

Painful Total Knee Replacement Masquerading as Aseptic Loosening

Introduction

Culture-negative periprosthetic joint infection (PJI) following total knee replacement (TKR) remains a significant diagnostic challenge. Persistent pain and swelling with repeatedly negative microbiological investigations may mimic aseptic loosening and lead to inappropriate surgical management. Failure to identify low-grade infection can result in increased patient morbidity. Early clinical suspicion and careful interpretation of investigations are essential for optimal outcomes.

Methods

A 73-year-old female with hypertension and dyslipidaemia presented with progressive pain and swelling of the right knee one year after primary TKR performed at an outside centre. The patient reported dissatisfaction with the operated knee since the index procedure. Synovial fluid aspirations were performed at the outside institution and again at our centre, with cultures remaining negative. Radiographs demonstrated medial migration of the tibial stem with medial cortical hitching. The patient's clinical course, imaging findings, investigations, and surgical management were reviewed to determine the underlying diagnosis.

Results

Based on radiological features suggestive of aseptic loosening, an isolated tibial stem revision was performed nine months after presentation. Postoperatively, the patient developed persistent wound discharge requiring surgical debridement. Repeat synovial fluid aspiration again yielded negative cultures. In view of a persistent sinus and strong clinical suspicion of infection, a two-stage revision was advised. Intraoperative cultures obtained during implant explantation subsequently grew *Pseudomonas* and *Corynebacterium*, confirming periprosthetic joint infection.

Conclusions

This case highlights the diagnostic difficulty of culture-negative PJI and its potential to masquerade as aseptic loosening following TKR. Persistent pain, implant migration, and wound complications should prompt heightened suspicion for infection despite negative cultures and borderline inflammatory markers. Repeated diagnostic evaluation and timely consideration of staged revision are crucial to ensure accurate diagnosis, targeted antimicrobial therapy, and successful eradication of infection.