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**Case Report**

# The red herring in the cerebrospinal fluid: *Aspergillus niger* isolation in a 9-year case of recurrent lymphocytic meningitis

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## ABSTRACT

Invasive central nervous system (CNS) aspergillosis is classically a disease of the severely immunocompromised host, driven by rapidly progressive and often fatal infection. *Aspergillus niger*, an intrinsically rare neuropathogen even within this context, has scarcely been reported as a causative agent of meningitis. We reported a 41-year-old man with chronic alcohol and tobacco use who presented with fever, headache, and photophobia two days after returning to Kerala, India, from Saudi Arabia. His records documented six identical meningitis episodes over nine years (2016, 2017, 2019, 2020, 2021, and 2025), each resolving completely with empirical antimicrobials and without neurological sequelae. Lumbar puncture revealed lymphocytic pleocytosis (85 cells/mm$^3$, 98% lymphocytes), mildly elevated protein (59 mg/dl), and borderline-normal glucose (46 mg/dl). Extensive workup including Brucella serology, Weil-Felix test, TB PCR, Interferon-Gamma Release Assay, and autoimmune panels were negative. Unexpectedly, cerebrospinal fluid culture isolated *Aspergillus niger*. Empirical acyclovir and ceftriaxone were commenced; voriconazole was added following culture identification. The patient improved rapidly and was discharged, but was lost to follow-up before planned skull-base CT imaging could be completed. This case presented a compelling diagnostic dilemma: whether the isolate represents true invasive infection, periodic trans-cribriform antigenic seeding from a chronic sinus mycetoma, or an incidental finding superimposed on a benign recurrent meningitis syndrome such as Mollaret's meningitis or neuro-Behçet's disease. It underscores the importance of integrating longitudinal clinical context when interpreting unexpected microbiological results, and of maintaining a broad differential rather than anchoring on a single laboratory finding.

**Keywords:** *Aspergillus niger*, Fungal meningitis, Recurrent lymphocytic meningitis, Mollaret's meningitis, Neuro-Behçet's disease, Skull base defect

## INTRODUCTION

When we think of central nervous system (CNS) aspergillosis, the classic clinical picture that comes to mind is a rapidly deteriorating, immunocompromised patient- perhaps someone with prolonged neutropenia or a recent transplant.[1] *Aspergillus fumigatus* and *A. flavus* dominate these cases, making *Aspergillus niger* a distinct rarity in the cerebrospinal fluid (CSF).[2] More importantly, untreated invasive fungal infections of the CNS do not smolder benignly for years; they are fulminant.

We recently encountered a highly unusual situation involving a 41-year-old chronic smoker and alcoholic who presented with a relapsing-remitting course of meningitis spanning nearly a decade. After his most recent admission,

his CSF analysis showed a benign lymphocytic pleocytosis, but the culture isolated *Aspergillus niger*. This unique presentation challenges the treating clinician to figure out what is really going on: is this an indolent chronic fungal infection, an anatomical skull-base defect causing recurrent seeding from a sinus mycetoma, or simply a misleading microbiological isolate complicating a completely different underlying disease?

## CASE REPORT

A 41-year-old man arrived at the emergency department complaining of a headache, fever, and photophobia that had been fluctuating for a week. He had just travelled back to Kerala from Saudi Arabia two days prior. While he admitted to heavy, chronic alcohol and tobacco use, his history was completely negative for HIV, recent trauma, or immunosuppressive drugs.

What immediately stood out in his medical records, however, was a striking pattern. Over the last nine years (specifically in 2016, 2017, 2019, 2020, 2021, and earlier in 2025), he had been admitted six separate times for identical meningitis episodes. Every single time, he recovered fully with basic empirical antimicrobials and went home without any neurological deficits.

On examination, he was afebrile and his hemodynamics were perfectly stable. His airway was patent, oxygen saturation sat at 99 percent on room air, and his vitals were unremarkable (respiratory rate 15/minute, heart rate 72 beats/min, blood pressure 110/70 mmHg). Neurologically, he was fully alert with a Glasgow Coma Scale of 15. We noted mild meningeal signs, but there were absolutely no focal neurological deficits.

We proceeded with a lumbar puncture to investigate this latest flare-up. The CSF showed a clear lymphocytic pleocytosis with 85 cells/mm$^3$ (98 percent lymphocytes and 2 percent neutrophils). The protein level was mildly elevated at 59 mg/dl, alongside a borderline-normal glucose of 46 mg/dl.

At this point, we initiated a broad workup to hunt for the root cause of these recurrent attacks. Given his travel history to the Middle East, we tested for zoonotic infections; however, Brucella serology and Weil-Felix tests were negative. Tuberculosis testing, including a TB PCR and an interferon-gamma release assay, also came back negative, as did autoimmune panels like pANCA and cANCA.

Because his vitals were stable but his history was so complex, we started empirical intravenous acyclovir and ceftriaxone (2 gm) to cover the most common viral and bacterial triggers for recurrent meningitis. Then, the unexpected happened: the microbiology lab reported *Aspergillus niger* in the CSF culture.

This result forced an immediate pivot in our strategy. Trying to balance the patient's relapsing but benign history against the threat of an invasive fungal pathogen, we decided to add targeted voriconazole to his regimen. He responded beautifully to the optimized therapy, with his fever, photophobia, and headache resolving over the next few days.

We discharged him in stable condition. Our plan was for him to follow up closely in the outpatient clinic to monitor his liver enzymes on voriconazole and, crucially, to get a high-resolution CT scan of his paranasal sinuses and skull base. Unfortunately, he was subsequently lost to follow-up, and those confirmatory scans were never completed.

## DISCUSSION

Interpreting an *Aspergillus niger* positive CSF culture in a patient with a nine-year relapsing-remitting history forces a major shift in standard clinical reasoning. On one hand, his chronic alcoholism and heavy smoking undoubtedly impair local immune responses like mucociliary clearance. But does that explain a decade of recurrent aseptic meningitis? Not traditionally.

The core dilemma here is deciphering if this fungus is the actual culprit, a superimposed opportunistic pathogen, or merely a red herring. We can look at this through two main pathophysiological lenses.

First, consider the anatomical angle. The patient lives in Saudi Arabia, where the climate frequently contributes to paranasal sinus pathology. Combine that with heavy smoking, and it is very possible he harbors a chronic Aspergillus mycetoma in his sphenoid or ethmoid sinuses. If there is a micro-defect or bony erosion in the cribriform plate, fungal elements or antigens could periodically seep into the subarachnoid space. This would trigger a recurrent chemical or low-grade inflammatory meningitis.[3] Once the immune system clears the transient antigenic load, the symptoms vanish. This perfectly explains his symptom-free intervals and why the fungus hasn't invaded the brain parenchyma aggressively.

Second, a nine-year relapsing course with full recovery between episodes is the textbook definition of benign recurrent lymphocytic meningitis. We usually see this with herpes simplex virus type 2 (Mollaret's meningitis).[4] Alternatively, his ties to the Middle East make neuro-Behcet's disease a strong suspect, as it often mimics chronic aseptic meningitis.[5] If either of these is the true underlying disease, then the isolated *A. niger* might just be a transient colonizer or even an incidental laboratory contaminant that distracted from the real issue.

Naturally, the fact that the patient was lost to follow-up is a limitation of this report. Without that final outpatient high-resolution CT scan or a positive HSV-2 PCR during a future flare, we cannot definitively prove the etiology. Even so, his clinical timeline points heavily toward a

recurrent viral syndrome or an anatomical leak rather than a true invasive fungal meningoencephalitis.

## CONCLUSION

Finding *Aspergillus niger* in the CSF of someone who has suffered from relapsing-remitting meningitis for nine years is a fascinating puzzle. While alcohol and tobacco abuse do compromise local immunity, they do not neatly explain a decade-long fungal infection in the central nervous system. This case is a powerful reminder that physicians need to look out for anatomical skull base defects, autoimmune issues like neuro-Behcet's, and viral syndromes like Mollaret's. Treating the actual patient and their clinical timeline- rather than jumping to conclusions based on a single, unexpected lab result- is absolutely critical.

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## REFERENCES

1. Antinori S, Corbellino M, Meroni L, Resta M, Sollima S, Tonolini M, et al. Aspergillus meningitis: A rare clinical manifestation of central nervous system aspergillosis. Case report and review of 92 cases. J Infect. 2013;66(3):218-38.
2. Góralska K, Blaszkowska J, Dzikowiec M. Neuroinfections caused by fungi. Infection. 2018;46(4):443-59.
3. Mathias T, Levy J, Holzmann D, Bink A. Recurrent meningitis: a challenging diagnosis. Postgrad Med J. 2013;89(1057):643-9.
4. Tedder DG, Ashley R, Tyler KL, Levin MJ. Herpes simplex virus type 2 is associated with Mollaret's meningitis. Lancet. 1994;344(8928):1010-2.
5. Siva A, Altintas A, Saip S. Behcet's syndrome and the nervous system. Curr Opin Neurol. 2004;17(3):347-57.

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