

Case Report and Literature Review of Necrotizing Fasciitis in a Patient with HIV and Diabetic Foot with Incidental Actinomyces Infection



Authors: Catur Chan, DPM PGY-3 Chief Resident, Dr. Larry Goss, DPM, FACFAS, Program Director
Roxborough Memorial Hospital Podiatry

Abstract

Necrotizing fasciitis of the foot is a devastating condition frequently encountered in diabetic patients. Poly-microbial infections are common, but Actinomyces species are rarely implicated. This case illustrates an unusual incidental finding of Actinomyces in a severe soft tissue infection, emphasizing the importance of considering atypical pathogens in diabetic necrotizing infections.



Introduction

A 72 year old male with poorly controlled diabetes and HIV presented with at least a 9 month history of an ulceration that has not healed with recent increased drainage, swelling, and malodor. Examination revealed erythema, crepitus, exposed tendons and positive probe to bone. Laboratory studies indicated systemic infection with white blood cell count 20.20, C-reactive protein at 312.5 mg/L, and sedimentation rate at 137 mm/Hr. Radiographs confirmed extensive soft tissue gas.

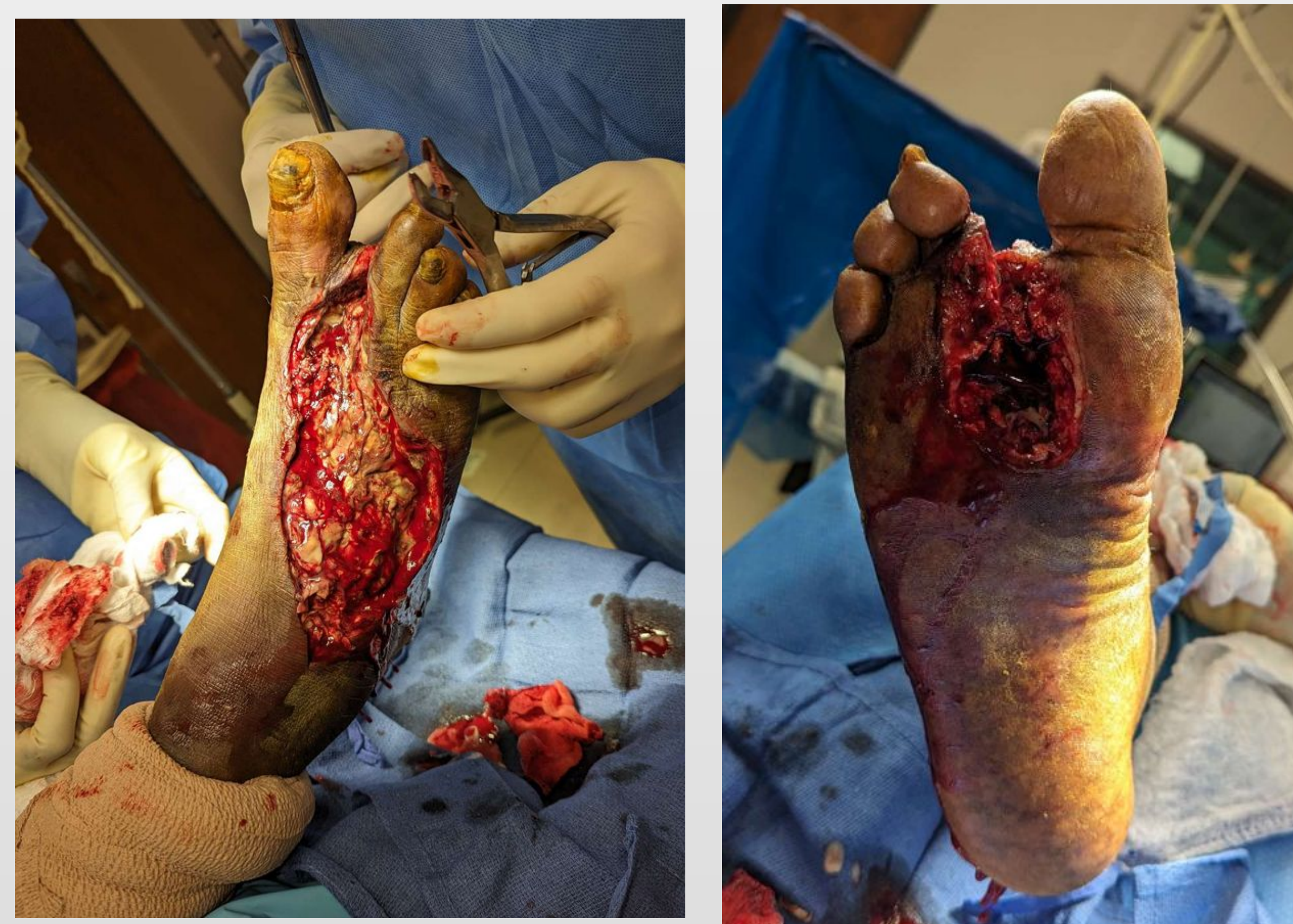
Emergent surgical debridement was performed and soft tissue culture and results showed polymicrobial infection including Anaerococcus prevotii, Beta hemolytic Streptococcus, and Staphylococcus species. Three different colored purulence was expressed from separate compartments of the foot. Yellow sand like material was discovered mixed with one type of purulence and confirmed to be a rare incidental finding of Actinomyces.



Management

Aggressive surgical debridements, proper antibiotic coverage, and appropriate wound care modalities mixed with extreme compliance with the patient allowed for limb salvage. These included use of negative pressure wound therapy and substitute skin graft applications.

Soft tissue deficits granulated within 2 months and wound size shrank over 8 months with consistent advanced wound care.



Results

Microbiological investigation revealed mixed flora with Anaerococcus prevotii, Beta Hemolytic Streptococcus, and Staphylococcus species. Actinomyces was an incidental pathogen confirmed intra-operatively. The patient improved with combined surgical and targeted antimicrobial therapy. No recurrence or systemic spread observed at follow-up appointments. Patient compliance with therapies and treatment protocols was important because the patient was at high risk of limb loss.

Literature Review

Necrotizing fasciitis is typically associated with Group A Streptococcus. Immunocompromised patients may see anaerobic bacteria as well. Actinomyces species are typically found in the gastrointestinal flora and is known for causing abscesses but is rare in necrotizing soft tissue infections. Recent literature has shown increasing frequency of reports of Actinomyces causing necrotizing fasciitis usually in immunocompromised patients.

Actinomyces are slow growing gram positive anaerobic bacteria that are difficult to identify in a lab due to the slow growth. It is not considered a virulent organism but its pathogenicity is enhanced in the presence of other pathogens. Treatment recommendations for Actinomyces were developed in the 1960's with limited recent literature.

Conclusion

Infections involving Actinomyces in the setting of necrotizing fasciitis are rare but may influence antimicrobial choices and prognosis. Clinicians should maintain suspicion of atypical pathogens in diabetic soft tissue infections to optimize outcomes. Hospital systems may not be prepared to address rare infectious presentations. It is important to be thorough when dealing with polymicrobial infections.

References

- Allen N, James G, Jain Y. A rare case of abdominal wall necrotizing fasciitis caused by Actinomyces europaeus—a novel pathogen. J Surg Case Rep. 2021;2021(12):rjab533. Published 2021 Dec 15.
- Anthony N, Douthit NT, Foster A. Actinomyces europaeus as an emerging cause of necrotizing fasciitis. IDCases. 2023;31:e01712. Published 2023 Feb 12.
- Sciarrà M, Schimmenti A, Manciuoli T, et al. Necrotizing Fasciitis by Two Anaerobic Bacteria in an Immunocompetent Patient after Minor Trauma: A Case Report. Case Rep Infect Dis. 2018;2018:4910292. Published 2018 Sep 9.
- Avery L, Kufel J, Rawlings R. Treatment of Actinomyces europaeus and Clostridium innocuum necrotizing fasciitis: Case report and literature review. American Journal of Health-System Pharmacy. Published online July 23, 2025.
- Ayantunde AA, Kiang J, Raja NS, et al. Actinomyces Species As Emerging Pathogens: An Observational Study of Clinical Infections and Microbiological Implications. Cureus. Published online January 8, 2025.

