SALIVARY GLAND DISORDERS

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OBJECTIVES:

- LECTURE OUTLINE
- 1.Anatomy and Physiology
- 2.Diagnostic Modalities
- 3 Pathology
  - 1.Obstructive salivary disease
  - 11.Mucous retention/extravasation phenomenon
  - 111.Salivary gland infections

Contd.

- 1V.Necrotizing sialometaplasia
- V Sjorgrens Syndrome
- V1. Traumatic injuries
- V11 Neoplastic
  - Benign
  - malignant

- Goal: Introduce the diagnosis and management of salivary gland disorders
- Outcome: At the end of this lecture the attendant should be able to :
  - 1. Verbalize understanding of salivary gland pathology
  - 2. Evaluate and diagnose salivary gland disease

- 3. Select appropriate treatment modality for specific salivary gland disease

Sources:Principles of Oral and Maxillofacial Surgery Vol. 2 Peterson

Contemporary Oral and Maxillofacial Surgery 3rd Edition

Maxillofacial infections,Topazian

Anatomy and Physiology

- Major salivary glands:
  - Parotid
  - Submandibular
  - Sublingual

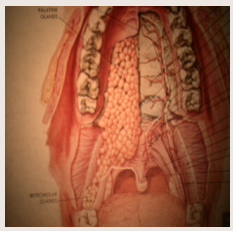
Develop in utero at day thirty five

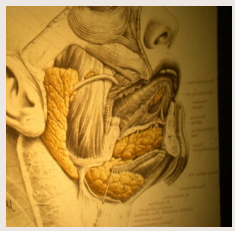
Minor salivary gland:

named according to location , approximately 800-1000,develop in utero at fortieth day.

- Glands are composed of secretory cells call acini:
  - Serous- thin watery secretion
  - Mucus- thick viscous secretion

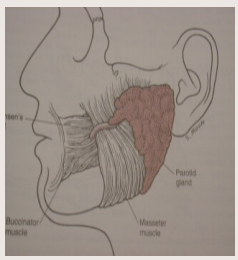
  The minor glands produce mainly serous secretion





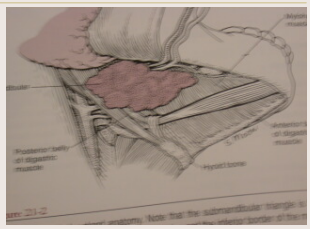
Parotid

- Located in the preauricular area
- Contains primarily serous acini and few mucus acini
- Major duct is Stensen's
- Innervation :glossopharyngeal nerve



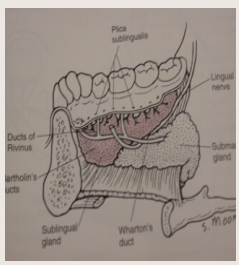
Submandibular Gland

- Located in submandibular triangle
- Major duct is Whartons



Sublingual Gland

- Lies in the sublingual space on superior aspect of mylohyoid muscle.
- Multiple ducts close to the gland-Bartholin's which coalesce to form ducts of Rivinus
- Innervation:chorda tympani



Salivary function

- Lubrication for speech and mastication
- Produce enzyme for digestion
- Antibacterial
- Saliva production varies 1-1.5L per day,
- Submandibular gland produces 70%,parotid 25% and sublingual 3-4%
- Minor glands produce only trace amounts

Diagnosis

- History and physical exam
  - Duration of symptoms
  - Long duration with remissions and exacerbationsis probability inflammatory
  - Long duration, slow steady growth, usually benign
  - Short duration and painless suggest malignancy

onset

- Continuous,gradual painless enlargement

suggest tumor

Sudden and painful-inflammation

Acute swelling and pain at mealtime with post meal reduction-ductal obstruction

Past medical history

- Previous stones
- Medications
- Systemic disease
  - Diabetes mellitus
  - Alcoholism
  - Malnutrition
  - Thyroid insufficiency

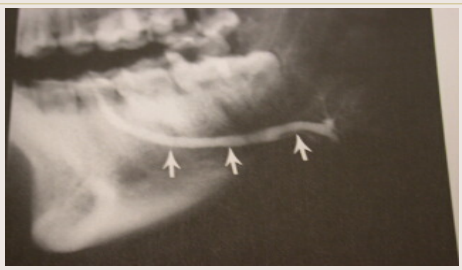
radiology

- Plain films
  - Occlusal and panoramic

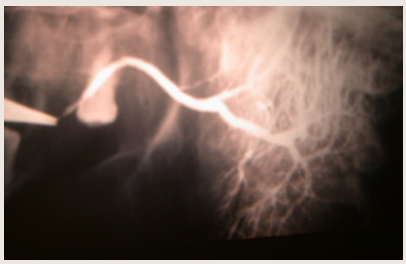
sialography

- Lachrymal probes

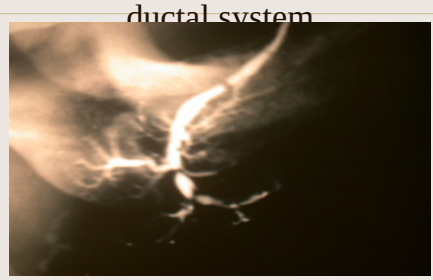
Filling film/ sialolith of duct



Normal sialogram/parotid

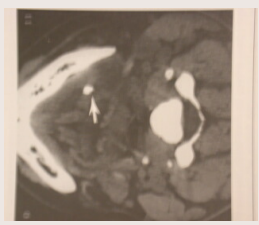


Chronic sialodochitis sausage link appearance of ductal system



Benign tumor/ball in hand

- Computed tomography
- Magnetic resonance imaging



- Ultrasound
  - Least invasive, tells if mass is cystic or solid

  Scintigraphy

  radioisotope scanning evaluates gland mass lesion as well as function of the gland

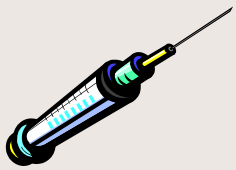
  Poor resolution

Diagnosis contd.

- Sialochemistry
  - Evaluates principally the concentration of sodium and potassium ,increased sodium and decreased potassium indicates an inflammatory process

Fine needle aspiration

- High accuracy and quick results in identifying malignant vs. benign



biopsy

- Incisional and excisional
- Determine histological pattern
- Aid in diagnosis of Sjorgens disease

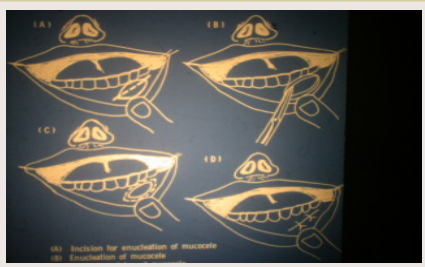
Pathology

- Obstructive
- Inflammatory
- Infectious
- Neoplastic
- traumatic

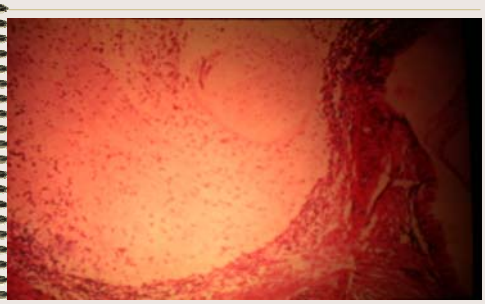
Obstructive mucocele

- Traumatic origin
- Lip/cheek biting extravasation of fluid into surrounding tissues
- Lined by fibrous connective tissue

Excision of mucocele



Mucocele/retention cyst

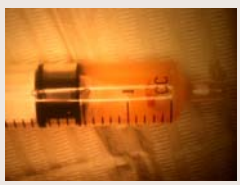


Ranula

- True retention cysts
- Simple or plunging
- Mechanisms:
- partial obstruction of distal end of duct-epit. Lined cyst(mucous – retention cyst)
- Disruption of the duct(psuedocyst)

Ranulas may rupture ,but will recur

- Treatment:
  - Excision of gland and ranula
  - Marsupilialization(Partsch technique)



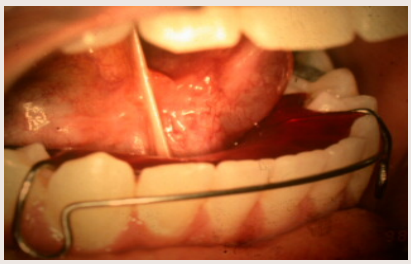
Marsupialization is initial treatment of choice

- Fluid exchange to outline cavity
- Alginate material of choice

- Excise superior wall of cyst
- Suture inner wall of mucosa to floor of mouth
- Lesion heals by secondary intention
- High recurrence rate

Ranula associated with sublingual gland

Overextended retainer



Alginate to outline lesion

Gland removed/decussation of lingual nerve/Wharton's duct

sialolithiasis

- Peak formation age 30-50
- Presence of stone within the ductal system
- Most often associated with submandibular gland:
  - Alkaline pH
  - Greater concentration of Ca and PO4 apatites
  - Mucus content
  - Anatomy of duct

management

- Acute phase-supportive
- Sialodochoplasty
- Sialadenectomy
  - Recurrent stones
  - Non-functional gland
  - Stones in the hilum or parenchyma of gland

Excision of submandibular gland

- Extraoral approach
- 1.5-2cm below mandible to avoid marginal mandibular nerve
- Ligate facial vein, artery and duct

Gland pulled downward

- Superior-inferior
  - Lingual nerve
  - Submandibular duct
  - Hypoglossal nerve

Ligation of duct

- Recc: double ligation of duct
- Transect close to posterior border of mylohyoid muscle

Inflammatory

- Acute suppurative
  - Elderly, malnourished
  - Staph. Aeurus is offending organism
  - Fever, luekocytosis and purulent drainage

  Treatment:

  hydration

  Penicillase-resistant antistaphylococcal ab.

  Surgical drainage

Acute supparative sialadenitis

- Sudden onset of swelling
- Purulent drainage
- Fever
- Treatment:
- Hydration
- Antibiotics
- Sialogogues eg. Lemon drops, salagen

Chronic sialadenitis

- High incidence in females
- Associated with Sjorgen's, progressive childhood parotitis
- Chronicity leads to destruction of glandular parenchyma
  - Sialography shows sialectic pattern
  - Unilateral/bilateral swelling if parotid

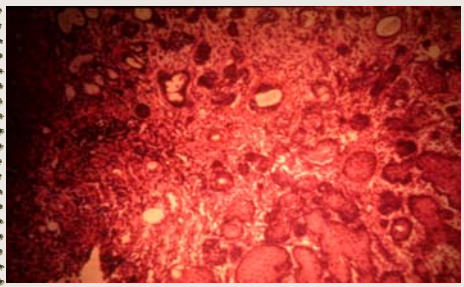
Contd.

- Sialectic pattern
- Treatment:
- Antibiotics
- Antibiotics and I and D
- Dilatation of duct
- Surgical removal of gland(sialadenectomy

Necrotizing sialometaplasia

- Reactive inflammatory disorder
- Infarction of blood vessels supplying the salivary glands leading to necrosis
- Seen at junction of hard and soft palate
- Painful/painless ulcerations
- Causes: trauma,dental injections,smoking, DM, pressure from denture prosthesis.

Preservation of architecture, infarcted mucus glands



Immunologic

- Sjorgen's syndrome(SS)
- Strong female predilection
- Two types:
- -primary/ sicca syndrome
  - Xerostomia, keratoconjunctivitis sicca

  Secondary ss

  xerostomia,keratoconjunctivitis sicca, rheumatoid arthritis

Non-inflammatory (sialadenosis)

- Non inflammatory,non-neoplastic enlargement of salivary glands
- Nutritional
  - Bulima(acini smaller than duct)
  - Anorexia (duct and acini are same size)

  Alcohol induced

  fatty infiltration

  Drug induced

  iodine and heavy metals

Tumors

- Most occur in the parotid-75%
- Minor glands15-20%
- Submandibular gland-5-10%
- Sublingual gland has highest ratio of malignancy

Benign tumors

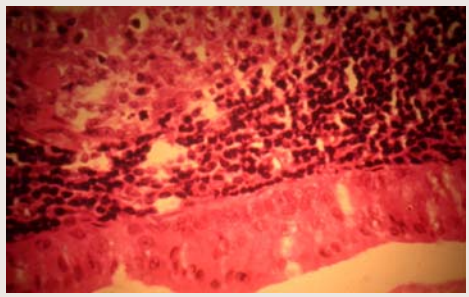
- Pleomorphic adenoma
  - 80% parotid
  - 5% risk of malignant transformation
  - Most common epithelial tumor

  Warthins(papillary cystadenoma lymphomatosum)

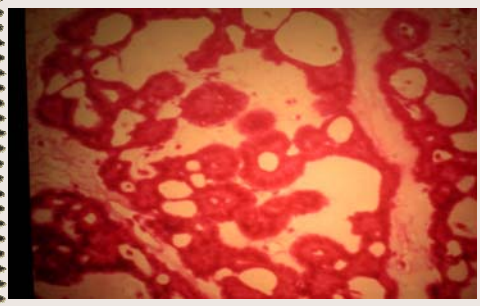
  -almost exclusively parotid

  Monomorphic adenoma(canalicular adenoma)

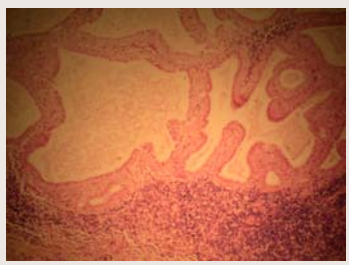
Warthin's tumor hi-power



Canalicular adenoma

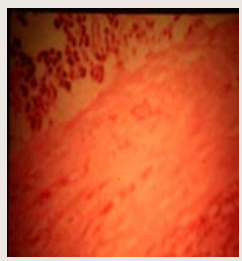


Warthin's tumor- low power



Pleomorhic adenoma

Infiltration of capsule



Malignant tumors

- Mucoepidermoid Ca
  - Most common
  - Mainly parotid 69%
  - Palate 15%
  - Submandibular 7%

  Adenoid cystic

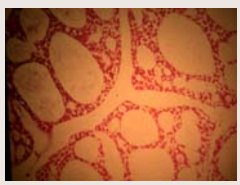
  Polymorphous low grade adenocarcinoma

Adenoid cystic carcinoma of the palate

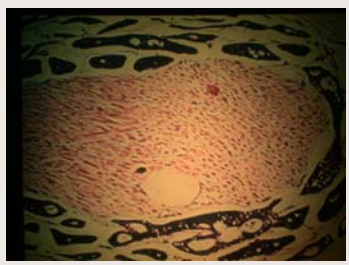
- Relative slow growing
- Perinueral invasion
- violation of mucosa is an omnious sign
- Parotid is favored site
- 4% of all salivary gland tumor

Adenoid cystic

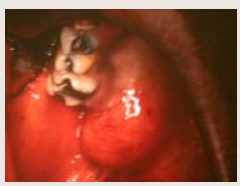
- Hyperchromatic cell
- Cribiform-low grade
- Tubular(duct-like)-low grade
- Solid-aggressive

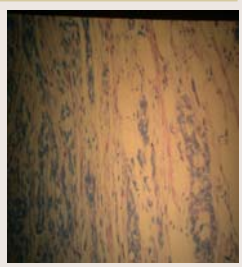


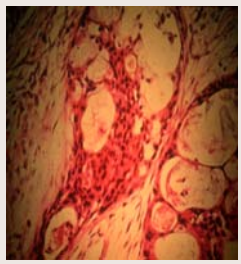
Perinueral invasion

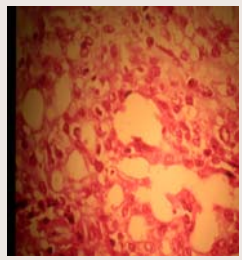


- Polymorphous low grade adenocarcinoma of soft palate
- Minor salivary gland
- Minimal metastasis



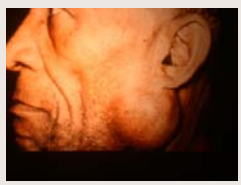




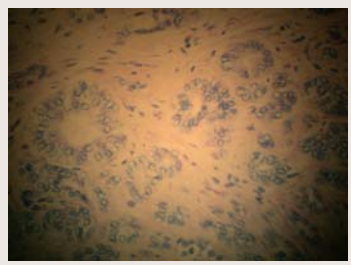


Mucoepidermoid carcinoma/parotid

- Mean age is 45 years
- Male to female 3:2
- Tumor graded by cell type:
  - High grade
  - High content of epidermoid cells,aggressive
  - Intermediate
  - Low grade ,mostly mucus



Mucoepidermoid carcinoma



Case report

sialilolithiasis

Purulent drainage from wharton's duct and pain at meal time

Cannulation of duct

Sialolith in duct

Extracted sialolith