Deep Neck Space Infections	
Parapharyngeal Abscess	
Workup	• **History**: Fever duration, neck ROM, PO intake, foreign body, trauma hx, recent ENT surgery, recent abx, chest pain • **Exam**: Induration and swelling below the angle of the mandible, medial bulging of the pharyngeal wall • **Labs**: CBC w/diff, aerobic and anaerobic BCx, rapid strep and throat culture, chem if decreased PO, fluid culture if abscess drained • **Imaging**: ▪ Low suspicion → XR lateral neck → If normal, does not rule out infection ▪ High suspicion → Neck CT with contrast (only way to diagnose parapharyngeal abscess)
Treatment	• Airway compromise → secure airway, emerg. surgical drainage, IV antibiotics • Mature abscess (>2.5 cm2) → surgical drainage + IV antibiotics • Phlegmon → IV antibiotics, re-image in 24-48 hours • Antibiotics: Ampicillin-sulbactam or clindamycin
Complications	See “Peritonsillar Abscess” on previous page
Retropharyngeal Abscess	
Sources	**CHOP Clinical Pathway**, UpToDate: Retropharyngeal infections in children, UpToDate: Peritonsillar cellulitis and abscess.
Definition	Deep neck abscess in the potential space between the posterior pharyngeal wall and the deep cervical fascia ▪ Occurs in young children (<5 years) ▪ Retropharyngeal lymph nodes regress as children age, making RPA unlikely in older children
Etiology	S. pyogenes, S. aureus, anaerobes
Pathogenesis	Spread of infection from nasopharynx via lymph system to retropharyngeal lymph nodes → phlegmon → abscess formation
Presentation	Fever, decreased PO, pharyngitis, drooling, dysphagia, neck stiffness (refusal to extend or pain with neck extension), torticollis, trismus
Workup	• History, Physical, Labs: See “Parapharyngeal Abscess” above • **Imaging** ▪ Low suspicion → XR lateral neck • Greater than 7 mm at C2 (roughly ½ the width of the vertebral body) or 14 mm at C6 in children • Greater than 22 mm at C6 in adults ▪ High suspicion → Neck CT with contrast
Treatment	• Airway compromise → secure airway, emergency surgical drainage, IV antibiotics • Mature abscess (>2.5 cm2) → surgical drainage + IV antibiotics • Phlegmon → IV antibiotics, re-image in 24-48 hours • Antibiotics: Ampicillin-sulbactam or clindamycin
Complications	See “Peritonsillar Abscess” on previous page

Dehydration	
Sources	**BCH EBG** (Gastroenteritis), **CHOP Clinical Pathway**
Definition	• Dehydration = cellular water loss • Hypovolemia or volume depletion = reduced effective circulating volume

Dehydration

Presentation

- Mottled cool extremities, sunken fontanelle in infants, receded eyes, hyperpnea; sensorium usually remains intact until moderate dehydration; weak cry or stupor suggests shock
- Symptoms of underlying etiology will be present (diarrhea, fever, etc.)
- Regarding dehydration specifically, fussiness, thirst, and lethargy may be present
- See table below for additional physical examination findings.

Physical Findings of Volume Depletion

Findings	Mild (3-5%)	Moderate (6-9%)	Severe (>10%)
Pulse	Full, normal rate	Rapid	Rapid/weak/absent
Systolic Press.	Normal	Normal to low	Low
Respirations	Normal	Deep (rate ↑)	Deep, tachypnea
Buccal mucosa	Tacky/slightly dry	Dry	Parched
Ant. fontanelle	Normal	Sunken	Markedly sunken
Eyes	Normal	Sunken	Markedly sunken
Skin turgor	Normal	Reduced	Tenting
Skin	Normal	Cool	Cool/mottled
Urine output	Normal/mildly dec	Markedly reduced	Anuria
Systemic signs	Increased thirst	Listlessness	Grunting, coma

Differential

- ↑ output (gastroenteritis (most common), diabetes mellitus, diabetes insipidus)
- ↓ intake (gingivostomatitis, viral or bacterial pharyngitis, nausea/vomiting)
- ↑ insensible losses/metabolic demand (bacterial infections with fever such as PNA, meningitis, UTI)

Workup

- Important to establish degree of dehydration: mild (3-5%), moderate (6-9%), or severe (>10%) to guide therapy
- BCH/CHOP guidelines provide an **Assessment Tool**
  - 10-point (1 point each):
    - Ill-appearing or decreased activity
    - Tachycardia for age
    - Tachypnea or abnormal respirations
    - Decreased urine output
    - Sunken eyes
    - Decreased or absent tears
    - Dry mucous membranes
    - Abnormal pulses
    - Cap refill >2 sec
    - Decreased skin turgor
  - Scoring: <3 = mild, 3-6 = moderate, >6 = severe
- **Labs**
  - Mild or moderate dehydration → may not require laboratory testing
  - Moderate or severe dehydration → D-stick, chemistry, UA (for urine spec grav)
  - Serum bicarbonate (<17 mEq/L cutoff) most helpful in differentiating moderate-to-severe hypovolemia from mild

Treatment

- **Mild**: Initiate oral rehydration therapy (ORT)
  - 5-10 mL every 3-5 minutes via bottle, cup, syringe
- **Moderate**: Initiate ORT, consider IVF
  - Similar outcomes but fewer complications and higher satisfaction with ORT in RCTs comparing IV fluids and ORT groups
  - If ORT fails → obtain D-stick* → 2x 20 mL/kg NS boluses -OR- 20 mL/kg D5NS bolus + 20 mL/kg NS bolus → start 1.5-2x mIVF → transition back to ORT as tolerated
- **Severe**: Initiate IVF
  - Goal 40 mL/kg total within 1 hour: obtain D-stick* → 2x 20 mL/kg NS boluses -OR- 20 mL/kg D5NS bolus + 20 mL/kg NS bolus → start 1.5-2x mIVF
  - Consider alternative diagnosis (septic shock) if persistent hemodynamic abnormalities after 60 mL/kg
- **ORT failure**:
  - >1 emesis despite ondansetron
  - Refusal to drink for >30 min
  - No improvement in Dehydration Score, VS despite child drinking
- **Ondansetron** (available in liquid, oral-disintegrating, or tablet forms)
  - 8-15kg = 2 mg PO
  - 15-30 kg = 4 mg PO
  - 30 kg = 8 mg PO

***Best practice is to first obtain a D-stick, as DKA may present with moderate-severe dehydration, can mimic gastroenteritis, and may be worsened with administration of glucose