Disseminated *Fusarium solani* Infection Presenting With Fungemia and Endogenous Endophthalmitis in Profound Neutropenia

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BACKGROUND

Disseminated fusariosis is a severe opportunistic infection that typically occurs in patients with hematological malignancies and prolonged neutropenia (1). Unlike most filamentous fungi, *Fusarium* species can often be detected in blood cultures (2) and may present with characteristic cutaneous lesions. These lesions can be an early clinical sign of disseminated infection. Early recognition is important as the condition carries a high mortality ranges from 60 % to 80 % (3), particularly in patients with persistent neutropenia.

CASE SUMMARY

A 40-year-old patient with refractory acute myeloid leukemia receiving chemotherapy developed persistent febrile neutropenia from late June to end of August 2025.

Laboratory investigations demonstrated profound pancytopenia:

- White blood cell count 0.02 × 10^9/L
- Absolute neutrophil count 0.02 × 10^9/L
- Platelets 13 × 10^9/L

Blood cultures grew *Fusarium solani*.

Over the course of admission, multiple tender erythematous subcutaneous nodules developed on the arms, scalp and neck at different time points, the largest measuring approximately 2 × 3 cm.

Initial concern for angioinvasive fungal infection was confirmed on skin punch biopsy showing septate hyphae with angioinvasion.

Prior to ophthalmological involvement, the patient reported right eye pain and redness.

Ophthalmological assessment was consistent with endogenous fungal endophthalmitis, with PCR detecting *Fusarium solani* complex.

Beta D glucan demonstrated a rising trend during admission.

Computed tomography imaging demonstrated no additional sites of invasive fungal disease. Echocardiography and cryptococcal antigen testing were negative.

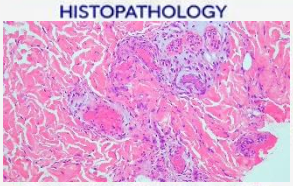
TIMELINE – SEQUENCE OF EVENTS

1. Persistent febrile neutropenia in the context of chemotherapy for refractory AML.
2. Profound pancytopenia (WCC 0.02 × 10^9/L, ANC 0.02 × 10^9/L, Platelets 13 × 10^9/L).
3. Tender erythematous nodules appear on arms, scalp and neck.
4. Blood cultures positive for *Fusarium solani*.
5. Skin biopsy confirmed angioinvasive fungal infection.
6. Endogenous fungal endophthalmitis diagnosed (PCR: *Fusarium solani* complex).
7. Liposomal amphotericin B and voriconazole initiated
8. HDU admission with G-CSF and granulocyte transfusions
9. Transfer to hospice care
10. Clinical improvement
11. Discharged from hospice with stable residual nodules
12. Later died in the community due to the relapse of AML.

MANAGEMENT AND CLINICAL COURSE

- Liposomal amphotericin B
- Intravenous voriconazole
- Intravitreal voriconazole for ocular involvement
- Broad-spectrum antibacterial therapy for concurrent bacterial infections
- Granulocyte colony-stimulating factor (G-CSF)
- Granulocyte transfusions
- High-dependency unit admission

HISTOPATHOLOGY



Hematoxylin and eosin stain demonstrate septate hyphae in the dermis and within vessels.

β-D-GLUCAN TREND

Date	β-D-Glucan (pg/mL)
14/07/2025	11
27/07/2025	282
05/08/2025	>523

DISCUSSION

Cutaneous lesions may represent an early manifestation of disseminated fusariosis in neutropenic individuals and can initially appear atypical.

Early dermatology involvement and prompt skin biopsy are crucial in immunocompromised patients presenting with new nodular lesions.

Unlike many invasive mould infections, *Fusarium* species are notable for frequent bloodstream isolation, facilitating earlier microbiological diagnosis.

Clinical outcomes remain strongly dependent on immune recovery, particularly neutrophil recovery, alongside timely antifungal therapy.

CONCLUSION

New nodular skin lesions in profoundly neutropenic patients should prompt urgent evaluation for invasive fungal infection.

Early multidisciplinary involvement, skin biopsy, and timely antifungal therapy are essential for diagnosis and management.

Clinical improvement may still occur despite severe disseminated infection when antifungal treatment is combined with immune recovery.

REFERENCES

1. E. Pérez-Nadales, A. Alastruey-Izquierdo, M.J. Linares-Sicilia, J.C. Soto-Debrán, E. Abdala, J. Garcia-Rodriguez, et al. Invasive Fusariosis in Nonneutropenic Paitents, Spain, 2000–2015
2. Boutati EI, Anaissie EJ. 1997. *Fusarium*, a significant emerging pathogen in patients with hematologic malignancy: ten years' experience at a cancer center and implications for management. Blood 90:999–1008.
3. J. Demonchy, L. Biard, R. Clere-Jehl, F. Wallet, D. Mokart, A.S. Moreau, et al. Multicenter retrospective study of invasive fusariosis in intensive care units, France.