NASOPHARYNGEAL CARCINOMA (NPC)

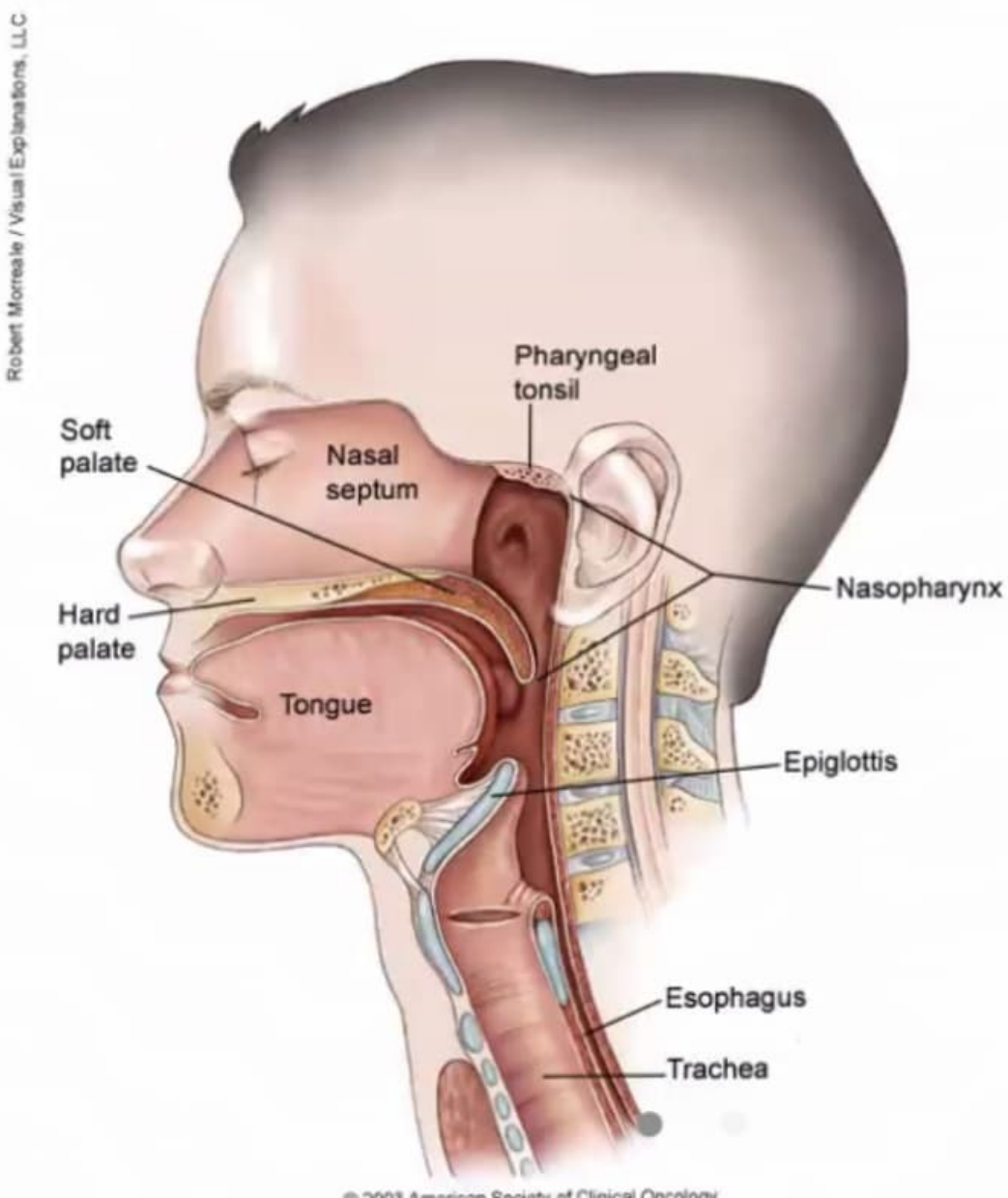
MBChB VI

2021

PNS - SURGICAL ANATOMY

- Space with rigid walls 4cm high, 4 cm wide & 2cm deep
- Epithelium in infancy is columnar cilliated but in adults it undergoes squamous metaplasia
- Submucosa has abundant lymphoid stroma

THE NASOPHARYNX



SURGICAL ANATOMY - WALLS

- Anterior – choana & nasal septum
- Floor – soft palate & opening of oropharynx
- Lateral – eustachian tube openings & fossae of Rosenmuller
- Roof – base of skull inferior to body of sphenoid
- Posterior – bodies of C1 – C2. It is continuous with roof

EPIDEMIOLOGY

- Dependent on interplay of genetic & environmental factors
- High incidence in Southern China - Kwang Tung province
- Intermediate incidence in Kenya & parts of N. Africa
- Low incidence as in N. America.

EPIDEMIOLOGY

- High incidence areas have one age peak (35-50)
- Low incidence areas have two age peaks (9-15 & 35-50)
- Second commonest head & neck cancer in Kenya
- Male: female 3:1 to 3:2

AETIOLOGY

- Epstein-Barr Virus (EBV)
- Genetic factors
- Dietary habits
- Environmental factors
- Others: Human papillomavirus, smoking.

AETIOLOGY - EBV

- Only undifferentiated or poorly differentiated forms are consistently associated with EBV
- NPC arises many years after peak incidence of EBV infection
- Evidence:
  - EBV markers have been found in NPC cells e.g. viral capsid antigen (VCA) , early antigen (EA), antibody dependent cell mediated cytotoxicity (ADCC) & the nuclear antigen (EBNA)

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AETIOLOGY - DIETARY HABITS

- Nitrosamines in salted fish – 90% of NPC among young Hong Kong Chinese attributable to consumption of salted fish

- Other preserved foods e.g. dried fish, salted duck eggs, fermented soya bean paste, etc

AETIOLOGY - ENVIRONMENTAL FACTORS

- Thought to influence regional distribution hence static high incidence among indigenous chinese populations compared to decline among chinese born in N. America

- ?Highland areas in Kenya

AETIOLOGY - GENETIC FACTORS

- HLA typing among Singapore Chinese has shown high prevalence with certain HLA groups

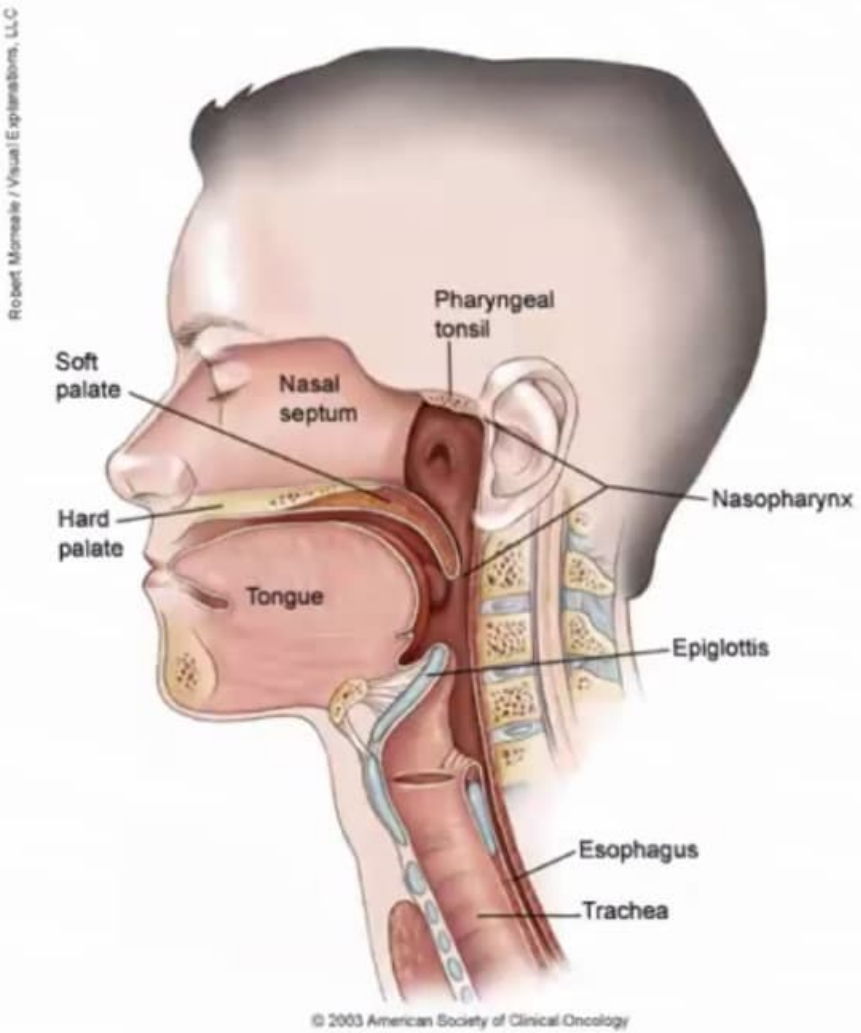
AETIOLOGY - OTHERS

- Polycyclic hydrocarbons
- Chronic nasal infection
- Poor hygiene
- Poor ventilation
- Smoke
- Smoking
- HPV
- ? Hormones- testesterone, Dehyndrepiandrosterone

PRESENTATION

- Nasal (initially unilateral):-
  - Obstruction
  - Epistaxis
  - Rhinorrhoea
  - Nasal mass in advanced cases

- Aural (initially unilateral):-
  - Second most common (50%)
  - Ear blockage
  - Aural fullness
  - Conductive hearing loss
  - Otitis media with effusion
  - Otalgia



PRESENTATION

- Neck mass:-
  - Most common
  - Occurs in 70%
  - Usually painless
- Orbital:-
  - Advanced disease
  - Proptosis
  - Visual disturbance
  - Immobile extraocular muscles
- Others:-
  - Trismus
- Oropharyngeal:-
  - Mass
  - Displaced palate
  - Postnasal drip
  - Hyponasal speech
  - Dysphagia/odynophagia
  - Airway obstruction

PRESENTATION - CNS

- Xerophthalmia - greater sup. petrosal n
- Facial pain - Trigeminal n.
- Diplopia - CN VI
- Ophthalmoplegia - CN III, IV, and VI
  - cavernous sinus or superior orbital fissure
- Horner's syndrome - cervical sympathetics
- CN's IX, X, XI, XII - extensive skull base
- Headache
- Convulsions

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TUMOUR SPREAD

- Direct submucosal extension
- Lymphatic spread
- Haematogenous

DISTANT METASTASES

- Rare (<3%) to:-
  - Lungs
  - Liver
  - Bones:
    - Spine
    - Pelvis
    - Ribs

DIAGNOSTIC WORK UP

- History
- Clinical Examination
- Investigations

HISTORY

- Risk factors
- ENT:-
  - Otological/aural symptoms
  - Nasal symptoms
  - Throat symptoms
- Local extension:
  - Orbital
  - CNS
  - Trismus
- Metastases:
  - Nodal status
  - Chest/abdominal/skeletal

examination

- Focus:
  - Anterior rhinoscopy
  - Otoscopy & tuning fork tests
  - Throat examination
  - Cervical lymphadenopathy
  - Orbital
  - Cranial nerves

- Other

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LABORATORY STUDIES

- FBC
- Urea, creatinine & electrolytes
- Liver function tests
- Audiometry
- EBV-related antigens / antibodies are not done routinely - research & screening / follow-up

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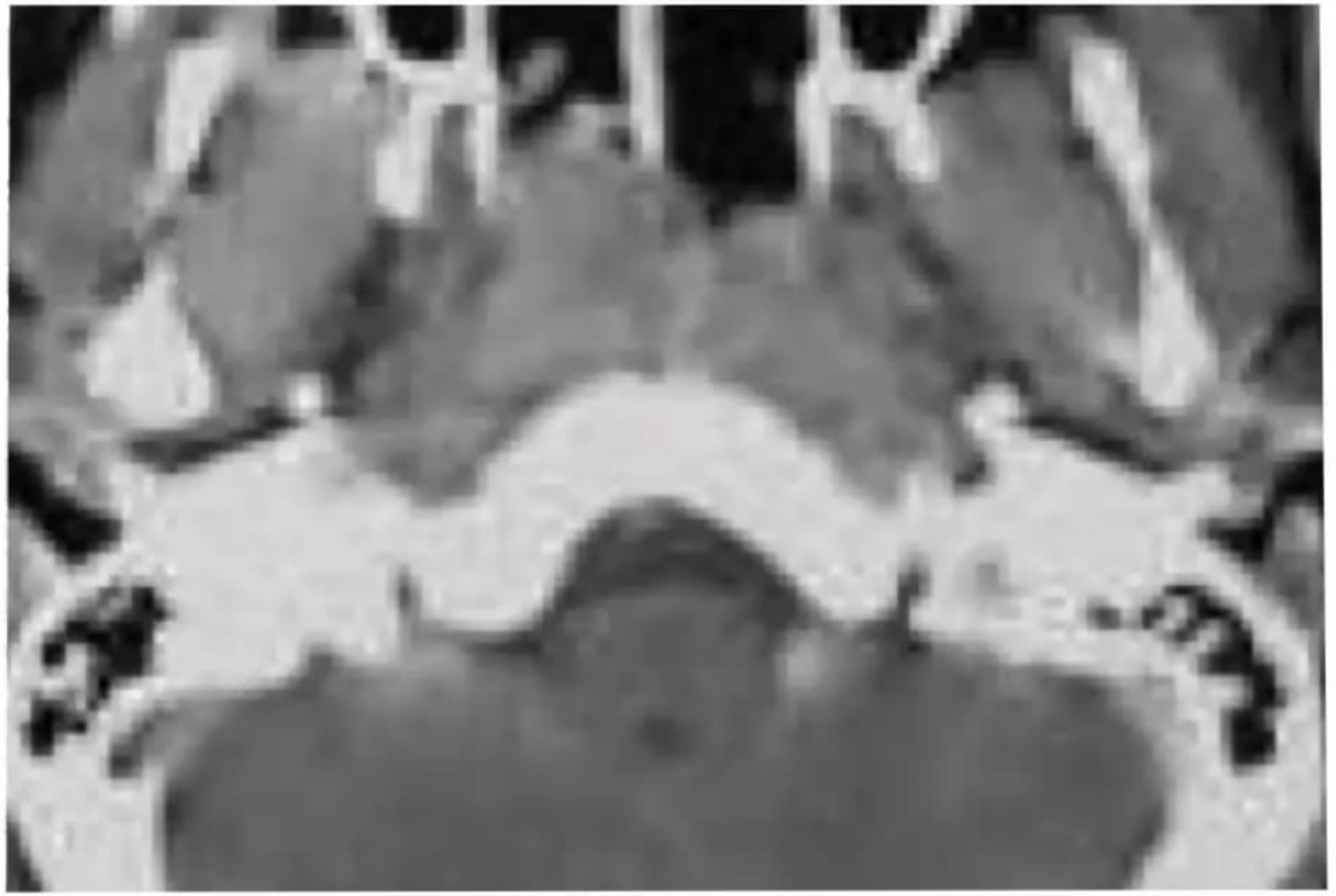
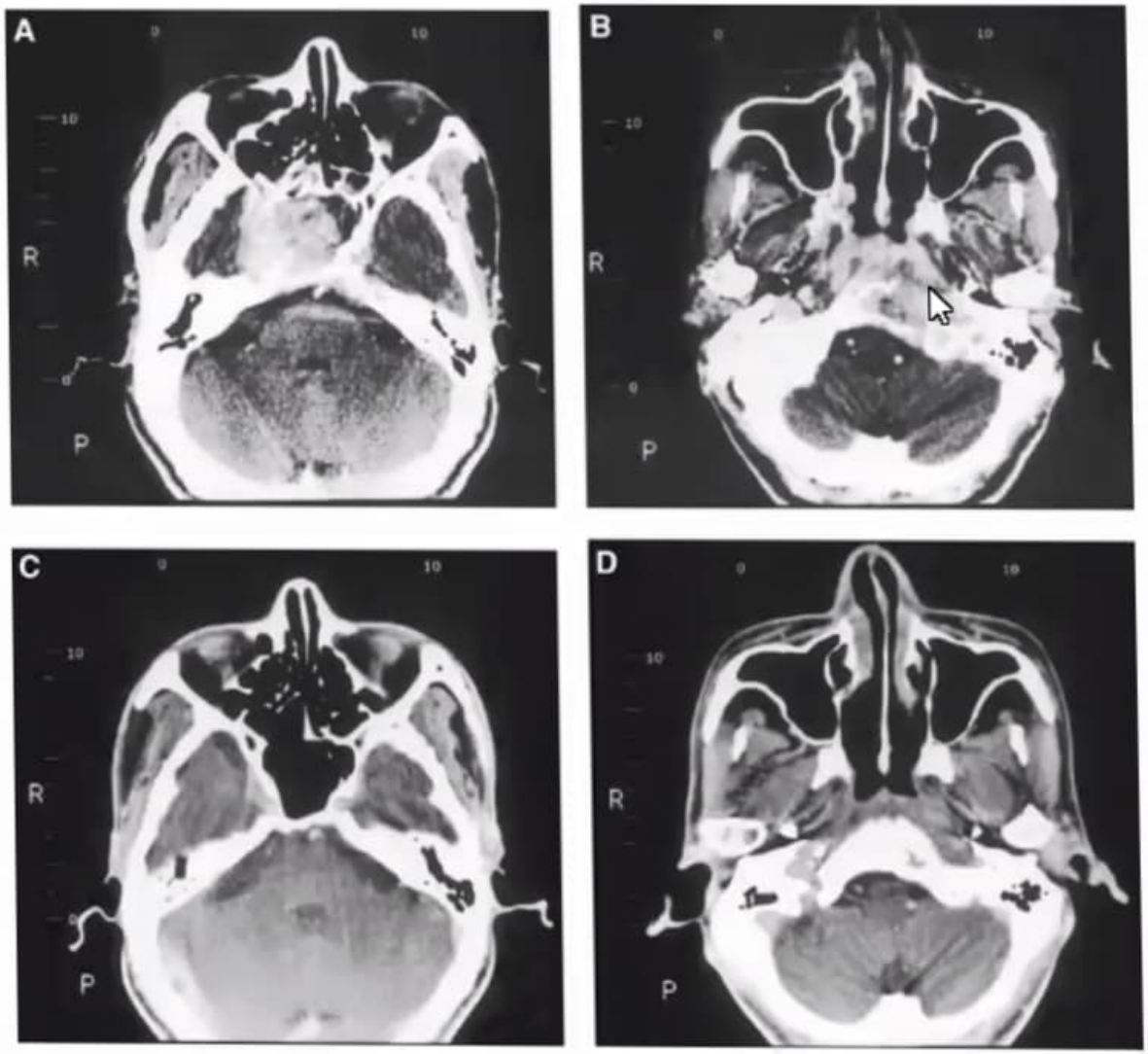
IMAGING STUDIES

- CT scan - investigation of choice for extent of disease
- Metastases:-
  - Chest –CXR
  - Abdomen – Ultrasound
  - Bone – skeletal scan (when applicable)

NPC CT-SCAN



CT-SCAN NASOPHARYNGEAL CA



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- Obtained from nasopharynx under vision using endoscope under GA or LA
- FNAC from neck nodes – if indicated
- Biopsy necessary for histological diagnosis and/or immunohistochemistry

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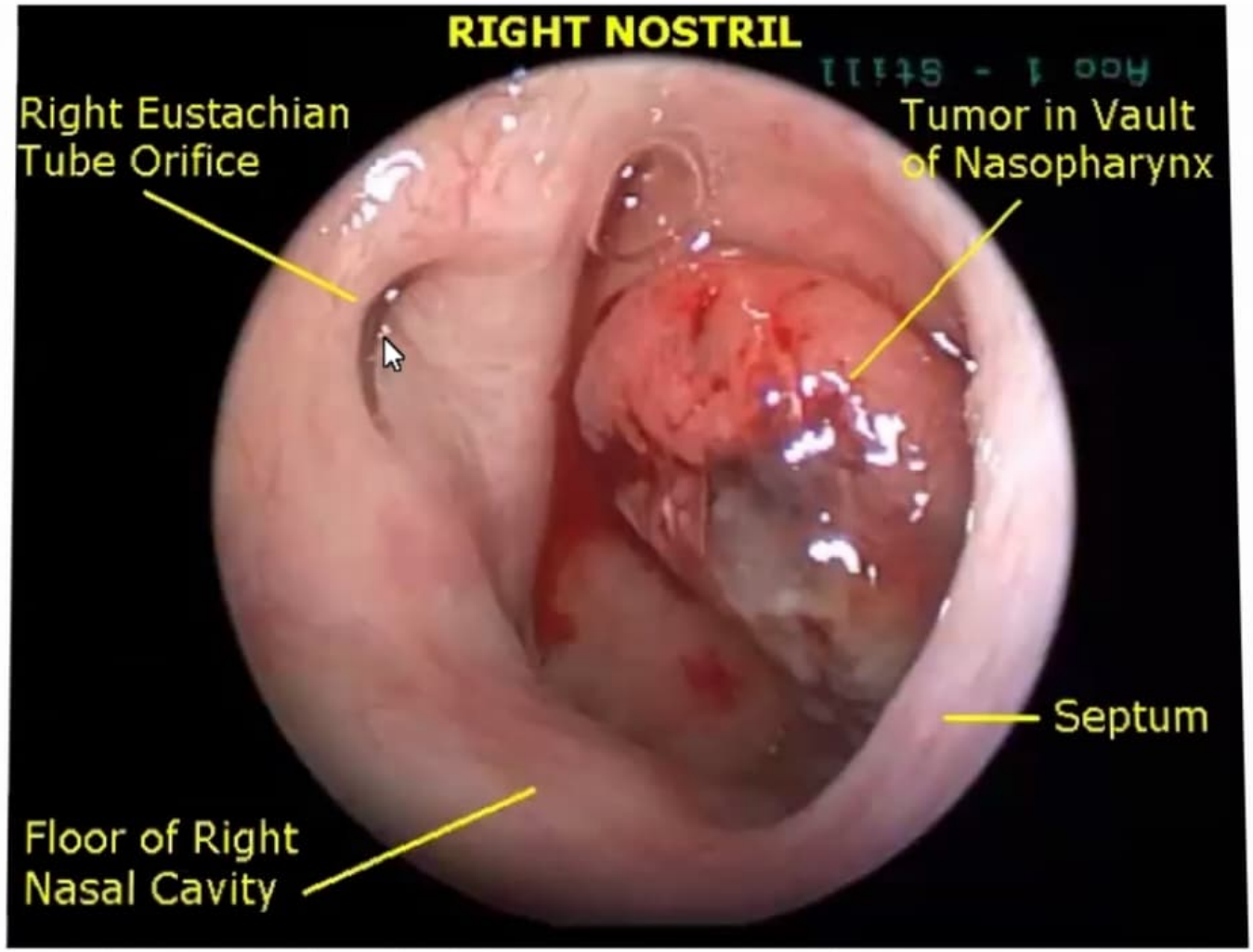
ENDOSCOPIC VIEW OF NPC



WHO CLASSIFICATION

- WHO TYPE I:- Keratinising SCC
- WHO TYPE II:- Non-keratinising SCC
- WHO TYPE III:- Undifferentiated SCC

TNM STAGING

- Different staging systems employed
- AJCC - TNM

TREATMENT

- Early tumors (T1-2): Radiotherapy to primary site and bilateral neck
- Advanced tumors (T3-4): Chemoradiation

ROLE OF SURGERY

- Limited to:
  - Biopsy
  - Neck dissection for residual neck disease when primary disease is cured
  - Salvage surgery for small primary residual or recurrent tumor

PROGNOSIS

- Dependent on stage of disease. 5 year survival rates are:
  - Stage I – 90%
  - Stage II – 70%
  - Stage III – 60%
  - Stage IV :
    - Without distant metastases - 40%
    - With distant metastases – 0%