DEPARTMENT OF ORAL MEDICINE AND RADIOLOGY

SALIVARY GLAND DISORDER PART -1

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M.D.S IIIrd year in OMR

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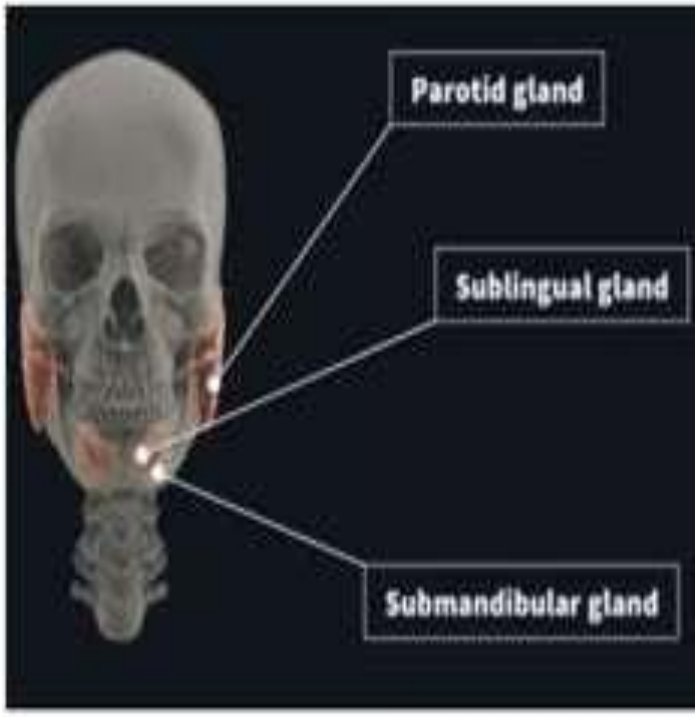
Introduction

- Salivary gland consists of three paired major which are parotid, submandibular & sublingual.
- Also countless minor S.Gs are found in almost every part of the oral cavity, except the gingival & anterior regions of the hard palate.



Classification

Table 35.1: Classification of salivary gland disorders

A. Developmental Disorders
- Aberrant or ectopic gland
- Aplasia (Agenesis)
- Hypoplasia
- Hyperplasia
- Atresia (congenital occlusion or absence of one salivary duct)
- Accessory duct
- Diverticuli
- Congenital fistula

B. Functional Disorders
- Sialorrhea
- Xerostomia

C. Obstructive Disorders
- Sialolithiasis
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- Stricture and stenosis
- Foreign bodies
- Extraductal causes

D. Cysts
- Mucocele
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- Lymphoepithelial cyst

F. Infections
- Viral infection
- Bacterial infection
- Mycotic infection

G. Autoimmune Disorders
- Sjögren's syndrome
- Mikulicz's disease
- Uveoparotid fever
- Recurrent nonspecific parotitis

H. Neoplasms

Benign but seldom recurrent
- Warthin's tumor
- Oncocytoma
- Monomorphic salivary adenomas

Benign but often recurrent
- Pleomorphic adenoma
- Mucoepidermoid tumor (low grade)
- Acinic cell tumor

Malignant
- Carcinoma in pleomorphic adenoma

Contd...

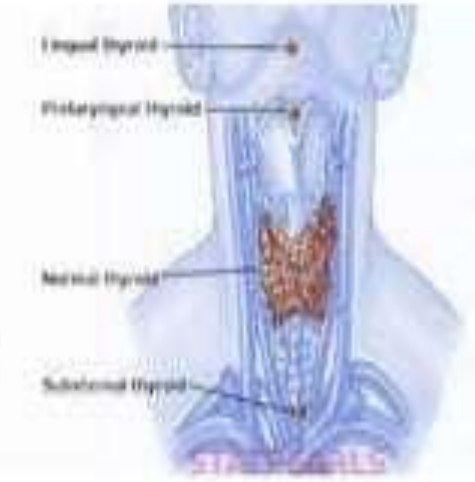
- Squamous carcinoma
- Adenocarcinoma
- Undifferentiated carcinoma

Others
- Lymphomas (Hodgkins and non-Hodgkins)
- Metastatic tumors

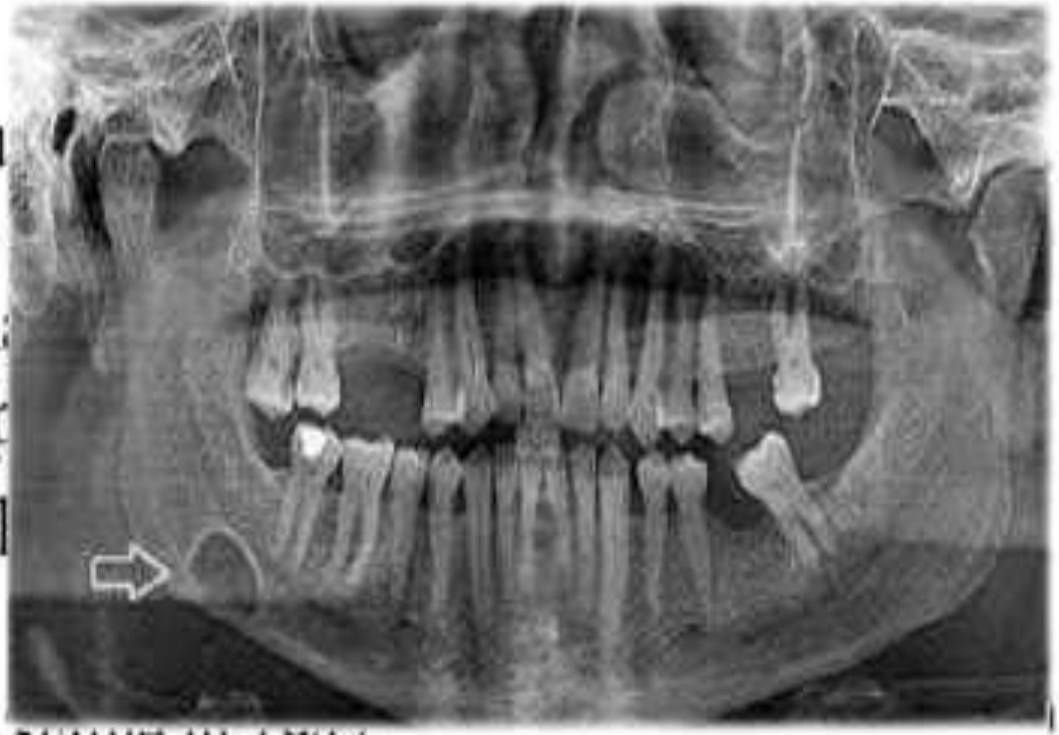
Others
- Frey's syndrome (due to injury to auriculo-temporal nerve)
- Melkersson rosenthal syndrome (sarcoidosis)
- Postirradiation complications
- Stomatitis nicotina
- Salivary fistula

DEVELOPMENTAL DISORDERS

- **Ectopic salivary gland** tissue occurs as accessory tissue, associated with branchial cleft anomalies, or as heterotopic tissue.
- Location- parotid gland, middle and external ear, neck, mandible, pituitary gland, thyroglossal duct, thyroid, and parathyroid gland capsules, lymph nodes.
- Clinically -present as a saliva-draining skin fistula or an asymptomatic nodule
- Treatment - excision for definitive diagnosis and serves to



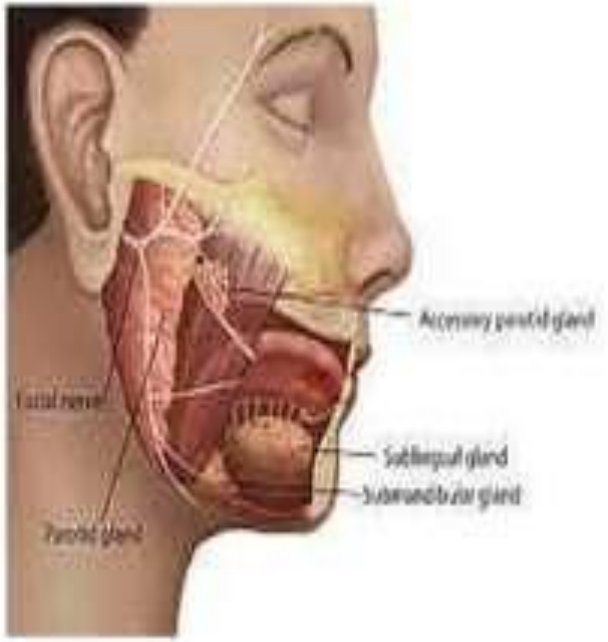
- **Developmental lingual salivary gland depression:**
- It is the developmental inclu
glandular tissue, adjacent to
surface of the body of the m
deep well-circumscribed dep
- Mandible develops around t
development.
- It was first described by Sir Stafne in 1942



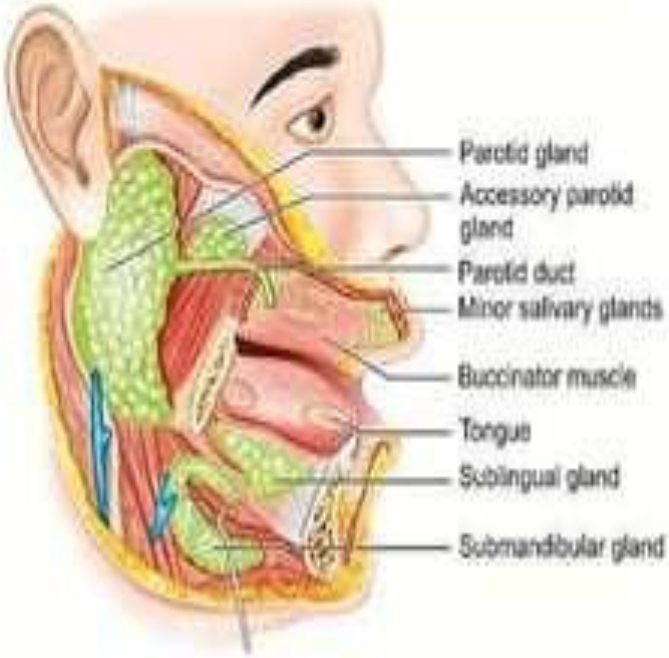
- Salivary gland **hypoplasia** is relative underdevelopment of the Salivary glands.
- **Aplasia** is the complete absence of one or more salivary gland
- Clinical presentation -Patient complains of xerostomia,constant sipping of water throughout the day and particularly, during meal times.
- Management -Institution of scrupulous oral hygiene is an attempt to decrease caries and preserve the teeth as long as possible.

- **Atresia** is congenital occlusion or absence of salivary gland

- **Accessory Salivary Ducts** are common and do not require treatment. The most frequent location was superior and anterior to the normal location of Stensen's duct



- **Diverticula** is a pouch or sac protruding from the wall of a duct. Diverticula in the ducts of the major salivary glands often lead to the pooling of saliva and recurrent sialadenitis.
- **Hyperplasia** appears as small localized swelling of varying size, measuring from several millimeters to 1 cm, usually on the hard palate or at the junction of the hard



FUNCTIONAL DISORDERS

- **Sialorrhea (hypersalivation or ptyalism)** is defined as excessive production of saliva and is the result of either an increase in production or a decrease in salivary clearance
- Sialorrhea results from a decrease in the normal control of oral (mouth and throat) sensation and motor function, causing excessive saliva drooling.

- Drooling is common in babies but subsides between the ages of 15 to 36 months with the establishment of salivary continence.
- It is considered abnormal after age 4.
- Pathologic sialorrhea can be an isolated phenomenon due to hypersalivation or occur in conjunction with
- Several neurologic disorders such as amyotrophic lateral sclerosis, cerebral palsy, Parkinson's disease, or as a side effect of medications.

- In children, the most common cause of sialorrhea is Cerebral Palsy, which persists in 10%–38% of these individuals.
- In adults, Parkinson's Disease,Facial palsy is the most common cause

Treatment

- Sialorrhea is known to be difficult to treat.
- Management can be conservative or more invasive.
- Conservative treatments include changes in diet or habits, oral-motor exercises, intra-oral devices such as palatal training devices, medication or botulinum toxin injections.
- Radiation is now rarely applied and is typically reserved for elderly patients who are not candidates for surgery and cannot tolerate

Xerostomia

- Xerostomia is defined as the subjective complaint of dry mouth.
- affect speech, chewing, swallowing, denture-wearing, and general well-being
- Xerostomia secondary to hyposalivation may also result in rampant dental caries, oral fungal infections (eg, candidiasis), taste changes, halitosis, or burning mouth, difficulty wearing dentures

- The most frequent cause of hyposalivation is the use of certain medications (such as anticoagulants, antidepressants, antihypertensives, antiretrovirals, hypoglycemics, levothyroxine, multivitamins and supplements, non-steroidal anti-inflammatory drugs, and steroid inhalers)
- followed by radiotherapy to the head and neck, and
- Sjögren's syndrome.
- Other factors include depression, anxiety and stress, or malnutrition.

- The diagnosis of xerostomia and salivary gland hypofunction requires a thorough medical history. Particular attention should be given to the reported symptoms, medication use, and past medical history.

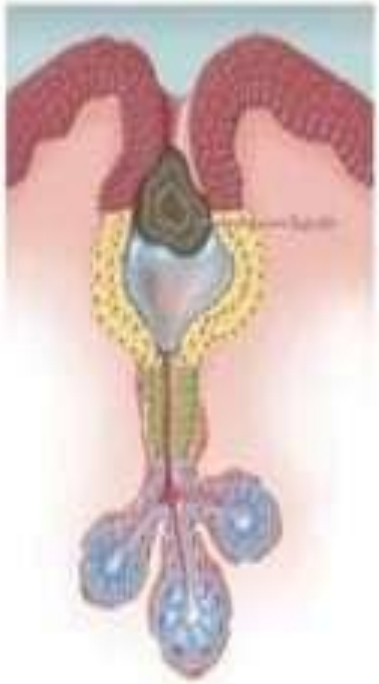
Management and treatment of xerostomia

- To reduce patients' symptoms and/or increase salivary flow.
- Easy remedies are proper hydration; increase in humidity at night-time; avoidance of irritating dentifrices and crunchy/hard foods; and use of sugar-free chewing gums/candy.
- Medications include mucosal lubricants, saliva substitutes, and saliva stimulants.

- Systemic sialogogues
- Pilocarpine and cevimeline are two systemic US Food and Drug Administ

OBSTRUCTIVE DISORDERS

1. **Sialolithiasis** -results in mechanical obstruction of the salivary duct

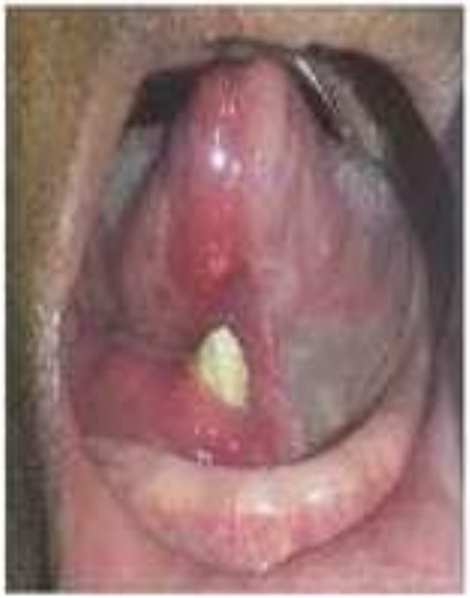


- The exact pathogenesis of sialolithiasis remains unknown.
- Thought to form via…. an initial organic nidus that progressively grows by deposition of layers of inorganic and organic substances. That eventually obstructs the flow of saliva from the gland to the oral cavity

Etiology and Pathogenesis

- Neurohumoral mechanism: A neurohumoral condition, leading to salivary stagnation, results in a nidus and matrix formation.
- Metabolic mechanism: In the presence of co-existing inflammation, a metabolic mechanism favors precipitation of salivary salts into the matrix.

Stone Composition



- Organic; often predominate in the center

-Glycoproteins

-Mucopolysaccharides

-Bacteria

-Cellular debris

- Inorganic; often in the periphery
- -Calcium carbonates & calcium phosphates in the form of hydroxyapatite

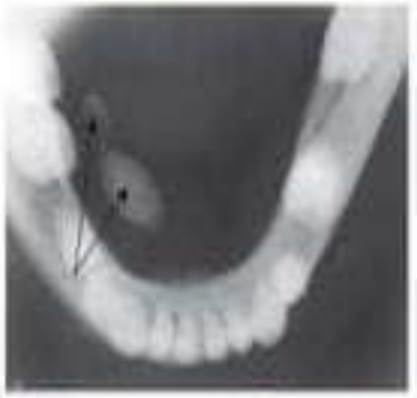
Clinical Features

- They are usually encountered in middle aged patients with slight predilection in men. It usually occurs as a solitary concretion varying in size from a few millimeters up to several centimeters.
- Many patients complain of moderately severe pain and intermittent transient swelling during meals, which resolves after meals.
- As the calculus itself rarely blocks a duct completely, the swelling subsides as salivary demand diminishes and as saliva seeps past the partial obstruction.

DIAGNOSTICS:

- Plain occlusal film
- CT Scan:

-large stones or small CT slices done also used for inflammatory disorders



- Ultrasound:

-operator dependent, can detect small stones (>2mm), inexpensive, noninvasive

- Diagnostic Sialendoscopy

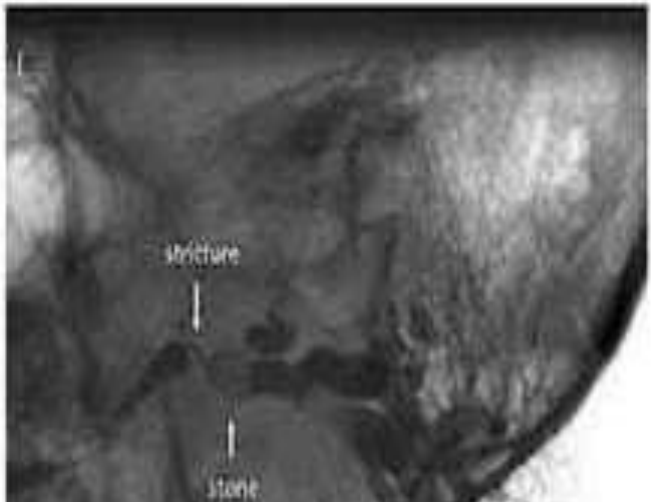
-Allows complete exploration of the ductal

SIALOLITHIASIS TREATMENT

- None: antibiotics and anti-inflammatories, hoping for spontaneous stone passage.
- Stone excision:
- Lithotripsy
- Interventional sialendoscopy
- Simple removal (20% recurrence)
- Gland excision

2. Strictures are a **narrowing of the salivary duct that affects both the duct and gland**. Saliva can't flow easily through the duct and forms a mucus plug behind the stricture, causing inflammatory disease

3. Stenosis obstruction refers to **a narrowing (stenosis) or blockage (obstruction) in your salivary glands**. caused by the presence of



Etiology

- Irritation from prosthetic appliances, maloccluded or malpositioned teeth.
- Acute trauma: Acute trauma with resultant edema and/ or scarring.
- Tumor: Intraductal tumor formation.

Treatment

Types

1.Papillary obstruction: it may be either acute ulcerative obstruction or chronic fibrotic stenosis.

-Treated conservatively with saline rinses and salivary gland massage.

-The ulcer generally heals without scarring and the symptoms will subside

2. Duct obstruction: it may be due to a variety of factors. In cases of obstruction secondary to acute trauma treatment is directed toward providing duct patency until the edema is resolved

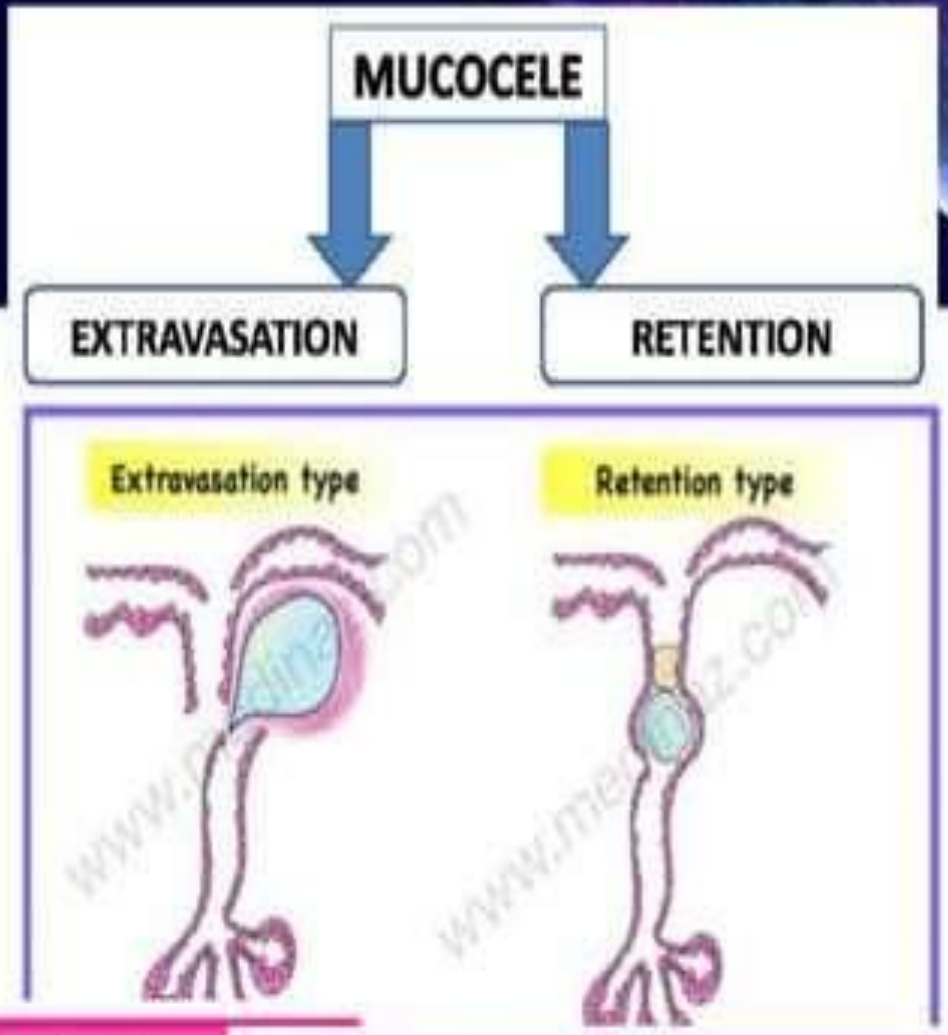
CYST

- Mucocele- It is a term used to describe the swelling caused by pooling of saliva at the site of injured minor salivary gland.
- Types

1.Mucus extravasation: caused by laceration of a minor salivary gland duct by trauma resulting in extravasation of mucus into the connective tissue. These cysts are not lined by epithelium.

2.Mucus retention:caused by obstruction of minor salivary gland duct which causes the backup of saliva. This continuous pressure dilates the

1. Mucocele

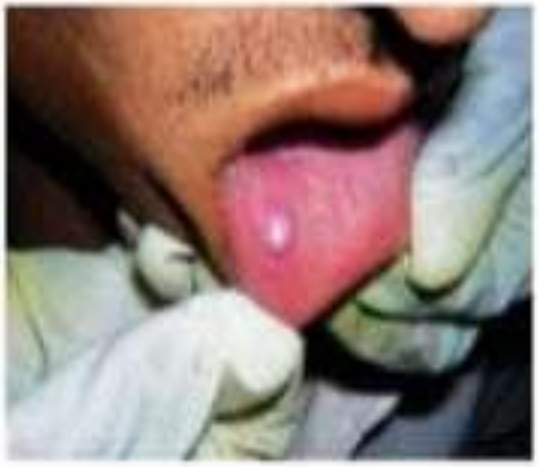

MUCOCELE
EXTRAVASATION
RETENTION
Extravasation type
Retention type


Trauma
Inflammatory cells
Mucous spill


Obstruction

Clinical Features

- They are very common and occur most frequently on the inner aspect of lower lip; but may also occur on the palate, cheek, tongue and floor of mouth.
- Age of the patient varies with peak frequency in the 3rd decades .
- Equal in sex frequency, with most cases are reported in white.



- The mucocele may be only 1 to 2 mm in dia / larger; majority of them being between 5 to 10 mm in dia.
- Superficial cyst appears as bluish mass, as the thin overlying mucosa permits the pool of mucus fluid to absorb most of visible wave length of light.
- If inflamed, it is fluctuant, soft, nodular and dome shaped elevation.
- Deeper lesions have the color of normal mucosa and are firmer. The swelling is round or oval and smooth. It is either soft or hard depending upon the tension in the fluid.

Man

- Co
- Inj

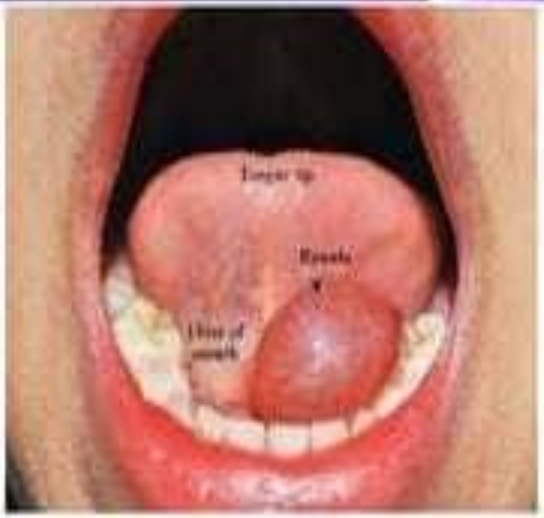
"Major Ratan Executed Minors"

Extravasation mucocele is commonly found on the Minor salivary glands

Majority of Retention cysts are associated with Major salivary glands.

2.Ranula

- Is a term used for mucoceles that occur in the floor of the mouth.
- The name is derived from the word Rana, because the swelling may resemble the translucent underbelly of the frog.
- Located lateral to the midline,

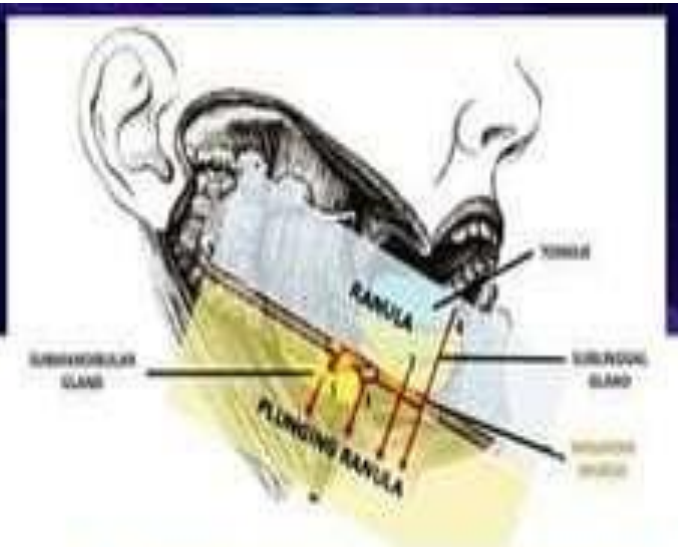


- Types

-**Superficial**: The superficial variety may develop as a retention or extravasation phenomenon associated with trauma to one or more of the numerous excretory ducts of the sublingual salivary gland.

-**Plunging**: It ramifies deeply into the neck

Variant



Plunging or Cervical Ranula

- Occurs when spilled mucin dissects through the mylohyoid muscle and produces swelling in the neck.

Clinical Features

- It is spherical or dome shaped .
- It is smaller in early morning and largest just before meals, due to increased secretory activity in periods of gustatory stimulation and water absorption from the pooled mucus during inactive period.
- It is soft and tends to be fluctuant. It can not empty by pressure and is nonpulsatile.
- Fluctuation and transillumination: Both tests are positive.
- The ranula is typically known as brilliant translucent swelling. Aspiration yields sticky clear fluid.

Management

- **Surgical excision**: They are best treated by surgical excision including a portion of the surrounding tissues.
- **Partial excision** with marsupialization: The major part of the cyst wall together with its overlying mucous membrane is excised.

3. Lymphoepithelial cysts or branchial cysts are benign, slow-growing lesions that occur mostly in adults with a predilection for females.

- It occurs in the second and third decade of life and the swelling is usually diffuse, fluctuant, and nontender.
- Occur in other areas of the neck, oral cavity, salivary glands, thyroid, and mediastinum, and even in the pancreas.
- It occurs due to lymphocyte-induced cystic ductular dilatation and

- Treatment of the lymphoepithelial cyst includes both
- The conservative approach includes decompression the cyst by aspirating the fluid out thereby reducing the pressure.
- the surgical management by complete enucleation of the cyst along with the excision of the involved gland.

Sialadenosis (sialosis)

- Non-specific term used to describe a non-inflammatory ,non-neoplastic enlargement of a salivary gland, usually the parotid.
- May be called sialosis
- The enlargement is generally asymptomatic
- Mechanism is unknown in many cases.

Related to….

- a. Metabolic "endocrine sialendosis"
- b. Nutritional "nutritional mumps"

a. Obesity : secondary to fatty hypertrophy

b. Malnutrition: acinar hypertrophy

c. Any condition that interferes with the absorption of nutrients (celiac diseases, uremia, chronic pancreatitis, etc)

Related to…

- Alcoholic cirrhosis: likely based on protein deficiency & resultant acinar hypertrophy
- b. Drug induced: iodine mumps
- e. HIV
- Symptoms: Swelling of the preauricular portion of the parotid gland is the most common symptom, but retromandibular portion of the gland may also be affected.

- Laboratory finding: A characteristic alteration in the chemical constituents of saliva is a distinguishing feature of sialosis.
- Significant elevation of salivary potassium and concomitant decrease in salivary sodium is observed.

Allergic sialadenitis

- It may not appear as a true hypersensitivity reaction but rather as a toxic or idiosyncratic reaction to drugs that cause a deceased salivary flow, resulting in secondary infection.
- Various drugs which have been reported to cause allergic sialoadentitis include sulfisoxazole, phenothiazines, iodine containing compounds, mercury, thiouracil and phenylbutazone.

- Symptoms: The clinical appearance of allergic sialadenitis varies, but in most of the cases there is bilateral parotid gland enlargement following the administration of the drug.
- The enlargement may be painful and is usually associated with conjunctivitis and skin rashes.
- It is a self-limiting disease and needs no treatment. But in some cases, secondary bacterial infection may develop and need treatment.

INFECTIONS

1. VIRAL

- **Mumps** classically designates a viral parotitis caused by the paramyxovirus
- Mumps is a non-suppurative acute sialadenitis
- Is endemic in the community and spread by airborne droplets
- Communicable disease
- Enters through upper respiratory tract

- 2-3 week incubation after exposure (the virus multiplies in the URI or parotid gland)
- Then localizes to biologically active tissues like salivary glands, germinal tissues and the CNS

Virology

- Classic mumps syndrome is caused by a paramyxovirus, an RNA virus
- Others can cause acute viral parotitis:
- Coxsackie A & B, ECHO virus, cytomegalovirus and adenovirus
- HIV involvement of parotid glands is a rare cause of acute viral parotitis, is more commonly associated with chronic cystic disease

Clinical presentation

- 30% experience prodromal symptoms prior to the development of parotitis
- Headache, myalgias, anorexia, malaise
- Onset of salivary gland involvement is heralded by earache, gland pain, dysphagia, and trismus

Treatment

- Supportive

  -Fluid

  -Anti-inflammatories and analgesics

- Prevention

  -The live attenuated vaccine became available in 1967

  -Commonly combined with the measles and rubella vaccines, the mumps vaccine is administered in a single subcutaneous dose

- **Cytomegalovirus Inclusion Disease** also called as 'salivary gland virus disease'.
- It is caused by cytomegalovirus, a herpes virus. It is common in immunosuppressed adult.
- Although it is congenital in nature, it is usually secondary to concurrent disease which has caused debilitation.
- Clinical Feature -It affects primarily in newborn infants and children, but adults are also affected. In newborns, infection is

- Signs- Infants who survive the infection may have permanent central nervous system involvement, including mental retardation and seizures.
- It may cause clinical disease of salivary gland, causing enlargement of the gland.
- Laboratory Investigations- Intranuclear and cytoplasmic inclusions in the cells of salivary glands are constant features of the disease.

Treatment

- Meticulous oral hygiene should be practiced.
- Soft diet should be given as chewing is painful.
- It is treated aggressively because even with antibiotics death can result in debilitated patients.
- Specimen of purulent material should be immediately sent to a laboratory for sensitivity and culture.
- **Antiviral medications** are the most common type of treatment. They can slow the reproduction of the virus, but can't eliminate

- The patient must be adequately hydrated and the electrolyte balance should be properly maintained with intravenous fluids.
- Salivation should be stimulated to facilitate drainage by sucking the sour hard candy.

2. BACTERIAL

- **Primary Tuberculosis** of the salivary glands:

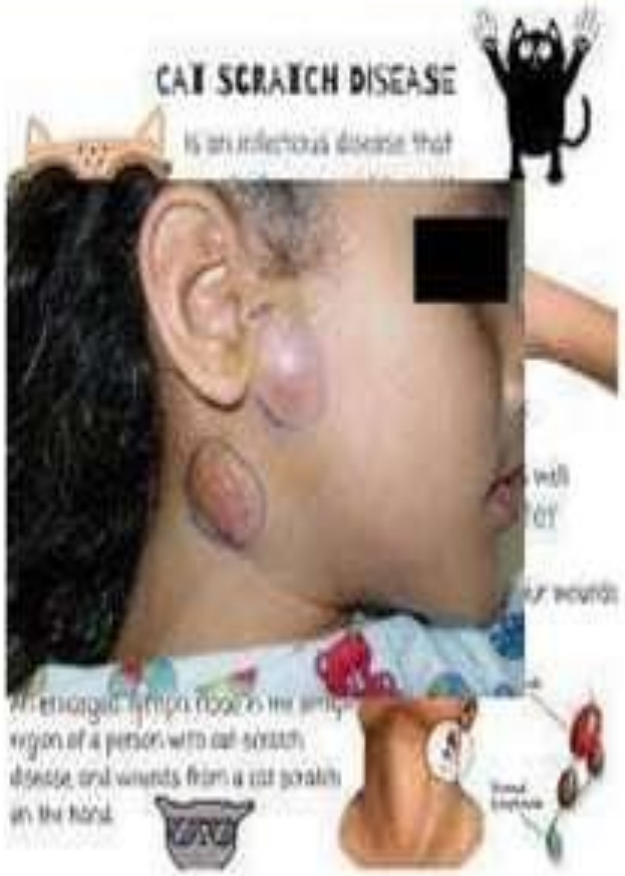
-Uncommon, usually unilateral, parotid most common affected

-Believed to arise from the spread of a focus of infection in tonsils

- **Secondary TB** may also involve the salivary glands but tends to involve the SMG and is associated with active pulmonary TB

- **Sarcoidosis** a systemic disease characterized by noncaseating granulomas in multiple organ systems
- Clinically, SG involvement in 6% cases
- Heerfordts's disease is a particular form of sarcoid characterized by uveitis, parotid enlargement and facial paralysis. Usually seen in 20-30's

- **Cat Scratch Disease**: Does not involve the salivary glands directly, but involves the periparotid and submandibular triangle lymph nodes
- May involve SG by the contiguous spread.
- Bacteria is Bartonella Henselae(G-R)
- Also, toxoplasmosis and actinomycosis



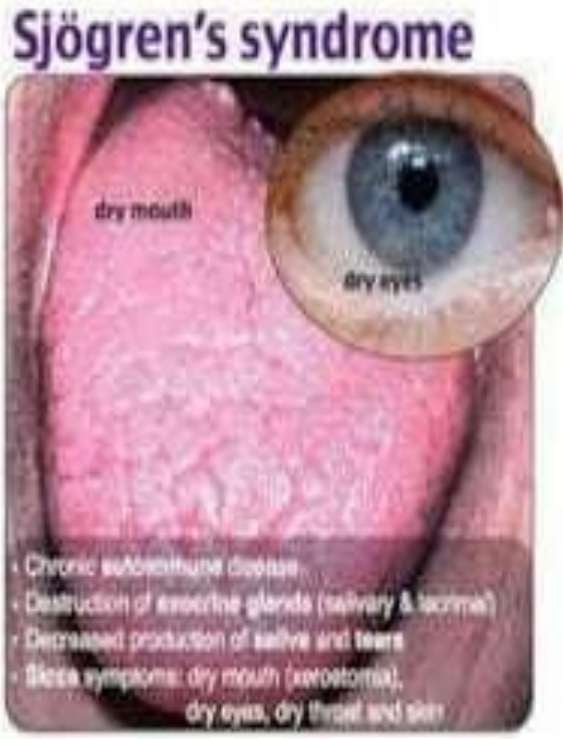
AUTOIMMUNE DISEASES

Sjögren's Syndrome

- Most common immunologic disorder associated with salivary gland disease.
- Characterized by lymphocyte-mediated destruction of the exocrine glands leading to xerostomia and keratoconjunctivitis sicca
- 90% of cases occur in women
- Average age of onset is 50years

Two forms:

- Primary: It also called as sicca syndrome and it consists of dry eyes (xerophthalmia) and dry mouth (xerostomia)
- Secondary: It consists of dry eyes, dry mouth and collagen disorders usually rheumatoid arthritis or systemic lupus erythematous.



Etiology and Pathogenesis

-Immunological findings: The lesion in this syndrome is immunologically mediated inflammatory endocrinopathy. It begins with periductal infiltration of the tissue by mononuclear cells.

-Autoantibodies: The B cell hyperactivity results from a deficiency of suppressor T or B lymphocytes by producing autoantibodies against them.

- Virologic aspect: cytomegalovirus (CMV).
- Genetic aspect: HLA-linked and non-HLA linked genes.
- Primary sjögren's syndrome is associated with HGLA-b8 and DR3 and
- Secondary sjögren's syndrome is associated with HLA-B8 DR4 and BW44.

-Lymphoproliferative malignancy: malignant B cell lymphoproliferation has been shown to affect patients with

-Polyclonal hyperglobulinemia: Serum levels of IgG and IgM are raised.

-B2 microglobulin: Serum salivary level of B2 microglobulin is raised in the minority of patients and correlates with salivary lymphocyte infiltrate.

-Cell-mediated immune response: Lymphokine production in response to antigens present in normal salivary tissue, is increased.

-Natural killer cell activity: Augmented natural killer cell activity is

Clinical Features

Oral Symptoms:

- Xerostomia is a major complaint in most of the patients.
- Dental caries is severe and gross accumulation of plaque may be obvious. Periodontal disease can also occur

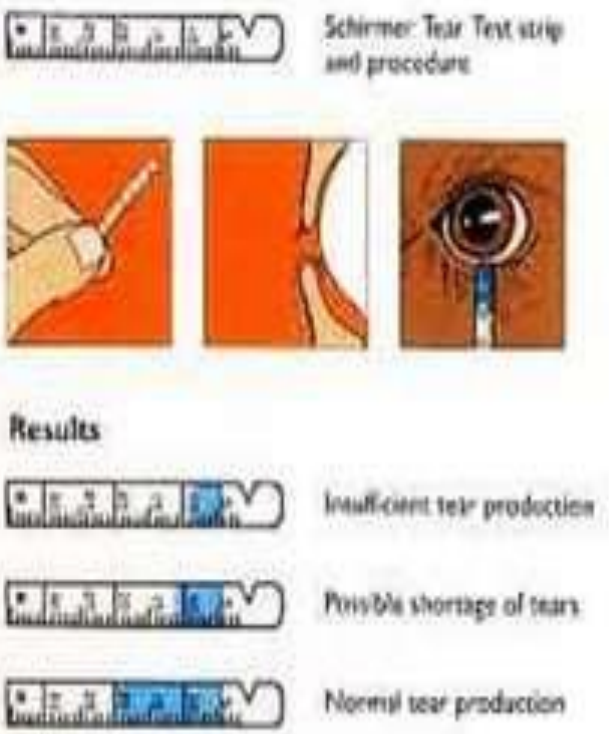
General

- Eyes: dry eyes or continuous irritation in the eyes.
- Connective tissue disorder: In patients with secondary Sjögren's syndrome, rheumatoid arthritis is typically long-standing and clinically obvious.
- Patients may have small joint and ulnar deviation of fingers and rheumatoid nodules.
- Dryness of the pharynx, larynx and nose are noted by some patients.

Laboratory Investigations

- Rose Bengal staining test: Keratoconjunctivitis sicca is characterized by corneal keratotic lesion, which stains pink when 'rose Bengal' dye is used.
- Immunologic: A routine autoantibody profile can usually be carried out with the particular aim of detecting rheumatoid and antinuclear factors.
- Hematological investigations: It is necessary, particularly to exclude anemia. ESR or plasma viscosity, leucopenia

- Keratoconjuntivitis sicca: diminished tear production caused by lymphocytic cell replacement of the lacrimal gland parenchyma.
- Evaluate with Schirmer test. Two 5 x 35mm strips of red litmus paper placed in inferior fornix, left for 5 minutes. A positive finiding is lacrimation of 5mm or less.



Sjögren's Treatment

- Avoid xerostomic meds if possible
- Avoid alcohol and tobacco (accentuates xerostomia)
- Sialogogue (eg: pilocarpine) use is limited by other cholinergic effects like bradycardia & lacrimation
- Sugar-free gum or diabetic confectionery
- Salivary substitutes/sprays

- Keratoconjunctivitis is treated by the instillation of ocular lubricants, such as artificial tears coating methylcellulose, and
- Xerostomia is treated by saliva substitutes.
- Scrupulous oral hygiene and frequent fluoride application is indicated to reduce caries.
- Bromhexine can be used in some cases of Sjögren's syndrome.
- Surgery for enlargement of the salivary gland is only recommended when the enlargement is causing discomfort to

Mikulicz disease/ Benign Lymphoepithelial Lesion

- Mikulicz syndrome is a chronic condition characterized by the abnormal enlargement of glands in the head and neck, including the parotid, lacrimal and salivary.
- The tonsils and other glands in the soft tissue of the face and neck may also be involved

Classification

- Mikulicz's disease proper: Lacrimal and salivary gland swelling only.
- Pseudoleukemia: Lacrimal and salivary gland swelling with lymphatic system involvement.
- Leukemia: Lacrimal and salivary gland swelling with hematopoietic involvement

- Some people with mikulicz syndrome may experience recurring fevers.
- The fever may be accompanied by dry eyes, diminished tear production (lacrimation), and inflammation of various parts of the eyes (uveitis).
- Bilateral lacrimal gland enlargement, parotid gland enlargement, dry mouth, and dry eyes are the classic signs.

- The exact cause of mikulicz syndrome is not known. Some scientists believe that mikulicz syndrome should be considered a form of sjögren syndrome.
- *The condition is self-limiting and most often, the diagnosis is a clinical one.*

Management

- Surgical excision and radiation can be given.
- Prognosis is good.

DEPARTMENT OF ORAL MEDICINE AND RADIOLOGY

SALIVARY GLAND DISORDER PART -2

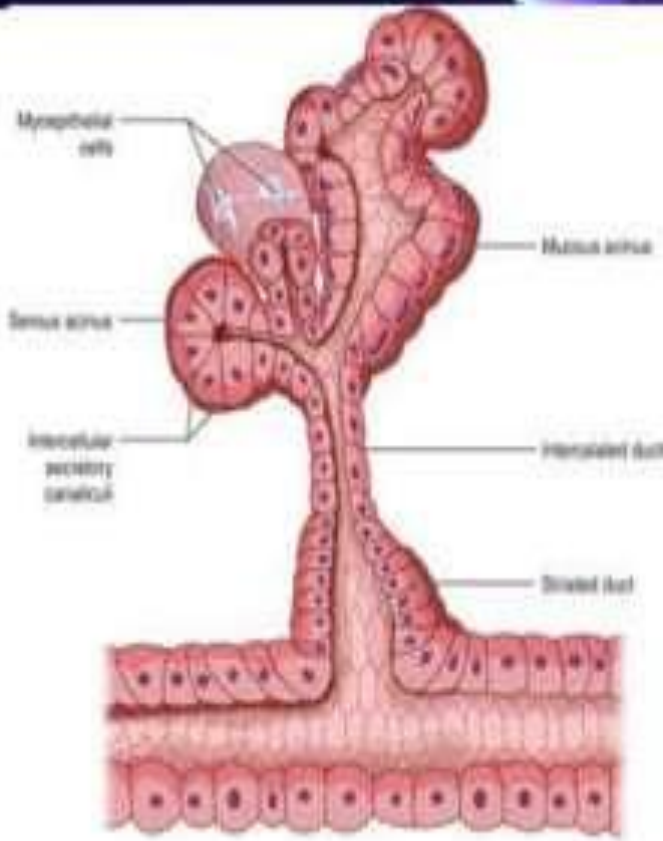
TUMORS OF SALIVARY GLANDS

- Salivary gland tumors are tumors arising from the major and minor salivary glands.
- The neoplasms develop mainly from the gland tissue, i.e. the parenchymal elements, and uncommonly from the supported investing connective tissue.
- The salivary parenchyma is derived from the oral epithelium and is composed of secretory units.

The secretory units are made of the following components:

- The cellular components
- Serous and mucous acinar cells
- Ductal epithelial cells and
- Myoepithelial cell.

The connective tissue components include (e.g. fat, fibrous tissue, nerves, and blood



Theories of Salivary Gland Tumor Histogenesis

- There are two hypotheses suggested in the development of salivary gland neoplasms.

1. Well-differentiated cells of the salivary gland unit form the neoplasm of their differentiated counterparts.

- According to this concept:

-Acinar cells ⟶ Acinous cell carcinoma

- Striated duct cells ⟶ Oncocytic tumors
- Excretory duct cells ⟶ Squamous cell carcinoma and mucoepidermoid carcinoma
- Intercalated duct ⟶ Adenocarcinoma

2. Bicellular theory: This theory suggests that undifferentiated basal cells of the excretory and intercalated duct are responsible for the formation of most neoplasms.

- According to this theory, dedifferentiation of already specialized cells such as acinar and striated duct cells is not required to develop salivary gland neoplasms.

Classification By American Joint Committee

Primary tumor –

- Tx: Tumor that can not be assessed by the rules.
- T0 : No evidence of primary tumor.
- T1 : Tumor 2 cm or less in dia, without significant local extension.
- T2 : Tumor 2-4 cm in dia without significant local extension.
- T3 : Tumor more than 4 cms but not more than 6 cms in dia without significant local extension.
- T4a: Tumor over 6 cms in dia without significant local extension.

Nodal involvement (N)

– Nx : Regional lymph node can not be assessed

– N0 : No regional lymph node metastasis

– N1 : Clinical or histologically positive regional lymph nodes.

Distant metastasis (M)

– Mx : Distant metastasis can not be assessed

– M0 : No distant metastasis

- Stage grouping is performed as follows:
- – Stage I : T1 N0 M0 or T2 N0 M0
- – Stage II: T3 N0 M0
- – Stage III: T1 or T2 , N1 M0 , or T4a or T4b N0 M0
- –Stage IV: T3 N1 M0 , T4a or T4b N1 M0 , any T any N M1

H. Neoplasms

Benign but seldom recurrent

- Warthin's tumor
- Oncocytoma
- Monomorphic salivary adenomas

Benign but often recurrent

- Pleomorphic adenoma
- Mucoepidermoid tumor (low grade)
- Acinic cell tumor

Malignant

- Carcinoma in pleomorphic adenoma
- Adenoid cystic carcinoma (cylindroma)
- Mucoepidermoid tumor (high grade)

Contd....

- Squamous carcinoma
- Adenocarcinoma
- Undifferentiated carcinoma

Others

- Lymphomas (Hodgkins and non-Hodgkins)
- Metastatic tumors

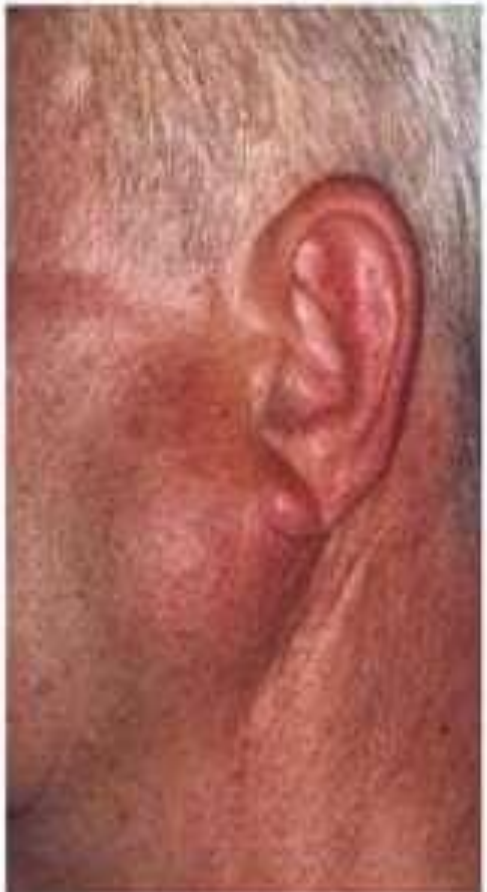
Others

- Frey's syndrome (due to injury to auriculo-temporal nerve)
- Melkersson rosenthal syndrome (sarcoidosis)
- PostIrradiation complications
- Stomatitis nicotina

BENIGN TUMORS |BENIGN BUT SELDOM RECURRENT |

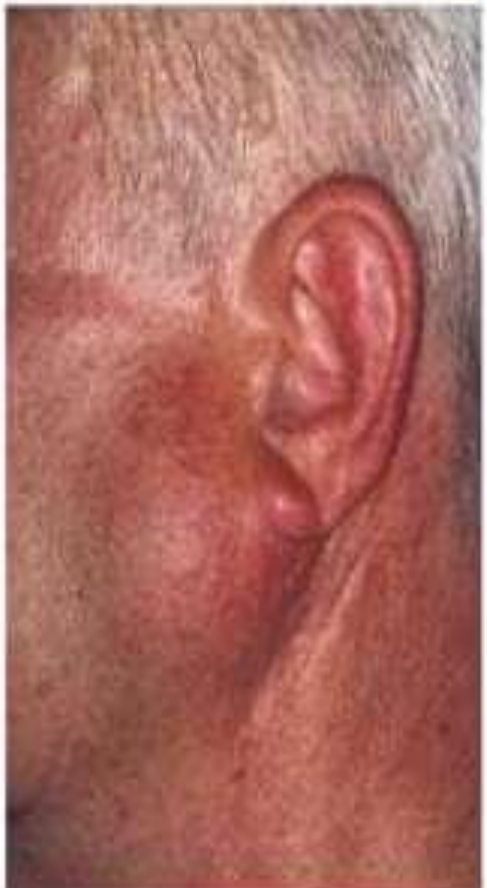
1. Warthin's Tumor

- 'adenolymphoma' and 'papillary cystadenoma lymphomatosum' and 'brachial cyst of parotid'.
- 6-10% of parotid neoplasms
- Older, Caucasian, males ,10% bilateral or multicentric
- 3% with associated neoplasms



Clinical Features

- The tumor occurs almost exclusively in the parotid gland.
- The tumor is generally superficial, lying just beneath the parotid capsule or protruding through it.
- It is common in men (male to female ratio is 5:1).



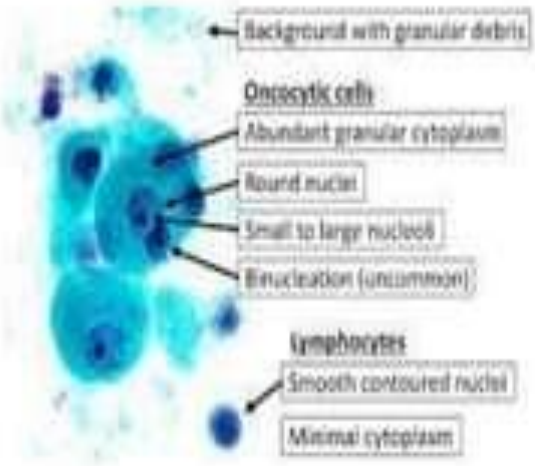
- The usual complaint is painless slow growing tumor over the angle of jaw.
- Involvement may be bilateral or may be multifocal.
- The tumor does not attain a large size and the usual size is 1 to 3 cm in diameter.

Management

- Superficial parotidectomy and it seldom recurs after removal.

2. Oncocytoma

- Oncocytes are large epithelial cells that contain brightly eosinophilic granular cytoplasm.
- This is due to abundant mitochondria packing in the cell cytoplasm. It is also called as ‘oxyphilic adenoma’, ‘acidophilic adenoma’.
- It is an uncommon tumor composing less than 1% of salivary neoplasms.
- These cells are predominately seen in duct

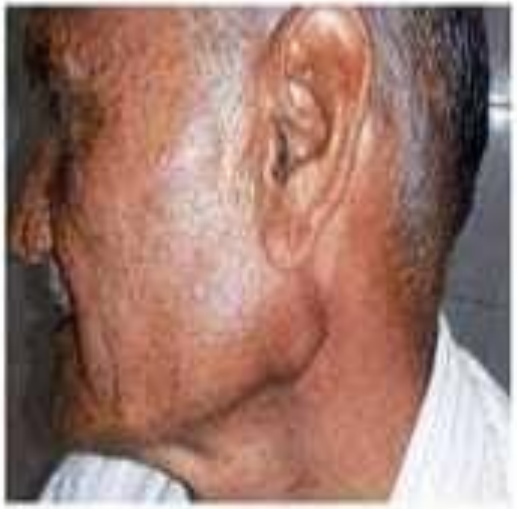


Pathogenesis

- As the tumor is seen in older age group it is suggested that the oncocytes are the result of degeneration of the salivary gland parenchyma.
- Another school of thought is that it is a metaplastic process seen in hyperplasia of salivary parenchyma. This further could proliferate into neoplastic state.
- Some suggest that it is not neoplasm but merely a nodular hyperplasia.

Clinical Features

- It usually occurs in the parotid gland.
- It is more common in women than in men and occurs almost exclusively in older persons.
- The tumor usually measures 3 to 5 cm in diameter and appears as a discrete encapsulated painless mass which is sometimes nodular.



- Oncocytosis: which is characterized by nodules of oncocytes involving the entire gland or a large portion.

Management

- Surgical excision should be carried out.
- Tumor does not tend to recur.
- Malignant transformation is very rare.

3. Monomorphic adenomas

- TYPES -basal cell, canalicular, sebaceous, glycogen-rich, clear cell
- Basal cell is most common: 1.8% of benign epithelial salivary gland neoplasms
- 6 th decade
- M: F = approximately 1:1
- Caucasian > african american

Clinical Features

- It occurs primarily in major salivary glands particularly in the parotid gland and intraorally, upper lip.
- It is more common in females with 2:1 predilection.
- Older age group, usually over 60 years of age are affected.
- The tumor shows painless slow growth and presents as freely movable mass like pleomorphic adenoma.
- Size of the lesion is less than 3 cm in diameter.

Management

- It is treated by surgical excision and recurrence is seldom seen.

BENIGN BUT OFTEN REOCCUR

1.PLEOMORPHIC ADENOMA

- The term pleomorphic adenoma was suggested by Willis characterizing the unusual histological pattern of the lesion (pleomorphic or mixed appearance)
- Other names suggested for this tumor are ‘iceberg tumor’, ‘endothelioma’, ‘branchioma’, or ‘enchondroma’, enclavoma.

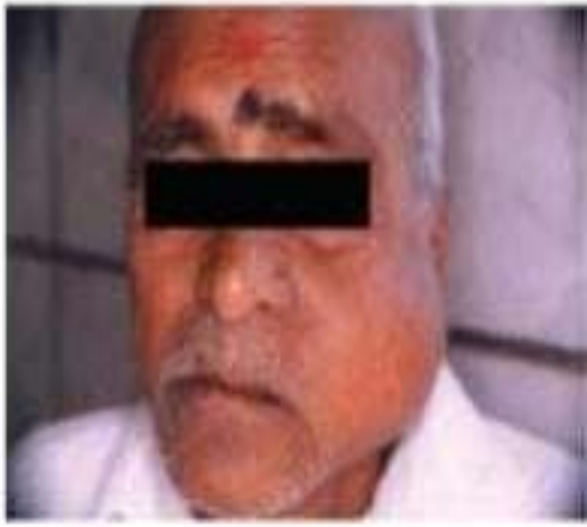


Figure 14.7: Pleomorphic adenoma of parotid gland showing huge swelling

Definition

- It is defined as a tumor of variable capsulation characterized microscopically by architectural rather than cellular pleomorphism.

Clinical Features

- The most common type is parotid (90%), followed by intraoral minor salivary gland (approx. 8%).
- The palatal gland are the most affected in this group (60-65%).

- Women to men ratio is 6:4.
- It is common in 4th to 6th decades but also seen in young adults and children.
- Small, painless, quiescent nodule which slowly begins to increase in size, sometimes intermittently.
- The tumor tends to be round or oval when it is small; as it grows bigger it becomes lobulated.

Signs of Malignant Transformation Include

- Accelerated growth rate.
- Tumor irregularity on palpations.
- Necrosis and painful ulceration.
- Facial nerve involvement.

Management

- Surgical excision should be carried out.
- Recurrence rate is 5 to 30% due to hypocellularity

2.MUCOEPIDERMOID CARCINOMA

- Most common salivary gland malignancy
- 5-9% of salivary neoplasms
- Parotid 45-70% of cases
- Palate 18%
- 3 rd-8th decades, peak in 5th decade
- F>M
- Caucasian > African American

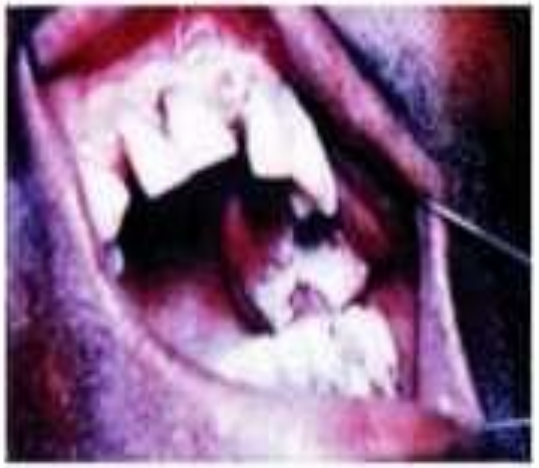


Figure 14.23: Intraoral ulceration seen on left side due high grade mucoepidermoid tumor

Clinical feature

- Low-grade: slow growing, painless mass
- High-grade: rapidly enlarging, +/- pain . Ulceration is seen in cases which have an aggressive clinical course.
- It tends to infiltrate the surrounding tissues in high percentage .
- Distant metastases to lungs, bones, brain and

Management

- Influenced by site, stage, grade
- Stage I & II -Wide local excision
- Stage III & IV -Radical excision neck dissection, postoperative radiation therapy

3.ACINIC CELL CARCINOMA

- Acinic cell carcinomas are made up of well differentiated acinar cells. It is also called as 'acinic cell or serous cell adenoma'.

Clinical Features

- It accounts for approximately 1% of all salivary gland tumors.
- It occurs in middle age and twice common in women.
- The most common intraoral sites are the buccal mucosa and

- It is painless and grows slowly.
- Size of lesion varies from 2-4 cm.
- Exact delineation of the lesion is difficult and attachment to the overlying skin and muscle may occur.
- Locally invasive growth may be encountered in some lesions

Management

- Surgical excision is done. Recurrence rate varies form 8 to 59%

MALIGNANT

1. CARCINOMA IN PLEOMORPHIC ADENOMA

- It is also called as 'malignant mixed tumor'. Malignant pleomorphic adenoma involves:

a) Carcinoma ex-pleomorphic

b) Carcinosarcoma

c) Metastasizing pleomorphic adenoma.

A) CARCINOMA EX-PLEOMORPHIC ADENOMA

- Carcinoma ex-pleomorphic adenoma is a tumor in which malignant transformation is seen in an existing beni

Clinical Features

- It accounts for 1% of all parotid tumors and 7% of all malignant tumors.
- The tumor occurs from 2nd to 9th decades, but most frequently in 5th and 6th decades.

- The tumors are usually larger than benign ones.
- There is fixation of the tumor to underlying structures as well as to overlying skin or mucosa.
- Pain is more frequent, than the benign pleomorphic adenoma.

Management

- Surgical excision should be carried out.
- This neoplasms exhibit a high recurrence rate after surgical removal & high incidence of regional lymph node

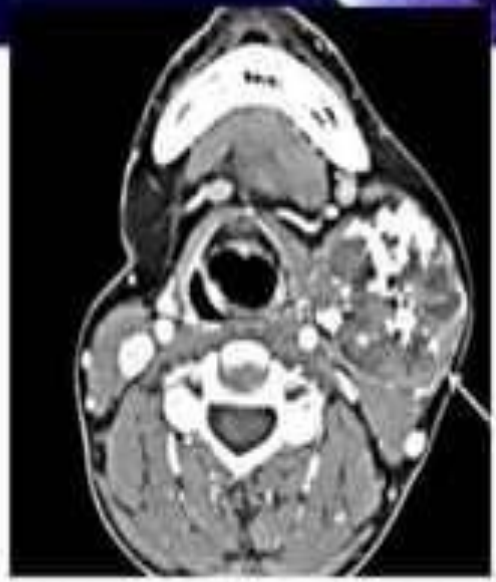
B) CARCINOSARCOMA

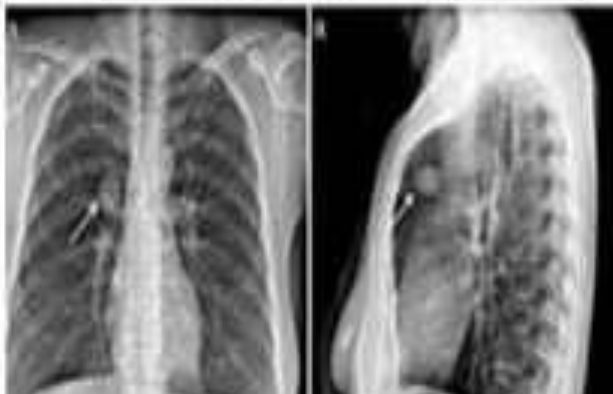
- Carcinosarcoma is considered as true malignant mixed tumor in which both the epithelial and stromal components fulfill the histologic criteria for malignancy.
- When these tumors metastasize both the components are seen in the metastasis similar to the primary lesion

C) METASTASIZING PLEOMORPHIC ADENOMA

- Metastasizing pleomorphic adenoma was initially called as "benign metastasizing mixed tumor".

- This tumor for unknown reasons metastasizes although histologically both epithelial and stromal components are benign in appearance





2. ADENO CYSTIC CARCINOMA [CYLINDROMA

- It is also called as 'cylindroma', 'adenocystic carcinoma' and 'baseloid mixed tumor'.
- Foot and fazelle proposed the term adenoid cystic carcinoma in 1953.
- It is a well defined entity which occurs in the major salivary glands and intraorally mostly in the palate.

Pathogenesis

- The ultrastructural studies have confirmed that the tumor originates from ductal and myoepithelial cells.
- Some workers have noted four cell types:
- Intercalated
- Secretory
- Myoepithelial
- Plutipotential reserve cells

Clinical Features

- Most common glands involved are the parotid, submaxillary and accessory glands in the palate and tongue.
- It occurs in the 5^{th} and 6^{th} decades of life.
- The most common initial symptom is the presence of mass followed by local pain, facial nerve paralysis in case of parotid tumor and tenderness.
- Fixation to skin and to surrounding structures may develop.

Management

- Surgical and in some cases it is accompanied by X-ray radiation.
- Recurrence rate is about 60 to 92 %. Long-term follow-up is essential.
- The incidence of metastases is more and the organs involved include cervical lymph nodes, lungs, brain, liver and kidneys.

3. MUCOEPIDERMOID

- It is most common salivary gland neoplasm and ranks second in frequency after pleomorphic adenoma.
- It accounts for 6 to 9% of the salivary gland tumors and for about 1/3rd of all malignant tumors of the salivary glands.
- It consists, of both, mucus secreting as well as epidermoid type of cells as its name suggests.
- The biologic behavior of the mucoepidermoid carcinoma is

Clinical Features

- About 60% occur in parotid gland and 30% in the minor salivary glands, especially those of the palate.
- Other common intraoral sites are buccal mucosa, tongue and retromolar area.
- It shows female predilection.
- It commonly occurs in the 3rd and 5th decade.
- It is usually not completely encapsulated and often contains

Management

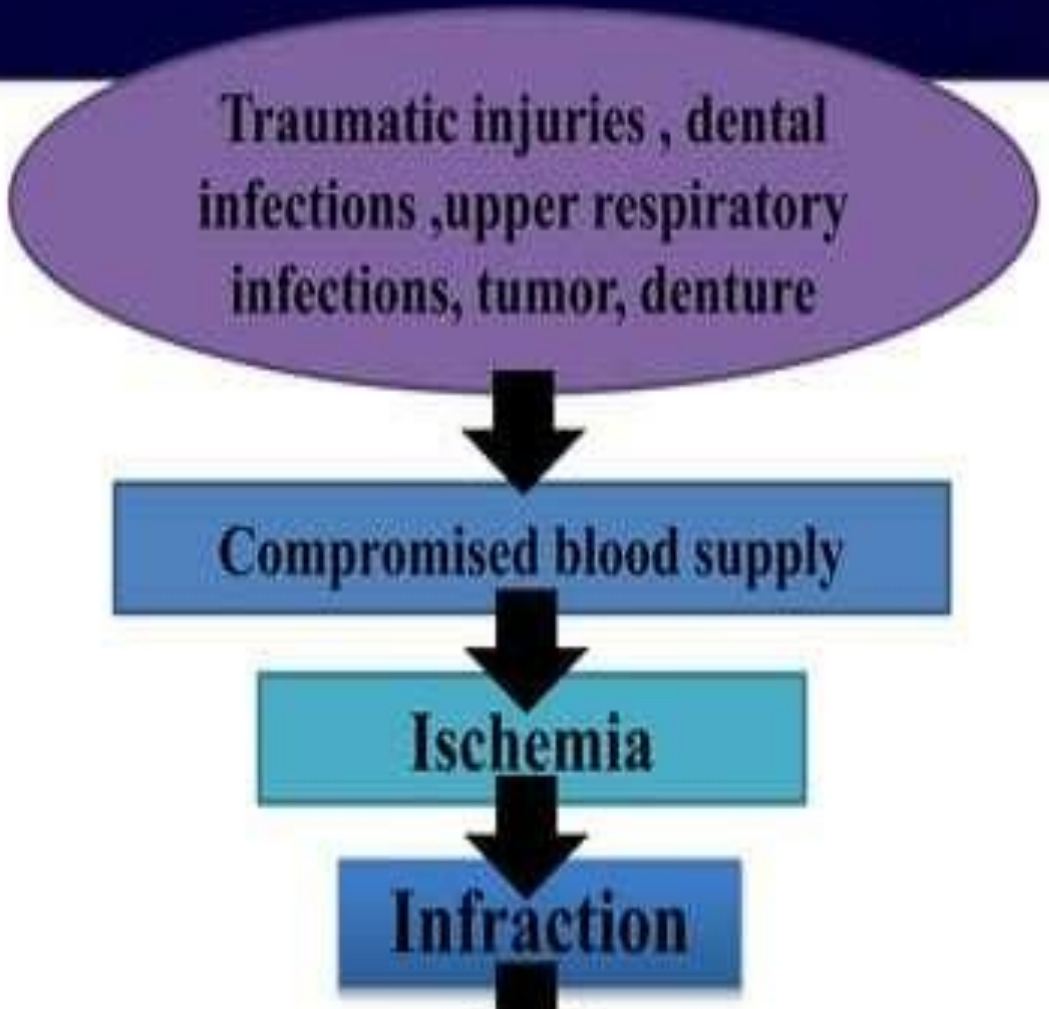
- Surgical excision followed by radiotherapy is recommended for intermediate grade tumors and high grade tumors.
- Low grade tumors can be managed by surgery alone.

MINOR SALIVARY GLAND TUMORS

Necrotizing Sialometaplasia

- It is a non-neoplastic inflammatory self-healing reaction of salivary gland tissues
- Which both clinically and histologically mimics a salivary gland malignancy.
- It usually affects the minor salivary glands.
- It was predicted that trauma caused ischemia of the minor

Etiology and Pathogenesis

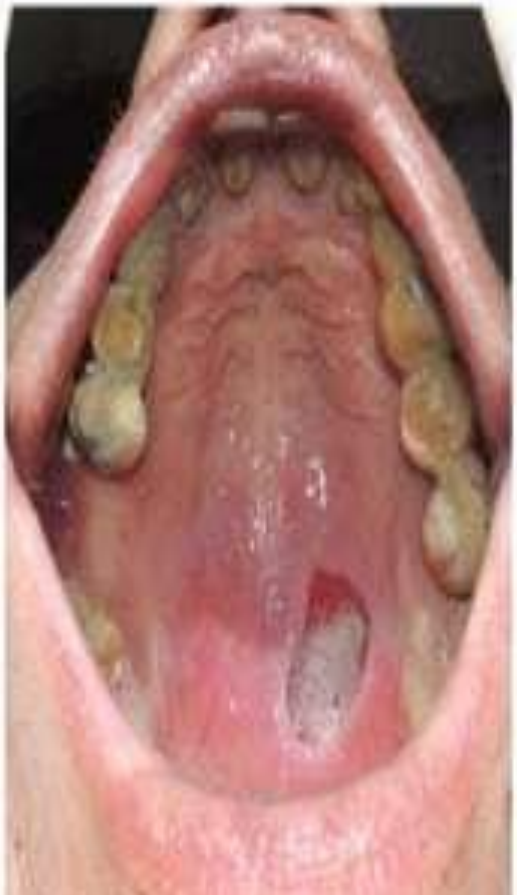


Clinical Feature

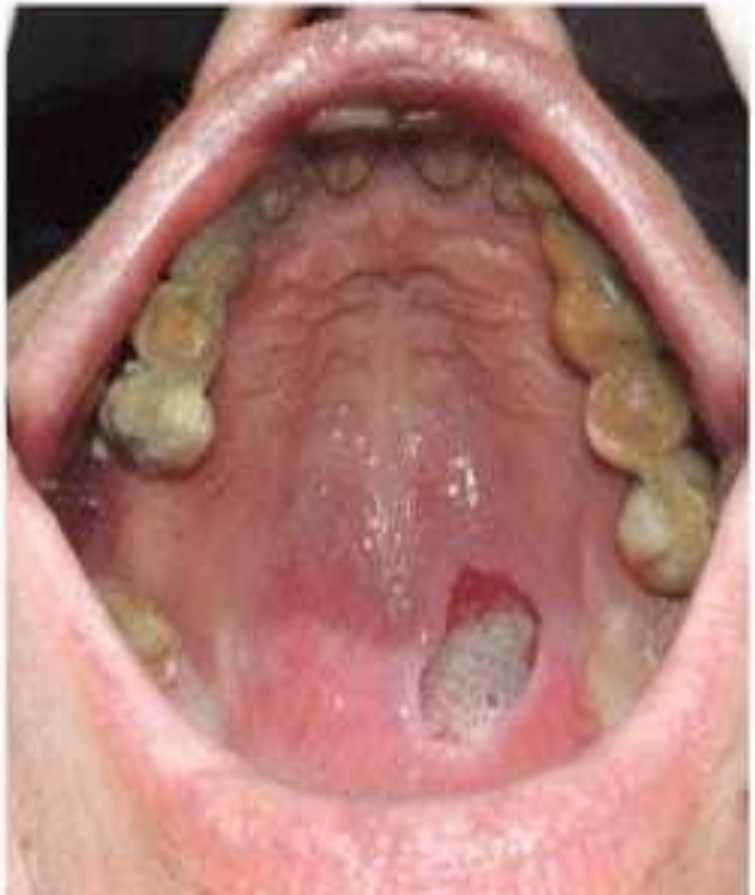
- It is more common in males than females.
- Occurs in 4th and 5th decade.
- Most of the cases occur in palate,lip or retromolar pad.
- There may be early mild swelling to more advanced and cancerous appearing ulcer.

- It is usually painless or may cause only slight pain.
- The patient may have numbness in the palate, or area of 'looseness' in palate.
- Pieces of tissue may fall out from the palate.
- There may be referred pain to ear or pharynx.
- The lesion begins as a larger ulcer or ulcerated nodule, which may be unilateral or bilateral.

- The ulcer is well demarcated from surrounding normal tissue and often has an inflammatory reaction around the edge of the lesion.
- Margins of the ulcer may be indurated and inflamed.
- The lesion is a deep, craterlike, nondraining ulcer 1 to 3 cm in diameter.



- The lesion is covered by an inflammatory exudate and necrotic debris
- The margins of ulcer are usually clean, sharp and the granulation tissue often seen at the superficial aspect.



Management

- It is a self-limiting condition.
- It does not require any treatment.
- The healing occurs in six to twelve weeks via secondary intention.
- Debridment and saline rinses may aid the healing process.

Referrence

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Thank
you