Neoplasms of the Nose and Paranasal Sinuses
Sinonasal Neoplasms

- 3% of aerodigestive malignancies
- 1% of all malignancies
- 2 to 1 males
- Sixth to seventh decades
- Symptomatology same
Sinonasal Neoplasms

- Nasal cavity (benign = malignant)
  - Benign - inverting papilloma
  - Malignant - SCCA

- Sinuses (malignant)
  - SCCA
  - Maxillary most common
Epidemiology

- Occupational exposure in >40%
  - nickel workers - SCCA
  - hardwood dust & leather tanning - adenoca
- Viral - HPV
- Cigarettes & alcohol
Presentation

- Similar symptoms to common problems
- 6 to 8 month delay in diagnosis
- Cranial neuropathies & proptosis
Presentation
• Oral - 30%
  • tooth pain, trismus, palatal fullness, erosion
• Nasal - 50%
  • obstruction, epistaxis, discharge, erosion
• Ocular - 25%
  • diplopia, proptosis, tearing, pain, fullness
• Facial
  • V2 numbness, asymmetry, pain
• Auditory - CHL
Advanced Disease

- **Classic Triad**
  - facial asymmetry
  - tumor bulge in oral cavity
  - nasal mass

- All three - 40-60%
- One - 90%
Diagnosis

- Physical exam
- Nasal endoscopy
- Biopsy
- Radiology
Computed Tomography

- Bone erosion
  - orbit, cribiform plate,
  - fovea, post max sinus wall,
  - PTPF, sphenoid, post wall
  - of frontal sinus

- 85% accuracy

- ? Tumor vs. inflammation vs. secretions
MRI

- Superior to CT
  - multiplanar
  - no ionizing radiation
- Inflammatory tissue & secretions - intense T2
- Tumor - intermediate T1 & T2
- 94% accuracy
- 98% accuracy with gadolinium
INVERTED PAPILLOMAS

- Fungiform (50%) - septum
- Cylindrical (3%) - lateral nasal wall
- Inverting (47%) - lateral nasal wall
  ▶ recurs, locally destructive, malignant potential
  ▶ men, 6th-7th decades, unilateral
  ▶ SCCA - 2-13%
  ▶ Recurrence - 0-80%
Figure 2. Nasal cavity and paranasal sinuses CT scan. Axial reconstruction, showing bilateral involvement of the nasal cavities and right maxillary sinus.
Osteomas

- Benign, slow-growing
- 15 to 40 years
- Frontal > Ethmoid > Maxillary
- Local excision
Fibrous Dysplasia

- Normal bone replaced by collagen, fibroblasts, and osteoid material
- < 20 years
- ground-glass appearance
- Treatment excision?
Neurogenic tumors

- Schwannomas
  - surface of nerve fibers
  - no malignant degeneration
  - along trigeminal & ANS

- Neurofibromas
  - within nerve fibers
  - von Recklinghausen’s disease
  - malignant degeneration in 15%

- Complete excision
SCCA

- Most common - 80%
- Max > nasal cavity > ethmoids
- Males
- Sixth decade
- 90% have eroded walls of sinuses
Adenoid Cystic Carcinoma

- Palate > major salivary glands > sinuses
- Resistant to tx
- Multiple recurrences, distant mets
- Perineural spread
- Long-term followup necessary
Mucoepidermoid Carcinoma
- rare, widespread local invasion

Adenocarcinoma
- 2nd most common, 5-20%
- ethmoids
- occupational exposures
Hemangiopericytoma

- Uncommon
- Pericytes of Zimmerman
- 80% of sinonasal tumors in ethmoids
- Resembles nasal polyps
- Average in 55 yo
- Excision, XRT for (+) margins
Melanoma

- 1% originate in sinonasal cavity
- 5th-8th decades
- anterior septum
- maxillary antrum
- polypoid mass,
- pigmentation?
- 5 yr = 38%
- 10 yr = 17%
Olfactory Neuroblastoma

- Neural crest origin
- no urinary VMA or HVA
- bimodal distribution at 20 and 50
- locally aggressive
- rosettes are hallmark
- Kadish staging
- local recurrence 50-75%
- metastasis 20-30%
Osteogenic Sarcoma
- most common primary bone tumor
- only 5% in H & N, mandible most involved
- sunray appearance

Fibrosarcoma
- rarely seen in sinuses
Chondrosarcoma
- 3rd-5th decades
- histologic dx difficult
- slow erosion of skull base, (+) margins

Rhabdomyosarcoma
- most common in children
- 35-45% in H&N, 8% in sinuses
- embryonal, alveolar, pleomorphic
- triple tx
*Lymphoma*
- bimodal presentation
- NHL
- irradiation +/- chemo

*Extramedullary plasmacytoma*
- 40% in paranasal sinuses/nose
- “benign”
- must r/o myeloma
- excision or irradiation
Metastatic tumors

- Renal cell carcinoma
- Lungs
- Breasts
- Urogenital tract
- Gastrointestinal tract

Palliation necessary
Ohngren’s Line

- Suprastructure
- Infrastructure
Staging of Maxillary Sinus Tumors

- **T1**: limited to antral mucosa without bony erosion
- **T2**: erosion or destruction of the infrastructure, including the hard palate and/or middle meatus
- **T3**: Tumor invades: skin of cheek, posterior wall of sinus, inferior or medial wall of orbit, anterior ethmoid sinus
- **T4**: tumor invades orbital contents and/or: cribriform plate, post ethmoids or sphenoid, nasopharynx, soft palate, pterygopalatine or infratemporal fossa or base of skull
Surgery

Unresectable tumors:
- Superior extension: frontal lobes
- Lateral extension: cavernous sinus
- Posterior extension: prevertebral fascia
- Bilateral optic nerve involvement
Treatment

- T3 and T4
- 60% local recurrence
  - Surgery
  - Irradiation
  - Chemotherapy
Surgical resection

- Endoscopic excision
- WLE
- Medial maxillectomy
- Total maxillectomy
- Radical maxillectomy +/- exenteration
- Craniofacial resection
Neck Dissection

- Retropharyngeal and jugulodigastric nodes
- 10% (+) necks
- Neck dissection
  - Palpable nodes
  - Radiographic evidence of disease
- 40% cervical mets at 4 yrs
Radiation therapy

- Primary tx only for palliation
- 10-15% improved 5 year survival
- XRT = 23% vs. Surgery + XRT = 44%
- Preoperative vs. postoperative
- Protection of CNS and globe
  - XRT 12-20% unilateral visual loss, 0-8% bilateral visual loss
  - Surgery 10-20% useless globes, 2X with XRT
Chemotherapy

- Palliation, unresectable disease
- (+) margins, perineural spread, surgical refusal, ECS
- Intraarterial chemotherapy
  - Robbins - 86% response of T4 lesions
  - Lee - 91% satisfactory response
THANK YOU