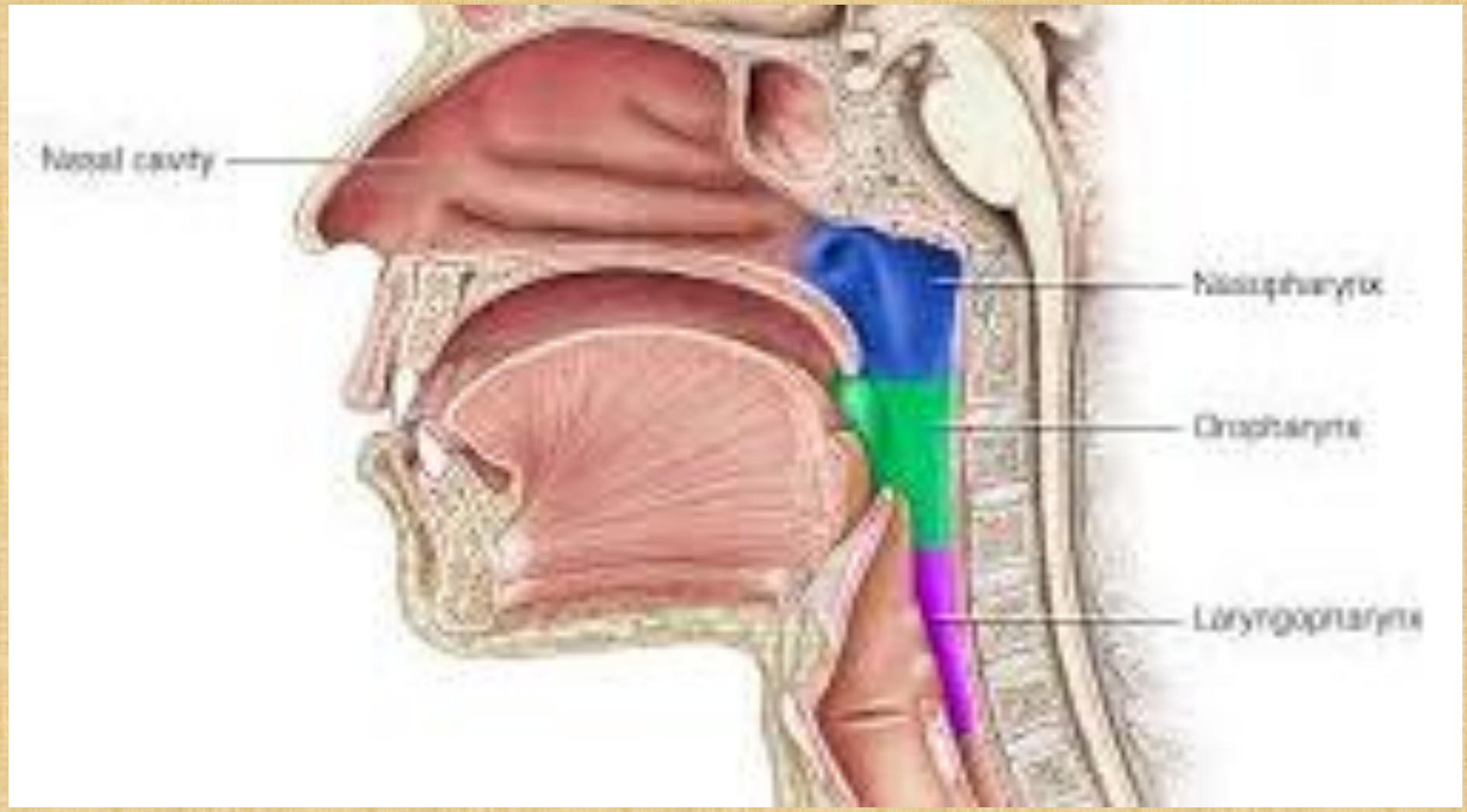
CARCINOMA NASOPHARYNX

Nasopharyngeal cancer is a rare type of cancer. It starts in the upper part of throat, behind the nose, an area known as **nasopharynx**.

Nasopharynx is placed at the base of the skull, above the roof of the mouth. The nostrils open into the nasopharynx.

When we breathe, air flows through the nose into the throat & nasopharynx, and eventually into the lungs.


Nasal cavity
Nasopharynx
Oropharynx
Laryngopharynx

- **The nasopharynx** also has an opening on each side that leads to the **ears**.
- The **pharynx** has 3 parts: nasopharynx (upper part), oropharynx (middle part) & hypopharynx (lower part). It carries air to the trachea & food to the oesophagus from the throat to the stomach.

LINING EPITHELIUM of **NASOPHARYNX** –

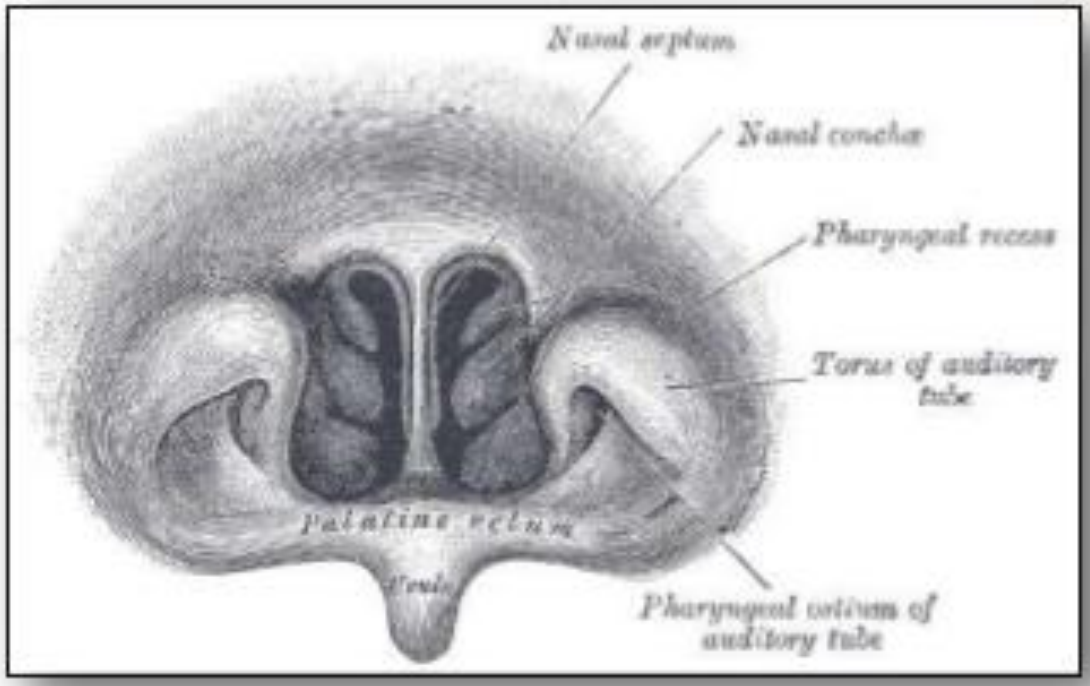
- 60% - Stratified Squamous epithelium
- Rest - Pseudostratified columnar epithelium

Cancer begins in the squamous cells that line the surface of the nasopharynx.

Common site of NPC – Behind the ostium of the Eustachian tube is a deep recess, the pharyngeal recess known as fossa of Rosenmuller.

Anatomical relation of FOR

- **anteriorly**
  - ✓ eustachian tube and levator palatini
- **posteriorly**
  - ✓ pharyngeal wall mucosa overlying pharyngobasilar fascia & retropharyngeal space
- **medially**
  - ✓ nasopharyngeal cavity
- **superiorly**
  - ✓ foramen lacerum & floor of carotid canal
- **posterolateral**
  - ✓ carotid canal & petrous apex, foramen ovale and spinosum



WHO classification of NPC based on histopathology:

- **Type I -** Keratinizing Squamous cell carcinoma
- **Type II -** Non-keratinizing (transitional) carcinoma
  - a) Without lymphoid stroma
  - b) With lymphoid stroma
- **Type III**–Undifferentiated carcinoma
  - a) Without lymphoid stroma (clear cell)
  - b) With lymphoid stroma (lymphoepithelioma)

Nasopharyngeal cancer is a multifactorial disease. Exact causes are not known.

RISK FACTORS:

- **Sex** – more in males.
- **Race** – South east Asia(Guangdong province of China), North Africa, Innuit population of Alaska & Canada, Chinese & Hmong immigrant groups in the US.
- **Age** – any age but most commonly in adults between 30 & 50 years,i.e., bimodal presentation.

- **Salt-cured foods** – chemicals released in steam when cooking salted food, such as fish, meat & preserved vegetables containing nitrosamines may enter nasal cavity increasing the risk of NPC.
- **Epstein Barr Virus** – may be related to genetic material (DNA) from the virus affecting the DNA in the cells of nasopharynx to grow & divide abnormally, causing cancer.

- **Family history** – more prone to NPC.
- **Environmental** – air pollution, smoke from burning of wood (formaldehyde exposure).
- **Personal habits** – smoking, alcohol, opium.
- **Genetic** – Chinese have a higher susceptibility to NPC.
- **Vitamin C deficient diet** – vitamin C blocks nitrosification of amines and is thus protective.

- **NPC** is difficult to detect early because nasopharynx isn't easy to examine & symptoms mimic those of other more common conditions.
- **Cancer** begins when one or more genetic mutation cause normal cells to grow out of control, invade surrounding structures & eventually spread (metastasize) to distant parts of the body.

Symptoms:

1) **Lump in the neck,** usually in the posterior triangle, unilateral mostly(50%) & bilateral (30-40%).
2) **Nasal congestion & epistaxis**
3) **Facial pain or numbness**
4) **Hearing loss (conductive type), tinnitus, fullness in the ears**
5) **Headache**
6) **Blurry or double vision**

7) Trismus (difficulty opening the mouth**)**

8) Nasal regurgitation

<u>Diagnosis</u>:

NPC is **difficult** to detect early because nasopharynx isn't easy to examine & symptoms mimic those of other more common conditions.

PHYSICAL EXAMINATION:

- **General examination**
- **Local examination**
- **Neck examination to feel for swelling in lymph nodes**
- **Nasal endoscopy under L/A to see the inside of nasopharynx & look for any abnormality**

COMPLICATIONS:

A. Invasion of surrounding structures (regional metastases),e.g.

1)Nose – nasal obstruction, epistaxis, nasal discharge, denasal speech(rhinolalia clausa)

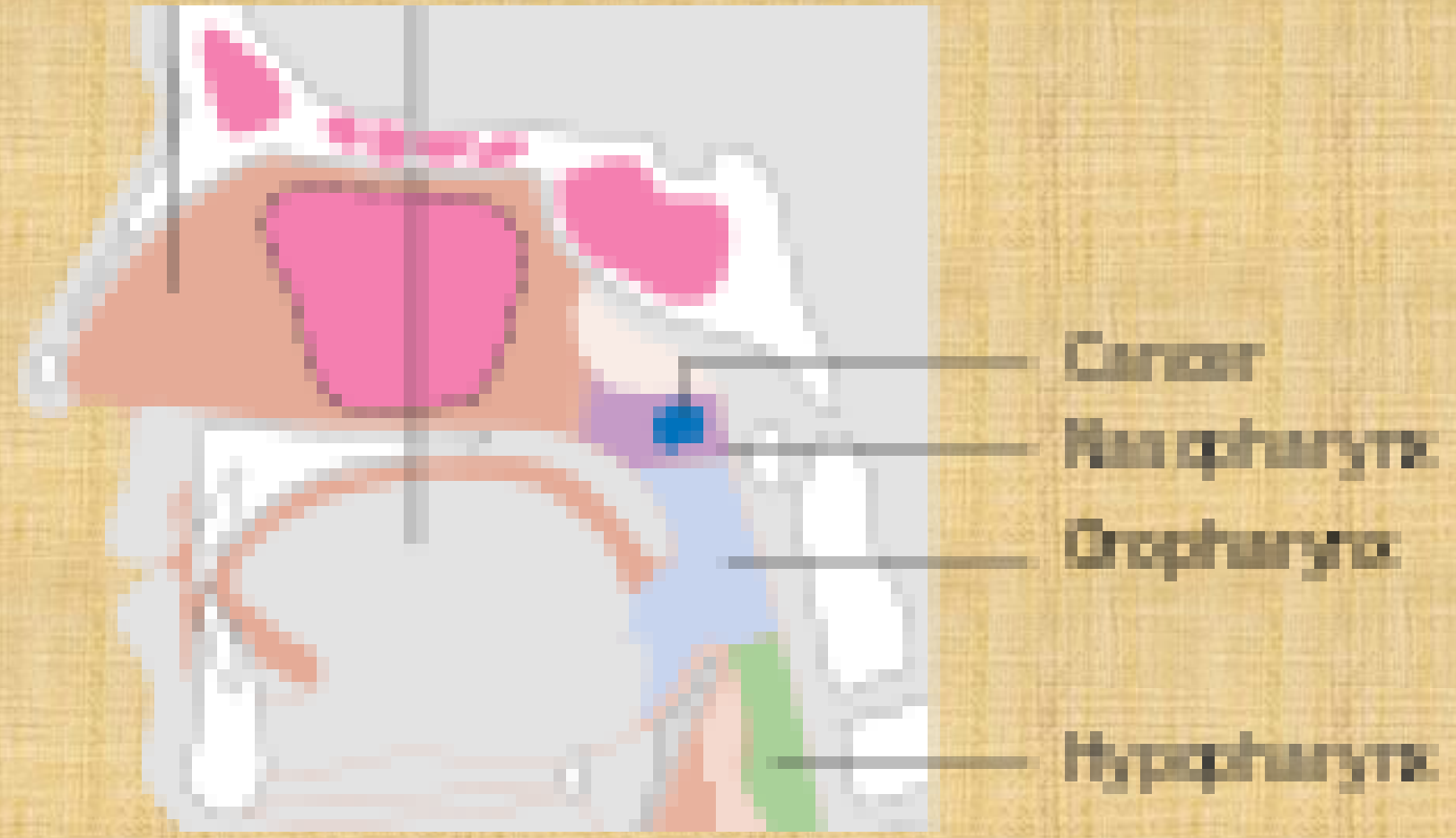
2)Eustachian tube – OME

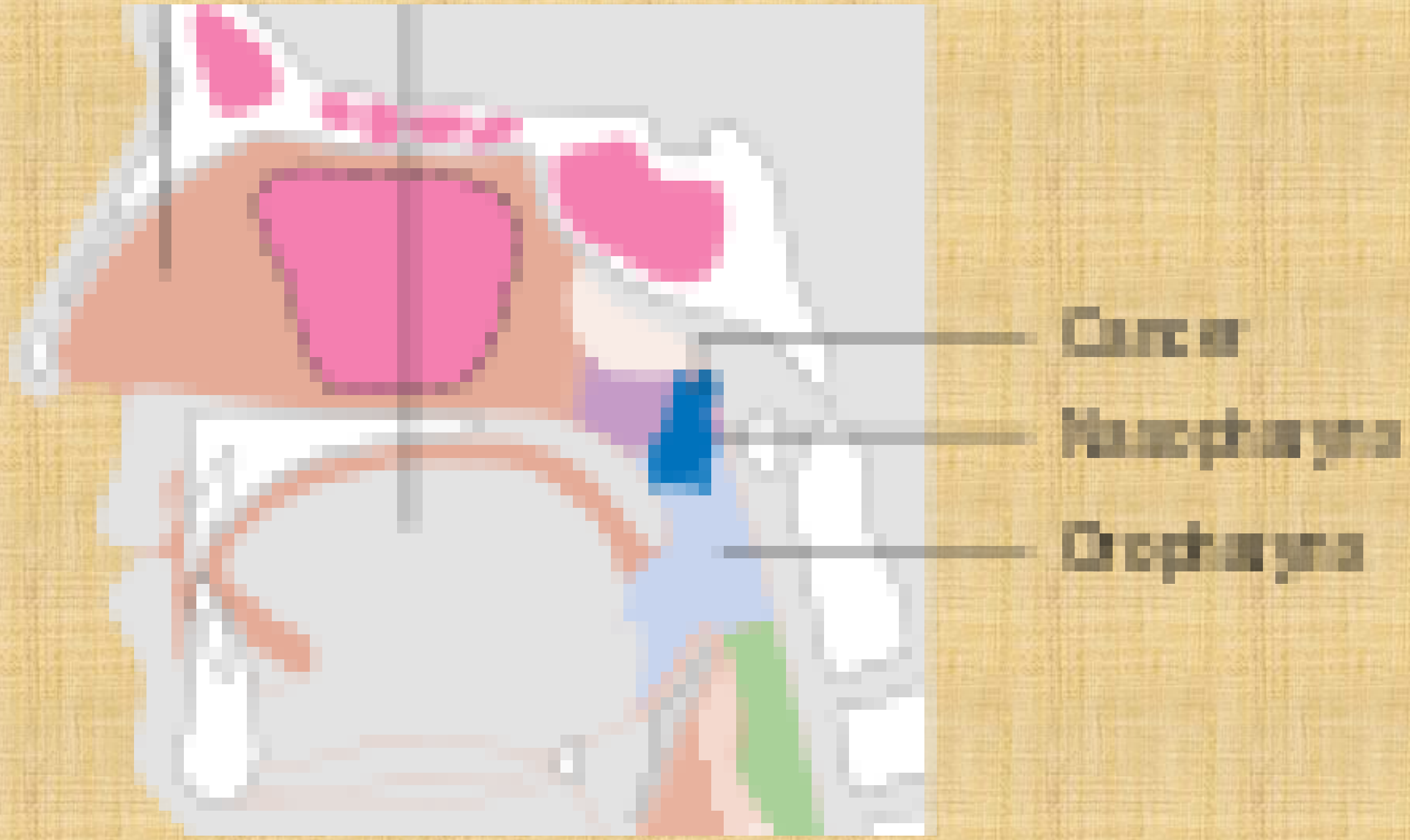
3)Retropharyngeal lymph nodes – neck pain & stiffness

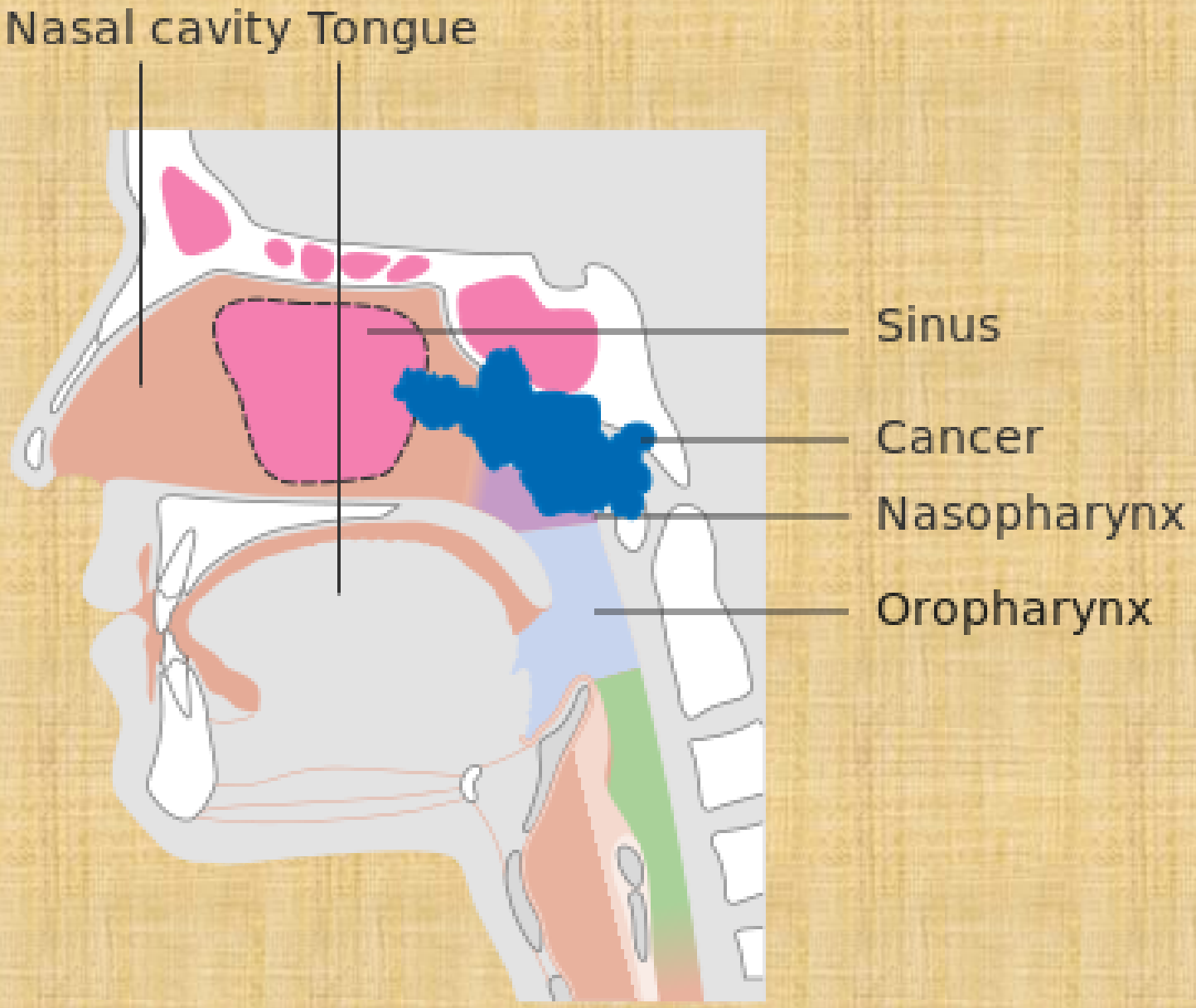
4)**Cervical nodes** –upper jugular & posterior triangle nodes enlargement.

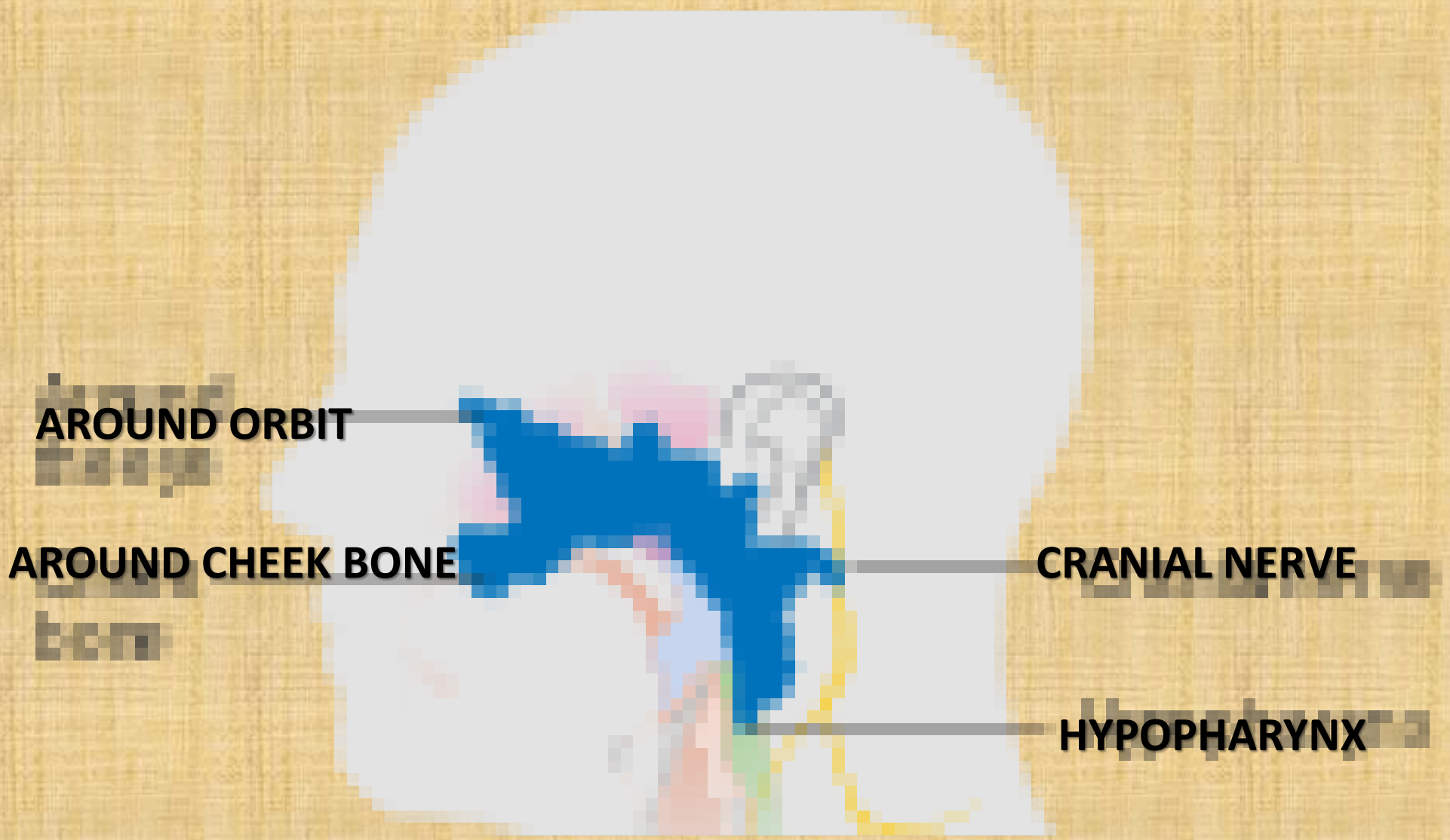
5)**Foramen ovale & lacerum** – Facial pain & involvement of III, IV, V, VII nerves causing ophthalmic symptoms e.g., diplopia, exophthalmos, blindness.

6)**Parapharyngeal space** – last 4 CN & Horner's syndrome due to cervical sympathetic chain involvement, trismus due to pterygoid muscle involvement.


Cancer
Nasopharynx
Oropharynx
Hypopharynx




Nasal cavity
Tongue
Sinus
Cancer
Nasopharynx
Oropharynx


AROUND ORBIT
AROUND CHEEK BONE
CRANIAL NERVE
HYPOPHARYNX

B. Invasion of cancer cells to other areas of the body (distant metastases)e.g.,

1)Bones

2)Liver

3)Lung

Trotter's triad:

- NPC can cause conductive hearing loss(eustachian tube blockage), palatal paralysis(CN X) & ipsilateral temporoparietal neuralgia(CN V) collectively known as Trotter's triad.

INVESTIGATION:

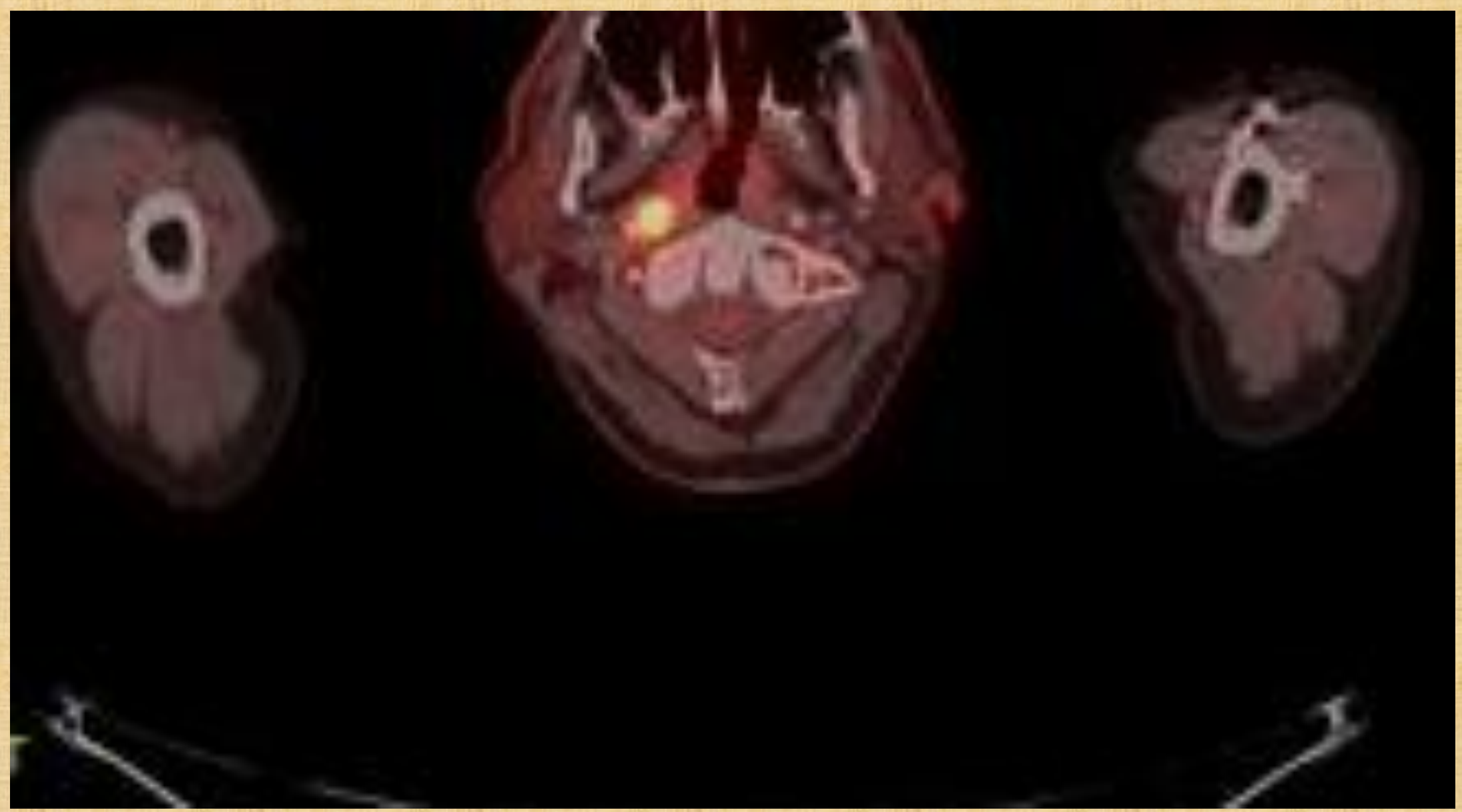
1) CT scan – shows any erosion of bone & extent of the tumour.

2) MRI – reveals any intracranial extension.

3) PET CT (Positron emission tomography) is another option.

4) In common areas of NPC (China) – blood tests to detect EBV.

Biopsy is essential to show the exact histology of the malignancy.



TREATMENT:

- **Radiotherapy – treatment of choice**
- **Chemotherapy**
- **Surgery**

- **Radiotherapy – uses high-powered energy beams, such as X-ray or protons to kill cancer cells.**

Usually administered in a procedure called External beam radiation (EBR).

In recurrent cases – a type of internal radiation called Brachytherapy is used where radioactive seeds or wires are positioned in the tumour or very close to it.

Intensity modulated radiotherapy (IMRT) is another form of RT which has dosimetric advantage & spares parotid gland from increased dose radiation.

Chemotherapy – Uses drugs (chemicals) to kill cancer cells.

In pill form or I/V or both.

- **Chemotherapy (CT) +Radiotherapy (RT) can be combined where CT enhances the effectiveness of RT called concomitant therapy or Chemoradiation (CR).**
- **CT can be given before RT called Neoadjuvant CT.**
- **Surgery – for residual nodal disease, i.e., neck dissection.**

THANK YOU