

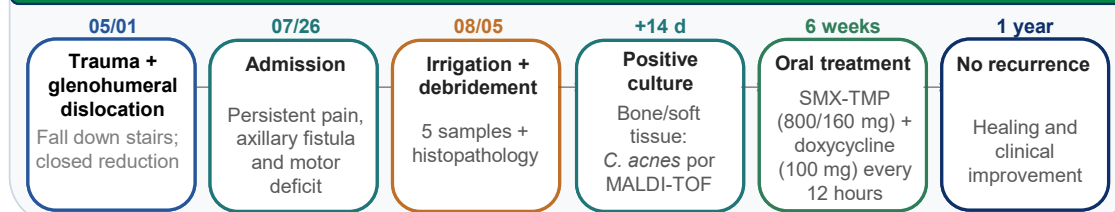
Isabelle C.F. Brasil Tannus; Mariana Neri Lucas Kurihara; Mayara Muniz de Andrade Silva; Beatriz de Santana Soares; Beatriz Pinedo; Stefânia Bazanelli Prebianchi; Mauro J. Costa Salles

Background and Objective

C. acnes can cause extensive osteoarticular infection in a native joint; prolonged anaerobic incubation and modern identification methods are crucial for microbiological diagnosis.

We report a case of native shoulder septic arthritis with concomitant osteomyelitis in an immunocompetent adult following blunt trauma.

CASE TIMELINE



CLINICAL COURSE



Initial presentation → postoperative period → follow-up with resolution of inflammatory signs.

MAGNETIC RESONANCE IMAGING



- Large joint effusion
- Fluid collections within the rotator cuff musculature
- Osteomyelitis of the humeral head and glenoid
- Complete rotator cuff tear

Patient was afebrile and stable, but had an axillary fistula and significant motor deficit.

MICROBIOLOGY

14 days

Aerobic cultures negative. Anaerobic bone and soft tissue cultures positive for *C. acnes*, identified by MALDI-TOF MS.

Phenotype: susceptible to all antimicrobials tested (BrCAST).

WGS: Strain Characterization

ST138
sequence type

CC2
clonal complex

IA2
phylogroup

2,007,444 bp • 13 contigs • GC 60,07% • 1.947 CDS • 31 tRNAs

RESISTANCE: GENOTYPE × PHENOTYPE

Genetic determinants potentially associated with resistance:

Alr, Ddl, dxr, EF-G, EF-Tu, folA, Dfr, folP, gyrA, gyrB, inhA, fabI, kasA, rho, rpoB, rpoC, S10p, S12p; gidB, GdpD, PgsA e OxyR.

Despite this, the isolate showed full phenotypic susceptibility.

RELEVANT GENOMIC FINDINGS

- TadB (pilus Flp): adesão bacteriana
- CAMP factor; GrpE, DnaK e DnaJ
- Transportador ABC; glicosil-hidrolase família 25; RecA
- Phage lysin e sequência CRISPR

LITERATURE REVIEW

16 casos

previously published cases of native-joint septic arthritis caused by *C. acnes*; surgery and prolonged antibiotic therapy were frequent.

CONCLUSION

A multidisciplinary approach, appropriate specimen collection, and prolonged anaerobic incubation were essential. WGS and phylotyping expanded the characterization of the strain's pathogenic potential.

References:

- Achermann Y, et al. *Propionibacterium acnes*: from commensal to opportunistic biofilm-associated implant pathogen. Clin Microbiol Rev. 2014;27:419–440.
- Mayslich C, et al. *Cutibacterium acnes* as an opportunistic pathogen: an update of its virulence-associated factors. Microorganisms. 2021;9:303.
- Cobian N, et al. Comparative genomic analyses and CRISPR-Cas characterization of *C. acnes*. Front Microbiol. 2021;12:758749.
- Kurihara MNL, et al. Phenotypic and genotypic characterization of *C. acnes* isolated from shoulder surgery. Microorganisms. 2023;11:2594.
- Podbielski A, et al. Whole genome sequencing distinguishes skin-colonizing from infection-associated *C. acnes* isolates. Front Cell Infect Microbiol.