swelling resembles a fibroma

The tumor can occur at any age, but the majority of patients are in the 5th & 6th decades of life, & there is slightly female preponderance



HISTOPATHOLOGY

The tumor is a circumscribed encapsulated tumor, although a capsule does not always envelop the lesion completely.

The lesion characterized by its pleomorphic & shows a great variation in appearance.

1-cuboidal epith.cells arranged in tubular or duct like structures which may contain an eosinophilic coagulum

2-the epith.duct cells, vary in size, shape, number, & distribution

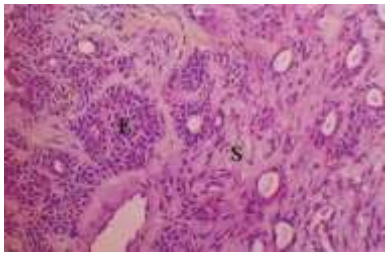
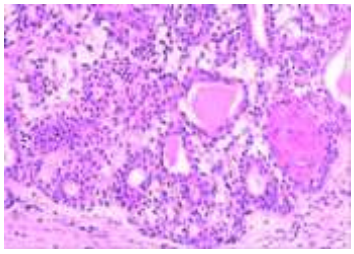
3-sometimes the cells may assume a stellate polyhedral or spindle form

4-areas of squamous metaplasia & epith. pearl formation may also be present

5-loose myxoid tissue (embryonic type of tissue)

6-areas of hyaline cartilage or even bone may be present

*N.B: malignant transformation can occur, usually in tumors that stand for many years


Treatment

1-parotid gland: by wide excision, but recurrence rate in this position is high, due to presence of facial nerve

2-in submand. Gland: the tumor removed with the whole gland, because of possibility of malignancy

3-in minor salivary gland of the palate, the tumor should be excised with the overlying mucosa

2-Monomorphic adenoma

This lesion is consisting of a group of benign S.G. tumors which have a uniform histopathologic pattern.

A variety of tumors were included under the heading of monomorphic adenoma, & these are

1-warthin tumor

2-oncocytoma

3-basal cell adenoma

4-canalicular adenoma

A- Warthin tumor (adenolymphoma, papillary cyst adenoma lymphomatosum)

It is a benign tumor of parotid gland, the pathogenesis is uncertain, it is suggested that this tumor may develop from the proliferation of ductal epith, with secondary lymphoid tissue formation.

Clinically

1-slowly growing, painless, nodular mass of parotid gland

2-is most frequently occur in the tail of parotid near the angle of the mandible

3-has a tendency to occur bilaterally, however, most of these bilateral tumors don't occur simultaneously, but occur at different times.

4-most common in men & usually middle age

Histopathology

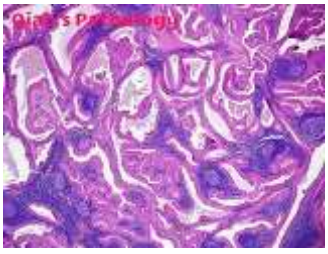
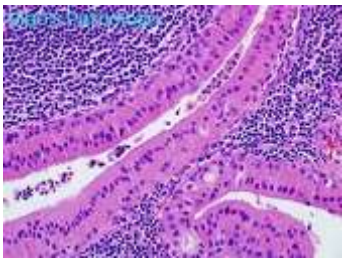
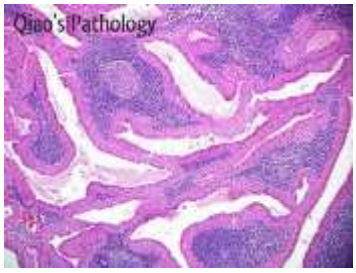
1-the tumor consist of epithelium & lymphoid tissue

2-the epith. is oncocyte in nature forming a uniform row of cells surrounding cystic spaces

3-the cells have abundant, finny granular eosinophilic cytoplasm & arranged in two layers. The inner luminal layer consists of tall columnar cells, while outer layer is cuboidal in type

4-the lining epith. show several papillary projections into the cystic space

5-the stroma contains a variable amount of lymphoid tissue, which often includes numerous germinal centers.

Treatment:

Surgical removal, these tumors are well encapsulated & rarely recur.

B- Oncocytoma

Is a rare benign tumor, usually arising in the parotid gland. It accounts not more than 1% of S.G. tumors. It consists of large epith cells known as oncocyte.

Oncocyte, mean large epith. Cell with granular eosinophilic cytoplasm rich in mitochondria

Clinically

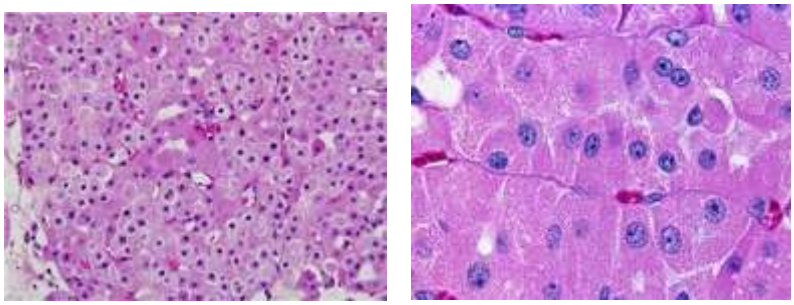
1-slowly growing, firm painless mass

2-range between 4-5 cm in diameter

3-mostly affect the female & predominantly the old age (70 years & above).

Histopathological

Composed mainly of oncocytes, tend to arranged in raw or cords & sometime in glandular pattern



Treatment:

By surgical excision, no recurrences reported, but malignant transformation can take place

C- Basal cell adenoma

It is a rare type of S.G. tumors; the name is derived from the basaloid appearance of the tumor cells. It is primarily a tumor of parotid gland, but it can occur intra orally, specially the upper lip.

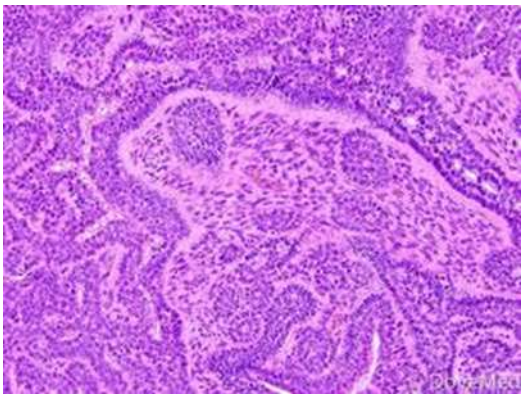
Clinically

1-a slowly growing, freely mobile mass similar to pleomorphic adenoma

2-occur at any age, but mainly the middle age group with female predominance

Histopathological

It has a well-defined capsule, the cells are similar to the basal cell, with a basophilic round to ovoid nuclei & scanty cytoplasm



Treatment:

By complete surgical removal.

D- Canalicular adenoma

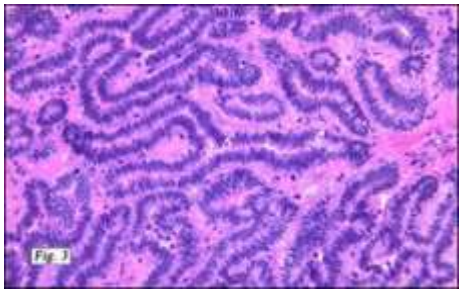
This tumor occurs mainly in patients over 50 years of age, & almost all cases are located in the upper lip. Present as slowly growing ,painless lesion

HISTOPATHLOGICAL

1-Characterized by single layer of columnar or cuboidal epith.

2-in some area adjacent parallel cords of the cells may be seen

3-sometime, cystic spaces may be seen between the tumor cords & filled with eosinophilic coagulum



Treatment:

By surgical excision

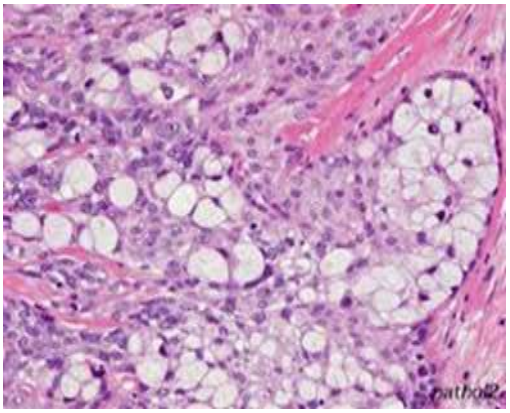
Malignant tumors of salivary glands

1-Mucoepidermoid carcinoma

It is the most common malignant S.G. neoplasm. Can occur at any age, but mostly seen in children. Mostly occur in parotid gland, with female predominance. present as asymptomatic swelling, however, pain & facial palsy may be developed

Histopathology:

From the name, the tumor is composed of mixture of mucous producing cells & epidermoid or squamous cells. If the mucous secreting cells are predominant, then the tumor tend to be cystic, while if the epidermoid cells are predominant, the tumor is solid & often more aggressive. There is not well differentiated capsule & the tumor is invasive & occasionally metastasizing.



Treatment: by wide excision, but the tumor may recur.

2- Adenoid cystic carcinoma

One of the common, & best recognized S.G. malignancy, because it has a highly characteristic histopathological pattern. Consisting of rounded groups of small darkly stained cells of uniform size surrounding multiple small clear spaces (cribriform or Swiss cheese pattern).

It was originally called cylendroma, but this name shouldn't use nowadays, because the same term is used for skin tumor which has a different clinical presentation & prognosis.

The tumor cells are of two types:

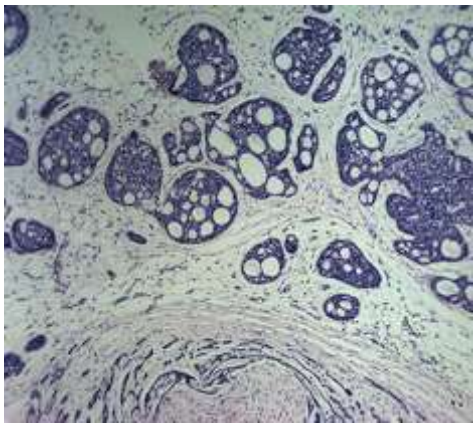
1- ductal lining cell 2- myoepithelial cells

It occurs most frequently in the minor S.G. of the palate. Mostly affect the middle age adults with equal sex distribution. It present as slowly growing mass with local pain & facial nerve paralysis may be developed in parotid case.

Histopathology

composed of small deeply stained uniform cells resemble basal cells, commonly arranged in anastomosing cords or duct like pattern with mucoid material in the center, this produce cribriform, honey comb or Swiss cheese appearance.

In the tubular pattern, the tumor cells are similar but occur as multiple small duct or tubules with a hyalinized stroma.



Solid form consists of a large islands or sheets of tumor cells which show little tendency toward duct or cyst formation

*spread of tumor cell along the perineural sheet is the common feature of the adenocystic carcinoma.

3- Acinic cell carcinoma

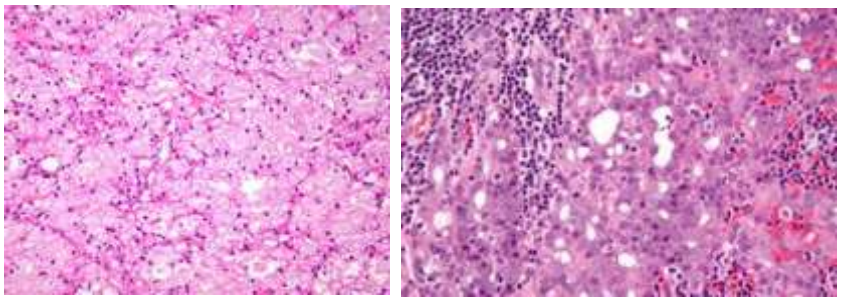
Rare type, it has a range of behavior from a benign to malignant. Thought to be arises from a serous acinic cells. It most commonly occurs in the parotid gland, because it entirely composed of serous acini. Also, it occurs intraorally specially in the lips & mostly in elderly.

Present as slowly growing mass which may be asymptomatic, although pain & tenderness are sometimes reported

Histopathology

Composed of large cells with granular basophilic cytoplasm, resemble serous acinar cell. The characteristic feature is scattered around holes which thought to be intrasecretion which may be so numerous.

The tumor is often well circumscribed & sometimes may even appear encapsulated. However, the tumor is invasive & occasionally metastasizing.



Treatment

By surgical excision, radiation have no value, there is high recurrence rate even many years of initial surgery.

4- Adenocarcinoma

It is a malignant epith tumor which has a variety of appearance. Some show duct formation (typical form). While others have papillary cystic pattern. Some are poorly differentiated.

All types show rapid growth, tendency of recurrence & metastasis.

5- Carcinoma arising in pleomorphic adenoma

Or called malignant pleomorphic adenoma. The pleomorphic adenoma may undergo malignant changes & this is seen in long duration tumor

Histopathology

There may be a few foci of malignancy, or the lesion may entirely malignant. This malignant transformation is either

A-epidermoid carcinoma

B-adenocarcinoma

Treatment:

By surgery, although the lesion show tendency to recur, with high incidence of regional lymph nodes involvement & sometimes distal metastasis.