**Gordonia bronchialis**: a rare pathogenic cause of sternal osteomyelitis following cardiac surgery

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**Introduction**

*Gordonia* spp. are non-motile, gram positive, weakly acid fast bacilli classified as actinomycetes. These bacteria are commonly found in the soil and in the gastrointestinal tract of domesticated animals such as dogs. *Gordonia* spp. are an extremely rare, yet emerging cause of pathogenic infections in humans. Identification requires genetic testing or spectrometry. There are few case reports of infections in immunocompetent patients.

**Case Presentation**

- 61 year old male with a past medical history of hypertension, type 2 diabetes mellitus, atrial fibrillation and coronary artery disease intimated presented with chest pain requiring a coronary artery bypass graft
- Returns to the hospital on post-op day (POD) 48 for fevers and wound purulence. CT chest showed sternal osteomyelitis (Fig 2).
- Patient had OR washout; wound culture grew gram positive (Fig 1) and partially acid-fast (Fig 2&3) rods
- Patient started on meropenem for presumed *Nocardia* infection
- MALDI-TOF identified the pathogen as pan-sensitive *Gordonia bronchialis*
- Patient was switched to ceftriaxone monotherapy
- Patient returned to hospital on POD 76 requiring a 2nd washout and sternal wire removal
- Ciprofloxacin IV was added to ceftriaxone
- Regimen was adjusted to cefdinir and doxycycline po to complete a 12 week course, through POD 167

**Discussion**

- *Gordonia* spp. are a rare cause of osteomyelitis in immunocompetent hosts
- Treatment of *Gordonia* osteomyelitis often requires prolonged courses of antibiotics, repeat surgical debridement, and dual-antibiotic therapy
- There is concern that *Gordonia* spp. form sessile communities; making antibiotic penetration poor
- It is unclear if the incidence of *Gordonia* is increasing or if more testing is identifying previously undiagnosed *Gordonia* cases with the rise of MALDI-TOF and 16s rRNA gene sequencing

**Conclusion**

- *Gordonia bronchialis* should be considered in osteomyelitis cases where traditional diagnostics and treatments are ineffective
- Treatment guidelines do not exist for treatment of *Gordonia* infections
- The protracted course of treatment for *Gordonia* infections warrants further investigation

**References**


**Figure 1.** CT chest on POD 25 showing well corticated sternal margins. **Figure 2.** CT angiogram chest on POD 48 showing cortical erosion of the medial margins of the sternum with a new 6mm separation concerning for osteomyelitis. **Figure 3.** Gram stain of wound culture showing gram positive bacilli. **Figure 4.** Modified acid-fast stain of wound culture showing bacilli (red stain) later identified as *Gordonia bronchialis*. **Figure 5.** A close-up of the modified acid-fast strain from Fig. 4.