Pyogenic Septic Arthritis vs. Tuberculous Arthritis

A Comparative Analysis

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Introduction & Aim

- Both PSA and TA are severe joint infections requiring prompt diagnosis and treatment to prevent irreversible joint damage.
- PSA is more common (incidence 2–10/100,000 person-years) and carries a mortality of up to 15%.
- TA is rarer, accounting for only 10–35% of extrapulmonary tuberculosis cases.
- Despite this shared potential for joint destruction, PSA and TA differ substantially in epidemiology, inflammatory response, and clinical presentation [1,2] — differences that may contribute to the delayed diagnosis of TA.

Methods

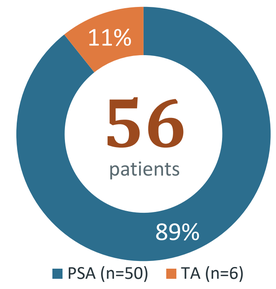
A retrospective, single-centre study of 56 consecutive patients with septic arthritis was conducted (50 PSA, 6 TA).

PSA was diagnosed by synovial fluid analysis (leukocyte count >50,000/mm³, >90% polymorphonuclear cells), Gram stain, and/or culture; TA by histology (caseating granulomas), culture, and/or nucleic acid amplification testing (TAAN) for Mycobacterium tuberculosis, obtained by aspiration, biopsy, or surgical debridement.

Demographic, laboratory, microbiological, and surgical data were analysed for each group.

Cohort Overview

Single-centre cohort of surgically-managed septic arthritis, classified by aetiology.



PSA : TA ratio ≈ 8 : 1

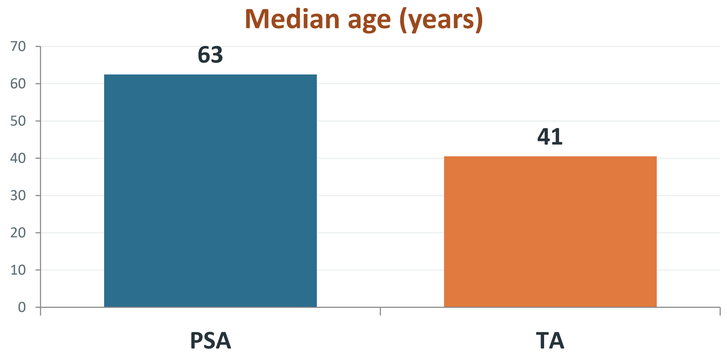
All patients underwent surgical management (aspiration, biopsy, or debridement) with microbiological and/or histological confirmation.

Key Comparative Findings

Variable	PSA (n=50)	TA (n=6)	p-value
Median age, years [IQR]	62.5 [48.2–76.5]	40.5 [37.8–46.2]	**0.013**
Median CRP, mg/L [IQR]	157.4 [83.1–265.3]	31.5 [13.5–54.0]	**<0.001**
CRP >100 mg/L, n (%)	35/50 (70%)	0/6 (0%)	**0.002**
In-hospital mortality, n (%)	7/50 (14%)	0/6 (0%)	—

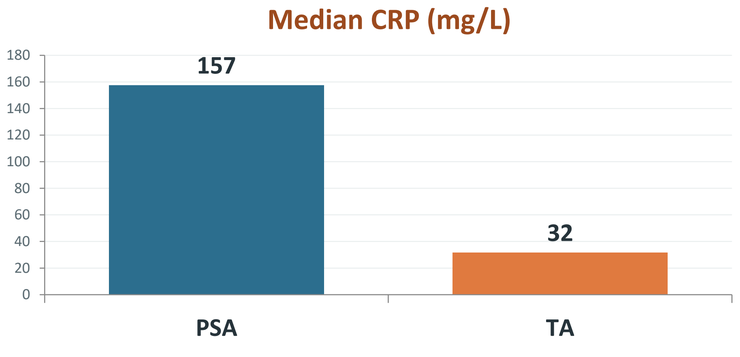
Continuous variables compared with the Mann–Whitney U test; categorical variables with Fisher's exact test.

Median age (years)



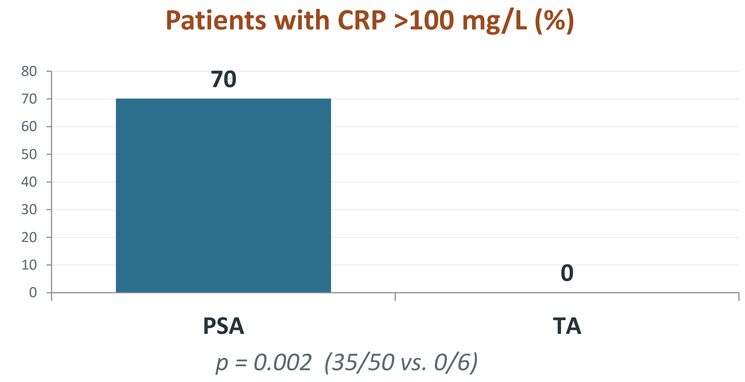
p = 0.013

Median CRP (mg/L)



p < 0.001

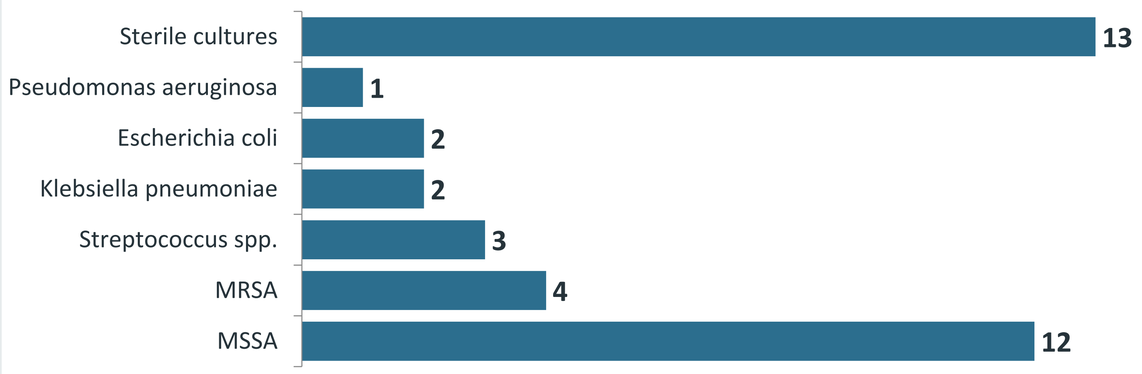
Patients with CRP >100 mg/L (%)



p = 0.002 (35/50 vs. 0/6)

PSA — Microbiology & Outcomes

Organisms isolated (pre- or intra-operative culture)



74% Knee = most common joint

40/50 Pre-op aspiration / biopsy performed

14% In-hospital mortality (7/50)

Cultures were sterile in 26% of cases. Mortality was predominantly among elderly and immunocompromised patients, consistent with prior cohorts [3,5].

TA — Distinctive Features

Multifocal disease
Pulmonary or pleural involvement in 4/6 cases [1,2]

Non-articular diagnosis
Diagnosis driven by articular symptoms in only 3/6 cases; the rest identified via extra-articular work-up by other specialties

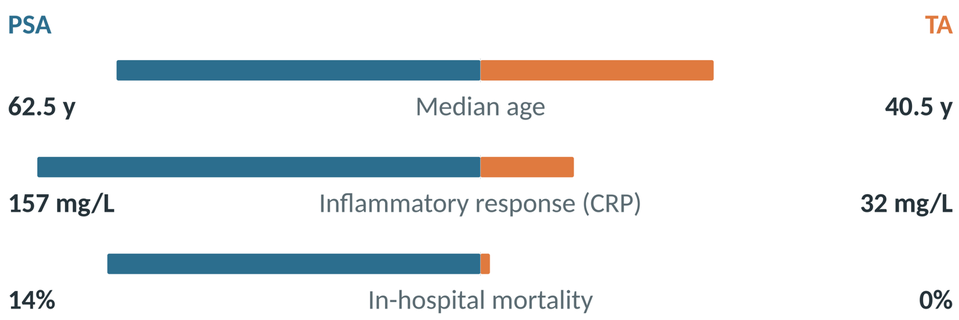
Pre-op sampling
Aspiration/biopsy diagnostic in 2/6 (non-diagnostic in 2, not performed in 2)

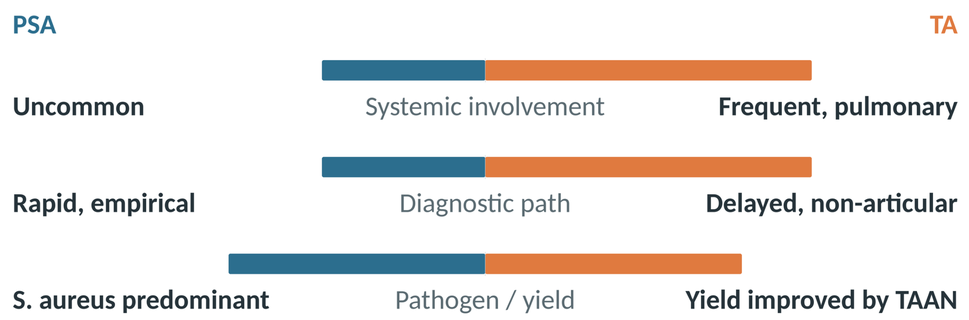
Intra-operative TAAN
Positive in 4/5 patients tested [4]

In-hospital mortality
0/6 — no TA patient died during hospitalisation

Diagnostic delay
Ranged from 2 weeks to 2 years from symptom onset to diagnosis [1,2]

Conclusions





These divergent profiles confirm that PSA and TA require **distinct, tailored** diagnostic and therapeutic strategies: rapid empirical treatment when PSA is likely, and a high index of suspicion for TA — particularly in patients with a blunted inflammatory response or atypical, systemic presentations — supported by a low threshold for TAAN-based testing.

References

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