



Nasopharyngeal Carcinoma

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Introduction

- Rare in the US, more common in Asia
- High index of suspicion required for early diagnosis
- Nasopharyngeal malignancies
 - SCCA (nasopharyngeal carcinoma)
 - Lymphoma
 - Salivary gland tumors
 - Sarcomas



Anatomy

- Anteriorly -- nasal cavity
- Posteriorly -- skull base and vertebral bodies
- Inferiorly -- oropharynx and soft palate
- Laterally --
 - Eustachian tubes and tori
 - Fossa of Rosenmuller - most common location



Anatomy

- Close association with skull base foramen
- Mucosa
 - Epithelium - tissue of origin of NPC
 - Stratified squamous epithelium
 - Pseudostratified columnar epithelium
 - Salivary, Lymphoid structures

Epidemiology

- Chinese native > Chinese immigrant > North American native
 - Both genetic and environmental factors
- Genetic
 - HLA histocompatibility loci possible markers

Epidemiology

- Environmental

- Viruses

- EBV- well documented viral “fingerprints” in tumor cells and also anti-EBV serologies with WHO type II and III NPC
- HPV - possible factor in WHO type I lesions

- Nitrosamines - salted fish

- Others - polycyclic hydrocarbons, chronic nasal infection, poor hygiene, poor ventilation

A vertical, grayscale microscopic image of tissue, showing a dense, granular texture with some darker, more structured areas, possibly representing a cross-section of a tumor or a specific tissue type. It is positioned on the left side of the slide, partially overlapping the teal background.

Classification

- WHO classes
 - Based on light microscopy findings
 - All SCCA by EM
- Type I - “SCCA”
 - 25 % of NPC
 - moderate to well differentiated cells similar to other SCCA (keratin, intercellular bridges)



Classification

- Type II - “non-keratinizing” carcinoma
 - 12 % of NPC
 - variable differentiation of cells (mature to anaplastic)
 - minimal if any keratin production
 - may resemble transitional cell carcinoma of the bladder



Classification

- Type III - “undifferentiated” carcinoma
 - 60 % of NPC, majority of NPC in young patients
 - Difficult to differentiate from lymphoma by light microscopy requiring special stains & markers
 - Diverse group
 - Lymphoepitheliomas, spindle cell, clear cell and anaplastic variants

Classification

- Differences between type I and types II & III
 - 5 year survival
 - Type I - 10% Types II, III - 50%
 - Long-term risk of recurrence for types II & III
 - Viral associations
 - Type I - HPV
 - Types II, III - EBV



Clinical Presentation

- Often subtle initial symptoms
 - unilateral HL (SOM)
 - painless, slowly enlarging neck mass
- Larger lesions
 - nasal obstruction
 - epistaxis
 - cranial nerve involvement



Clinical Presentation

- 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



Clinical Presentation

- Nasopharyngeal examination
 - Fossa of Rosenmuller most common location
 - Variable appearance - exophytic, submucosal
 - NP may appear normal
- Regional spread
 - Usually ipsilateral first but bilateral not uncommon
- Distant spread - rare (<3%), lungs, liver, bones



Radiological evaluation

- Contrast CT with bone and soft tissue windows
 - imaging tool of choice for NPC
- MRI
 - soft tissue involvement, recurrences
- CXR
- Chest CT, bone scans



Laboratory evaluation

- Special diagnostic tests (for types II & III)
 - IgA antibodies for viral capsid antigen (VCA)
 - IgG antibodies for early antigen (EA)
- Special prognostic test (for types II & III)
 - antibody-dependent cellular cytotoxicity (ADCC) assay
 - higher titers indicate a better long-term prognosis
- CBC, chemistry profile, LFT's

Staging

- Variety of systems used
 - Am Jt Comm for Ca Staging
 - International Union Against Ca
 - Ho System
- Unique NPC prognostic factors often not considered and similar prognosis between stages

Staging

- Neel and Taylor System
 - Extensive primary tumor +0.5
 - Sx's present < 2 months before dx - 0.5
 - Seven or more sx's +1.0
 - WHO type I +1.0
 - Lower cervical node dx +1.0

- ADCC assay titer considered if available

Staging

- Stage A = < 0
- Stage B = 0 to 0.99
- Stage C = 1 to 1.99
- Stage D = > 2

Treatment

- External beam radiation
 - Dose: 6500-7000 cGy
 - Primary, upper cervical nodes, pos. lower nodes
 - Consider 5000 cGy prophylactic tx of clinically negative lower neck
- Adjuvant brachytherapy
 - mainly for residual/recurrent disease



Treatment

- External beam radiation - complications
 - More severe when repeat treatments required
 - Include
 - xerostomia, tooth decay
 - ETD - early (SOM), later (patulous ET)
 - Endocrine disorders - hypopituitarism, hypothyroidism, hypothalamic dysfunction
 - Soft tissue fibrosis including trismus
 - Ophthalmologic problems
 - Skull base necrosis



Treatment

Surgical management

- Mainly diagnostic - Biopsy
 - consider clinic bx if cooperative patient
 - must obtain large biopsy
 - clinically normal NP - OR for panendo and bx
- Surgical treatment
 - primary lesion
 - regional failure with local control
 - ETD



Treatment

Surgical management

- Primary lesion
 - consider for residual or recurrent disease
 - approaches
 - infratemporal fossa
 - transparotid temporal bone approach
 - transmaxillary
 - transmandibular
 - transpalatal



Treatment

Surgical management

- Regional disease
 - Neck dissection may offer improved survival compared to repeat radiation of the neck
- ETD
 - BMT if symptomatic prior to XRT
 - Post XRT
 - observation period if symptoms not severe
 - amplification may be more appropriate

Treatment

- Chemotherapy
 - Variety of agents
 - Chemotherapy + XRT - no proven long term benefit
 - Mainly for palliation of distant disease
- Immunotherapy
 - Future treatment??
 - Vaccine??

Conclusion

- Rare in North America, more common in China
- 40% overall survival at 5 years
- Complete H&P, careful otologic, neurologic, cervical and NP exams
- Three WHO types - all from NP epithelium
- Types II, III - better prognosis, EBV assoc.
- Treatment is primarily XRT