

# A Kidney Transplant Recipient with Labial Cellulitis and Multiple Skin Lesions

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## Case

### History of Present Illness

- A 49 yoF presented with a two day history of left groin pain
- She initially developed a “pinpoint” red spot on her left vaginal labium 2 weeks prior
- This spot started to drain purulent fluid
- Subsequently developed swelling, pain, and redness of her entire left labium
- Also developed two painful blisters on her left lower extremity and one on her right breast. These began to drain purulent fluid as well

### Past Medical History

- Type 1 diabetes complicated by diabetic nephropathy
- Kidney transplant 9 years prior
- *Streptococcus agalactiae* endocarditis s/p bioprosthetic mitral valve replacement 3 years prior
- Methicillin resistant *Staphylococcus aureus* endocarditis of bioprosthetic mitral valve s/p repeat valve replacement 2 years prior
- Hysterectomy 20 years prior

### Social History

- No pets or recent travel
- No recent exposure to fresh water rivers, ponds, or lakes
- No recent hiking or gardening
- Had not been sexually active in several years

### Key Medications

- Trimethoprim/sulfamethoxazole for *Pneumocystis* prophylaxis
- Tacrolimus
- Mycophenolate

## Pertinent Exam

- Temperature 102°F, Pulse 110 beats per minute
- Intermittent rigors, very lethargic appearing
- Two round, well-demarcated erosions on left lower extremity (see Figure #1)
- 1.5cm oval healing erosion on her right inferomedial breast (see Figure #2)
- Left labium edematous, indurated, erythematous, and tender to palpation
- 5mm oval erosion on left labium (see Figure #3)

## Skin Lesions



Figure #1: Left lower extremity

Figure #2: Right breast erosion

Figure #3: Left labium

## Labs/Imaging

- WBC 11.5k (70% neutrophils), Hemoglobin 9.5g, Glucose 231mg/dL, rest of labs normal

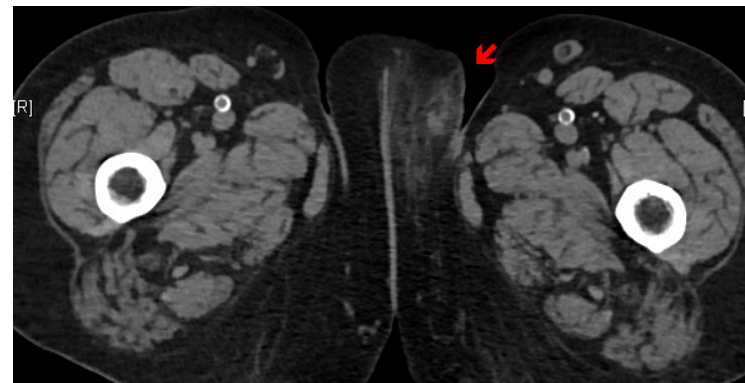


Figure #4: Fat stranding and nodularity in the region of the left labium. No discrete fluid collection.

## Hospital Course

- Empirically started on IV vancomycin and piperacillin-tazobactam
- Broad infectious workup negative including multiple sets of blood cultures
- Continued to have worsening fevers/rigors for several days
- Labial cellulitis worsened and became more ill appearing
- CT showed increased fat stranding of left labium
- Biopsies of R breast and left leg lesions done (both showed similar results)

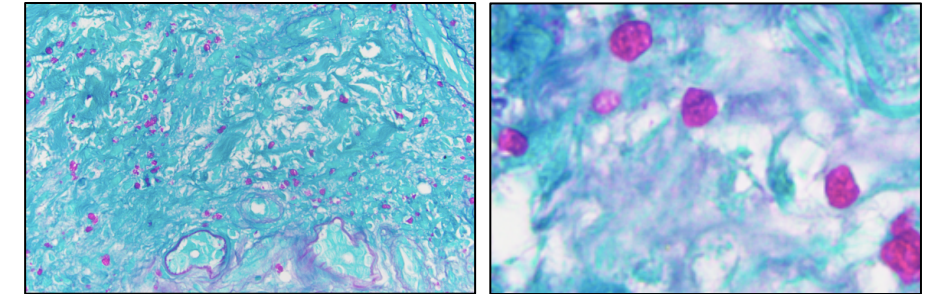


Figure #5: Left lower extremity biopsy, Periodic acid Schiff-diastase stain 40x magnification

Figure #6: Left lower extremity biopsy, Periodic acid Schiff-diastase stain 100x magnification

- Biopsies showed large yeast forms with many smaller internal spherules
- Yeast forms resembled a floret-like or soccer ball appearance, ~10-20 micrometers
- Multidisciplinary meeting between Pathology, Dermatology, and Infectious Diseases: biopsy results and clinical presentation felt to be most consistent with infection from *Prototheca*
- Unfortunately, culture without growth, but all other etiologies ruled out based on biopsy appearance, organism size, non-invasive testing. 18S & 28S rRNA sequencing were negative for fungus
- Final Diagnosis: Protothecosis

## Treatment/Follow-up

- Started on IV liposomal amphotericin B → within 24 hours dramatic clinical improvement, fevers/rigors resolved
- Labial cellulitis and skin lesions significantly improved
- Received 4 weeks of amphotericin B then 3 months of PO itraconazole → complete resolution of skin lesions, no recurrence of infection

## Discussion

- *Prototheca* are classified as an algae (often misidentified as yeast in tissue/culture)
- Two species cause disease in humans: *P. wickerhamii* & *P. zopfii*
- Source: contaminated soil/water
- Immunocompromised hosts most susceptible
- Three clinical forms
  - Cutaneous disease (most common) → vesiculobullous or ulcerative lesions
  - Olecranon bursitis → generally immunocompetent patients
  - Disseminated disease → skin, peritoneum, meninges, spleen, blood
- Diagnosis: Biopsy for histopath & culture. Multiple endospores within a sporangia
- Treatment
  - IV amphotericin is mainstay of treatment
  - Azoles also shown to be effective (ketoconazole, itraconazole, fluconazole)