**Facial Infections**

1. **DEEP NECK INFECTIONS**

   
   

3 **Life-Threatening Spaces**

   - Submandibular space
   - Lateral pharyngeal space (a.k.a. parapharyngeal)
   - Retropharyngeal space

**Submandibular Space**

- Combination of sublingual and submylohyoid spaces
- Source of infection: mandibular molar odontogenic >>> direct trauma, spread from other spaces
- Micro: mixed infection (aerobes, anaerobes, gram negatives (*Klebsiella in DM) **Ludwig’s Angina is prototype**
  - Clinical: rapid progression mouth pain, fever
  - Tongue protrudes anterior and superior
  - Brawny induration to floor of mouth (raised Wharton’s Duct)

- Complications:
  - Rapid airway obstruction
- Management pearls
  - Difficult airway – ENT and Anesthesia to bedside
  - Awake (nasal) fiberoptic vs. awake trach

**Lateral Pharyngeal (Parapharyngeal)**

- Inverted cone bordered by superior constrictor medially and parotid gland / medial pterygoid / mandible laterally
- Divided into two communicating compartments: anterior (muscular) and posterior (neurovascular)
- The hub of all fascial / deep neck spaces: route of spread to others
- Source of infection: PTA, pharyngitis, tonsillitis, odontogenic, spread from other spaces
- Clinical: trismus if anterior compartment
- Complications
  - airway obstruction
  - neuro: Horner’s, CN 9-12 palsies
  - vascular: septic thrombophlebitis
- Key mgmt points:
  - CT needed to delineate anatomy / collections / complications

May, 2011
**Retropharyngeal Space**
- Think of Retropharyngeal / Danger Spaces together
- key feature: **direct route to mediastinum**
- Source of infection: suppurative adenitis (children), instrumentation, FB, spread from others
- Prevertebral space – NOT odontogenic – hematogenous/osteo – same RFs as epidural abscess
- Clinical: stiff neck, fever, muffled voice
- Complications: airway obstruction, rupture with aspiration pneumonia, **necrotizing mediastinitis**

<table>
<thead>
<tr>
<th>Space</th>
<th>Pain</th>
<th>Trismus</th>
<th>Swelling</th>
<th>Dysphagia</th>
<th>Dyspnea</th>
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<tbody>
<tr>
<td>Submandibular</td>
<td>Yes</td>
<td>No</td>
<td>Mouth floor</td>
<td>Yes if bilat</td>
<td>Yes if bilat</td>
</tr>
<tr>
<td>Lateral Pharyngeal -</td>
<td>Yes</td>
<td>Yes</td>
<td>Lateral anterior pharynx, angle of jaw</td>
<td>Yes</td>
<td>Maybe</td>
</tr>
<tr>
<td>Anterior</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Lateral Pharyngeal -</td>
<td>Minimal</td>
<td>Minimal</td>
<td>Posterolateral pharynx</td>
<td>Yes</td>
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<tr>
<td>Posterior</td>
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<td></td>
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<tr>
<td>Retropharyngeal /</td>
<td>Yes</td>
<td>No</td>
<td>Posterior pharynx</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Danger</td>
<td></td>
<td></td>
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</table>

**Diagram:**
- Retropharyngeal space
- Prevertebral space
- Mediastinum
- Canine space
- Infratemporal space
- Buccal space
- Maxillary periapical abscess
- Mandibular periapical abscess
- Submandibular and sublingual spaces
- Masticator spaces
- Lateral pharyngeal space
- Carotid sheath
- Retropharyngeal space
- Cranium
- Parotid space
- Masseteric pterygoid temporal

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May, 2011
2. ERYSEPELAS

Key differentiating features c/f cellulitis:
- sudden onset, sharper demarcation
- fever, chills, constitutional symptoms
- superficial dermal involvement
- peau d’orange

Key management points:
- IV antibiotics until improvement
- Cover GABHS and MSSA
- Erythema may worsen before improves

3. (PERI)ORBITAL INFECTIONS


Epidemiology
9:1 incidence of preseptal v. postseptal
Source:
Preseptal: skin barrier breakdown (skin bugs)
Postseptal: Sinusitis/Respiratory bugs

Specific features of orbital involvement:
- proptosis
- EOM limitation/ophthalmoplegia
- Vision changes

Orbital involvement =
- cellulitis – medical (mx)
- subperiosteal abscess – mx +/- sx
- orbital abscess – mx +/- sx

Predictors of abscess requiring intervention:
- proptosis / ophthalmoplegia / painful EOM / vision changes
- ANC > 10
- Edema beyond eyelid
- Absence of conjunctivitis

CT needed if:
- Can’t reliably assess vision
- High risk clinical features
- Failure of medical tx after 24h
- CNS signs/symps

Mgmt tips:
- low-risk (preseptal) nontoxic: PO Abx and 24h follow up unless < 12mo age.
- Low-risk (preseptal) + unwell: IV Abx, Admit
- Med-High Risk for orbital: CT, IV Abx, Admit, Ophtho
4. WOUND PROPHYLAXIS


Facial Lacerations

Key points for prophylaxis
- Good wound irrigation/cleaning/debridement = cornerstone
- Remember tetanus
- Abx prophylaxis generally not recommended unless:
  - Through and through (weak data)
  - High risk patient factors: immunocompromised, DM
  - High risk wound factors: delayed presentation, large area, gross contamination

Facial Dog bites

Key points
- Facial wound = good vascularity = no infection
  - This is now being rethought
- Irrigate with soapy water and iodine solution (MOH)
- Primary closure is preferred
- All facial bites warrant prophylaxis (esp kids)
  - Rationale:
    - Poor predictors of infection
    - Risk of poor cosmesis
    - Sutures increase infection risk
    - Cheek area prone to infection
  - 1st line should be amox-clav
  - Treat for 3-5 days
5. PERITONSILLAR ABSCESS


**Key Points:**
- occurs after tonsillitis / pharyngitis
- poor clinical accuracy at predicting abscess vs. cellulitis (73% sensitivity ENT docs)
- U/S sensitivity and spec 80-100%
- Generally a medical disease – can often treat with antibiotics even if fluid collection (unlike most other abscesses)
- Important aspect is analgesia and hydration
- Drainage helps symptoms and resolution
- **Single dose steroids improves symptoms, shortens hospitalization, and no increase in complications**

**Ultrasound tips:**
- position patient
- analgesia (spray / viscous gargle)
- 5cm depth, endocavitary probe marker to patient’s right
- Note position and depth of carotid (posterolateral location)