COMPLICATED PARAPHARYNGEAL SPACE ABSCESS AND PETROUS APICITIS IN A PEDIATRIC PATIENT WITH TYPE 1 DIABETES MELLITUS

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Introduction

Petrous apicitis (PA) is a rare complication of otitis media, often presenting with an incomplete Gradenigo's triad and cranial nerve (CN) deficit. There is a lack of a multidisciplinary model for managing PA, particularly for pediatric patients, contributing to the complexity of managing these rare cases.

Case Information

Description of Patient and Present Illness

17-year-old male with poorly controlled type 1 diabetes mellitus (DM) initially presented to CHKD with concern for diabetic ketoacidosis.

Upon admission, he complained of headache, right-sided facial weakness, ear fullness, and odynophagia prompting ENT consultation. Symptoms progressed with worsening headache, neurological deficits, and development of trismus.

Initial Physical Examination

- Edema and exquisite tenderness in the right peritonsillar region. Needle aspiration performed without purulence identified.
- Right middle ear effusion
- Right facial weakness (House-Brackman {HB} III/VI)
- Admitted and placed on broad spectrum antibiotics
- CT head and neck demonstrated extensive inflammatory process in the right parapharyngeal and retropharyngeal spaces extending to the skull base (Figure 1).

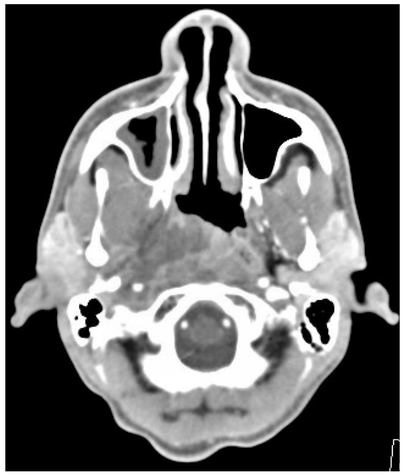

Figure 1: Computed Tomography (CT) Angiography of head and neck demonstrating extensive inflammation and hypoattenuation of the right parapharyngeal and retropharyngeal space. Occlusive spasm of right internal jugular vein.

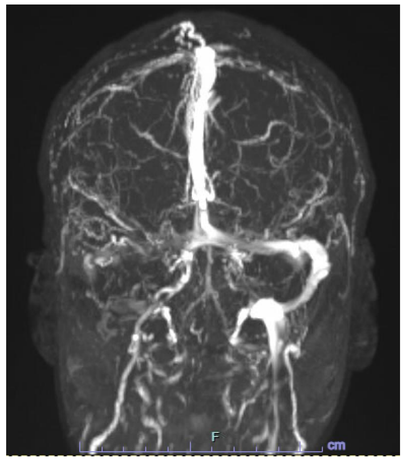

Figure 2: Magnetic Resonance Angiography (MRA) of the brain demonstrating lack of flow in the right internal carotid artery (ICA) extending into the cavernous section of the right ICA. Decreased flow in right middle cerebral artery compared to the left.

Case Information

Physical Exam Abnormalities throughout admission

- Hospital day (HD) 2:
  - Worsening right facial weakness: HB V/VI
- HD 5:
  - Worsening headache
  - Trismus
  - Asymmetric pupils, diminished right facial sensation, paralysis of right palate (Horner's syndrome).
  - Right myringotomy with tympanostomy tube placement, purulence and inflammation identified.
- HD 7
  - Subjective improvement of sore throat and hearing
  - Facial weakness HB V/VI with improving eye closure
- HD 8:
  - Tongue deviation to the right on protrusion (CNXII deficit)
  - Dysphonia. Right vocal cord hypomobility (CN X deficit)
  - MRA brain demonstrated lack of flow in the right transverse sinus sigmoid sinus extending into the right internal jugular vein. Absence of flow in the right ICA extending from below the level of the skull base through the cavernous portion.
  - Incision and drainage right parapharyngeal and retropharyngeal spaces with serosanguinous fluid identified, no purulence
- HD 9:
  - Worsening CNXII exam with increased fasciculations
  - Paresthesia of right mid and lower face (CN V2-3)
  - Right facial swelling observed
- HD 15:
  - Right sided upper extremity weakness, stroke diagnosed

Outcome

Medical management with broad spectrum antibiotics including antifungal agent due to concern for fungal skull base osteomyelitis. Prolonged hospitalization, ultimately discharged. Now with profound right sensorineural hearing loss, complete right facial paralysis, and multiple cranial neuropathies, though with some recovery of CN VI and XII and resolution of CN X deficit.

Implications/Discussion

- Patients with poorly controlled DM are at a higher risk for complications related to infectious processes.
- Steroids should be used sparingly in these patients.[1]
- PA is strongly associated with otitis media, but has not been found to be associated with DM. This contrasts with the association to peritonsillar abscesses.[2,3]
- Prior case reports discuss PA presenting with Horner's syndrome in the absence of complete Gradenigo's triad. PA should be considered in the differential diagnosis in patients presenting with Horner's syndrome and otitis media or deep neck space infections, particularly if their presentation is atypical.[4]
- Pseudomonas, staphylococcal, and streptococcal strains are the most common pathogens associated with PA with mycobacterial and fungal etiologies associated with refractory courses.[2]
- Comprehensive imaging should be obtained to define the extent of the infectious process.

Conclusion

Pediatric patients presenting with poorly controlled type 1 diabetes, head and neck infections, and unique neurological deficits require a multidisciplinary effort and early consideration for antifungals.

References

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