

Educational Pearl

Beat the Bug: Actinomyces

Actinomyces spp. are anaerobic/microaerophilic, gram-positive bacilli that colonize the oropharynx, colon, and urogenital tract.¹ What's the best way to beat the bug? Read on to learn more about this unique bacteria.

How do Actinomyces infections present?

Actinomyces spp. can cause classical actinomycosis **OR** non-classical Actinomyces spp. infections. Classical actinomycosis is commonly confused with malignancy and characterized by chronic progressive tissue changes that traverse tissue boundaries, fibrotic changes, sulfur granules, spontaneously resolving/relapsing sinus tracts, and relapsing infection following short courses of therapy.² Non-classical infections with Actinomyces spp. lack the classical tissue changes.³

Which antimicrobials should be used against Actinomyces?

Actinomyces spp. are typically susceptible to penicillin and other beta-lactams, therefore susceptibility testing may not always be performed.³⁻⁵ It should be noted that some *Actinomyces* spp. (e.g. *A. europaeus*) may have elevated MICs to certain beta-lactams (e.g. ceftriaxone) while maintain low penicillin MICs. Alternative agents that have been reported to be successful or have *in vitro* activity include tetracyclines, macrolides, clindamycin, linezolid, and vancomycin.⁴⁻⁵ Resistance rates of > 20% have been reported with clindamycin.⁵ Metronidazole, aminoglycosides, anti-staphylococcal penicillins, cephalexin, and fluoroquinolones should be avoided.⁵

How long should we treat?

Durations of treatment for actinomycosis are primarily based on clinical experience since robust clinical trials are lacking. Due to frequent relapses observed in the early antibiotic era, long durations (e.g. 2-6 weeks of penicillin IV 18-24 million units daily followed by 6-12 months of oral penicillin or amoxicillin) that exceeded the resolution of observable disease have been favored to prevent relapse.^{4,6} However, shorter durations, with or without surgical debridement, accompanied with radiographic response monitoring have been reported to be successful.⁶

There is even less data guiding duration of treatment for non-classical infections. In the absence of classical tissue changes, some advocate for syndromic-based treatment (e.g. 5-10 days for skin and soft tissue infection).⁴

<u>Key Takeaway</u>: The drug of choice for infections due to *Actinomyces* spp. is penicillin. Long durations of up to a year have been recommended but are not based on strong clinical evidence. Shorter durations individualized to patient presentation and response may avoid unnecessary antibiotic exposure.

References:

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