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 Rosenmüller - 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
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

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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 disfunction
    - 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