LASOP Case Presentation

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Clinical Presentation

• 62 year old male
  – With a history of idiopathic pulmonary fibrosis
  – 2 months status post bilateral lung transplant
  – Diagnosed with acute rejection, on high doses of immunosuppressants
  – Presented to hospital with bilateral chest skin lesions
Skin Lesions

- Erythematous nodules which enlarged
- Drained serous fluid after three weeks
Diagnosis

• Cutaneous amoebiasis
  – Acanthamoeba
  – Confirmed via PCR (CDC)
<table>
<thead>
<tr>
<th>Special Stains</th>
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<tbody>
<tr>
<td>CD 68</td>
<td>Negative</td>
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<tr>
<td>PAS</td>
<td>Negative</td>
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<tr>
<td>AFB</td>
<td>Negative</td>
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<tr>
<td>GMS</td>
<td>Negative</td>
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More History

• After a week of hospitalization
  – The patient developed another lesion
  – The patient became altered
New Skin Lesion
Second Skin Biopsy
Anti-Acanthamoeba Antibody
CSF
Acanthamoeba

• Ubiquitous
• Can cause
  – Keratitis
  – Granulomatous Amoebic Encephalitis (GAE)
• May harbor organisms
• Healthy individuals have serum antibodies
Life Cycle

1. Cysts
2. Trophozoite
3. Mitosis

Acanthamoeba spp.

Through the eye

Through nasal passages to the lower respiratory tract

Through ulcerated or broken skin

Cysts and trophozoites in tissue

1. Results in severe keratitis of the eye.
2. Results in granulomatous amebic encephalitis (GAE) and/or disseminated disease in individuals with compromised immune systems.
3. Results granulomatous amebic encephalitis (GAE), disseminated disease or skin lesions in individuals with compromised immune systems.

www.dpd.cdc.gov/dpdx
Pathogenicity

• Portals of entry
  – Skin
  – Paranasal sinuses / Respiratory tract
• Cutaneous extension may precede dissemination by weeks to months
• Once disseminated, almost uniformly fatal
GAE

• Seen in immunocompromised patients
  – AIDS
  – Organ transplants
  – Chemotherapy/radiation

• Host cannot mount immune response
  – Macrophages are not primed
  – Immunosuppressed cannot form granulomas

• Use of multiple antibiotics can predispose
Morphology

• Necrotic ulceration
• Mixed inflammatory infiltrate
• Granulomas may not be present
• Organisms 10-60 micrometers
  – Prominent round/ovoid nucleus
  – Central prominent nucleolus forming halo
  – May phagocytize red cells or neutrophils
  – Occasional double-walled cysts
• Speciation cannot be achieved by morphology alone
  – Balamuthia mandrillaris has same nuclear features
Special Stains

• PAS/GMS may be positive
• CD68 to rule out macrophages
• Gram stain
• AFB
• IHC stains available
Diagnosis

- High index of suspicion
  - Immunocompromised patients
- Non-healing skin ulcers
- Negative stains for other microorganisms
  - Ddx
    - Fungus
    - Macrophages
    - Vasculitis
    - Bacillary angiomatosis
- Confirmed by PCR or IHC stains
Summary

• Acanthamoebae are ubiquitous
• Opportunistic infection in immunosuppressed patients
• May disseminate from skin lesions
• Once disseminated, almost always fatal
• Morphologically bland
• Special stains to rule out other diagnoses
• Can be confirmed by PCR
• High index of suspicion necessary for quick diagnosis
Acknowledgements

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References


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