

Polymicrobial periprosthetic joint infection following multiple orthopaedic interventions: a case report

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INTRODUCTION

Osteoarticular infections following orthopaedic surgery are serious complications, occurring more frequently in patients who have undergone multiple procedures involving osteosynthesis hardware and arthroplasty implants. These cases require a multidisciplinary approach, combining surgical source control with prolonged targeted antibiotic therapy.

METHODS



➤ Hypertension

➤ Dyslipidaemia

➤ Atrial fibrillation

➤ Left proximal femur osteosynthesis – dynamic hip screw (16 years prior)

72-year-old

Outpatient clinic

- Mechanical left hip pain, radiating to the groin
- Tenderness over the left greater trochanter and iliotibial band
- Flexion 90°, **fixed flexion deformity of 45°**
- Ambulating with bilateral crutches with significant limitation of activities of daily living
- Hip radiograph showing severe left osteoarthritis, Tönnis grade 3 (Fig.1)



Fig. 1

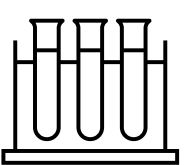
1st procedure **Removal of the proximal femur osteosynthesis hardware**

- Post-op X-ray with no apparent complications (Fig. 2)
- Ambulating with bilateral crutches, non-weight-bearing on the left lower limb
- **Day 7:** Worsening pain and poor tolerance to mobilization prompted a repeat radiograph, which revealed a subtrochanteric fracture (Fig. 3)

2nd procedure **Uncemented total hip arthroplasty with a diaphyseal-fitting stem and a constrained acetabular component**

Post-THA evolution (day 1 – day 7)

- Severe pain with poor tolerance to mobilization
- Persistent serosanguineous wound drainage
- **Day 6:** Surgical wound dehiscence
- **Day 7:** Febrile spike
- Post-op X-ray showing well-positioned THA components (Fig. 4)



Leukocytosis 16.34 ×10³/μL
CRP 11.21 mg/dL
ESR 140 mm/h



Fig. 2



Fig. 3



Fig. 4

CONCLUSION

This case highlights the complexity of managing periprosthetic joint infections in the setting of multiple prior surgical interventions within a short interval. Despite the severity of the initial presentation, a DAIR strategy combined with prolonged antibiotic therapy resulted in a favourable clinical outcome, with infection resolution and progressive functional recovery, albeit with a short follow-up period.

BIBLIOGRAPHY

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RESULTS

3rd procedure **Debridement, antibiotics and implant retention (DAIR) with intraoperative sampling for microbiological analysis**

7 days after THA

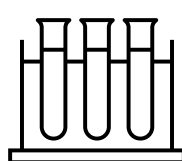
Empirical antibiotic therapy was initiated immediately post-operatively (Table 1)
Intraoperative cultures yielded four microorganisms:

<i>Enterococcus faecalis</i> (5/5 samples)	<i>Pseudomonas aeruginosa</i> (2/5 samples)
<i>Escherichia coli</i> (5/5 samples)	<i>Proteus mirabilis</i> (1/5 samples)

Switch to targeted antibiotherapy (Table 1)
Clinical and biochemical improvement during the inpatient period

Discharged 5 weeks post-DAIR with oral suppressive antibiotherapy (Table 1):

- Asymptomatic
- Afebrile
- Healed surgical wound, no signs of local inflammation
- Ambulating with a walking frame



WBC 6.22 ×10³/μL
CRP 1.75 mg/dL
ESR 63 mm/h

Empirical	Targeted	Suppressive
• Vancomycin 1500mg 12/12h • Piperacilin/tazobactam 5.5mg 8/8h	• Ampicilin 2000mg 4/4h • Ciprofloxacin 400mg 8/8h	• Amoxicilin 1000mg 12/12h • Ciprofloxacin 750mg 12/12h
IV	IV	Oral
7 days	4 weeks	12 weeks

Table 1

Outcome at 9 months post-DAIR

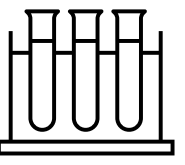
• Asymptomatic. No local signs of infection (Fig. 5) • Progressive left hip functional improvement: flexion 120°, residual fixed flexion deformity of 20° • Independently mobile with one crutch (Fig. 6) • X-ray showing well-positioned THA components with no signs of loosening (Fig. 7)	 WBC 8.49 ×10³/μL CRP 0.8 mg/dL ESR 20 mm/h
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Fig. 5



Fig. 6



Fig. 7