BDS Year 4 Regular batch
Academic Year 2023-2024
Subject: Oral Medicine & Radiology
Topic: SALIVARY GLAND DISORDERS
Part : I

Dr. Rashmi Venkatesh

Professor and HoD

Dept. of Oral Medicine and Radiology

K.M. SHAH DENTAL COLLEGE & HOSPITAL
Estd. 1999
Vadodara
SUMANDEEP VIDYAPEETH
Deemed to be University

CLASSIFICATION

SUMANDEEP VIDYAPEETH
Deemed to be University
Estd. 2007
Vadodara
विद्या विनयेन शोभते

BURKET'S

- **Developmental Abnormalities**
- -Accessory Salivary Ducts
- -Diverticuli
- -Aberrant SG
- **Obstructive**
- -Sialolithiasis (Salivary Stones)
- -Mucoceles
- **Inflammatory and Reactive Lesions**
- -Necrotizing sialometaplasia
- **Infectious**
- -Viral Diseases: mumps,CMV, hepatitis C, HIV
- -Bacterial sialadenitis

- **Systemic Conditions with Salivary Gland Involvement**
- **-Metabolic Conditions**
- **-Medication-Induced Salivary Dysfunction**
- **Immune Conditions**
- **-Miculikz's disease**
- **-SS**
- **Neoplastic**
- **-Benign**
- **-Malignant**

NEVILLE`S

- Reactive lesions- mucoceles
- Obstructive- sialolithiasis
- Inflammatory-B & V sialadenitis,cheilitis glandularis, necrotizing sialometaplasia
- Functional alterations- sialorrhea, xerostomia
- Immune defects- Mikulicz, SS
- Non-inflammatory- sialadenosis
- Neoplastic-

-Benign

-Malignant

K.M. SHAH DENTAL COLLEGE & HOSPITAL
Estd. 1999
Vadodara
SUMANDEEP VIDYAPEETH
Deemed to be University

DEVELOPMENTAL ANOMALIES

SUMANDEEP VIDYAPEETH
Deemed to be University
Estd. 2007
Vadodara
विद्या विनयेन शोभते

Aplasia (agenesis)

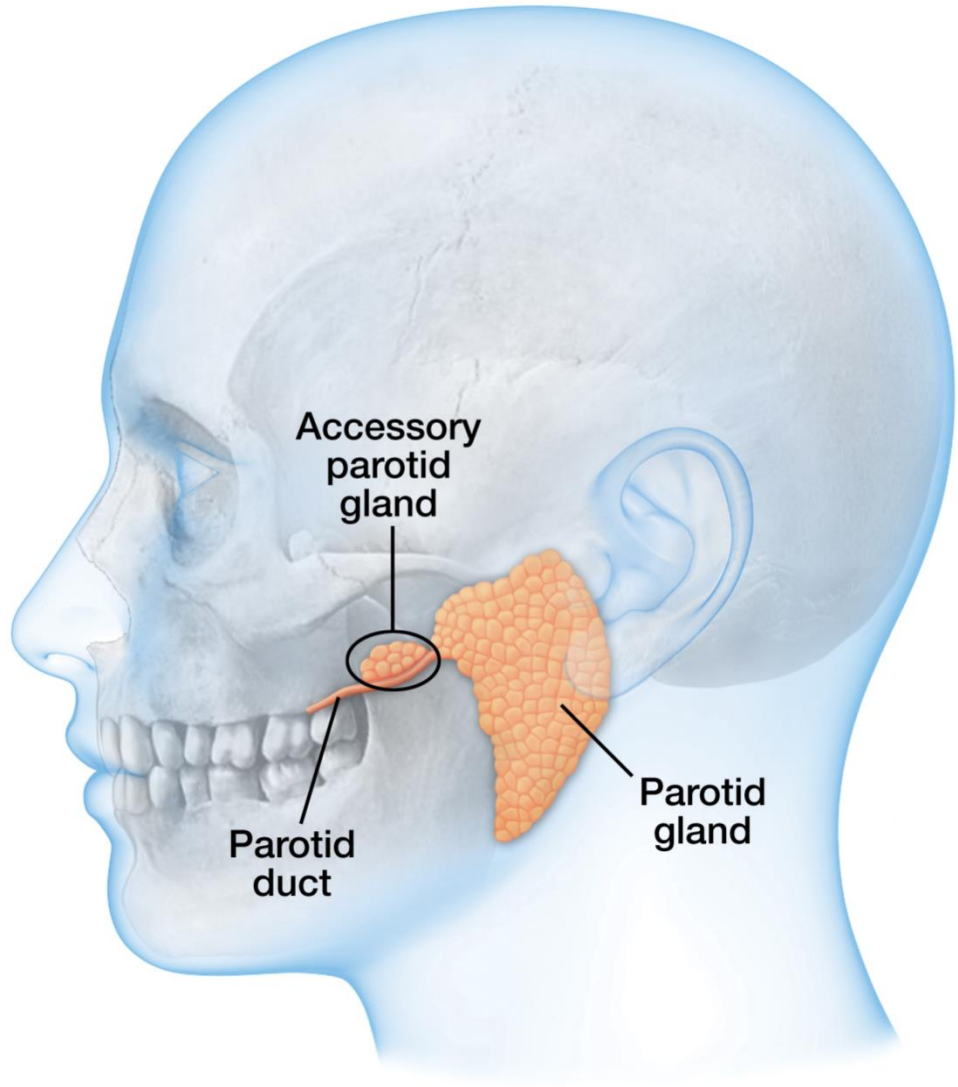
- Rare condition where there is complete failure of development of 1 or more major salivary gland.
- May be associated with other ectodermal dysplasias
- Patient may C/O xerostomia

Hypoplasia

- Relative under development of major SG
- Reported in Melkerson-Rosenthal Syndrome
- Etiology is unclear

Aberrancy (ectopic SG)

- Found farther from normal location
- Stafne's mandibular bone cavity
- Gingival SG choristoma
- In cervical neck region



Atresia

- Congenital occlusion or absence of one or more major SG ducts
- Results in formation of retention cyst
- May produce xerostomia

Accessory Salivary Ducts

- Accessory ducts are common and do not require treatment.
- The most frequent location is superior and anterior to the normal location of Stenson's duct.

Diverticuli

- By definition, a diverticulum is a pouch or sac protruding from the wall of a duct. Diverticuli in the ducts of the major salivary glands often lead to pooling of saliva and recurrent sialadenitis.
- Diagnosis is made by sialography.
- Patients are encouraged to regularly milk the involved salivary gland and to promote salivary flow through the duct.

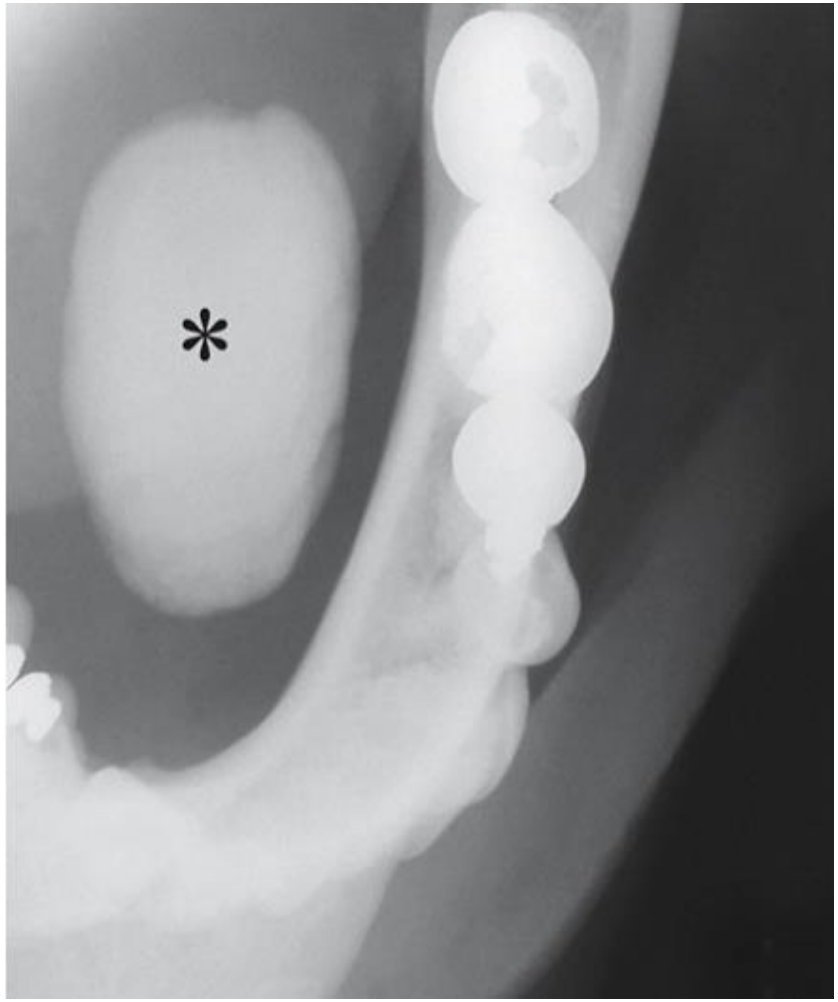
K.M. SHAH DENTAL COLLEGE & HOSPITAL
Estd. 1999
Vadodara
SUMANDEEP VIDYAPEETH
Deemed to be University

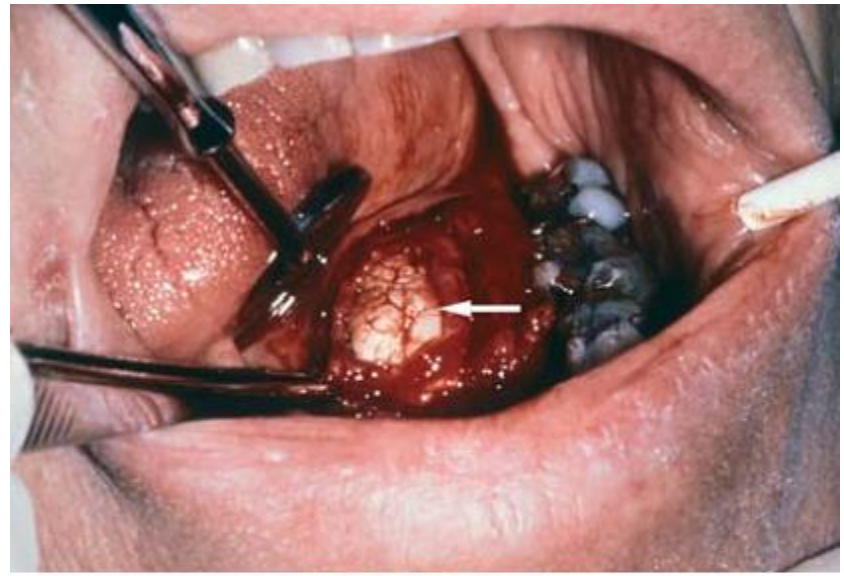
Obstructive disorders

SUMANDEEP VIDYAPEETH
Deemed to be University
Estd. 2007
Vadodara
विद्या विनयेन शोभते

Sialolithiasis (Salivary Stones)

- Sialoliths are calcified and organic matter that form within the secretory system of the major salivary glands.
- Inflammation, irregularities in the duct system, local irritants, and anticholinergic medications may cause pooling of saliva within the duct, which is thought to promote stone formation





- The submandibular gland is the most common site of involvement, and 80 to 90% of sialoliths occur in this gland.
- The parotid gland is involved in 5 to 15% of cases, and 2 to 5% of cases occur in the sublingual or minor salivary glands.
- It is believed that the higher rate of sialolith formation in the submandibular gland is due to

(1) the tortuous course of Wharton's duct,

(2) higher calcium and phosphate levels, and

(3) the dependent position of the submandibular glands, which leave them prone to stasis.

- Gout can cause salivary calculi composed of uric acid.

TREATMENT

- During the acute phase, therapy is primarily supportive. Standard care includes analgesics, hydration, antibiotics, and antipyretics, as necessary.
- surgical intervention
- By sisaloendoscopy
- Lithotripsy

Authors	Julie E. Strychowsky, MD; Doron D. Sommer, MD, FRCSC; Michael K. Gupta, MD, FRCSC; Natasha Cohen, MD; Oded Nahlieli, DMD
Title	**Sialendoscopy for the Management of Obstructive Salivary Gland DiseaseA Systematic Review and Meta-analysis** *Arch Otolaryngol Head Neck Surg.* 2012;138(6):541-547. doi:10.1001/archoto.2012.856. LEVEL 1A
Aim	To conduct a systematic review with meta-analysis to determine the efficacy and safety of sialendoscopy in the treatment of obstructive diseases of the salivary glands in adults.
Results	Twenty-nine studies were included in the analysis. The weighted pooled proportion of success rates were 0.86 (95% CI, 0.83-0.89) for studies involving 1213 patients undergoing sialendoscopy alone and 0.93 (95% CI, 0.89-0.96) for the 374 patients undergoing sialendoscopy with a combined surgical approach. Outcomes following interventional sialendoscopy for radioiodine-induced sialadenitis were reported in 3 studies, and success rates were variable.
Interpertation	Findings from the present systematic review and meta-analysis suggest that sialendoscopy is efficacious, safe, and gland preserving for the treatment of obstructive major salivary gland disease.

Mucoceles

- "Mucocele" - swelling caused by the accumulation of saliva at the site of a traumatized or obstructed minor salivary gland duct. Extravasation types and retention types.
- A large form of mucocele located in the floor of the mouth is known as a ranula
- Discrete painless smooth-surfaced swellings that can range from a few millimeters to a few centimeters in diameter.
- Superficial lesions frequently have a characteristic blue hue. Deeper lesions can be more diffuse and can be covered by normal-appearing mucosa without the distinctive blue color.

Mucocele in lower labial mucosa

EXTRAVASATION MUCOCELES

- The formation of an extravasation mucocele is believed to be the result of trauma to a minor salivary gland excretory duct.
- Laceration of the duct results in the pooling of saliva in the adjacent submucosal tissue and consequent swelling.
- The extravasation type of mucocele is more common than the retention form. Although often termed a cyst, the extravasation mucocele does not have an epithelial cyst wall or a distinct border.
- most frequently occur on the lower lip,where trauma is common.
- The treatment of choice is surgical excision

RETENTION MUCOCELES

- A ranula is a large mucocele located on the floor of the mouth. Ranulas may be either mucous extravasation phenomena or mucous retention cysts and are most commonly associated with the sublingual salivary gland duct
- The retention mucocele is caused by obstruction of a minor salivary gland duct by calculus or possibly by the contraction of scar tissue around an injured minor salivary gland duct.
- The blockage of salivary flow causes the accumulation of saliva and dilation of the duct.
- Eventually, an aneurysm-like lesion forms, which can be lined by the epithelium of the dilated duct.
- More commonly located on the palate or the floor of the mouth.
- The treatment of choice is surgical excision

RANULAS

- Etiology- trauma, obstructed salivary gland or a ductal aneurysm.
- The term “ranula” is used because this lesion often resembles the swollen abdomen of a frog.
- painless, slow growing, soft, and movable mass located in the floor of the mouth.
- Like mucoceles, superficial ranulas can have a typical bluish hue, but when the lesion is deeply seated, the mucosa may have a normal appearance

RANULAS

- Larger lesions can cause deviation of the tongue.
- A deep lesion that herniates through the mylohyoid muscle and extends along the fascial planes is referred to as a plunging ranula and may become large, extending into the neck.
- Ranulas are usually treated surgically.
- Marsupialization
- Intralesional injections of corticosteroids

K.M. SHAH DENTAL COLLEGE & HOSPITAL
Estd. 1999
Vadodara
SUMANDEEP VIDYAPEETH
Deemed to be University

Inflammatory and Reactive Lesions

SUMANDEEP VIDYAPEETH
Deemed to be University
Estd. 2007
Vadodara
विद्या विनयेन शोभते

NECROTIZING SIALOMETAPLASIA

- Necrotizing sialometaplasia is a benign self-limiting reactive inflammatory disorder of the salivary tissue.
- Clinically, this lesion mimics a malignancy
- Etiology-local ischemia
- Rapid onset. Lesions occur predominately on the palate
- Lesions initially present as a tender erythematous nodule. Once the mucosa breaks down, a deep ulceration with a yellowish base forms. Even though lesions can be large and deep, patients often describe only a moderate degree of dull pain
- Patient feels as if his palate is falling off.

- Biopsy-Necrosis of the salivary gland, pseudoepitheliomatous hyperplasia of the mucosal epithelium, and squamous metaplasia of the salivary ducts are seen. No malignant cells are seen
- Necrotizing sialometaplasia is self-limiting, lasts approximately 6 weeks, and heals by secondary intention.

Cheilitis glandularis

- Enlarged lower lip, adult males
- Etiology is unknown
- Labial Salivary glands become enlarged & some times nodular, the orifices of secretory ducts are inflammed & dilated
- 3 types- simple, superficial suppurative & deep suppurative

K.M. SHAH DENTAL COLLEGE & HOSPITAL
Estd. 1999
Vadodara
SUMANDEEP VIDYAPEETH
Deemed to be University

Non-inflammatory conditions

SUMANDEEP VIDYAPEETH
Deemed to be University
Estd. 2007
Vadodara
विद्या विनयेन शोभते

Sialadenosis (sialosis)

- Is a condition characterized by non-inflammatory, non-neoplastic, recurrent bilateral swelling of SGs.
- Parotid gland is most commonly involved
- Associated with underlying systemic conditions
- Endocrine - DM, DI, acromegaly, hypothyroidism, pregnancy
- Nutritional - malnutrition, alcoholism, anorexia & bulemia
- Neurogenic medications – anti-hypertensives, psychotropics, etc

- **DIABETES**
- **ANOREXIA NERVOSA/BULIMIA**
- **CHRONIC ALCOHOLISM**

RADIATION-INDUCED PATHOLOGY

- Effects of External-Beam Radiation-Doses of ≥ 50 Gy will result in permanent salivary gland damage and symptoms of oral dryness.
- Xerostomia, Mucositis, Radiation caries, candidiasis and sialadenitis, osteonecrosis
- Amifostine approved as a radioprotective agent preservation of salivary function and for the reduction of dry mouth in patients undergoing radiation treatment for head and neck cancer when the radiation port includes a substantial portion of the parotid glands.
- scavenging of free oxygen radicals.

RADIATION-INDUCED PATHOLOGY

- **Effects of Internal Radiation Therapy-**
- **Radioactive iodine is taken up not only by thyroid tissue but also by the oncocytes in salivary gland tissue. Radioactive iodine can cause permanent salivary gland damage and fibrosis resulting in salivary gland hypofunction**
- **Patients is allowed to suck on lemon drops or chew gum to stimulate salivary flow. This will aid in clearing the radioactive iodine from the salivary glands and will potentially decrease salivary gland damage.**

ALLERGIC SIALADENITIS

- associated with exposure to various pharmaceutical agents and allergens.
- include phenobarbital, phenothiazine, ethambutol, sulfisoxazole, iodine compounds, isoproterenol, and heavy metals.
- The possibility of infection or autoimmune disease should be considered.
- Allergic sialadenitis is self-limiting. Avoiding the allergen, maintaining hydration, and monitoring for secondary infection are recommended.

REFERENCES

- Brad W. Neville, Douglas D. Damm, Carl M. Allen, Jerry E. Bouquot. Oral and Maxillofacial Pathology. Philadelphia: W. B. Saunders Company;1995.
- Christopher LB Lavelle. Applied oral physiology. 2nd ed. Bristol: Butterworths & Co.; 1988.
- John E De Burgh Norman, Mark Mc Gurk. Color atlas and text of the salivary glands. London: Mosby- Wolfe; 1995.
- Martin S. Greenberg, Michael Glick. Burket's Oral Medicine: Diagnosis and Treatment. 10th ed. Hamilton: BC Decker Inc; 2003.
- Soames J V, Southam J C. Oral Pathology. 2nd ed. New York: Oxford Medical Publications; 1993.

JOURNALS

- Chaudhry AP, Vickers RA, Gorlin RJ. Intraoral minor salivary gland tumours – an analysis of 1414 cases. Oral Surg Oral Med Oral Pathol 1961; 14:1194-226.
- Fadi Chahin. Salivary gland tumours, major, benign. [Online]. [Cited 2005 Nov 15]. Available from: URL: http://www.emedicine.com/ med/topic 2789. htm
- Fadi Chahin. Salivary gland tumours, minor, benign. [Online]. [Cited 2005 Nov 10]. Available from: URL: http://www.emedicine.com/ med/topic 2790. htm
- Lazow sk et al. An unusually large pleomorphic adenoma of soft palate – case report. Oral Surg Oral Med Oral Pathol 1984; 58:326.
- Mayumi Shimizu et al. Statistical study for sonographic differential diagnosis of tumourous lesions in the parotid gland. Oral Surg Oral Med Oral Pathol 1999;88:226-33.
- Ronald B Kuppersmith. Minor salivary gland tumours. [Online]. [Cited 1995 jun 28]. Available from: URL: http://www.bcm.edu/oto/grand/62895.html
- Teymoortash et al. Clinical features of Warthins tumour of parotid gland- a retrospective comparative study of 96 cases. Oral Oncology 2006; 42: 569-73.

SUMANDEEP VIDYAPEETH
K M SHAH DENTAL COLLEGE AND HOSPITAL

ASSESSMENT

- 1 Necrotizing sialometaplasia is a malignant SG disorder?
  - a. True
  - b. False
- 2. Mucocele with epithelial lining
  - a. Extravasation type
  - b. Retention Type
  - c. Both
  - d. None
- 3. Amifostine is
  - a. Sialogogue
  - b. Radioprotective agent
  - c. Radiosensitive agent
  - d. none of the above

- **4. Aberrancy is**
  - **a. Sac in SG duct**
  - **b. Ectopic SG**
  - **c. Hypoplastic SG**
  - **d. None**

- **5. Sialolith is common in which salivary gland?**
  - **a. parotid gland**
  - **b. submandibular gland**
  - **c. sublingual gland**
  - **d. Minor SG**

SUMANDEEP VIDYAPEETH
K M SHAH DENTAL COLLEGE AND HOSPITAL

Thank You