

Unusual Delayed Invasive Infection with Staphylococcus Capitis Following Coronary Artery Bypass Grafting: A Case Report and Literature Review

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Introduction

- Early postoperative sternotomy infections: within first few weeks; caused by intra-operative exposure or from the patient's skin/respiratory tract
- Delayed infections: weeks to months later; typically, from secondary exposure or bacterial persistence
- Late infections (rare): months to years later; associated with valves or vascular grafts that serve as nidi for infection
- S. Capitis: a coagulase negative bacteria is rarely associated with sternotomy infections and is most abundant on the head, where sebaceous glands are plentiful

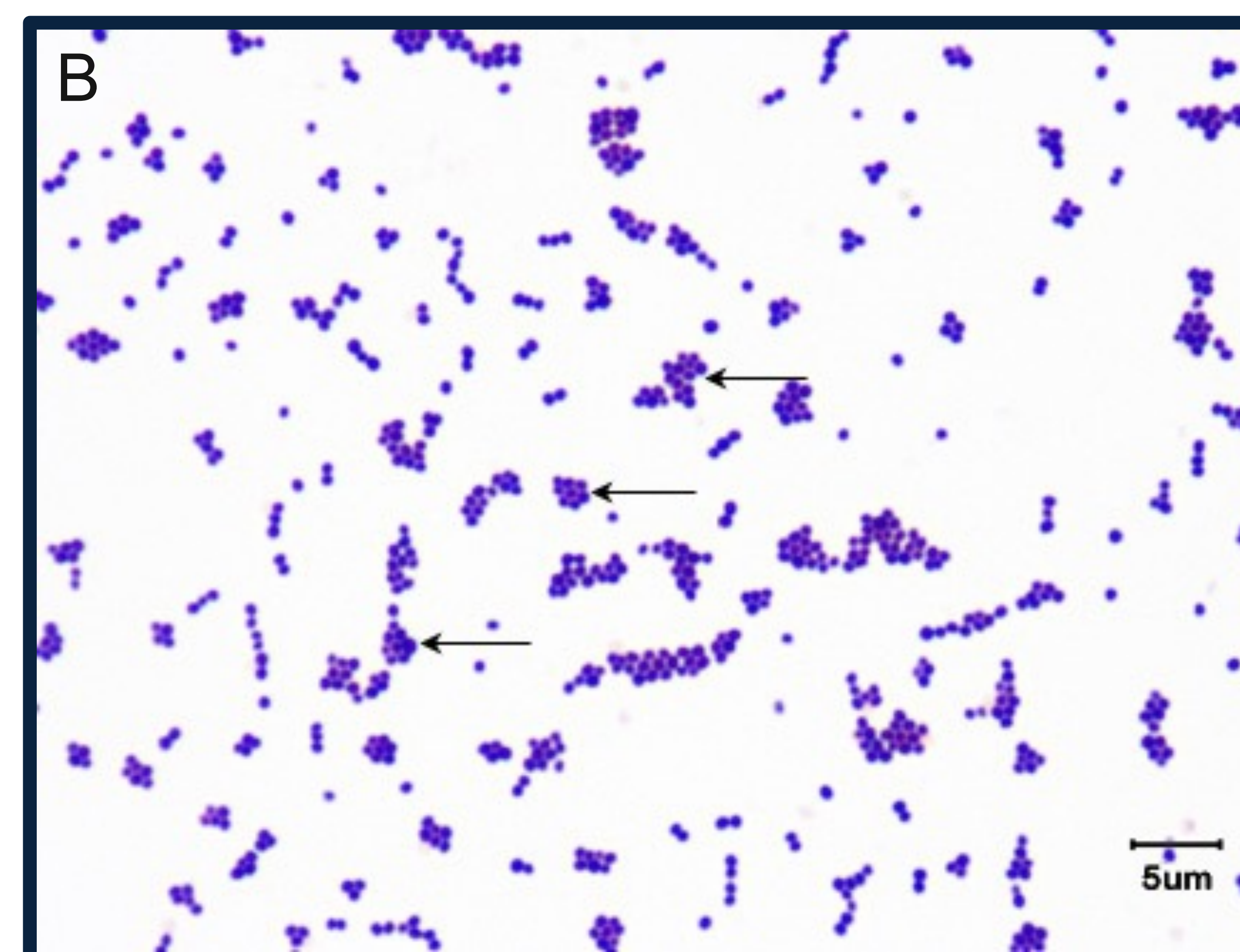
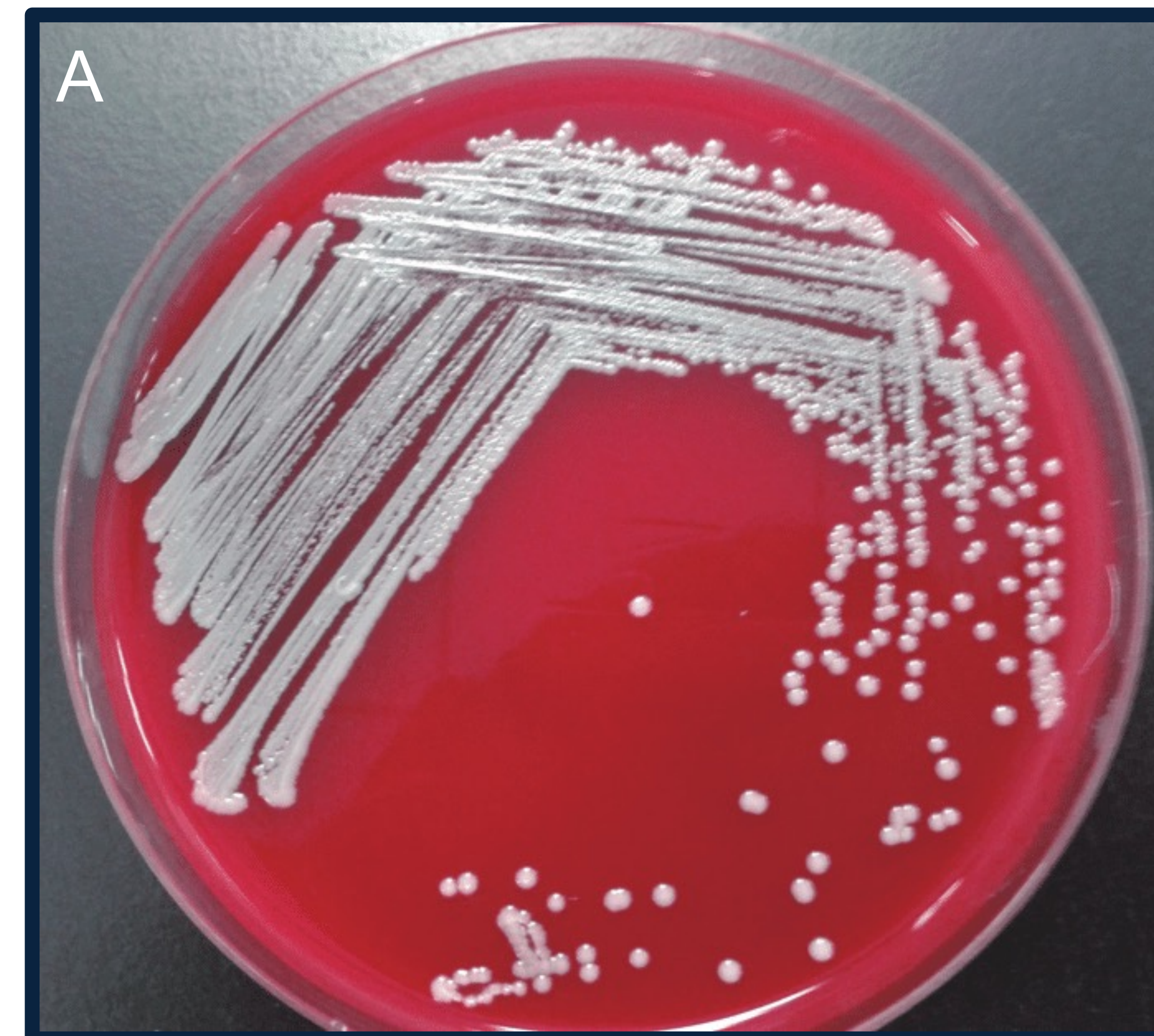
Clinical Presentation

66-year-old-male status post CABG who presented to the Emergency Department with chest pain, nausea, and vomiting. Patient was diagnosed with a post-operative sternotomy infection and retrosternal abscess, approximately a year post-intervention. Operative cultures isolated Staphylococcus capitis, and the patient underwent antibiotic treatment, incision and drainage, and multiple rounds of debridement.

Risk Factors for Sternal Wound Infections

Patient Specific	Surgery/Situation Specific
Diabetes	Prolonged Operation
Obesity	Use of internal mammary artery grafts
Peripheral Vascular Disease	Open sternum postoperatively
Prior Cardiac Surgery	Heart Transplant
Tobacco Use	Need for reoperation in early postoperative period
Osteoporosis	Postoperative hyperglycemia
Preoperative Chest Deformities	Length of stay in hospital >5 days before surgery
Malnutrition	Prolonged postoperative intensive care unit course
Immunocompromised Status	Improper timing of antibiotic prophylaxis

Images



Discussion

- Well-documented evidence shows sternotomy patients are at risk of developing various postoperative infections
- Most cases commonly involve Staphylococcus aureus, Staphylococcus epidermidis, and bacteria from the Streptococcus species
- This case emphasizes considering less common pathogens in postoperative infections, especially beyond the acute postoperative period and in those with little to no risk factors
- Early recognition, prompt drainage and debridement, coupled with targeted antibiotics, contributed to a successful clinical outcome
- Overall, this case underscores vigilance in monitoring patients for signs of infection, even beyond the scope of recent intervention, and the consideration of less common pathogens that can complicate a patient's clinical progress

Clinical Pearls

- Staphylococcus capitis is a rare pathogen associated with sternotomy infections outside of the acute postoperative period
- Sternotomy infections, though quite rare, may present months to years later, in an insidious manner
- When evaluating chest pain, a thorough history and physical is required, especially in the setting of prior chest surgeries
- Despite not having the typical risk factors for sternal wound infections, a CABG graft may serve as a nidus for infection and targeted antimicrobial therapy must not be delayed

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