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Case illustrated

Nocardia pituitary abscess in an immunocompetent host

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A 44-year-old male presented with headaches and fever for one month. Six months prior, he had hemoptysis that resolved without treatment. Chest computed tomography revealed a necrotizing lung nodule on the right mid lobe with lymphadenopathy (Fig. 1). He was originally from Mexico, worked in landscaping, and denied exposure to tuberculosis.

In the ED, he had fever and tachycardia with no meningeal signs. Magnetic resonance imaging (MRI) of the brain revealed an enhancing sellar mass (Fig. 2A). Cerebrospinal fluid (CSF) analysis showed 96 total nucleated cells/μL (TNC), 91% lymphocytes, 30 mg/dL protein, and 55 mg/dL glucose (parallel blood glucose 98 mg/dL). CSF bacterial and fungal/mycobacterial cultures on empirical antimicrobials were negative. Endoscopic transsphenoidal biopsy revealed a necrotic, purulent hypophyseal cyst, and histopathology demonstrated acute inflammation without granulomas. Bacterial, fungal/mycobacterial cultures, *Histoplasma*, and *Blastomyces* polymerase-chain-reaction (PCR) of the sampled tissue were unrevealing. The patient was discharged on empiric ertapenem and vancomycin for four weeks.

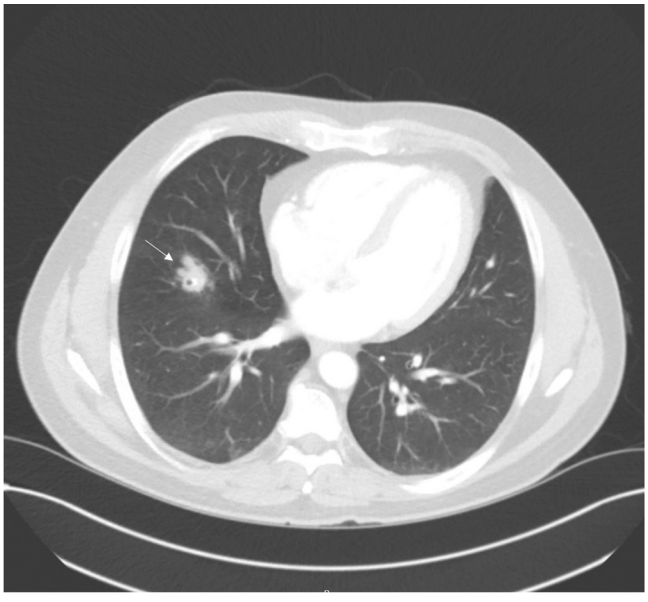

Fig. 1. Computed tomography of the chest demonstrating a necrotizing nodule in the right mid lobe (arrow).

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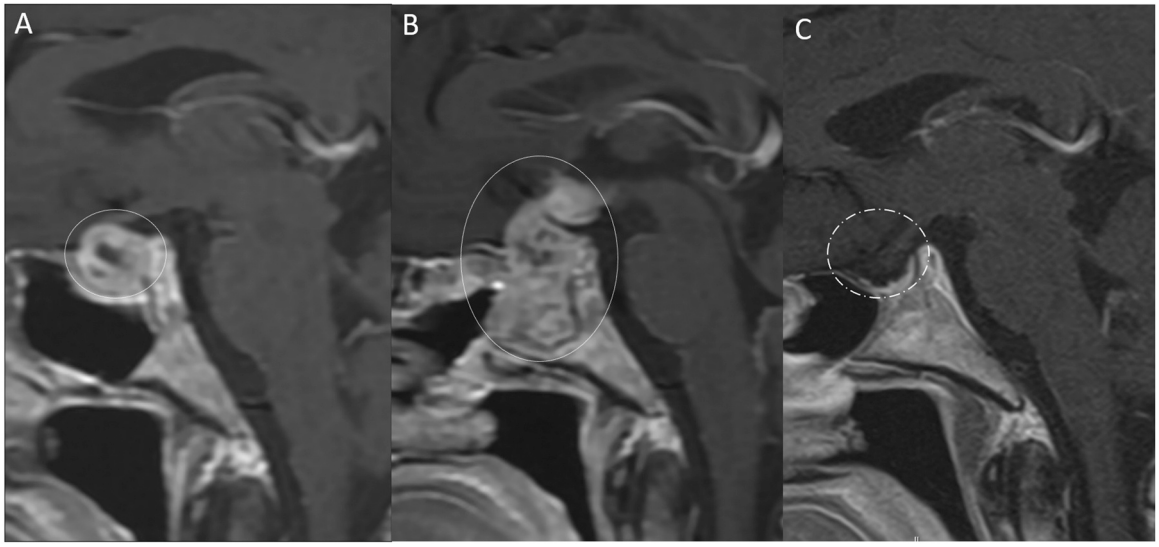

Fig. 2. Magnetic resonance imaging of the brain at three different time points throughout the patient's clinical course. A, sagittal T1 gadolinium sequence obtained at presentation demonstrating an enhancing sellar mass (circle). B, sagittal T1gadolinium sequence obtained following discontinuation of empiric antibiotics showing expansion of the mass inferiorly into the sphenoid sinus and superiorly into the floor of the third ventricle (circle). C, sagittal T1 gadolinium sequence showing resolution of the sellar mass with associated partially empty sella (circle) following completion of treatment with trimethoprim-sulfamethoxazole.

Following his treatment, he had recurrence of headache and fever, and repeat MRI showed enlargement of the sellar mass (Fig. 2B). CSF analysis showed 1144 TNC (51% lymphocytes), protein 110 mg/dL, and glucose 42 mg/dL (parallel blood glucose 90 mg/dL). Repeat endoscopic transsphenoidal biopsy again demonstrated a necroinflammatory process, this time with associated granulomas. Cultures and molecular testing (*Mycobacterium tuberculosis*-PCR, broad-range bacterial PCR) were negative. He was dismissed on 4 weeks of antimicrobials and instructed to report if he became symptomatic. He again relapsed following completion of antibacterials. CSF was obtained and cultured at his local ER and was transferred to our facility. Three weeks later, *Nocardia farcinica* was identified in CSF cultures. The patient was started on high-dose trimethoprim-sulfamethoxazole (TMP-SMX) plus linezolid for a 6-week induction [1].

Pituitary abscesses are rare [2] and represent a challenging clinical entity with fatal outcomes if inadequately treated [3]. Non-infectious subacute hypophysitis related to neoplasia or other inflammatory disorders usually presents insidiously. In brain abscess, the CSF typically demonstrates a neutrophilic pleocytosis and elevated protein concentration. In contrast, lymphocytic pleocytosis [4] was the predominant finding in our patient. Despite limited literature, surgical intervention is considered necessary in most cases [5]; however, in our case, CSF cultures off antimicrobials were positive allowing for definitive medical therapy and avoidance of surgery. *Nocardia farcinica* is one of the least frequent clinically significant species [6]. We suspect the necrotizing lung nodule was the source of disseminated infection.

Our patient was asymptomatic at six weeks followup, and TMP-SMX monotherapy was continued thereafter to complete one year. MRI brain showed no abnormalities six months after starting therapy (Fig. 2C).

Consent

"Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request".

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Author contribution

All authors have seen and approved the manuscript and contributed significantly to the work. **Edison J. Cano:** study design, image collections, writing. **Cristina Corsini Campioli:** literature review, writing. **Bobbi S. Pritt:** writing, proof-writing. **Michel Toledano:** writing, proof-writing. **Fredric B. Meyer:** proof-writing. **Mary J. Kasten:** writing, proof-writing. **Alan J. Wright:** writing, proof-writing.

Conflict of interest

None for all authors.

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