AMSER Case of the Month: August 2022

37-year-old female with L-sided facial swelling and pain

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Patient Presentation

- HPI: 37 year old female presented to ED with recurrent swelling and achy, pressure-like pain of the left side of her face and under her chin over 24-36 hours. Reported muffled voice, difficulty opening jaw, and difficulty swallowing. Denied fever, chills, N/V, or neurological deficits.
- PMHx: None
- SHx: Current every day smoker (0.5 packs/day)
- Meds: None
- Vitals: HR 80 BP 162/94 RR 16 T 37.2°C SpO2 100%
- Physical Exam: HEENT: tenderness and swelling present on L side of face and under chin; abnormal dentition

Pertinent Labs

- Labs:
  - CBC:
    - WBC 12.90
      - Immature Granulocytes (Abs) .05
    - RBC 4.14
    - Hgb 12.7
    - Plt 301

--- high value

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

American College of Radiology
ACR Appropriateness Criteria®
Neck Mass/Adenopathy

Variant 1: **Nonpulsatile neck mass(es). Not parotid region or thyroid. Initial imaging.**

Procedure	Appropriateness Category	Relative Radiation Level
CT neck with IV contrast	Usually Appropriate	☢☢☢
MRI neck without and with IV contrast	Usually Appropriate	O
MRI neck without IV contrast	May Be Appropriate	O
US neck	May Be Appropriate	O
CT neck without IV contrast	May Be Appropriate	☢☢☢
CT neck without and with IV contrast	Usually Not Appropriate	☢☢☢
CTA neck with IV contrast	Usually Not Appropriate	☢☢☢
FDG-PET/CT skull base to mid-thigh	Usually Not Appropriate	☢☢☢☢
FDG-PET/MRI skull base to mid-thigh	Usually Not Appropriate	☢☢☢
MRA neck without and with IV contrast	Usually Not Appropriate	O
Arteriography cervicocerebral	Usually Not Appropriate	☢☢☢
MRA neck without IV contrast	Usually Not Appropriate	O

This imaging modality was ordered by the ER physician

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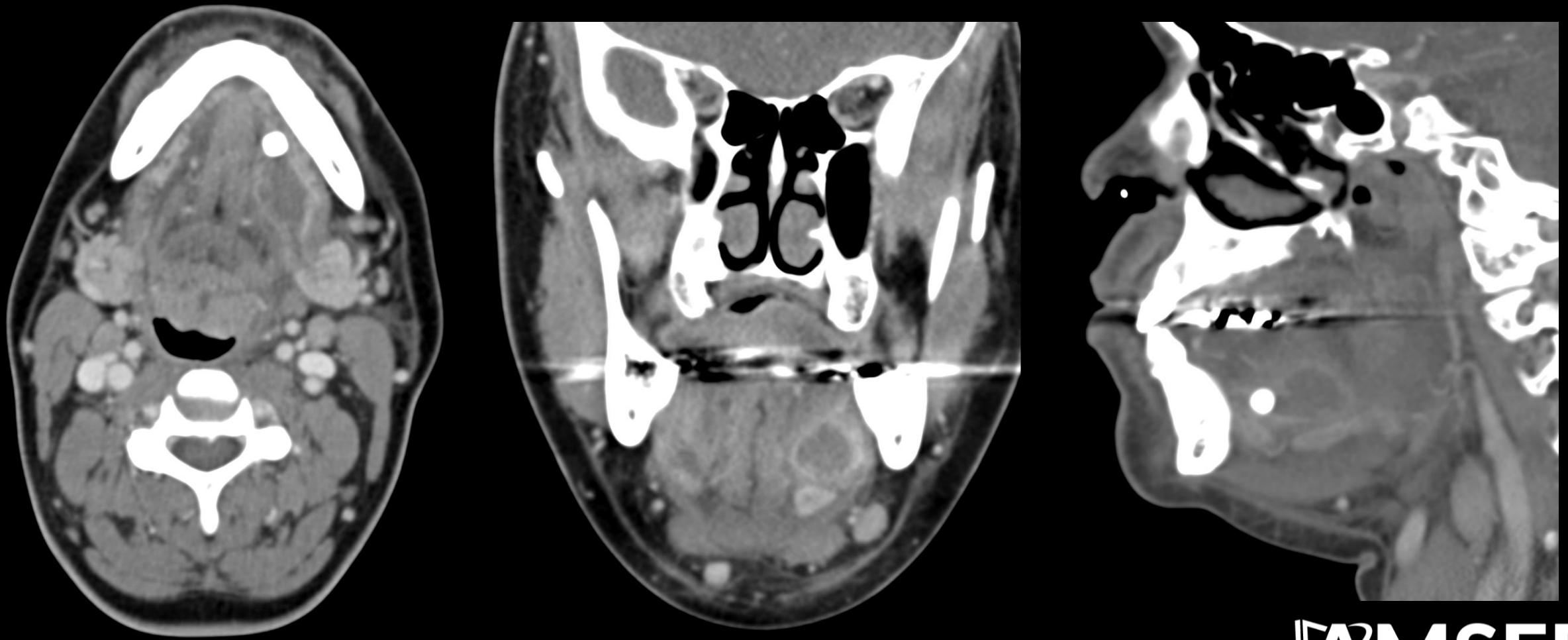
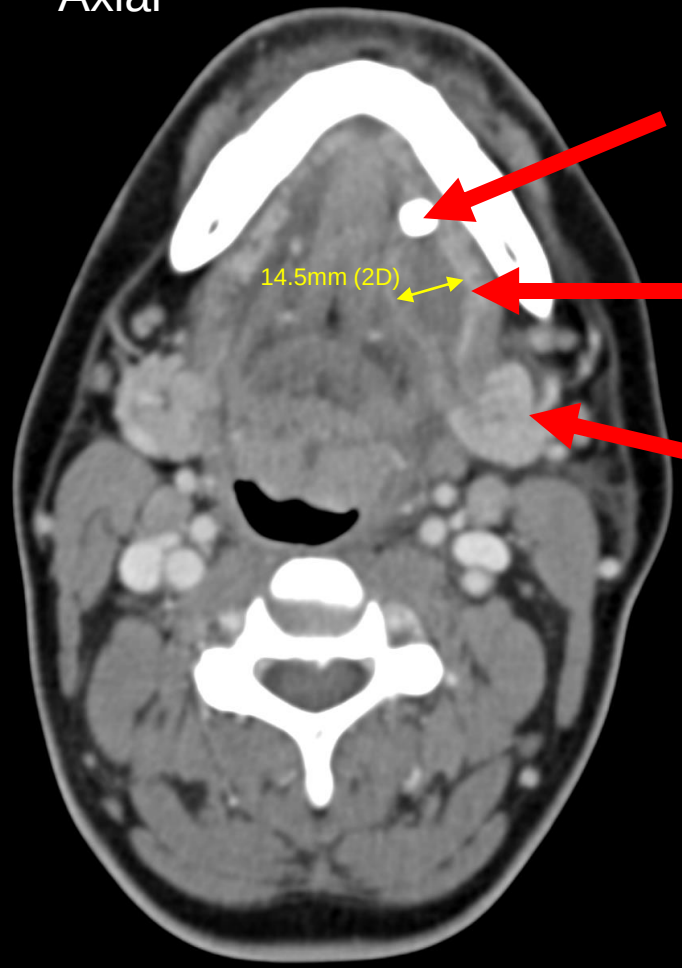
Findings (unlabeled)



Findings (labeled)

Axial



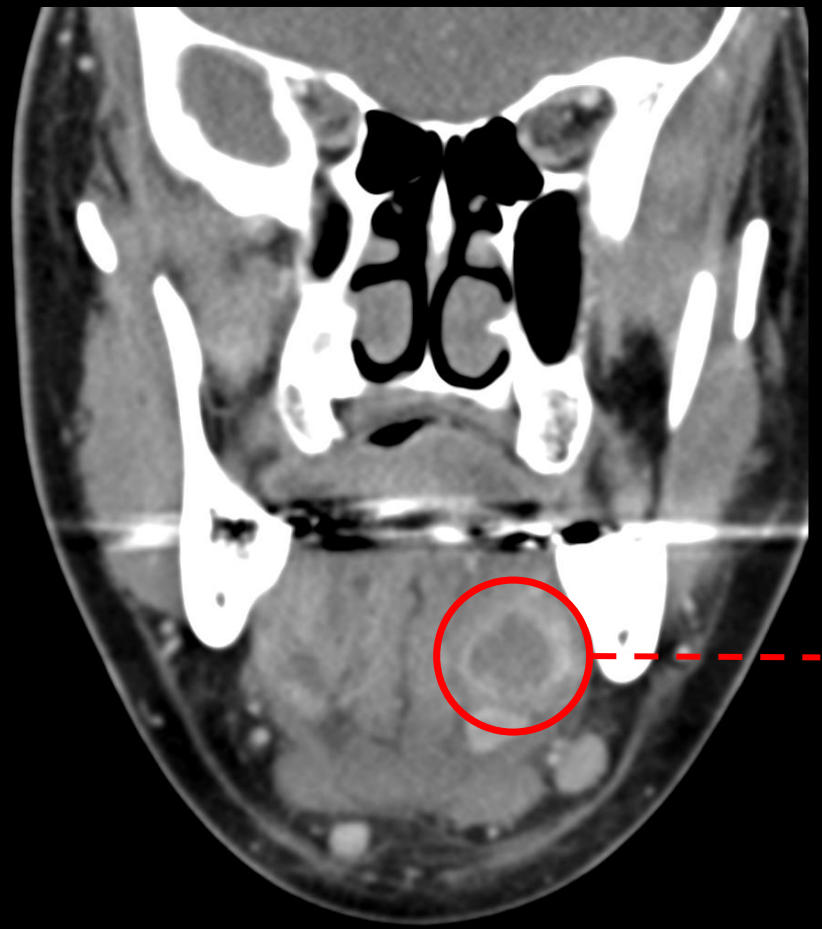
Obstructing sialolith

Enlarged submandibular duct

Submandibular gland

Findings (labeled)

Coronal



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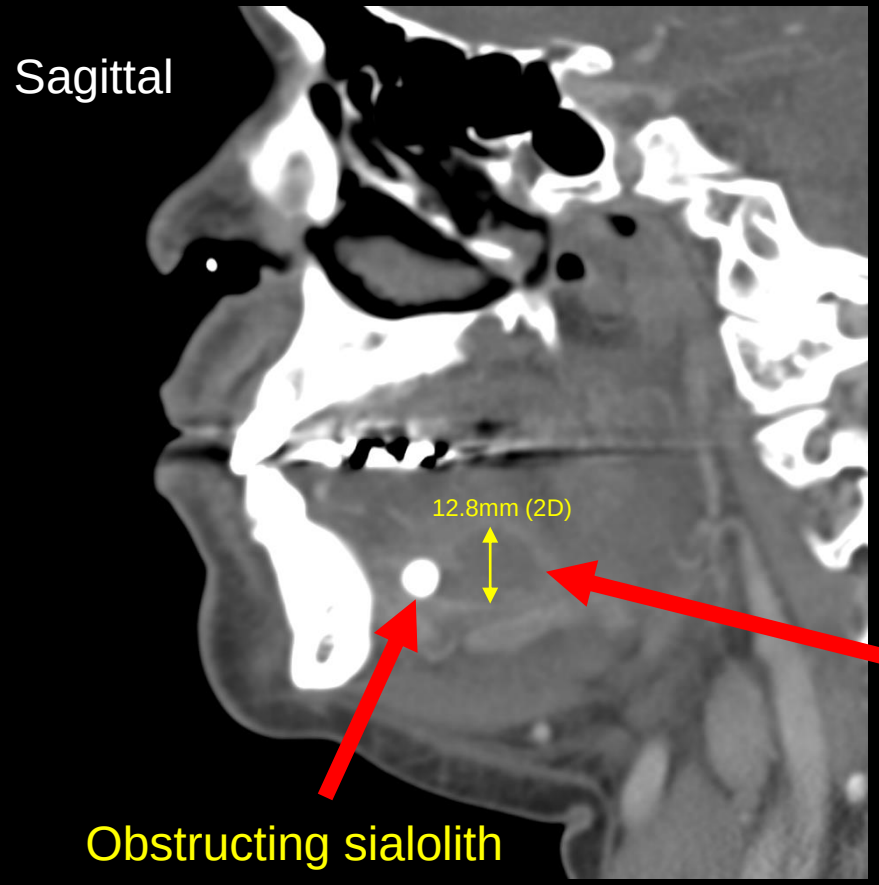

Final Dx:

Sialolithiasis of left submandibular (Wharton's) duct

Case Discussion

- Epidemiology
  - Sialolithiasis: mechanical obstruction (stone) in salivary gland duct
  - Locations: submandibular (80%) > parotid (19%) > sublingual (1%)

- Etiology
  - Deposition of hydroxyapatite (calcium phosphate), magnesium carbonate, and ammonium around nidus of mucin, bacteria, or desquamated epithelial cells
  - Risk factors: dehydration, Δsalivary pH, decreased salivation, trauma, anticholinergics, diuretics
  - Most common in submandibular duct because of increased duct length/tortuosity and higher salivary mucin and calcium produced by submandibular gland

Case Discussion

- Clinical Presentation
  - Swelling and pain in region of affected gland
  - Pain aggravated during meals or in anticipation of meals
  - Palpable stone may be present
  - Symptoms can be intermittent or persistent

- Imaging
  - Indications: if dx is unclear based on clinical presentation; concern for tumor, other conditions, or complications (ex. Ludwig's angina or abscess)
  - Imaging of choice: CT with IV contrast
    - Findings: stone within duct or gland, gland enlargement, ductal dilation, stranding and enhancement with contrast
    - 98% sensitivity, 88% specificity
    - Alternatives: Plain film, U/S, sialography, MRI

Case Discussion

- Treatment
  - Conservative (NSAIDs, hydration, sialagogues, warm compress, massage, discontinue anticholinergics, steroids, Abx if secondary infection suspected)
  - If failing to improve, referral to ENT for sialoendoscopy, lithotripsy, surgery

- Outcome of Case
  - Patient given Unasyn, steroids in ED
  - Prescribed Augmentin, Medrol Dosepack
  - Recommended use of sialagogues
  - F/u appointment with ENT scheduled

References

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- Purcell, Y. M., Kavanagh, R. G., Cahalane, A. M., Carroll, A. G., Khoo, S. G., & Killeen, R. P. (2017). The diagnostic accuracy of contrast-enhanced CT of the neck for the investigation of sialolithiasis. American Journal of Neuroradiology, 38(11), 2161–2166. https://doi.org/10.3174/ajnr.a5353
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