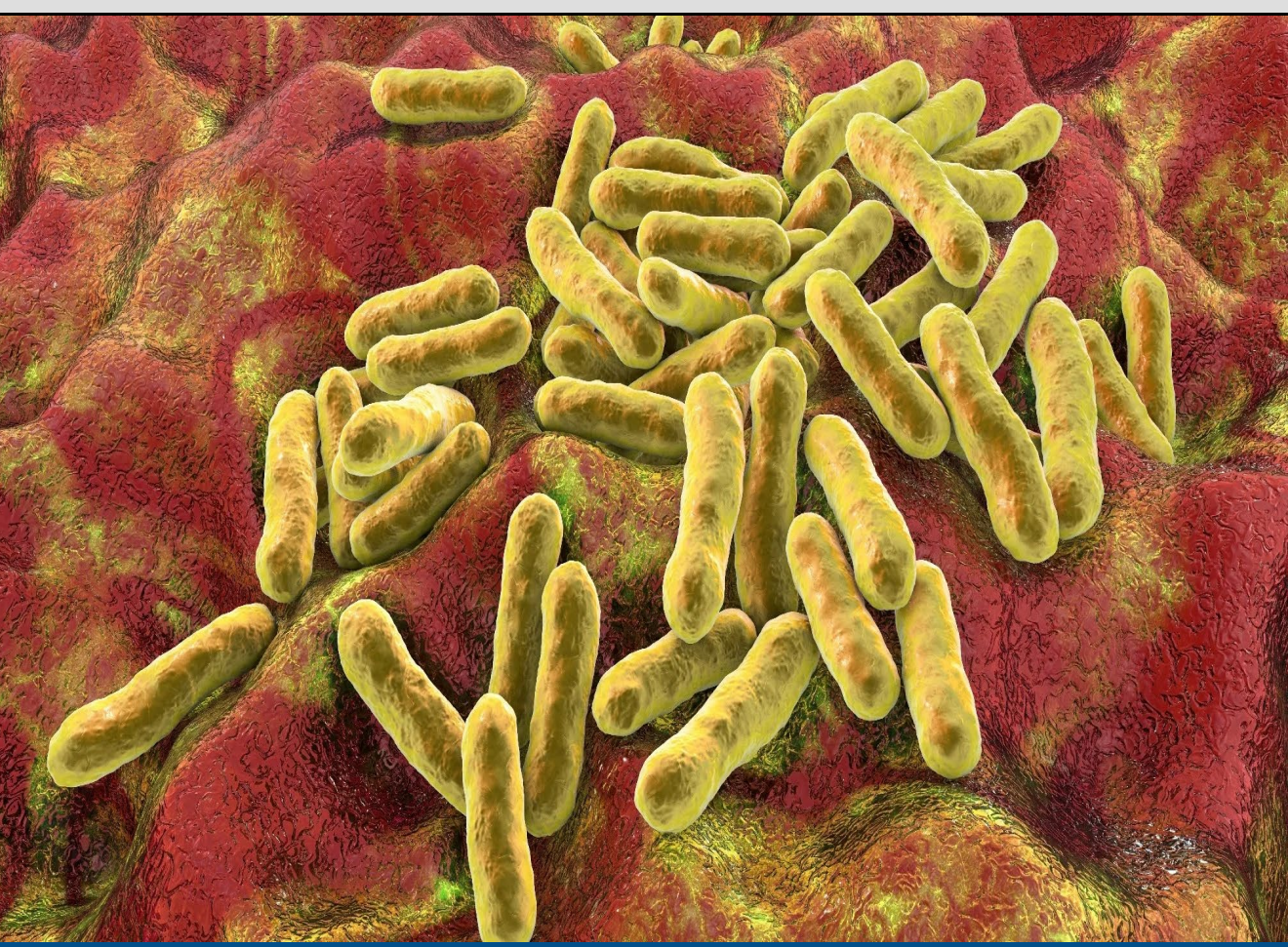


Assessment of Cutibacterium Bacteremia: A Case Series



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Introduction

- *Cutibacterium* (formerly classified under the genus *Propionibacterium*) are anaerobic gram-positive bacilli commonly found on human skin. Historically, they are considered low-virulence organisms, however, they can cause severe bloodstream infections, especially in patients with implanted medical devices, prosthetic joints, or immunosuppression.
- The clinical relevance of *Cutibacterium* bacteremia remains underexplored, often leading to diagnostic uncertainty and challenges in distinguishing true infection from contamination.

Objectives

The objective of this case series is to evaluate patients with *Cutibacterium* blood cultures, potentially distinguish true infections from contamination, and provide insights into therapeutic management.

Methods

- A report generated from the TheraDoc software identified 17 patients with positive blood cultures for *Cutibacterium* between January 2024 to December 2024. All positive blood cultures for *Cutibacterium* will be included in this analysis.
- Data collection included patient demographics, cultures and sensitivities, infection source and diagnosis, and antimicrobial use.
- Patients were classified as having a true infection or a contaminant based on clinical and microbiological criteria, as well as repeated confirmatory cultures. Institutional review board approval at AtlantiCare Regional Medical Center was obtained.

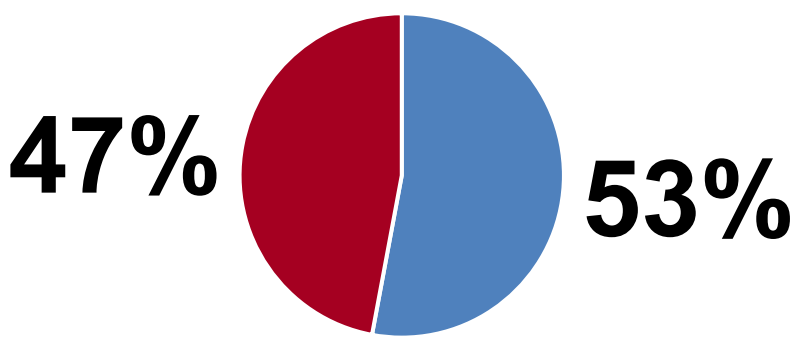
Patient Characteristics and Findings (n=17)

Average age in years – no. ± SD	56.9 ± 19.2
Male – no. (%)	13 (76.5)
Total positive blood cultures – no.	28
Patients with true infections – no. (%)	9 (52.9)
Antibiotics covering <i>Cutibacterium</i> – no. (%)	7 of 9 (77.8)
Patients with repeated positive BCx – no. (%)	4 of 17 (23.5)
Patients who underwent surgery – no. (%)	2 (11.8)

Infection Type

Cellulitis	4
Pneumonia	4
Complicated UTI	3
Sepsis	2
Others (diverticulitis, wound infections)	4

True Infection
vs.
Contamination
(n=17)



■ True Infection
■ Contamination



Besides repeated, confirmatory blood cultures, true *Cutibacterium* infection may best be determined based on the following criteria:

- Infection signs at the time of blood culture or within 48 hours (temperature $\geq 38^{\circ}\text{C}$, chills, or WBC $> 12 \times 10^9/\text{L}$)
- No other pathogens accounting for the infection
- No other pathogens present at the infection site
- Either a foreign intravascular device in place for >48 hours before sampling or *Cutibacterium* isolation at the infection site (if only one positive blood culture was detected)

Results & Discussion

- *Cutibacterium acnes* was the most common species cultured from 17 patients (n=15, 88.2%), highlighting it is the predominant species in our cases of *Cutibacterium* bacteremia.
- Four patients (23.5%) had repeated positive blood cultures of which two were true infections, while some patients without repeated positive cultures were considered to have actual bacteremia. Two patients (11.8%) underwent major surgery before blood cultures, and both had true infections.
- A growing body of evidence suggests that *C. acnes* should be considered as more than just a skin contaminant when found in the blood of patients with implantable cardiac devices. Clinicians should have a low threshold to investigate these devices as a source of infection when *C. acnes* is isolated from the blood.
- Empiric antibiotic therapy selection for *C. acnes* should be case dependent, considering potential resistance to macrolides, clindamycin, metronidazole, and tetracyclines. Penicillins (e.g., ampicillin), cephalosporins (e.g., ceftriaxone), linezolid, and vancomycin may be effective treatment options.

Conclusion

Our findings indicate that *Cutibacterium* bacteremia represents a true infection in about half of the cases, challenging the assumption that positive cultures are likely contaminants. Clinicians should carefully assess clinical signs of infection, culture source, co-isolated pathogens, and the presence of implanted devices when distinguishing true infection from contamination. A standardized approach to diagnosis is crucial for ensuring appropriate management and optimizing patient outcomes.