

Auriculotemporal Nerve: A Bridge for Spread of Disease

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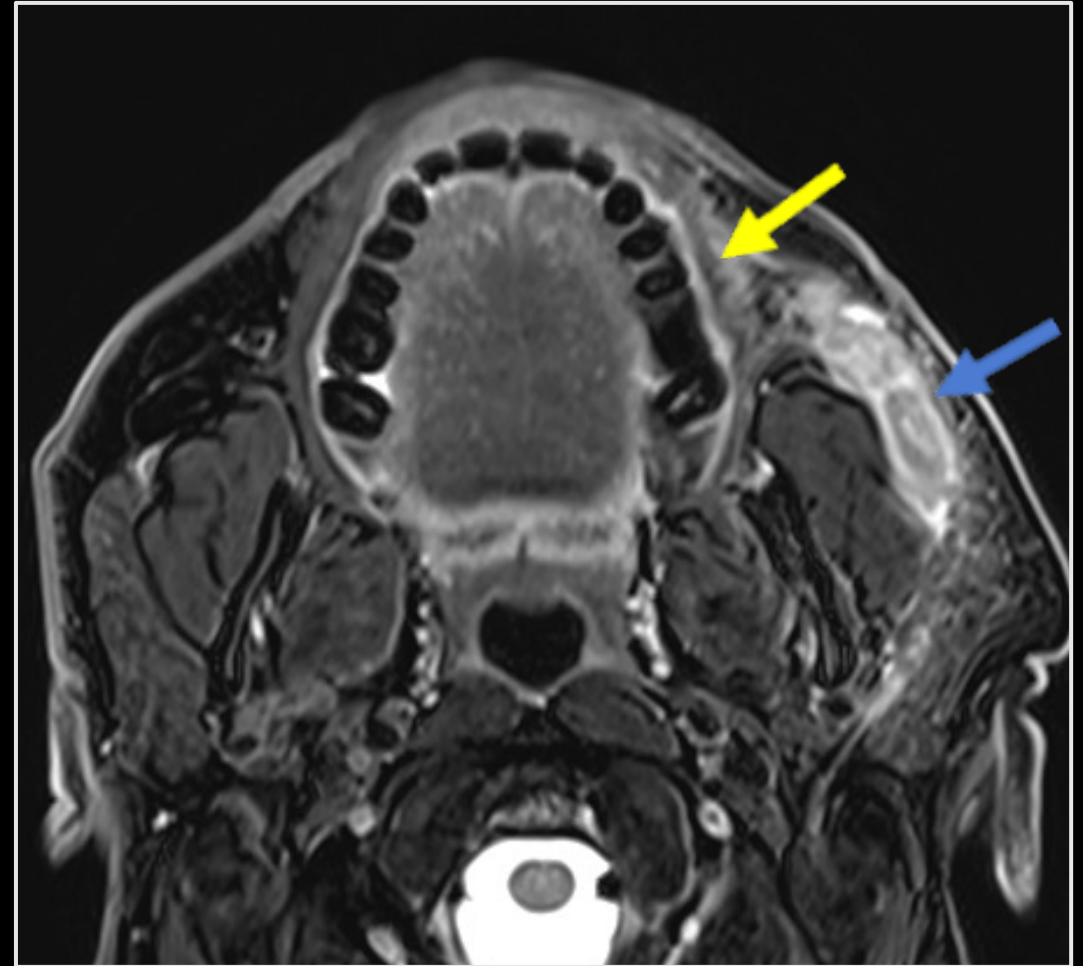
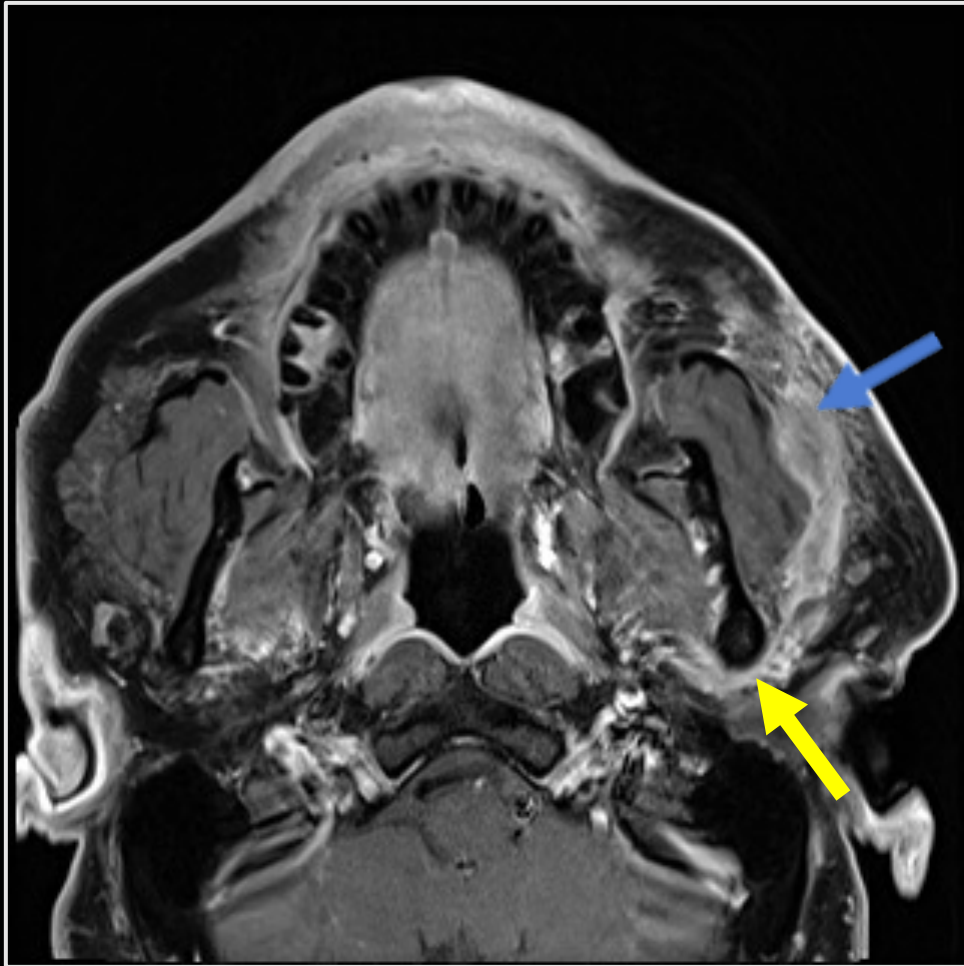
Tyler B. Sargent, M.D.¹, Alok A. Bhatt, MD¹

¹Department of Radiology, Mayo Clinic, Jacksonville, Florida

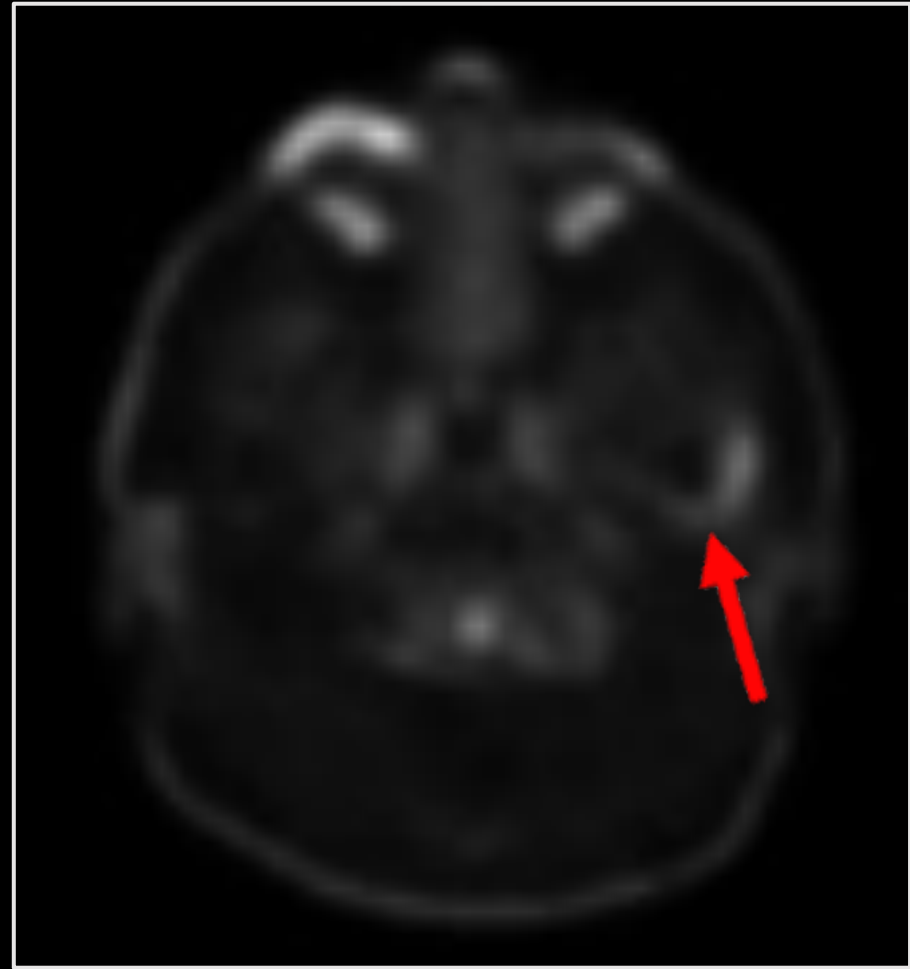


Presentation

- 58-year-old male with history of cutaneous squamous cell carcinoma of the left cheek (T3N0M0) status post resection and adjuvant radiation therapy presents with 3 months of worsening weakness of the left facial muscles
- Physical exam
 - Left cheek tenderness and mass
 - Deficits in all branches of CN 7



Axial T1-weighted post-contrast fat-saturated image (left) demonstrates an enhancing tumor (blue arrow) spreading along the left auriculotemporal nerve (yellow arrow) wrapping around the mandible, invading the parotid gland, and spreading anteriorly along the muscles of mastication. Axial T2-weighted image (right) demonstrates heterogeneous signal of the tumor (blue arrow). Note the subtle denervation changes of the left buccinator muscle (yellow arrow).



Axial PET/CT demonstrates hypermetabolic activity (red arrow) around the left mandible condyle in the distribution of the left auriculotemporal nerve.

Perineural Invasion and Parotid Malignancies

- Incidence of perineural invasion
 - Adenoid cystic carcinoma
 - Highest of all parotid malignancies
 - 79% of cases
 - Acinic cell carcinoma
 - 23% of cases
 - Mucoepidermoid
 - 67% of high grade cases
 - 30% of intermediate grade cases
 - 8.3% of low grade cases
 - SCC
 - 2.5% to 14% of cases
 - Lowest PNI of all parotid malignancies

Metastatic Cutaneous Squamous Cell Carcinoma (MCSCC)

- Epidemiology
 - Approximately 20% of parotid tumors are malignant
 - Metastatic cutaneous SCC accounts for 35% of parotid malignancies
 - Primary parotid SCC is rare
 - Incidence ranges from 0.75% to 1%
 - Diagnosis of exclusion

MCSCC: Risk Factors and Presentation

- Risk factors for metastatic cutaneous SCC to the parotid gland
 - Positive neck metastatic disease
 - N2 neck disease
- Risk factors for primary parotid SCC
 - Prior parotid radiation
- Clinical presentation
 - Rapid growing, painful mass
 - Facial nerve palsy
 - Overlying skin ulceration

MCSCC: Management

- Surgical excision
 - Mainstay of treatment
 - Goal to achieve negative surgical margins
- Adjuvant radiation therapy
 - Indications:
 - Positive surgical margins
 - Lymphatic or vascular invasion
 - Perineural invasion
 - Extra-glandular involvement
 - Aggressive or high grade histological features
 - Cervical metastatic disease

MCSCC: Prognosis

- Prognosis is generally poor
- Metastatic cutaneous SCC carries 30-60% 5 year survival rate
- Variable 5 year survival for primary SCC of the parotid gland
 - Early stage: 50% to 80%
 - Advanced stage: 15%
- Poor prognostic risk factors:
 - Perineural invasion
 - Advanced age
 - Facial palsy
 - Lymphatic metastasis disease

Case Outcome

- Surgical intervention
 - Total parotidectomy with facial nerve sacrifice
 - Left mastoidectomy
 - Left neck dissection
 - Head/neck vessel and parapharyngeal space exploration
- Surgical pathology report
 - 5 cm tumor with extensive multifocal left auriculotemporal nerve invasion
 - Negative lymph nodes
 - Negative surgical margins
- Underwent repeat radiation therapy 2 months after surgery

Take Home Points

- Despite parotid adenoid cystic carcinoma carrying the highest incidence of perineural invasion, metastatic cutaneous SCC also carries this risk
- Metastatic cutaneous SCC to the parotid gland presents with a rapidly progressive clinical course
- Imperative to identify perineural invasion given association with poor prognosis
- Important to interrogate course of CN VII and V due to bridging auriculotemporal nerve

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