Mixed *Curvularia* and *Klebsiella* Brain Microabscesses in an Immunocompromised Patient

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BACKGROUND

Curvularia is a fungal pathogen present in soil most commonly associated with sinusitis. CNS infection is rare and portends a poor prognosis. Routes of entry include sinus cavity erosion and hematogenous spread. Infection may present as cranial cerebral hemisphere abscess, brainstem abscess, cerebritis, or paravertebral abscess. CNS infection due to *Klebsiella* is associated with advanced age, diabetes, and neurosurgical procedures and can cause microabscesses in immunocompromised patients.

CASE

A 55-year-old woman with a month-long hospital stay due to a new diagnosis of acute B-cell predominant lymphoblastic leukemia status post intrathecal chemotherapy developed a tremor, slurred speech, and incoordination in the setting of neutropenia, treated bacteremia, colitis, and middle turbinate resection due to invasive fungal infection with *Curvularia* and *Klebsiella*.

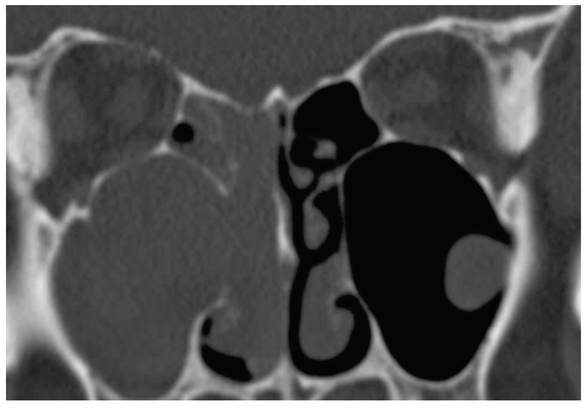
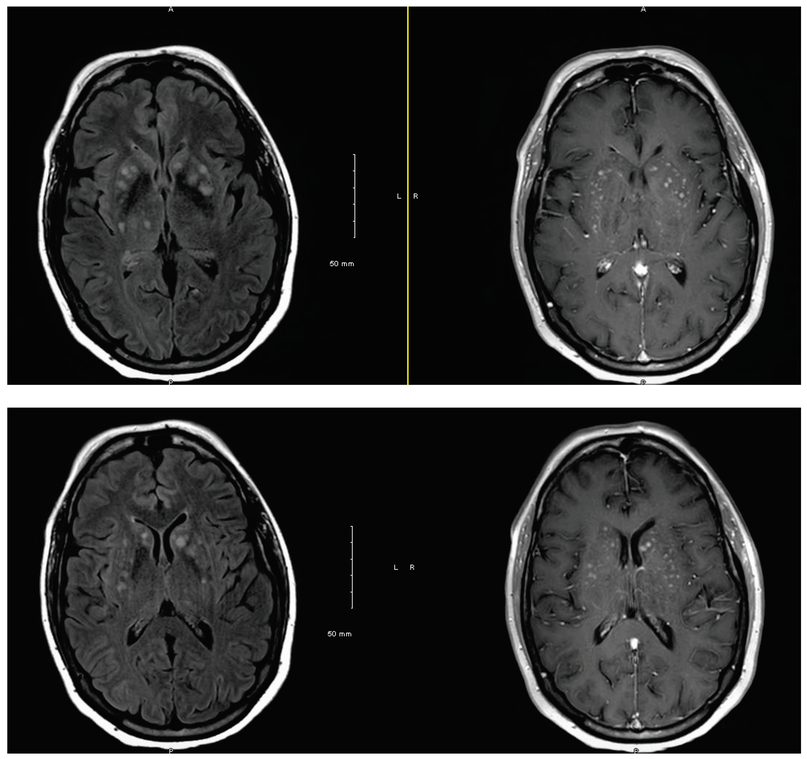


Figure 1: Coronal CT sinus section showing thinning of right cribriform plate



Figures 2 and 3: Gadolinium-enhanced MRI brain with numerous subcentimeter enhancing nodular lesions in the bilateral deep basal ganglia with minimal T2 signal vasogenic edema

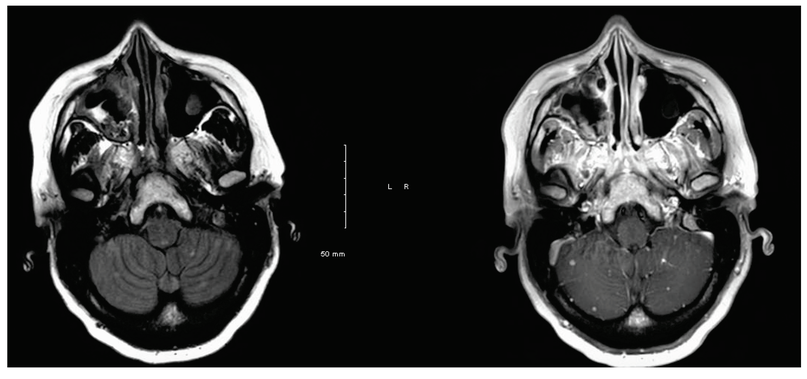


Figure 4: Gadolinium-enhanced MRI brain with bilateral cerebellar enhancing punctate lesions without diffusion restriction or gradient echo signal

CLINICAL COURSE

- On presentation, patient was somnolent, afebrile, and dysarthric with decreased lower extremity strength, a flexion-extension tremor, and upper extremity dysmetria and dysdiadochokinesia.
- MRI revealed numerous subcentimeter enhancing nodular lesions in the bilateral deep basal ganglia and bilateral cerebellar enhancing punctate lesions. Right maxillary post-operative changes and an enhancing lesion were concerning for intracranial invasive spread.
- Repeat blood cultures grew *Klebsiella pneumoniae* and *Enterobacter cloacae*. Repeat culture of sinus tissue grew *Klebsiella pneumoniae* and *Klebsiella oxytoca*. CSF studies were negative.
- The patient's neutropenia resolved and symptoms improved on posaconazole, aztreonam, and daptomycin.
- Repeat CSF after initiation of treatment demonstrated normal cell count and CSF cytology was again negative.
- Repeat bone marrow biopsy after initiation of treatment was without residual leukemia.
- Patient experienced modest improvement in tremor by the time of hospital discharge.

CONCLUSION

- New-onset focal neurological deficits in an immunocompromised patient with basal ganglia and cerebellar lesions on MRI can be infectious or neoplastic in etiology.
- Previously described pathogens associated with this presentation include Cryptoccocus, Candida, Toxoplasmosis, Mycobacterium, Coccidioides, Nocardia, and Listeria.
- Our case demonstrates unusual microbiology, with Klebsiella and/or Curvularia species as the likely causative organisms. Awareness of these uncommon causes of CNS infection may allow for more prompt diagnosis and treatment.