Subject : oral pathology 2

Sheet # : 8

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**Dieseases of salivary glands**

-Salivary glands consist of **three paired** major glands:

1-**parotid** ( the largest one ) : it's not a polyp in the buccal mucosa :P , it's pathology -->small , swelling opposite to the second molar .

2-**submandibular** : beside lingual frenum .

3- **sublingual** ( smallest one ): not just in central area it also extends posteriorly .

\*\* and **countless minor salivary** glands found within the oral cavity .

\*\* during rest **submandibular gland** ( major contributor ) secrete 65-70 % , while during eating" function" **parotid gland** is the major contributor .

\*\*at resting state : 0.2-0.3 ml/min , if < 0.1→ xerostomya .

\*\* at stimulation state : 1.5-2 ml/min , if < 0.7 → xerostomya .

\*\* **function** of the salivary glands --> secrete saliva (1.5 L/day) , increase during day but decrease while sleeping '' NO STIMULATION'' --no ingestion of the carbohydrate so caries rate will increase that's why tooth brushing before sleeping is important -- .

**Developmental anomalies of salivary glands are rare - such as :**

1) aplasia > no major salivary gland at all .

2) hypoplasia >salivary gland is smaller than its normal size ( could be

seen with melkersson-rosenthal syndrome )

3) ectopic tissue > it has been reported from a variety of sites in the head

and neck , the most frequent sites are in the mandible , in cervical lymph

nodes and in the middle ear ,stafne's IBC (idiopathic bone cavity ) .

4) accessory salivary glands such as : accessory parotid tissue which is found around buccinator muscle . ( external to masseter muscle )

5)atreisa > some of major/minor salivary glands ducts aren’t found .( clinically presented as retention cyst )

**Sialadeniti**

Inflammatory disorders of major salivary glands are usually the result of bacterial or viral infection or due to systematic disease or to other local causes such as trauma , irradiation and allergic reaction .

***1-Bacterial sialadenitis***

May present as an acute or chronic condition depending on its duration and severity

**1) acute bacterial sialadenitis**

- uncommon to see nowadays due to the production of antibiotic . ( flow of saliva prevents bacteria from ascending so when secretion decrease this would allow retrograde infection )

- acute bacterial sialadenitis is an ascending infection , because the bacteria reach the gland from the oral cavity by ascending the ductal system .

\*\***Why** it affects parotid more than submandibular gland despite that the movement of bacteria is easier downward (to submandibular gland ) ??

**ans** : because the parotid gland is serous gland ( lower viscosity than the mucous ) which will allow the bacteria to enter the duct easily .

**-reduced salivary flow is the major predisposing factor which is seen in xersotomic patients ; this dryness can be seen in :**

1)patients who expose to radiation .

2)after using drugs with xerostomic side effect such as tricyclic

antidepressant and antipsychotic .

3)patients with sjorgren syndrome .

4)patients with obstructed salivary glands/duct .

5)immunocompromised patients ( HIV ) .

**Microbiology** : mixed ; aerobic and anaerobic bacteria ((as a group of bacteria such as streptococcus pyogens and staphylococcus aureus )) → so we can know the type of bacteria in order to know the antibiotic that is suitable for irradiate it .

**Clinically** :

1-rapid onset of pain

2 - swelling (especially in parotid and peri auricular area )

3-trismus (inability to open his mouth easily ) relation of gland to the ramus : when the pt tray to open his mouth →more pressure on the gland - more pain -

4- fever ,malaise , lymphadenopathy →( systemic )

5-redness of the surrounding tissue

6- sever pain : when inflammation occurs swelling will happen but incase of this gland there's a capsule the will prevent stretching of the gland which will cause pain due to the compression of nerve that exist in this capsule .

**How to know if it is bacterial infection** ?? by seeking for a pus ( white clear) that is exposed from the opening of parotid gland (stenson`s duct ) >>that is seen as an elevation around the opening which shouldn’t be misdiagnosed with polyp , while clear saliva → NO BACTERIAL INFECTION

-**no** (biobsy , sialography '' injection of radioopaque substance then we take X-ray '' ) **WHY** ? 1- facial 2- scaring parotid 3- sinus

\*\* if we take a biopsy : Features could be seen in the affected salivary gland :

1)intense AICI in acini ( mainly neutrophil ) ,peri ductal and within ducts .

2) dilatation of the ducts ( especially if the cause is obstruction )

3) abscess is often formed in the duct ( healing might be with fibrosis )

**2 ) chronic bacterial sialadenitis**

\* less severe signs and symptoms than acute

\*It is usually associated with duct obstruction and decrease of secretion . -

\*The submandibular gland is much more commonly involved than parotid ?

**ans** -because the obstruction is mostly seen in submandibular gland.

**The chronic sialedanitis is usually unilateral ; because the obstruction is**

**mostly unilateral , but in xerostomia its bilateral.**

\*\*The **symptoms** is a tender swelling of the affected salivary gland especially after stimulation (while eating > the salivary gland is stimulated )

-redness or inflammation on the orifice of salivary gland .

-production of pus (especially if it is transformed from chronic to acute )

**Histological examination :**

**\*** morethan acute because more time for changes to occurIrreversible damage and destruction of acini due to the chronic inflammation

1-dilatation of ductal system and hyperplasia of duct epithelium .

2-scattered CICI

3-after period of time any destruction or atrophy of acini will be replaced by interstitial fibrosis .

\* in the submandibular gland , progressive chronic inflammation may result eventually in almost complete replacement of parenchyma by fibrous tissue producing a hard firm mass with no production of saliva and it becomes better in infection resistance … this type of inflammatory reaction may be referred to as **chronic sclerosing sialadenitis**( clinically might be misdiagnosed as a malignant tumor because its hard when you make a palpation)

**managment**: surgical removal of the affected gland.

**3) recurrent parotitis of childhood**

It’s a rare disorder which can affect children , appears as enlargement of gland with pain ,redness and trismus .

- recurrent attacks .

- etiology : unknown -ductal system has a problem

-this condition may be unilateral or bilateral and is associated with recurrent painful swelling of gland with redness and trismus + pus may be expressed from the duct orifice .

- during childhood the infection could be treated by antibiotic for a long preiod of time, and in most cases the condition resolves spontaneously by the time the patient reaches early adult life , but if the disease remained in adulthood this will cause irreversible damage to the gland .

**2-MUMPS ( viral sialadenitis ) :**

Most common especially before immunization period ; this disease is decreased ( **rare**) nowadays due to production of triple immunization vaccine against mumps, measles and rubella ( **MMR**) which is generally administrated to children around the age of one year with second dose around the age of 3 years .

-highly infectious and can be transmitted from child to other child by airborne droplets and saliva .

**- major manifestation** ( usually clinical diagnosis ) →the parotid glands are almost always involved bilaterally 70% of the pts , 30% unilateral .

-after incubation period →nonspecific predormal symptoms of fever and malaise are followed by painful swelling of sudden onset involving one or more salivary glands .

\*\* bacterial infections are usually unilateral .

-duration = 7-10days

-no pus > because it’s a viral infection

-submandibular glands and sublingual gland may be affected too

-( if you didn't get at early stage age + no vaccination it could occur in adults →in adults other internal organs are involved , such as testes ( leads to sterility) , ovaries central nervous system and pancreas , liver . **orchitis** is the most common complication , occurring in adult males .

**The diagnosis of mumps :**

\*\* differential diagnosis is important .

1)it is usually on clinical ground

2)by increasing amylase in blood

3) present of AB to "s" and "v" Ags

-**PROGNOSIS →** after an attack immunity is long acting so recurrent infection is rare

**\*\*Radiation induced sialadenitis**

Serous acini are most sensitive to radiation damage than mucous acini >> so the most sensitive gland to radiation is parotid gland

-it causes xerostomia within 24 hours after exposure to radiation ,and if it is with high dose it will cause irreversible fibrous replacement & sq metaplasia

-**complication** :the same complications of dryness of the mouth ( will be

discussed later on )

**\*\*Sialadenitis of minor salivary glands**

It is seen most frequently in association with mucous extravasation cysts and stomatitis nicotina of the palate( red spots in palate surrounded by whitish area ) , and is also seen in sacroidosis and sjogren syndrome( autoimmune )

**Obstructive and traumatic lesions :**

\* not 100% ( partial )

\*Obstruction to the duct orifice is usually due to :

1-chronic trauma

2- stones formation

3-tumers around or within the duct

4- problem within orifice , eg : parotid papilla → pt with disease causing fibrosis ( major apthousulcer →ulcer - orifice - fibrosis - obstruction ) , surgery , denture ( trauma to the parotid papilla )

**Causes** :

\*\***sialoliths** :

stones may form in ducts within the glands or in the distal 1/3 of the duct near the floor of the mouth .

-the submandibular gland is most frequently involved ( **90** % ) , the parotid gland is the **2nd** most commonly involved , whereas sialolithiasis in sublingual and minor glands is uncommon (rare)

\*\*cystic lesion in the **minor salivary glands** ( mucoseal ) are two types :

1- retention → obstruction in the duct .

2- extravasation cysts → trauma

**Clinically**

-in adults ; males > females

-unilateral stones

-multiple stones : within same gland but rarely on both sides ( right and left )

-most cause symptoms : pain , swelling and retrograde infection( pus might be seen below the tongue ) (these symptoms are seen during stimulation while eating )NOT PERMANENT .

-its recurrent and more susceptible to chronic sialadenitis due to the obstruction and reduction of salivary flow.

**Diagnosis** :

1) by *palpation*(manually- HARD MASS) or by vision (at the orifice of the affected salivary gland )

2) *radiograph* >>- large stones in submandibular glands by using the occlusal film

**(( \*\*\*40% of parotid gland stones are radiolucent \*\*\*20% of submandibular glands stones are radiolucent )) NOT VERY CALCIFIED , STILL MUCOUS / PROTEINS**

3)*sialography* : injection of radio opaque material to see the stones in the ducts

**Pathogenesis** : it is generally thought that they form by deposition of ca

salts , PO4 and bicarbonate around an initial organic nidus which might

consist of altered salivary mucins together with desquamated epithelial

cells and microorganisms (bacteria ) .

**Hist** : mainly atrophy replacement by fibrosis and CICI

Stone :

\***Grossly** > - yellowish –white in color

-round/oval in shape

-rough or smooth surface

It consists of Ca , Po4 and bicarbonate

**Gland changes >> (same as seen in chronic sialadenitis )**

1-duct dilatation with sq metaplasia

2-periductal CICI and fibrosis at the duct

3-acinar atrophy and replacement of fibrosis

4- CICI of lobules

**\* The parotid papilla:**

A very obvious structure in the oral cavity, due to that its susceptible to trauma that would be from an appliance , surgery in the area or a major aphthous ulcer affecting the area that might lead to fibrosis in the papilla that will lead to its destruction specially at its opening.

Other causes of obstruction of ducts rather than stones, trauma or major aphthous ulcer such as a tumor in the same gland or around it that will press on the opening ( duct) or a surgery in the area that lead to a trauma to the duct.

**\* Necrotizing Sialometaplasia:**

- a rare disease affecting salivary glands

- of unknown etiology but it could be due to an ischemia to the minor salivary glands that will lead to necrosis in these glands so **ulcer**( chronic ulcer) in the area of ischemia would occur.

- the most common site **is the junction between the hard and soft palate.**

- its appearance will make the patient think that’s it’s a cancer (like squamous cell carcinoma) → **however it's a rare site for cancer**

-**painless** which make it a suspicious condition.

- the **duration** of its presence can last for 1 or 2 months ( long duration) → healing

“So a person who has an ulcer that is painless and is present from 1 or 2 months and deep these findings will make us think about squamous cell carcinoma where its not.”

- occur in middle aged people.

- its size might be big up to 2cm

**But what makes the situation worse is the histopathalogical findings that look like cancer :**

1. The surface epithelium around the ulcer shows

hyperplasia( Pseudoepitheliomatous hyperplasia) that looks like

**invasive squamous cell carcinoma**

2. In the area of the ulcer we will see salivary gland tissue, their architecture and distribution looks like **mucoepdermoid carcinoma** that shows:

\* mucoextravasation

\* squamous metaplasia in the ducts and acini.

\* necrosis in the salivary glands, nodules.

\* chronic inflammatory cell infiltrates (CICI) in the area All these findings look like the ones found in the mucoepidrmoid carcinoma.

So clinically and histopathalogically it looks like cancer that’s why in some cases it will be treated by major surgery where they make a cut in the maxilla (all of maxilla) by that they will treat the lesion although it’s a **revesible** lesion that can be treated by a less invasive methods. After 3 months from its first presence it will heal and no need for any intervention . so a careful diagnosis and histopathology **( we need a good pathologist and differential diagnosis )**

**It’s not mucoepidermoid carcinoma but looks like it.**

The healing occur gradually after a time of 2 months or 10 weeks the healing starts . the size decreases with healing , but if its squamous cell carcinoma its size will not decrease with time.