Sri Aurobindo College of Dentistr

Indore, Madhya Pradesh

INDIA

MODULE PLAN

- TOPIC :SALIVARY GLAND DISORDERS
- SUBJECT:ORAL SURGERY
- TARGET GROUP: UNDERGRADUATE DENTISTRY
- MODE: POWERPOINT – WEBINAR
- PLATFORM: INSTITUTIONAL LMS
- PRESENTER: DR.GEETI V. MITRA

Pathology of the Salivary Glands

Embryology

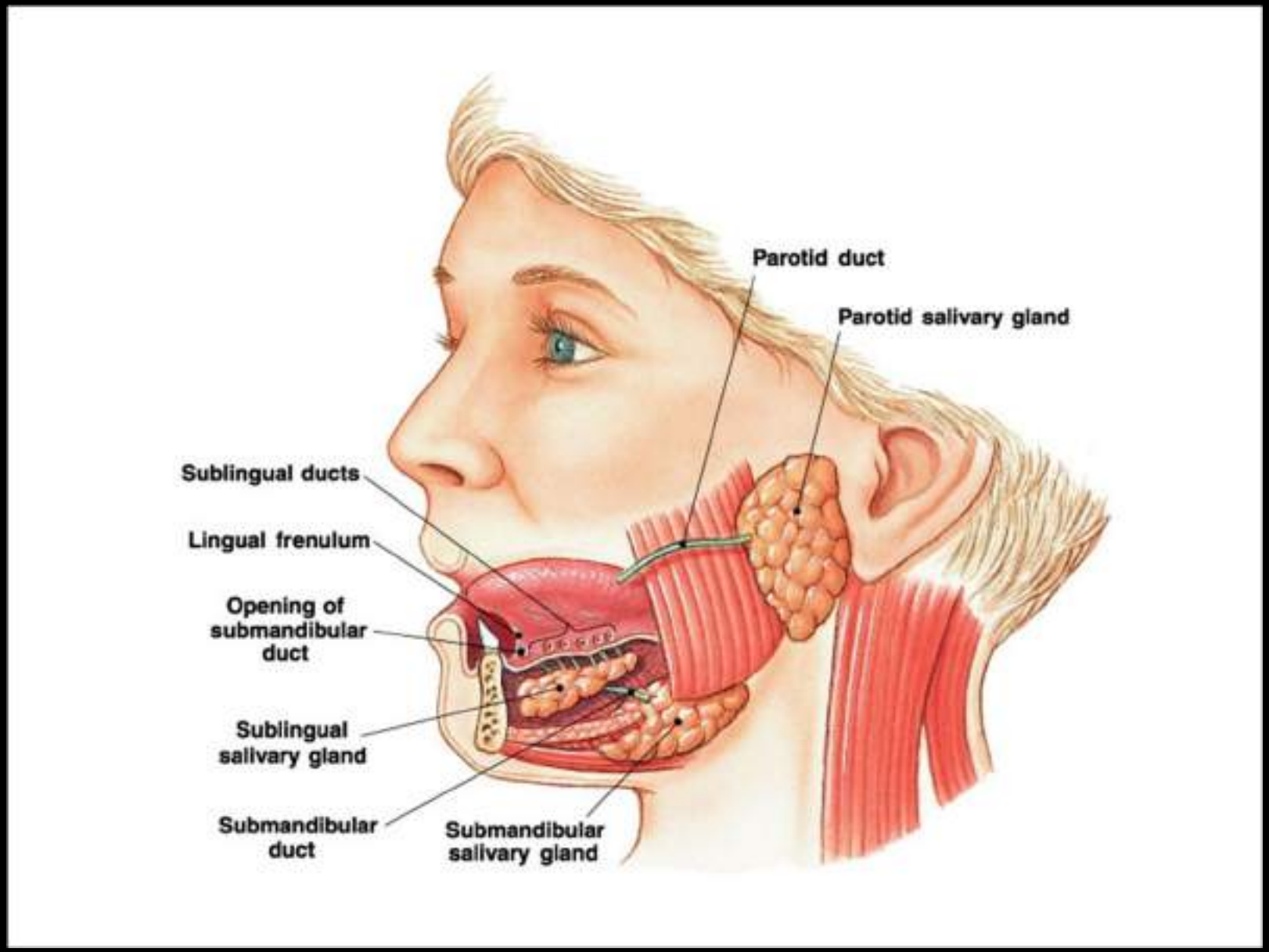
- Classification of acinar cells
- Serous: producing thin watery, serous secretions
- Mucous: producing a thicker, viscous, mucous secretion

Embryology

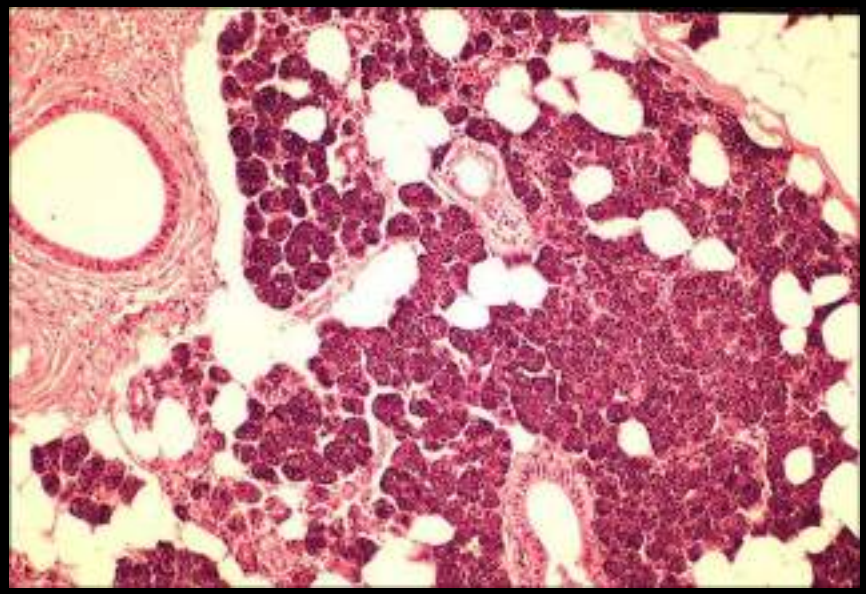
- Major salivary glands – begin to develop around the 35th day in utero
- Minor salivary glands slightly later – around the 40th day in utero
- At around the 7th or 8th month in utero, secretory cells called acini begin to develop around the ductal system

Surgical Anatomy

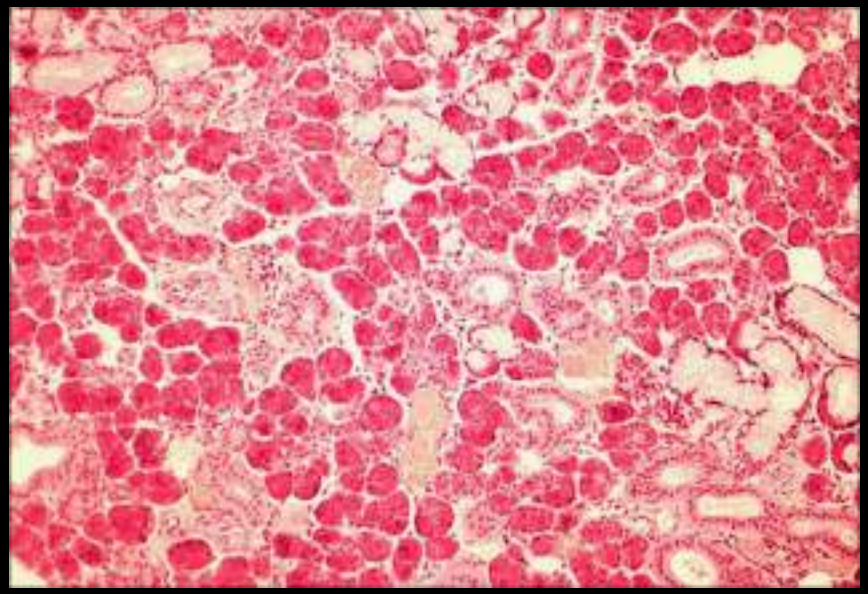
- Parotid
- Submandibular
- Sublingual


Parotid duct
Parotid salivary gland
Sublingual ducts
Lingual frenulum
Opening of submandibular duct
Sublingual salivary gland
Submandibular duct
Submandibular salivary gland

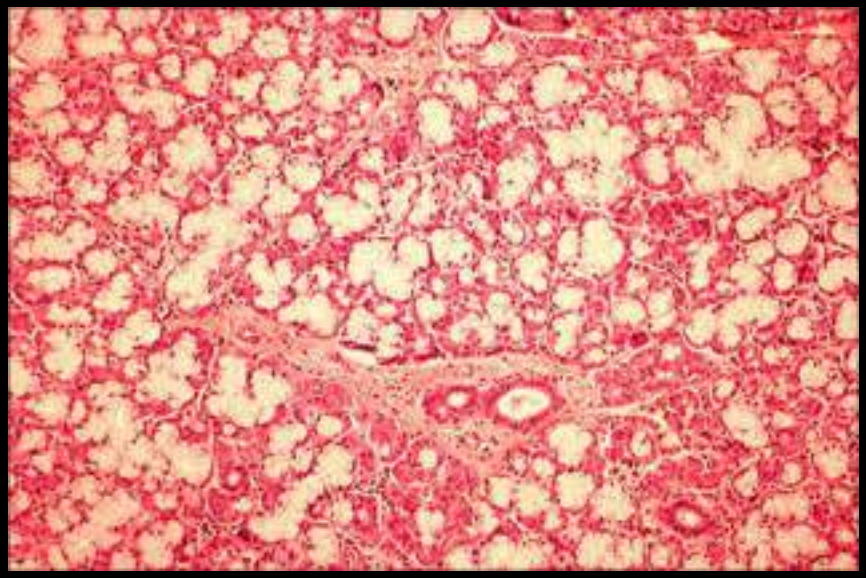
Parotid Gland



Submandibular Gland



Sublingual gland



Classification

- Congenital
- Inflammatory
  - Acute
    - Suppurative (Bacterial)
    - Non-suppurative (Viral)
- Infections
  - Viral and Bacterial

Classification

- Obstructive
  - Sialoloth, Mucocele
- Traumatic
- Neoplastic
  - Benign – pleomorphic adenoma
  - Malignant - Adenocarcinoma
- Autoimmune
  - Sjogren's syndrome
- Degenerative
  - Radiation changes

Diagnostic aids

- Pus for culture and sensitivity
- Sialochemistry / Sialometry
  - Enzyme concentration & detection
  - Ion estimation
  - Histocompatibility antigen (HLA titre)

- Radiographic examination / Diagnostic imaging
  - Sialography
  - Radionucleotide scanning (Tc 99m injection to differentiate between inflammatory and neoplastic)
  - Ultrasonography
  - CT
  - MRI
  - CT/ MRI sialography
  - Xeroradiography

Biopsy

- FNAC / FNAB
- Incision Biopsy
- Excision Biopsy

- FNAC & incision biopsy are contraindicated in parotid gland because
  - Increased chance of seeding
  - Risk of facial nerve injury by the needle
  - Second surgery becomes difficult due to fibrosis due to previous surgery

Clinical judgement of benign & Malignant lesions

- Malignant tumours are diagnosed as having
  - Facial palsy
  - Pain
  - Fixity to underlying structures
- Frozen section biopsy
  - Facial

Sialography

- Radiographic visualisation of the acinar & ductal tree of the parotid & submandibular gland by intraductal introduction of radiopaque dye

Indications & advantages of Sialography

1. Chronic inflammatory conditions
2. Salivary obstructive diseases
3. Calculi / foreign body
4. Penetrating trauma

Indications & advantages of Sialography

5. Mass lesions

6. Ductal strictures

7. Functional capacity of the gland

8. Neoplasms

Indications & advantages of Sialography

9. Differentiate between benign & malignant

10. Therapeutic value

11. Differentiate intraglandular lesion

Contraindications & Disadvantages

- Acute sialadenitis
- Allergy to iodine
- Thyroid tests to be done before sialography
- Disadvantages
- Small lesions cannot be visualised
- Invasive procedure

Armamentarium

- 20cc glass syringe
- Plastic tube
- Contrast media
- Graded lacrimal probe
- Sialographic cathether adaptor & cannula

- Water based
  - UROKON – Sodium acetrizoate
  - HYPAQUE – Sodium diatrizoate
  - Renograffin

Advantages

1. Mixes with body fluids
2. Homogenous film
3. Finer details can be made out
4. Rapidly eliminated
5. No granulation

- Oil based
  - Halogenated oil
    - Lipiodol
    - Iodochol
  - ETHIODOL
  - CONRAY 60
  - PENTOPAQUE
  - HYLRAST

Advantages

1. Easy handling
2. Therapeutic value
3. Excellent visualisation

- Water based – disadvantages
  - Less opaque
  - Difficult to handle
  - No therapeutic value
- Oil based – disadvantages
  - Granulation reaction
  - Retained for longer time
  - Not homogenous
  - Difficult to inject

Sialography - Technique

1. Antiseptic mouthwash

2. Locate duct orifice
    1. By stimulation of saliva
    2. Massaging
    3. Milking the duct
    4. Sialogogues
    5. Lacrimal probe

- Pull the cheek because of the natural bend proximal to the orifice

- Cannulation
  - Inject 0.8 ml for parotid
  - Inject 0.6 ml for submandibular

Stop when the patient feels pain

7. Radiographs

    1. Survey
    2. Immediately after injecting
    3. After 5 minutes - empty period
    4. After 24 hours

    5. If visible after 24 hours then the gland is atrophied

Sialographic picture

- Normal – leafless branch of a tree
- String of Sausages
- Sjogren's syndrome- multiple fruit laden tree
- 'Apple tree in blossom' – Sialadenitis, Sjogren's syndrome

- Sialolith : Filling defect
- “Ball in hand appearance” – benign neoplastic mass

- Sialography is best suited to evaluate calculi, obstruction, sialectasis & the determination of mass

Radiographs

- Parotid
  - P.A view
  - Lateral oblique
  - A.P
  - A.P with jaw open
  - Lateral
  - A.P with cheek blown
  - Reverse basilar
  - OPG
- Submandibular
  - True lateral
  - Lateral oblique
  - OPG
  - Occlusal

Sialolithiasis

- A condition where deposition of hardened calculus takes place in the ductal lumen

- Causes
  - Exact cause not known

  Contributing factors

  Stagnation of saliva

  Sialistasis / Xerostomia

  Ductal epithelium inflammation

  Biological factors

  Trauma

Sialolith

Ranula

- Most common lesion of the sublingual gland
- May be considered a mucocele
- 2 types
  - Simple ranula
  - Plunging ranula

Ranula

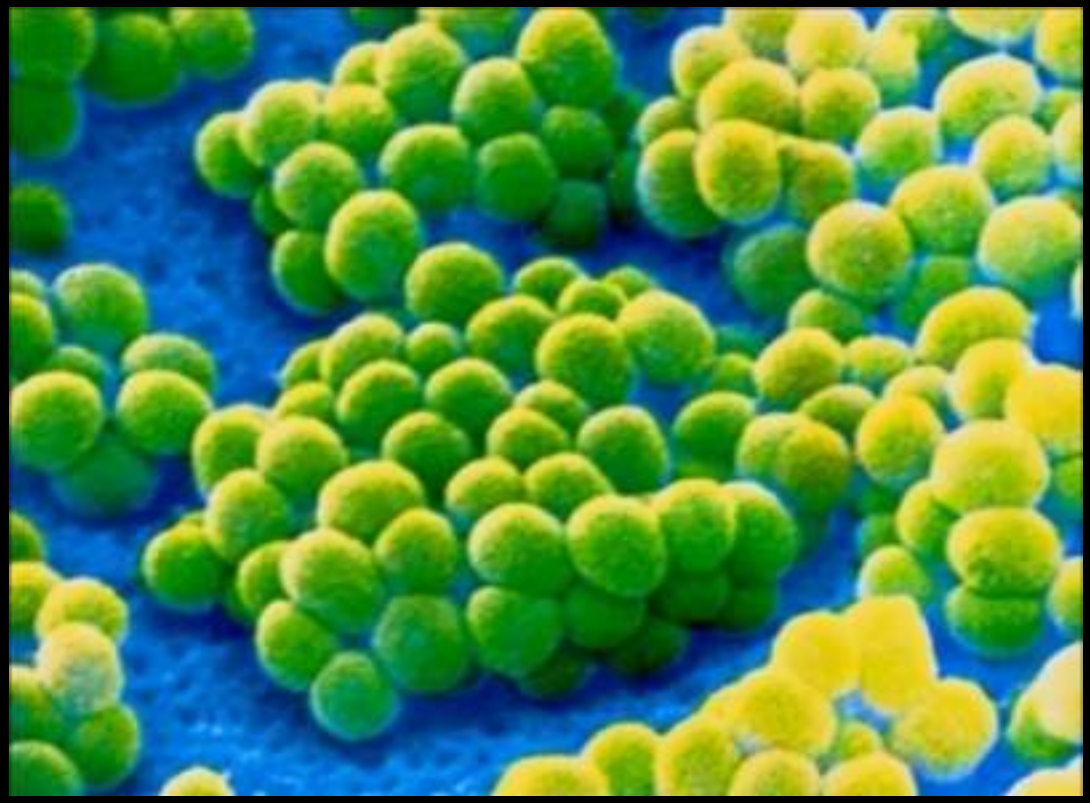
- Result from either mucous retention in the sublingual ductal system or
- Mucous extravasation as a result of ductal disruption
- The simple ranula is confined to the area occupied by the sublingual gland in the sublingual space, superior to the mylohyoid muscle
- Plunging ranula occurs when the lesion extends beyond the level of the mylohyoid muscle into the submandibular space

Ranula

- Treatment is marsupialization
- For recurrent or persistent ranulas the preferred treatment is excision of the ranula and the sublingual gland via an intraoral approach

Acute bacterial Sialadenitis / surgical parotitis

Causative organism : Staphylococcus aureus



Mumps

- The mumps virus is the most frequent cause of salivary gland infection.
- Most common reason for Acute Non-suppurative sialadenitis
- Common in children, can occur in adults
- Viral airborne infection from droplets saliva, nasal secretion

- Bacterial infection of the major glands usually arises from the mouth and is often a recurrent problem especially in a gland previously damaged by stones or irradiation or in debilitated patients.

- With the extended survival of HIV positive patients receiving triple chemotherapy an increasing variety of salivary gland disorders are being seen

Mumps

- Clinical features
  - Acute swelling
  - Severe pain
  - Parotid enlargement (Bilateral)
  - Submandibular
  - Pinna is elevated
  - No pus discharge
  - Fever, malaise, headache
  - Cervical lymph nodes, often enlarged & tender

Mumps

- Organism
  - Paramyxovirus, rarely Epstein Barr virus, parainfluenza virus, Echo virus, Coxsackie virus
  - Endemic in community
  - Incubation period is 2 to 3 weeks

Mumps

- Diagnosis
- Antibody titres (marked rise)
- Increased serum salivary isoamylase lasts for 7 to 10 days

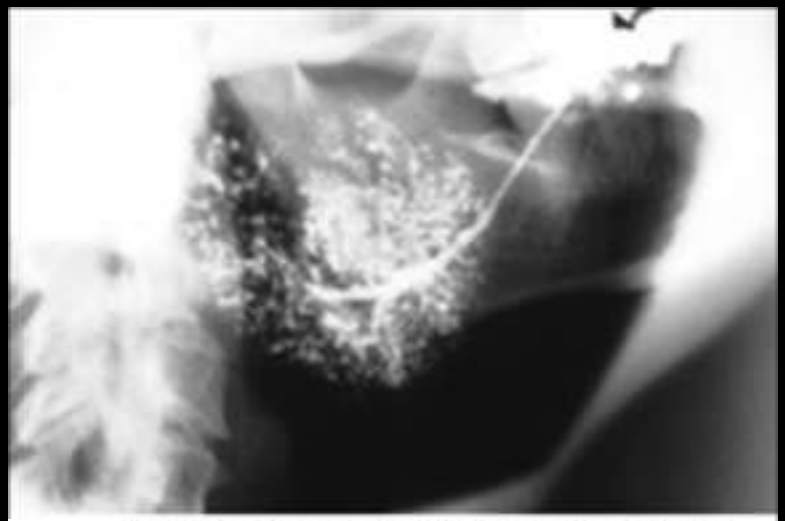
- Treatment
- Symptomatic for fever & pain
- Prevent dehydration
- Rest
- Dietry modifications to decrease saliva

Mumps

Complications

- Orchitis
- Oophoritis
- Pancreatitis
- Meningoencephalitis

Sjogren's syndrome - Sialography



Sialography of a 46 year female with SS demonstrating the typical "cherry blossom" appearance. *History and photograph contributed by Dr. Lars Hollender, University of Washington*

W.H.O CLASSIFICATION

EPITHELIAL TUMOURS

A. Adenomas:

1. Pleomorphic adenoma
2. Monomorphic adenoma
3. Adenolymphoma
4. Oxyphilic adenoma
5. Other types

B. MUCOEPIDERMOID TUMOURS

C. ACINIC CELL TUMOURS

- D. CARCINOMA
  1. Adenoid cystic carcinoma
  2. Adenocarcinoma
  3. Epidermoid carcinoma
  4. Undifferentiated carcinoma
  5. Carcinoma in pleoorphic adenoma

  NON EPITHELIAL TUMOURS

  Benign: lipoma, fibroma

  Malignant: liposarcoma, fibrosarcoma

1. ACINIC CELL CA
2. MUCOEPIDERMOID CA
3. ADENOIDCYSTIC CA
4. MALIGNANT MIXED TUMOR {CA in PLEOMORPHIC ADENOMA }
5. EPITHELIAL MYOEPITHELIAL CA
6. SALIVARY DUCT ADENOCARCINOMA
7. MUCINIOUS ADENOCARCINOMA
8. SEBACEOUS CA
9. ONCOCYTIC CA
10. SQUAMOUS CELL CA

NON EPITHELIAL

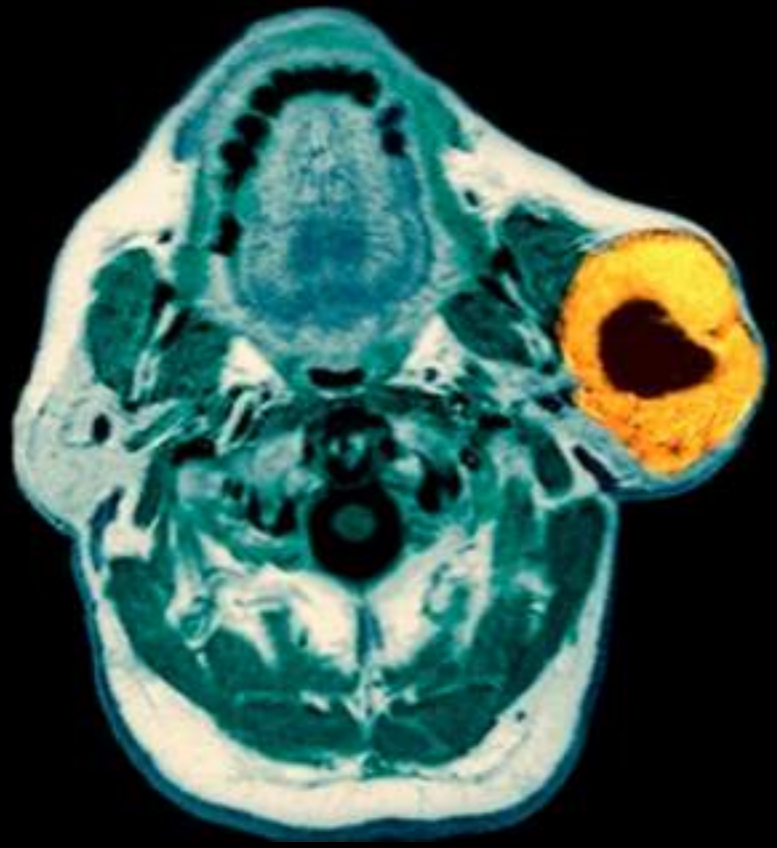
MALIGNANT LYMPHOMA

SECONDARY TUMOR

UNCLASSIFIED TUMORS

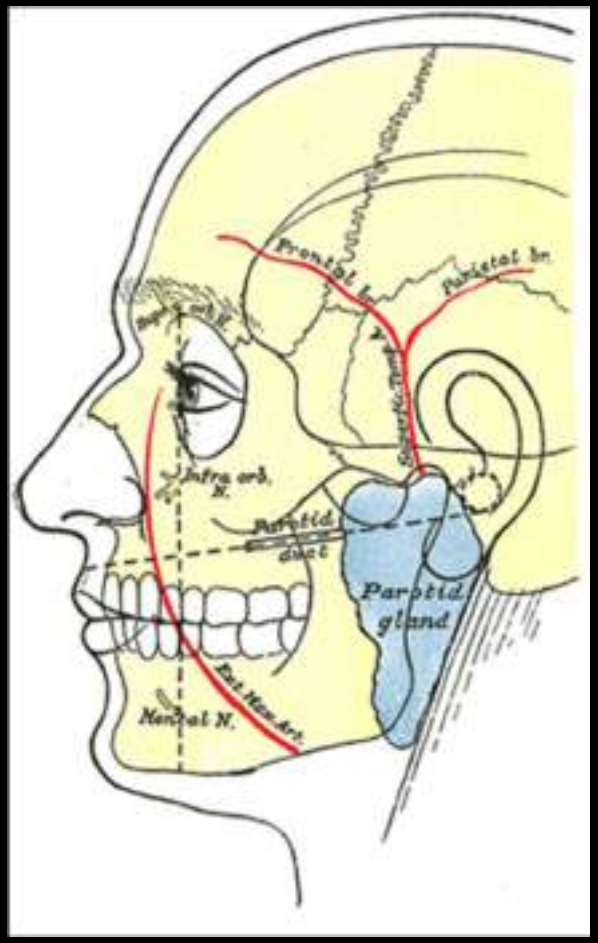
TUMOR LIKE LESIONS

MRI – Tumour Left Parotid gland



Parotid tumour

Surface anatomy of Parotid



Identification of Facial nerve

- Nerve can be traced from the Main stem / peripheral branches
- Tragal Cartilage
- Separate the lower pole of the gland from the SCM (anterior border)
- Facial nerve from the angle between the tympanic bone & mastoid process & just superior to the posterior border of the digastric muscle