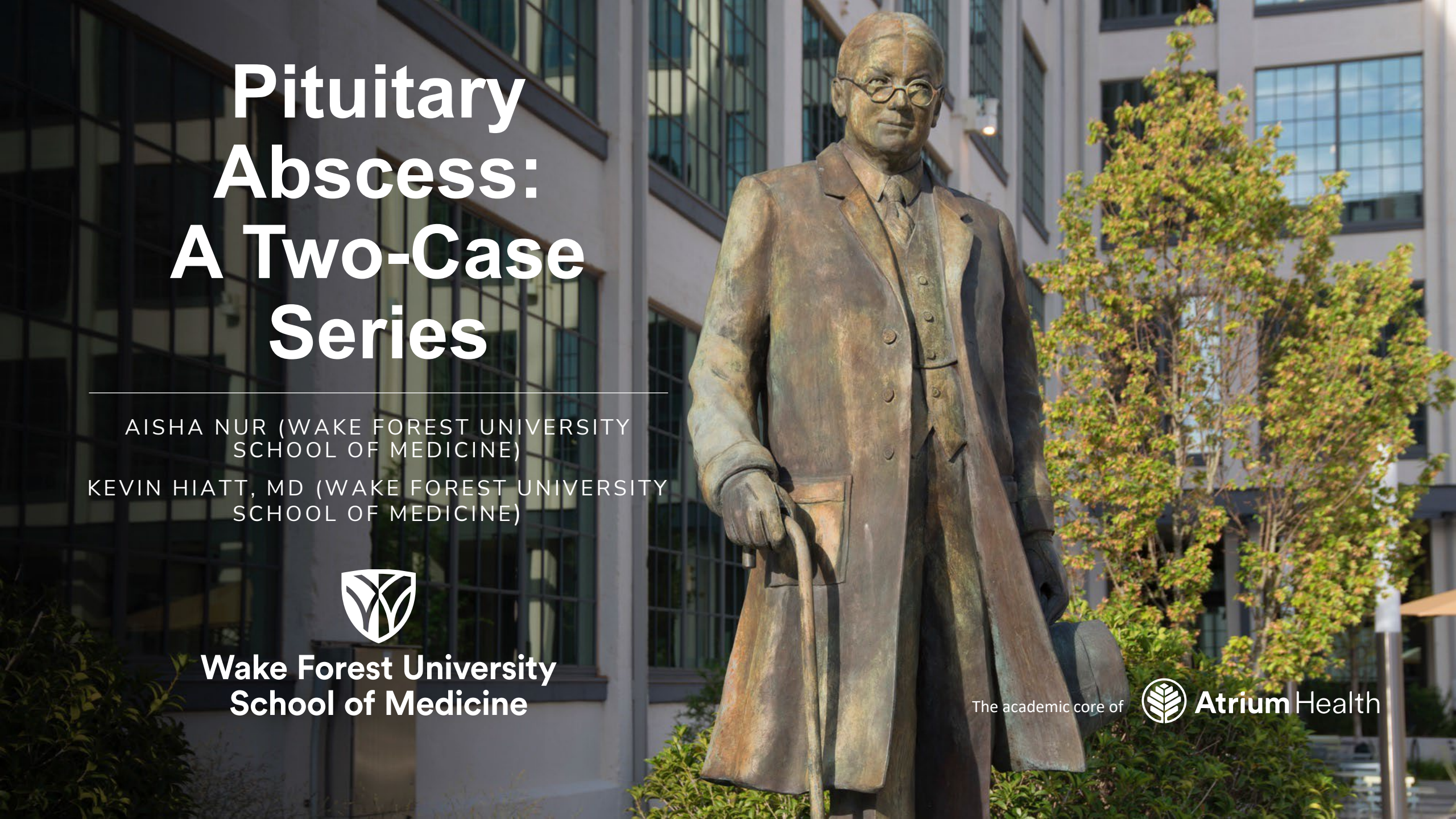
Pituitary Abscess: A Two-Case Series

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Introduction

- Pituitary abscesses are rare infections of the pituitary gland, representing less than 1% of pituitary lesions[1,2], but carry substantial morbidity and mortality if unrecognized.
- We describe two cases of pituitary abscess presenting with atypical features and diagnostic delay, highlighting the entity's overlap with hemorrhagic macroadenoma and Rathke's cleft cyst on imaging.

Teaching Points

- Pituitary abscesses can mimic and be misdiagnosed as other pituitary lesions like hemorrhagic adenomas and Rathke cleft cysts
- Due to the recurrence risk, close imaging follow-up is imperative to ensure resolution



Case 1

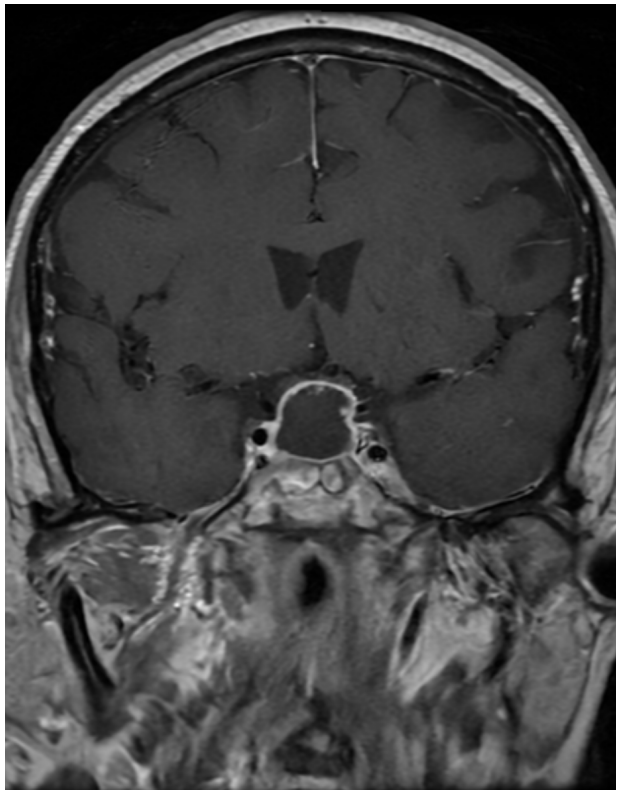
History

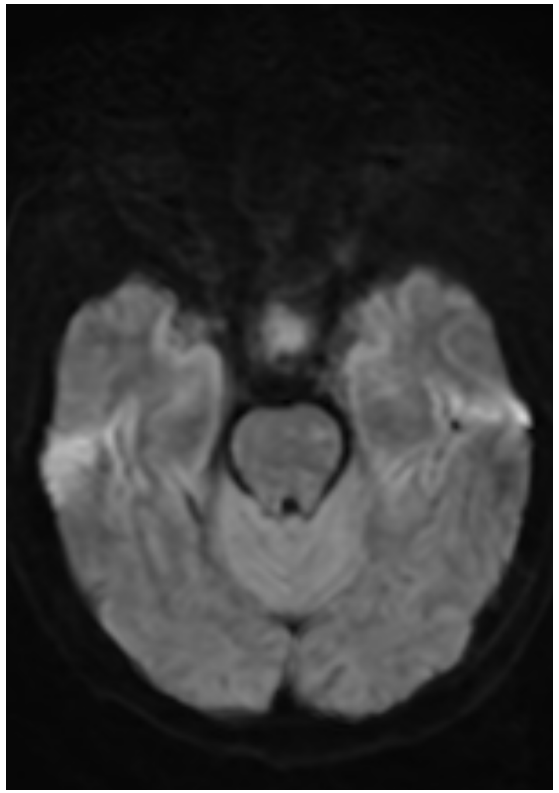
- 38-year-old female with past medical history of Graves' disease with postsurgical hypothyroidism following total thyroidectomy who presented to the ED with several days of nausea, emesis, AMS, blurry vision, fever, and headache.
- She had presented to an outside hospital 3 months earlier with headache, AMS, and fever to 103°F, and had MRI findings concerning for pituitary apoplexy with a hemorrhagic cystic pituitary lesion and subsequent panhypopituitarism.
- At that time, the differential included cystic/necrotic pituitary macroadenoma, sequela of pituitary infarct/hemorrhage, or large Rathke's cleft cyst.

Objective

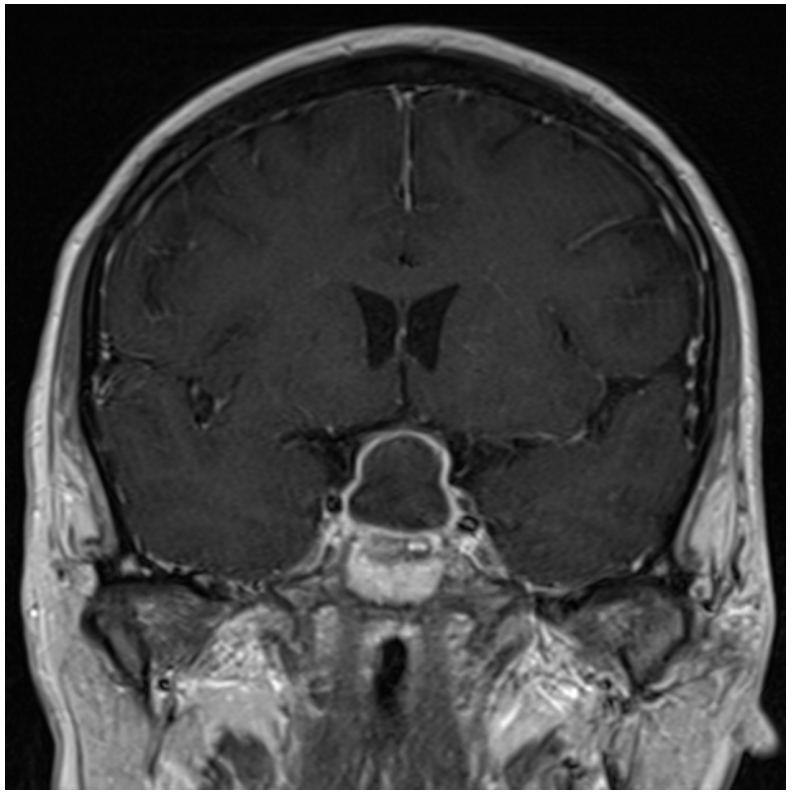
- Vitals:
  - Tmax 101.2°F
  - Otherwise within normal limits
- Physical exam:
  - Ill-appearing
  - Nonfocal neurologic exam
  - No neck rigidity, Kernig and Brudzinski signs negative
- Labs:
  - CSF (lumbar puncture): Elevated WBC, low glucose, elevated protein
  - No elevated WBC in peripheral blood
- Microbiology:
  - CSF culture and viral panel negative

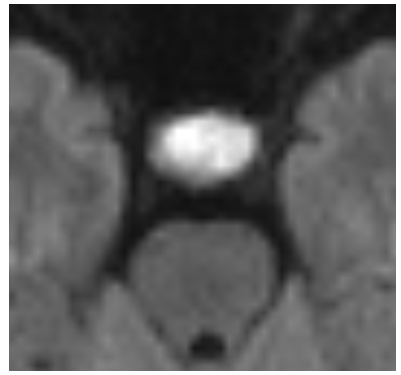
Imaging

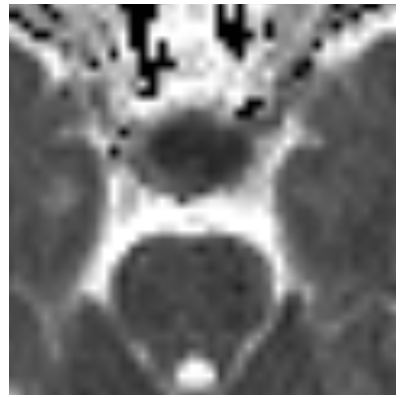




Initial imaging reveals a peripherally-enhancing pituitary lesion with suprasellar extension. Diffusion signal is similar to that of gray matter.







3 months later, the lesion has enlarged and now shows central restricted diffusion.

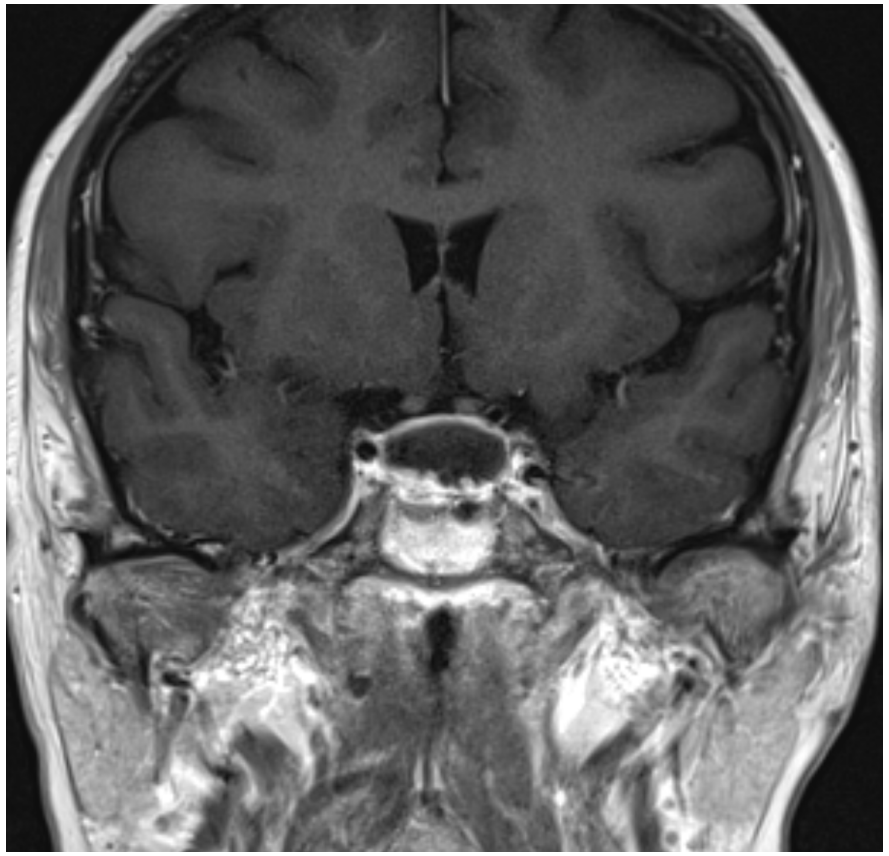
Interventions

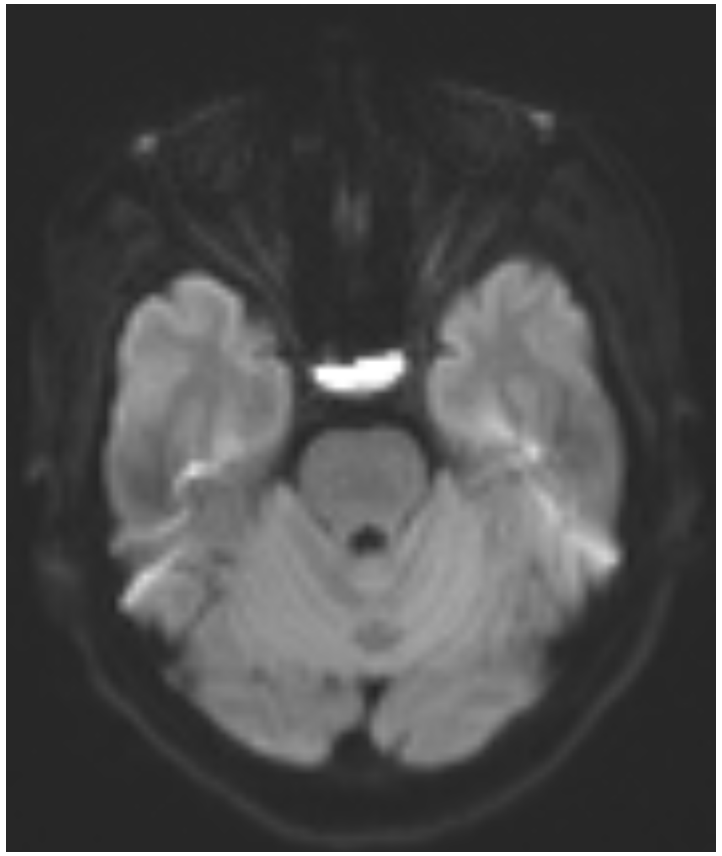
- 14-day course vancomycin, followed by transsphenoidal hypophysectomy (TSH) that was converted to endoscopic incision and drainage in the OR in the setting of frank pus.
- Surgical intraoperative cultures were positive for *Staphylococcus epidermidis*, and infectious disease recommended to continue vancomycin for 14 more days

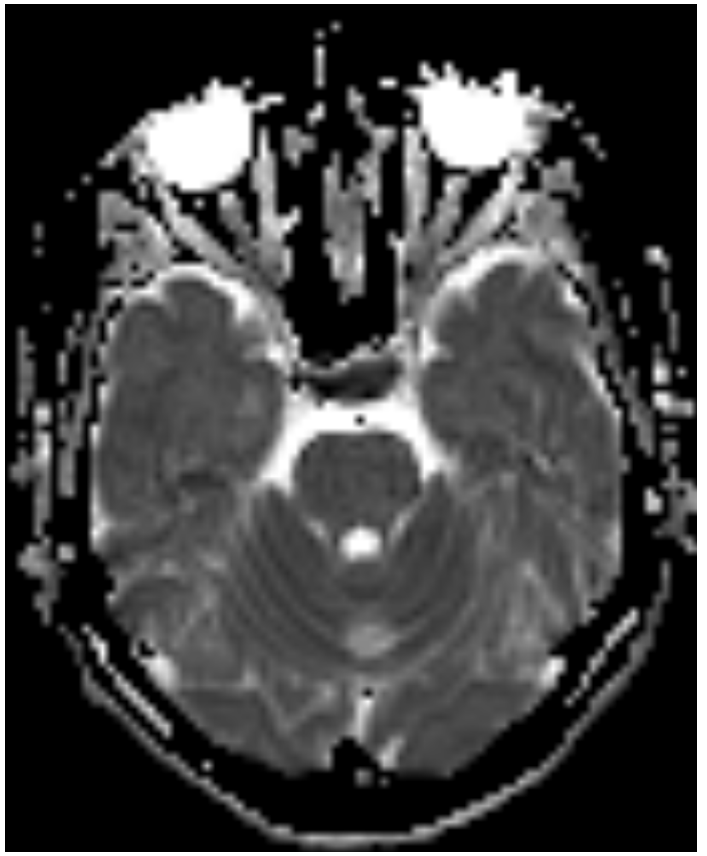
Clinical Course/Outcome

- 6 months later, the patient presented to the neurosurgery clinic with recurrent headache, fatigue, photophobia, and neck pain.
- Repeat MRI was concerning for a recurrent pituitary abscess (see next slide)
- Interventions:
  - Repeat transsphenoidal hypophysectomy with washout
  - IV antimicrobial therapy via PICC line with vancomycin, ceftriaxone, metronidazole for 6 weeks

Imaging







6 months postop, there is a recurrent peripherally-enhancing sellar lesion with associated restricted diffusion concerning for recurrent abscess.

Case 2



History

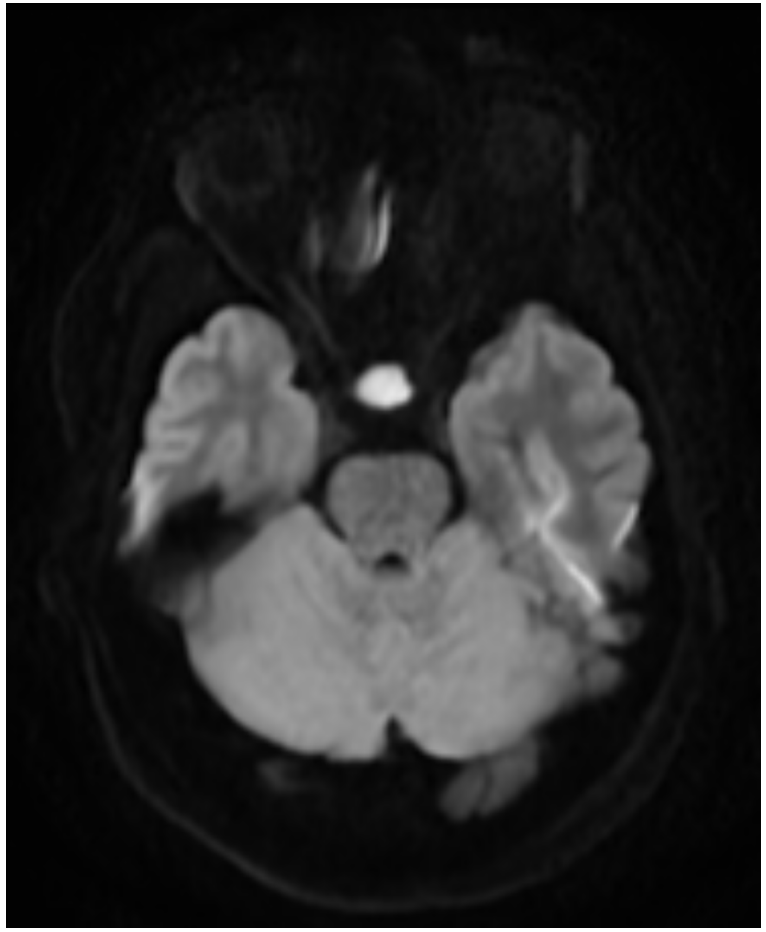
- 35-year-old male with past medical history significant for HTN, ADHD, former alcohol-use disorder, and tobacco use, presented to his PCP with several years of gynecomastia and occasional right breast tenderness.
- He reported a family history of breast and ovarian cancer in his mother and states he had this worked up in the past with a mammogram which was negative.
- He endorsed recent weight gain and denied drainage from nipples and any known family history of male breast cancer.

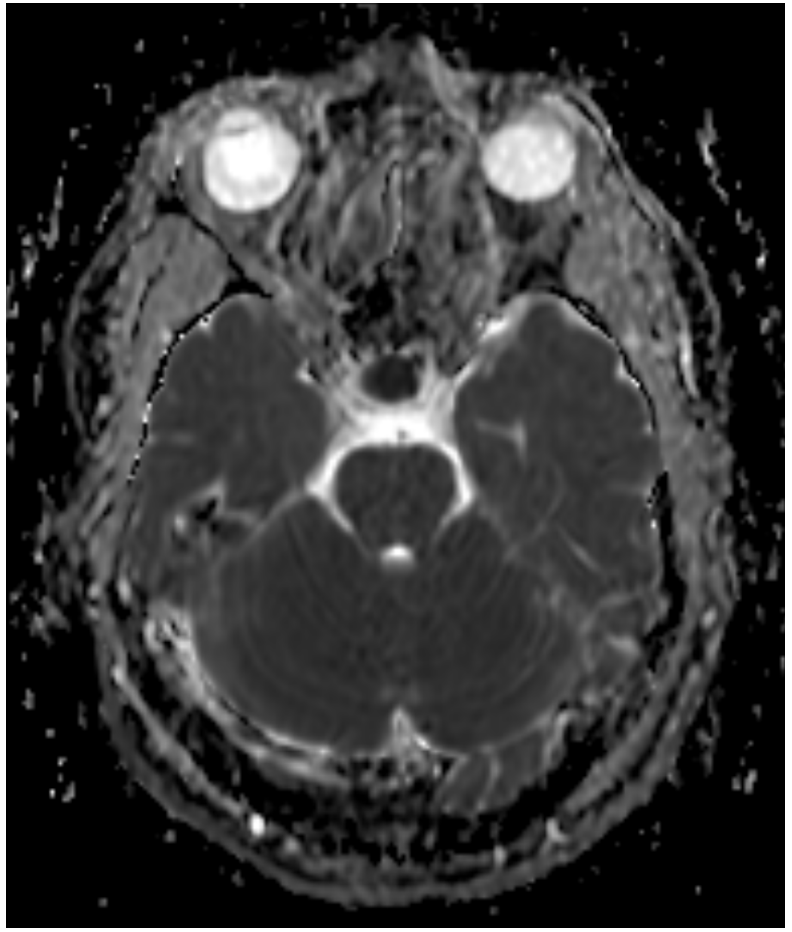
Objective

- Vitals: afebrile, hemodynamically stable
- Physical exam:
  - Significant for mild gynecomastia bilaterally. No expressed drainage from bilateral nipples. Right nipple mildly tender to palpation, no masses.
  - No axillary adenopathy.
  - No thyromegaly or thyroid masses
- Labs:
  - Normal WBC
  - Hypogonadotropic hypogonadism and mildly elevated prolactin
- Microbiology:
  - HIV: negative
  - RPR: nonreactive
  - Urine NAAT: Chlamydia trachomatis positive, Neisseria gonorrhoeae negative

Imaging







Pituitary protocol MRI demonstrates a centrally nonenhancing pituitary lesion with irregular peripheral enhancement and central restricted diffusion. There is suprasellar extension with abutment of the optic chiasm.

Interventions

- Patient underwent transsphenoidal hypophysectomy during which frank purulence was noted.
- Cultures were positive for *MRSE, Cutibacterium acnes, and Corynebacterium pseudodiphthericum*. Pathology was consistent with Rathke's cleft cyst.
- Planned for outpatient parental antimicrobial therapy via PICC line with vancomycin, ceftriaxone, and metronidazole for 4 weeks.

Clinical Course/Outcome

- Due to residual lesion seen at follow up, ID recommended additional 4 weeks of antibiotic treatment. He was seen by neurosurgery and decision was made to modify antibiotic regimen to linezolid for the final 3 weeks of treatment due to adverse effects with previous regimen (fever, pruritus, flushing, and diarrhea).
- Most recent MRI pituitary demonstrated stable size of lesion to prior. He was seen in infectious disease clinic during this time, and plans were made to discontinue antibiotics after 8 weeks of treatment.
- He was subsequently started on testosterone replacement for persistent hypogonadotropic hypogonadism, and follow-up labs showed low-normal cortisol and resolution of hyperprolactinemia.

Take Home Points

- Both cases illustrate the diagnostic challenge of pituitary abscess, which frequently mimics hemorrhagic macroadenoma or Rathke's cleft cyst on imaging and often requires surgical drainage with culture confirmation for definitive diagnosis.
- Both patients required prolonged, multi-drug antimicrobial therapy following surgery, and Case 1 illustrates the potential for recurrence even after appropriate initial treatment, underscoring the need for close radiographic follow-up in this condition.

References

1. Ishiuchi, S., Uetani, H., Shinojima, N., et al. (2025). Usefulness of 3T split acquisition fast spin-echo diffusion-weighted imaging for differentiating pituitary abscess from other sellar cystic lesions: a preliminary study. *Neuroradiology, 67*(5).
2. Koźba-Gosztyła, M., Krzemińska, A., Bladowska, J., Szczepański, T., & Czapiga, B. (2025). Unusually high frequency of pituitary abscess in the post-COVID-19 era: Insights from a single-center experience. *Neurosurgical Focus, 59*(5)