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 nidus 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

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<td>Prolonged Operation</td>
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<td>Obesity</td>
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<td>Peripheral Vascular Disease</td>
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<td>Prior Cardiac Surgery</td>
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<td>Malnutrition</td>
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<td>Immunocompromised Status</td>
<td>Improper timing of antibiotic prophylaxis</td>
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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 examination is required, especially in the setting of prior chest surgeries
- Despite not having the typical risk factors for sternum wound infections, a CABG graft may serve as a nidus for infection and targeted antimicrobial therapy must not be delayed

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 debidement, 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

References

Images
A. Isolation of the S. capitis from the blood using blood agar
B. Morphology of S. capitis under microscope using gram staining
C. Patient s/p initial debridement with wound-vac in place

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