



# Saving your skin: Early Recognition and Treatment of Disseminated Fusariosis

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## Clinical Presentation

A 66-year old male recently diagnosed with acute myeloblastic leukemia (AML) treated with azathioprine and venetoclax, on prophylaxis with acyclovir, moxifloxacin and isavuconazole and with multiple admissions for neutropenic fever:

- Presenting with 1 week of fevers, headaches, worsening fatigue and scattered erythematous nodules on the trunk and lower extremities.

## Evaluation

### Physical Exam

- Rash consisted of several dozen 0.5-2.0 cm pink papulonodules, some with a pustular center, scattered throughout the trunk, lower extremities, and right arm (Figure 1)
- Infectious Disease and Dermatology consulted
- Broad ddx including bacterial, fungal, atypical mycobacterial infection
- Dermatology performed punch biopsy of the skin lesion (Figure 2)

### Microbiology

- Biopsy revealed fungal hyphae with angioinvasion in acute branching pattern, consistent with hyaline mold
- Fungal cultures from skin biopsy grew *Fusarium solani*
- Blood cultures, serum galactomannan and serum 1-3 B-D glucan antigens were negative

### Imaging

- CT chest without contrast – no evidence of pulmonary involvement
- MRI brain and sinuses – no evidence of CNS involvement
- Transthoracic echocardiogram – no vegetations on cardiac valves visualized

## Hospital Course

- Liposomal Amphotericin B 3mg/kg was added to the patient's antibiotic regimen in addition to the isavuconazole
- Susceptibility testing of the *Fusarium* isolates resulted 2 weeks later and showed an amphotericin B MIC of 2, and a voriconazole MIC of >16
- Amphotericin B was continued and isavuconazole was discontinued
- Development of acute kidney injury (Cr rise from 2.1 to baseline 1.0) and focus of intraparenchymal hemorrhage in right frontal lobe during episode of confusion

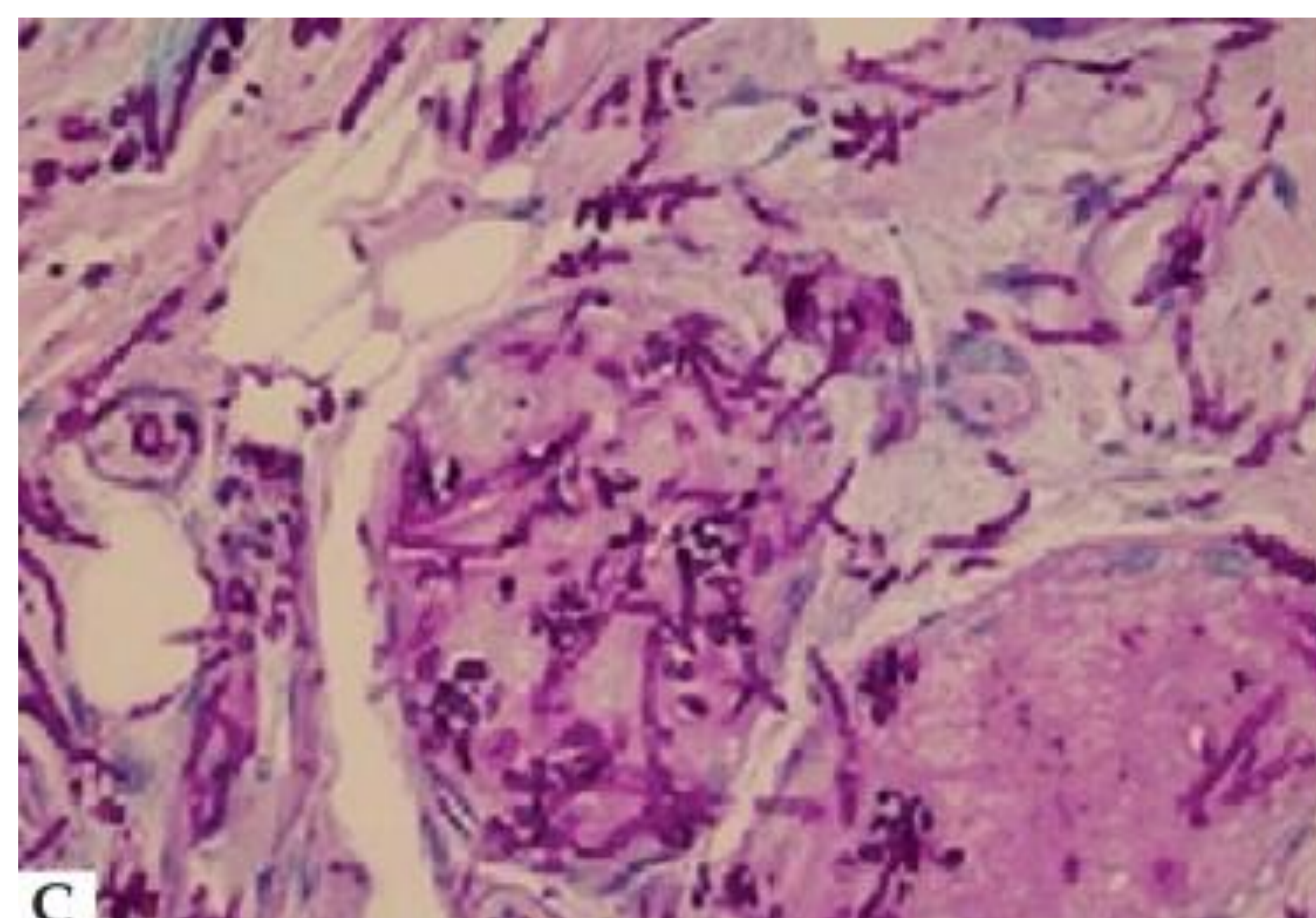
## Figure 1. Rash Appearance



## Figure 2. Biopsy Results & Representative Diagram

DIAGNOSIS: LEFT POSTERIOR THIGH  
ANGIOINVASIVE FUNGAL INFECTION

Note: On histopathologic grounds, there are fungi in vessels and in the dermis, with parallel focally septate cell walls and acute angle branching. There are also numerous yeast forms. Culture would be necessary to definitively identify the fungal species.



Hyaline hyphae are visualized using PAS stain of this angioinvasive fungi can be seen in this figure.

## Diagnosis

**Disseminated fusariosis** – cultures grew *Fusarium* on day 6 of patient's hospital course

## Remainder of Course

- A hematopoietic stem cell transplantation (HSCT) was planned
- Resolution of AKI and episode of confusion
- ID planned for continuing Amphotericin for 3 months and until 1 month after HSCT
- Resolution of skin lesions on one month follow up with ID

## Discussion

### Our Case: Diagnosis

- Principal port of entry for *Fusarium* is airway, followed by skin at site of tissue breakdown and mucosal membranes
- Reports of skin manifestations as primary site of involvement in immunocompromised host
  - Multiple painful erythematous papular or nodular lesions can be present
  - Lesions can be at different stages of evolution (papules, nodules, necrotic)
  - Differential diagnosis includes ecthyma gangrenosum from *Pseudomonas aeruginosa*
- Lung involvement is frequently seen in immunocompromised hosts but not in our patient

### Our Case: Treatment and Outcome

- Some *Fusarium* sp. usually resistant to azoles and may require use of Amphotericin B
- Outcomes usually depend on the extent of infection and degree and persistence of immunosuppression

## Conclusions

- Notable case of disseminated fusariosis – skin rash with no pulmonary symptoms
- Important to consider *Fusarium* in the differential for angioinvasive fungal infections (*Aspergillus*, *Mucor*), especially with the presence of cutaneous lesions
- Timely treatment and use of susceptibility testing can help to achieve favorable outcomes in patients

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