



Cutibacteria in periprosthetic hip joint infections - a 10-year retrospective study from a regional Swedish hospital

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Background

Cutibacterium acnes is the leading cause of periprosthetic joint infections (PJIs) of the shoulder. Its role in hip PJIs has been less studied. However, advances in culture techniques and modern diagnostic methods have led to increasing recognition and diagnosis of implant-related infections caused by *Cutibacterium* species (spp.).

This study aimed to describe all *Cutibacterium* related hip PJIs treated at a Swedish regional hospital over a 10-year period regarding patient characteristics, *Cutibacterium* subspecies, clinical picture, surgical and antibiotal treatment strategies, and long-term outcome.

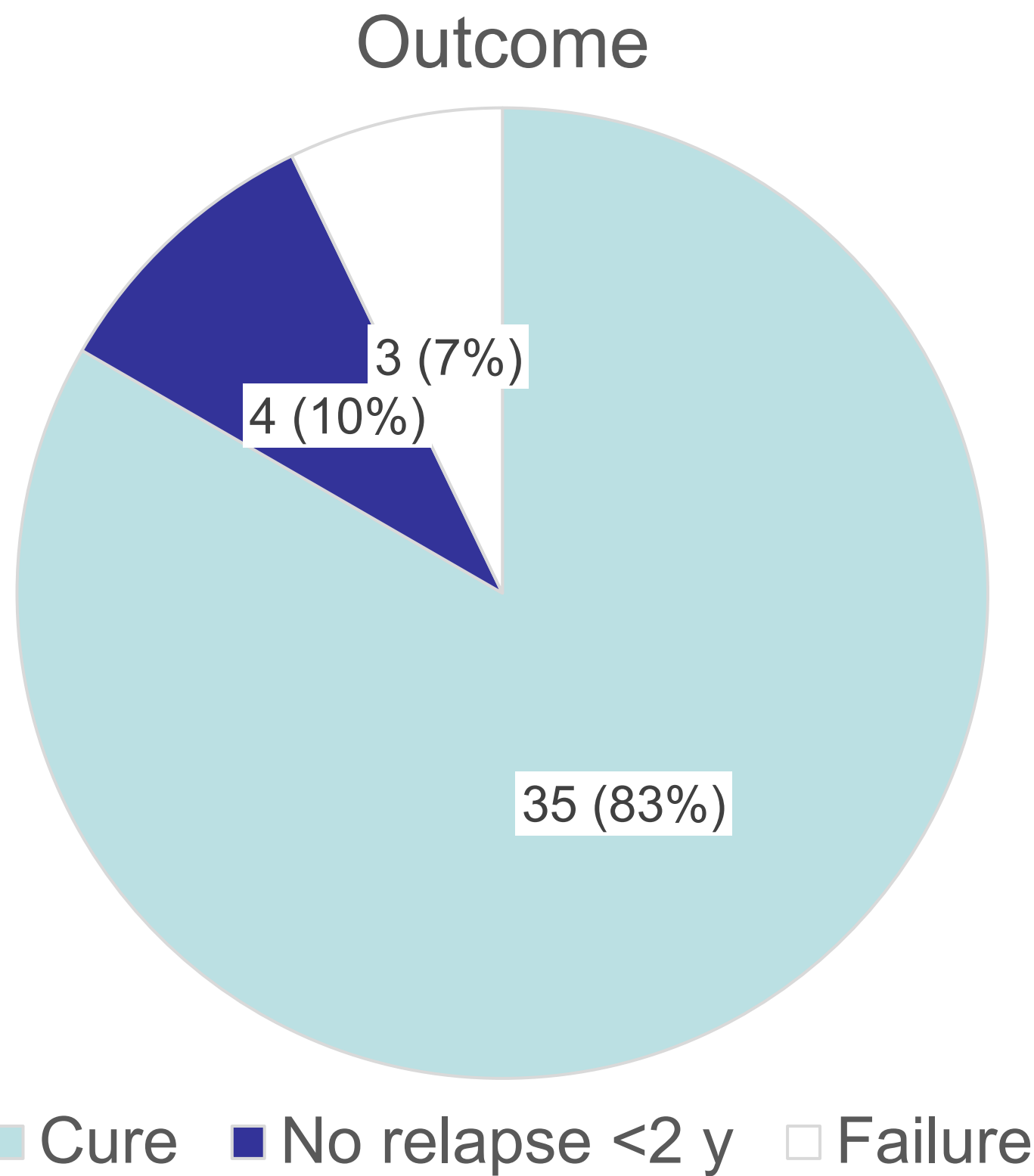
Results

A total of 42 patients were identified among whom 40 underwent revision surgery. These constituted **26%** of all revision surgeries due to infection performed during the study period ($n = 153$).

	N (%)
Infected prosthesis	
Uncemented/cemented	36 (86) / 6 (14)
Revision prosthesis	6 (14)
Infection type	
Early/delayed (>30 d)	23 (55) / 19 (45)
Polymicrobial	13 (31)
Cutibacterium species	
<i>C. acnes</i>	36 (86)
<i>C. avidum</i>	6 (14)
<i>C. granulorum</i> ¹	1 (2)
Wound discharge	25 (60)
Fever >38° C	15 (36)
Revision surgery	
DAIR	24 (57)
One-stage revision	13 (31)
Two-stage revision	3 (7)
Debridement only	2 (5)
Antibiotics iv	
Betalactam	32 (76)
Vancomycin	21 (50)
Other ²	8 (19)
Antibiotics po	
Amoxicillin	32 (76)
Clindamycin	24 (57)
Rifampicin	7 (17)
Quinolone	6 (14)
Other ³	3 (7)

	N (%)
Patients, total number	42
Male sex	35 (83)
Obesity (BMI >30)	22 (52)
Hypertension	24 (57)
Cardiovascular disease	12 (29)
Diabetes mellitus	8 (19)
Pulmonary disease	7 (17)
Skin disease	4 (10)
ASA class >I	24 (81)
Smoking	5 (12)

Table 1. Patient characteristics.



Results contd.

The mean age at diagnosis was 62 years (37-80). Mean implant age at revision surgery was 3 years (0-27). Mean CRP was 38 mg/L (3-251).

27/29 patients (93%) with mono-microbial growth of *Cutibacterium* spp. were treated with Amoxicillin and/or Clindamycin. **25** of these (93%) were cured or had no relapse of infection <2 years.

Table 2. Clinical data.
¹ One patient had growth of *C. acnes* and *C. granulorum*. ² Clindamycin, $n = 7$, Daptomycin, $n = 1$. ³ Linezolid, $n = 2$, Fusidic acid, $n = 1$.

Conclusion

- Significant growth of *Cutibacterium* species (spp.) occurred in 26% of all hip revision surgery due to infection.
- The cure rate was high regardless of the surgical method employed (DAIR, exchange of prosthesis).
- Hip PJIs caused by *Cutibacterium* spp. seem to be overrepresented in males with uncemented primary prostheses and associated with a high prevalence of obesity, hypertension and cardiovascular disease.

Methods

All patients with *Cutibacterium* spp. hip PJIs between January 2015 and December 2024 were identified and their medical journals retrospectively reviewed. The EBJIS criteria were used for PJI definition. Patients with growth of *Cutibacterium* spp. in $\geq$ two tissue cultures or joint fluid were included.

References:
1. Patel MS, Singh AM, Gregori P, Horneff JG, Namdari S, Lazarus MD. *Cutibacterium acnes*: a threat to shoulder surgery or an orthopedic red herring? J Shoulder Elbow Surg. 2020;29(9):1920-7.
2. Boisrenoult P. *Cutibacterium acnes* prosthetic joint infection: Diagnosis and treatment. Orthop Traumatol Surg Res. 2018;104(1S):S19-S24.
3. Hedlundh U, Zacharatos M, Magnusson J, Gottlander M, Karlsson J. Periprosthetic hip infections in a Swedish regional hospital between 2012 and 2018: is there a relationship between *Cutibacterium acnes* infections and uncemented prostheses? J Bone Jt Infect. 2021;6(6):219-28.