Research Square

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Septic arthritis superimposed on an arthritic knee is a surgical dilemma: A 10-year experience with two-stage total knee arthroplasty – the first reported study from South Asia

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Abstract

Background

Septic arthritis superimposed on an osteoarthritic knee is a challenge. Suboptimal outcomes may persist despite successful infection eradication due to preexisting degenerative changes. Evidence supporting two-stage total knee arthroplasty (TKA) for native-knee septic arthritis remains limited. This study reports a 10-year experience with two-stage TKA for acute septic arthritis in osteoarthritic knees.

Methods

This study retrospectively reviewed prospectively collected data from 26 patients (30 knees) treated with two-stage TKA between January 2015 and January 2025. The first stage comprised extensive synovectomy and debridement, femoral and tibial bone cuts, intramedullary canal reaming, and insertion of a stemmed antibiotic-loaded cement spacer, followed by antibiotic therapy. The second stage was performed after complete resolution of infection. Functional outcomes were evaluated using the Knee Society Score (KSS). Reinfection-, reoperation-, and revision-free survivorship were assessed using Kaplan–Meier analysis.

Results

The mean age of the cohort was 60.2 ± 10.1 years. Nineteen knees (63.3%) were culture-positive, with *Staphylococcus aureus* being the most commonly isolated microorganism, while 11 (36.7%) were culture-negative. Articulating spacers were used in 28 knees (93.3%). The mean interval between stages was 10.4 ± 3.1 weeks. Infection was controlled without subsequent surgery for infection in 27 knees (90.0%). Two knees developed superficial surgical-site infection, and one developed early periprosthetic joint infection; all remained infection-free at final follow-up. Mean KSS improved from 45.6 ± 6.8 to 86.6 ± 4.1 ($p < 0.001$). At a mean follow-up of 38.6 months, revision-free implant survivorship was 96.6%.

Conclusion

Two-stage TKA provides effective infection control, significant functional improvement, and excellent mid-term implant survivorship in patients with septic arthritis superimposed on an arthritic native knee. These findings support staged TKA as a viable treatment strategy for this challenging clinical scenario.

Introduction

Septic arthritis represents an orthopaedic emergency with potentially devastating consequences. Long-term sequelae resulting in significant functional deterioration have been reported in up to 25–50% of affected patients and are particularly pronounced in joints already compromised by degenerative

changes.[1–2] The current approach to acute knee sepsis, involving prompt irrigation and debridement followed by pathogen-specific antibiotic therapy, is effective in controlling infection in most cases.[3] Sepsis in a degenerative joint, however, accelerates cartilage and subchondral bone destruction and frequently results in suboptimal outcomes.[4,5]

Management strategies for patients with advanced knee osteoarthritis (OA) with concomitant joint sepsis remain poorly defined. Despite successful eradication of infection, persistent pain frequently remains due to the unaddressed underlying degenerative disease.[6] On the other hand, failure to adequately control the joint sepsis compromises local bone stock and increases the risk of chronic infection.[7] Rapid functional decline may ultimately necessitate total knee arthroplasty (TKA). Abram et al. reported that 8.76% (159/1816) of patients in their cohort treated for septic knees required TKA at a 15-year follow-up, with a significantly higher risk among those with pre-existing OA (hazard ratio 2.5).[8] Subsequent need for primary TKA is associated with an increased risk of periprosthetic joint infection (PJI). Studies report PJI rates of 10–12% in patients with prior septic arthritis, and a 6.1-fold increased risk of PJI following TKA compared with primary TKA for OA.[9–11]

Although staged management with antibiotic-loaded cement spacers followed by revision TKA is well established for PJI, evidence for its use in native knee arthritis with active infection is limited to small case series and isolated reports.[12–19] Additionally, published studies show substantial heterogeneity regarding patient selection, spacer type, interval between stages, and perioperative antimicrobial regimens. In the absence of internationally accepted guidelines, Tahmasebi *et al.* proposed a treatment algorithm based on a small cohort of 6 patients undergoing staged TKA for septic arthritis, achieving complete eradication of infection at a mean follow-up of 26 months, while emphasising the need for larger studies to assess long-term outcomes.[18]

Against this background, the role of two-stage TKA for acute septic arthritis of the native osteoarthritic knee remains incompletely defined. This study presents 10 years of experience with this technique and, to the best of our knowledge, is the first study from South Asia reporting functional outcomes and infection-free survival following staged TKA in this challenging patient population.

Materials and Methods

Study design and patient selection

This multi-centre retrospective observational cohort study analysed prospectively collected data from 26 patients (30 knees) with acute septic arthritis of a native osteoarthritic knee treated with two-stage TKA between January 2015 and January 2025. Ethical approval was obtained. Diagnosis of septic arthritis was based on a combination of clinical, haematological, microbiological, and radiographic findings.[20–21] Baseline WBC, ESR, and CRP, as well as synovial leukocyte count and differential, Gram staining, culture, and crystal analysis were recorded. Initial and follow-up knee radiographs were retrieved (Fig. 2a–b).

Patients were included if they had acute septic arthritis of a native arthritic knee, underwent both stages of TKA at our institutions, completed the prescribed antibiotic regimen, and had a minimum of 12 months of clinical and radiological follow-up. Exclusion criteria were mycobacterial infection, previous TKA in the affected knee, incomplete postoperative antibiotic therapy, and active or recurrent infective skin lesions.

Knee function, assessed using the Knee Society Score (KSS), was documented. These parameters were then reassessed at the most recent follow-up. Patient demographics, comorbidities, microbiology, surgical details, and antibiotic regimens were collected. Radiological follow-up was done with standard knee radiographs after each surgical stage, at three months, and annually thereafter.

Surgical Technique

First Stage

Through a midline incision, a medial parapatellar arthrotomy was performed, and synovial fluid was collected for microbiological analysis. An extensive synovectomy and excision of infected and nonviable tissue were performed (Fig. 1a-b). At least 5 intraoperative specimens were obtained from the synovium, femoral canal, and tibial canal, and sent for Gram staining, culture and sensitivity, acid-fast bacilli smear and culture, and Xpert MTB/RIF after labelling.

Femoral and tibial bone cuts for TKA were then performed as part of the first-stage procedure. Using an intramedullary jig, distal femoral cuts were made, followed by positioning a 4-in-1 femoral cutting block, through which all remaining femoral cuts, except the anterior cut, were made. The proximal tibial cut was performed using an extramedullary jig, removing an approximately 6 mm slice from the more affected condyle. These cuts were a crucial step to allow removal of potentially contaminated osteochondral tissue, facilitate access to the posterior compartment for thorough debridement and lavage, and provide a stable platform for the spacer. Cuts were deliberately kept limited to preserve bone for further resection, if required, during the second stage (Fig. 1c-d, Fig. 3c-d). Reaming of the femoral and tibial intramedullary canals was performed, and reaming material was sent for culture and sensitivity. This was followed by a thorough lavage.

For the antibiotic cement spacer, 4 g of vancomycin powder was mixed with 40 g of bone cement. Antibiotic cement stems constructed over bent K-wires were inserted into the canals after the cement had hardened. The tibial and femoral components of the spacer were hand-moulded when the cement reached a dough-like consistency to minimize excessive interdigitation with the remaining bone and facilitate subsequent removal. The articulating spacer was designed to maintain alignment, preserve soft-tissue length, and allow range of motion between stages. In two cases with severe collateral ligament insufficiency and a compromised soft-tissue envelope following multiple prior procedures, a non-articulating cement spacer was used to provide greater stability and prevent wound dehiscence during the interval between stages (Fig. 2). The joint was irrigated and closed in layers.

Interval between stages

Following the first stage, patients were mobilized with walker assistance and allowed weight-bearing as tolerated with a knee extension brace. Isometric exercises and limited active flexion and extension were encouraged. Pathogen-specific antibiotics were initiated based on intraoperative culture results and infectious-disease guidance. In culture-negative cases, antibiotics were selected by the infectious-disease team, with clinical response and serial inflammatory markers used to assess treatment efficacy.

Patients were monitored closely throughout the interval between stages. Persistent or rising inflammatory markers, worsening local findings, or other evidence of ongoing infection prompted reassessment and, when required, repeat debridement or spacer exchange. Host optimization, such as glycaemic control, nutritional upbuilding, and correction of anaemia, was also carried out during this interval. The second stage was planned once there was no remaining clinical or haematological evidence of ongoing infection. Antibiotics were held for approximately two weeks before the second stage.

Second Stage

The previous incision and approach were utilized, and the articulating cement spacer was carefully removed to minimize bone loss. This was followed by thorough repeat debridement using a high-speed burr and pulse lavage. In 18 knees with extensive periarticular fibrosis in which the standard medial parapatellar approach did not provide adequate patellar eversion and joint exposure without risking patellar tendon avulsion, a tibial tubercle osteotomy (TTO) was performed (Fig. 3h). Following completion of debridement and femoral and tibial preparation, multiple 2-mm transosseous tunnels were created from the medial tibial cortex across the osteotomy bed. Corresponding parallel tunnels were then drilled through the osteotomized tibial tubercle. High-strength sutures (FiberWire®) were passed through the opposing bone tunnels to facilitate fixation (Fig. 3i).

Multiple specimens were obtained for microbiological analysis and frozen section. An intraoperative leukocyte esterase test was also performed. Femoral and tibial preparations were completed using the preserved bony references. Additional recuts were performed when required. Trial components were inserted, followed by ligament balancing and the necessary soft-tissue releases to obtain a stable knee throughout the range of motion.

Cemented stemmed constrained condylar knee implants were used in almost all cases, with a higher level of constraint available when required for ligament insufficiency or instability. In patients in whom TTO was performed, the osteotomy fragment was reduced into its anatomical position and secured with the transosseous sutures tied under appropriate tension, achieving stable fixation of the tibial tubercle and restoration of the extensor mechanism (Fig. 3j-l).

Rehabilitation and follow-up

Postoperative antimicrobial therapy was continued, and standardized postoperative physiotherapy was initiated, with progressive mobilization and ROM exercises. Patients were followed up with serial inflammatory markers during the early postoperative period and continued clinical and radiological assessment.

Statistical Analysis

Statistical analysis was performed using SPSS version 27 (IBM Corp., Chicago, IL, USA). Continuous variables are presented as mean ± standard deviation and categorical variables as frequencies and percentages. Associations between categorical variables were assessed using the chi-square or Fisher's exact test. Kaplan–Meier analysis was used to assess implant survivorship, and multiple linear regression was performed to identify predictors of improvement in KSS. A p-value < 0.05 was considered statistically significant.

Results

Patient demographics and baseline characteristics

A total of 26 patients and 30 knees that underwent two-stage revision TKA for septic arthritis were included in this analysis. 22 patients from this cohort had unilateral involvement, and 4 patients had bilateral septic arthritis. The cohort comprised 15 men (57.7%) and 11 women (42.3%), with a mean age of 60.2 ± 10.1 years (range, 35–78 years). Baseline characteristics are summarized in Table 1.

Table 1
Patient demographics, aetiology of disease, and baseline characteristics

Characteristic		**n (%)**
Gender	Male	15 (57.7%)
	Female	11 (42.3%)
Laterality	Unilateral septic arthritis	22 (84.6%)
	Bilateral septic arthritis	4 (15.4%)
Comorbidities*	Hypertension (HTN)	16 (61.5%)
	Diabetes Mellitus (DM)	14 (53.8%)
	Ischemic Heart Disease (IHD)	6 (23.1%)
	Hepatitis C (treated)	3 (11.5%)
	Rheumatoid Arthritis (RA)	2 (7.7%)
	CKD	2 (7.7%)
	Hypothyroidism	2 (7.7%)
	Thalassemia	1 (3.8%)
Aetiology of septic arthritis	Intra-articular injection	10 (33.3%)
	No cause identified	9 (30.0%)
	Hematogenous spread	8 (26.7%)
	Surgical intervention	2 (6.7%)
	Penetrating trauma	1 (3.3%)

*Percentages for comorbidities are calculated per patient (n = 26); all other percentages are calculated per knee (n = 30).

The most common causative factor for septic arthritis was intra-articular injections, identified in 10 knees (33.3%), including platelet-rich plasma (PRP), corticosteroid, and hyaluronic acid injections. No identifiable source was established in 9 knees (30.0%). Haematogenous spread from an extra-articular source of sepsis, including urinary tract infection, pneumonia, or cellulitis, was identified in eight knees. Surgical intervention around the knee accounted for two cases, including one episode of post-arthroscopy septic arthritis and one following removal of an infected implant (Fig. 2). Penetrating trauma related to a road traffic accident was identified in one knee (3.3%).

Preoperative microbiological cultures were positive in 19 knees (63.3%), while 11 (36.7%) were culture-negative. *Staphylococcus aureus* was the predominant pathogen, with methicillin-sensitive *S. aureus*

(MSSA) identified in 8 knees (26.7%) and methicillin-resistant *S. aureus* (MRSA) in 4 (13.3%). Other organisms included Group A *Streptococcus*, *Enterobacter* species, coagulase-negative *Staphylococcus* (CoNS), *Pseudomonas* species, and multidrug-resistant (MDR) *Acinetobacter*. Microbiological findings and surgical details are presented in Table 2.

Table 2
Microbiology, spacer characteristics, interval between stages, and implants

Variable		**n = 30**
Preoperative Culture	Culture-positive	19 (63.3%)
	Culture-negative	11 (36.7%)
Identified organisms among culture-positive knees (n = 19)	MSSA	8 (26.7%)
	MRSA	4 (13.3%)
	Group A Streptococcus	2 (6.7%)
	Enterobacter species	2 (6.7%)
	CoNS	1 (3.3%)
	Pseudomonas	1(3.3%)
	Acinetobacter MDR	1 (3.3%)
Antibiotic spacer type	Articulating	28 (93.3%)
	Non-articulating	2 (6.7%)
Interval between stages	> 8 weeks	18 (60.0%)
	≤ 8 weeks	12 (40.0%)
Second-stage implant	LCCK	16 (53.3%)
	Other (SSK, Zimmer LPS)	6 (20.0%)
	RHK	4 (13.3%)
	TC3, MBT with metaphyseal sleeve	2 (6.7%)

MSSA: *methicillin-sensitive S. aureus;* MRSA: *methicillin-resistant S. aureus;* CoNS: Coagulase-negative staphylococci; MDR: Multidrug-resistant; LCCK: Legacy® Constrained Condylar Knee; SSK: Stemmed-Stabilized Knee; RHK: Rotating Hinge Knee; TC3: SIGMA® TC3 Knee System; MBT: Metal-Backed Tibia component

Surgical management and antibiotic therapy

The mean interval between the first and second stages was 10.4 ± 3.1 weeks. In 2 patients, repeat debridement and change of spacer were required during this interval. An antibiotic holiday of 2.3 ± 0.8 weeks followed completion of antibiotic therapy and resolution of clinical and laboratory evidence of

infection. Twelve knees (40.0%) underwent second-stage TKA within 8 weeks of the first stage, while the remaining knees underwent surgery after 8 weeks. The mean duration of antimicrobial therapy following the first stage was 6.2 ± 2.7 weeks. Combination antimicrobial therapy was used in 21 knees (70.0%). TTO was performed in 18 knees (60.0%). All second-stage implants were stemmed. A constrained condylar knee implant (LCCK) was most frequently used, in 18 knees (60.0%). A rotating hinge knee (RHK) was used in four knees with severe collateral ligament insufficiency and gross multidirectional instability, while a TC3 MBT with a metaphyseal sleeve was used in two knees with substantial metaphyseal bone loss (Fig. 4). Table 2 provides further implant details.

Infection eradication, complications, and functional outcome

Infection was successfully eradicated following the two-stage protocol in 27 knees (90.0%). Two knees (6.7%) developed superficial surgical-site infections within 3 weeks of second-stage reconstruction; both were managed with wound drainage and re-closure, with no subsequent recurrence. One knee (3.3%) developed periprosthetic joint infection 9 weeks after second-stage reconstruction and underwent debridement, antibiotics, and implant retention (DAIR), following which the knee remained infection-free at the latest follow-up.

No patient underwent revision for septic or aseptic failure during follow-up. One knee demonstrated early radiographic evidence of asymptomatic tibial stem loosening at the most recent assessment; given the absence of clinical symptoms, no intervention was undertaken, and the patient remains on routine follow-up.

Knee function improved substantially following reconstruction. The mean Knee Society Score (KSS) increased from 45.6 ± 6.8 preoperatively to 86.6 ± 4.1 postoperatively, representing a mean improvement of 41.0 ± 4.1 points ($p < 0.001$). The mean duration of follow-up was 38.6 months (range, 14–62 months).

Survival Analysis

Kaplan–Meier analysis demonstrated 96.6% revision-free implant survivorship at a mean follow-up of 38.6 months. At final follow-up, 90.0% of knees remained free from reinfection, reoperation, or revision. Cox proportional hazards analysis did not identify any significant predictors of reinfection, with all evaluated hazard ratios being non-significant (all $p > 0.05$).

Discussion

Septic arthritis in the native osteoarthritic knee has traditionally been regarded as an absolute contraindication to arthroplasty, and the role of staged TKA in this setting remains inadequately supported in literature. Based on over a decade of experience, this first study from South Asia provides compelling evidence that a two-stage approach can achieve excellent mid-term functional outcomes and

implant survival free from reinfection and revision, thereby strongly supporting the consideration of this more proactive strategy in carefully selected patients.

In our series of 30 septic knees managed with staged TKA, 96.6% remained revision-free at a mean follow-up of 38.6 months. 27 knees (90.0%) had an uncomplicated infectious course. Two knees developed superficial surgical-site infection, and one developed PJI requiring DAIR; all three were infection-free at the latest follow-up. The overall revision-, reinfection-, and reoperation-free survivorship was 90.0%. Functional outcomes improved significantly, with mean KSS increasing from 45.6 preoperatively to 86.6 postoperatively ($p < 0.001$).

These results align closely with those of Shaikh *et al.*, who reported successful infection eradication in all 15 patients treated with antibiotic cement spacers followed by staged TKA, with significant improvements in KSS and WOMAC scores at a mean follow-up of 4 years.[14] Similarly, Nazarian *et al.* demonstrated marked functional improvement following staged TKA for chronically infected arthritic knees, with the mean KSS increasing from 46 to 89, satisfactory knee ROM (mean 3°–105°), and no recurrence of infection at a mean follow-up of 4.5 years.[12] Multiple regression analysis in our cohort identified better preoperative KSS as a predictor of greater functional gain ($p = 0.006$), reflecting the importance of early intervention before severe functional decline.

PJI remains a major concern in patients with a history of septic arthritis, yet our findings provide evidence that two-stage TKA in the hands of experienced revision arthroplasty surgeons can achieve remarkably low reinfection rates and excellent implant survival. Bettencourt *et al.* highlighted the elevated risk of PJI following TKA in patients with prior septic arthritis, reporting an incidence of 9% at 10 years.[9] However, our cohort had only one case of early PJI, supporting the effectiveness of thorough debridement, targeted antibiotic therapy, and careful patient selection. It is important to note that septic arthritis frequently involves periarticular structures, and complete infection eradication is often not achievable through synovectomy alone; performing bone cuts during the first stage, in combination with the use of antibiotic-laden spacers, can help ensure better infection clearance.

Causative organisms can be isolated in around 80% of native septic joints, while the remaining are treated as culture-negative.[22] In our cohort, 11 patients (36.7%) presented with culture-negative septic arthritis. In the absence of an identifiable causative organism, diagnosis was established through a combination of clinical evaluation, laboratory markers, and synovial fluid analysis. However, in cases with diagnostic uncertainty, synovial biopsy provides additional confirmation, with histological features such as perivascular PMN infiltration, micro-abscesses, and synovial hyperplasia demonstrating high sensitivity and specificity. We utilised synovial biopsy in select doubtful cases, which proved valuable in confirming the diagnosis. More recently, metagenomic next-generation sequencing (mNGS) has emerged as a promising adjunct in culture-negative joint infections, providing rapid, culture-independent pathogen detection, particularly in patients who have received prior antibiotic therapy.[23,24]

This study has several limitations. Its retrospective design and relatively small sample size limit the generalisability of the findings and introduce the potential for selection and information bias. Additionally, the absence of a control group precludes direct comparison with alternative treatment strategies, such as arthrotomy followed by TKA after infection eradication or single-stage TKA. Finally, although follow-up was adequate to assess early and intermediate-term outcomes, extended follow-up is required to determine the long-term infection- and revision-free implant survivorship.

Conclusion

Two-stage TKA provides a reliable strategy for managing septic arthritis superimposed on an arthritic native knee, achieving excellent revision-free survivorship, effective infection control, and significant improvement in knee function. Thorough debridement, appropriate antibiotic therapy, and careful patient selection are key to successful outcomes. Our findings support the use of staged TKA as a reliable treatment option in this difficult patient population.

Declarations

Author Contributions Statement

Syed Shahid Noor conceived the study, developed the surgical technique, served as principal investigator, and was a lead operating surgeon. Nasir Ahmed, also a lead operating surgeon, contributed to the technique and supervision of the clinical work. Sumaiya Khan, the assisting surgeon, performed the data analysis and interpretation and drafted the manuscript. Nimrah Rasheed, Sarfraz Mohammad Shahi, and Neelum Zehra Nazeer contributed to data collection, data entry, and verification of clinical records. All authors contributed to the critical review of the manuscript, approved the final version, and agreed to be accountable for the work.

Ethical considerations:

Ethical approval for this study was obtained from the Ethical Review Committee of Liaquat National Hospital and Medicare Cardiac and General Hospital.

Consent to participate:

This is an IRB-approved retrospective study in which data have been collected from the Pakistan National Joint Registry (PNJR); all patient information was de-identified, and patient consent was not required.

Consent for publication:

Not applicable.

Declaration of conflicting interest:

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Availability of data and materials:

The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

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Figures

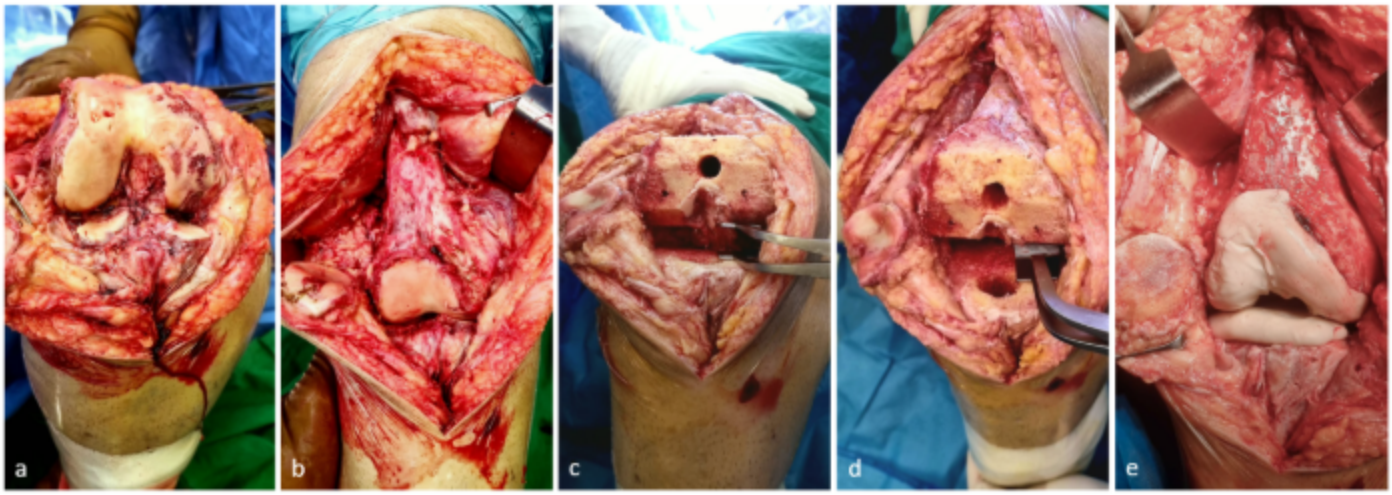


Figure 1

First stage of two-stage TKA for acute septic arthritis in an arthritic knee.(a) Through a midline incision and medial parapatellar arthrotomy, the septic joint is exposed, and the patella is everted laterally. Infected and devitalized tissue with marked synovial hypertrophy and inflammation is evident. Gross inspection demonstrates advanced degenerative changes, predominantly involving the medial tibiofemoral compartment, with marginal osteophyte formation, extensive cartilage loss, and exposed subchondral bone of the medial femoral condyle. (b) Extensive synovectomy, debridement of infected tissue, and thorough lavage are performed. (c, d) Femoral and tibial bone cuts are made according to the primary TKA protocol, allowing thorough debridement and lavage of the posterior compartment. (e) A hand-moulded articulating cement spacer is fashioned over the prepared femoral and tibial surfaces.



Figure 2

An 80-year-old diabetic male, with a history of a proximal tibial fracture treated with ORIF 10 years ago, subsequently developed acute septic arthritis following infected implant removal. (a) Initial radiographs demonstrate a left Schatzker type IV medial tibial plateau fracture. (b) Left knee radiographs following ORIF of the proximal tibial fracture demonstrate a proximal tibial T-plate. (c) Following removal of the infected implant 10 years later, the patient presented with a septic knee; radiographs demonstrated advanced degenerative changes, proximal tibial bone loss, and varus malalignment. Severe MCL insufficiency is evident. (d) Following debridement, a non-articulating antibiotic-loaded cement spacer was inserted due to deficient collaterals and inadequate knee stability. Intraoperative cultures grew MSSA, and the patient received 6 weeks of IV meropenem followed by a 2-week antibiotic holiday. (e) Radiographs of the left knee following the second stage demonstrate a cemented stemmed revision TKA, with restoration of alignment and stability.

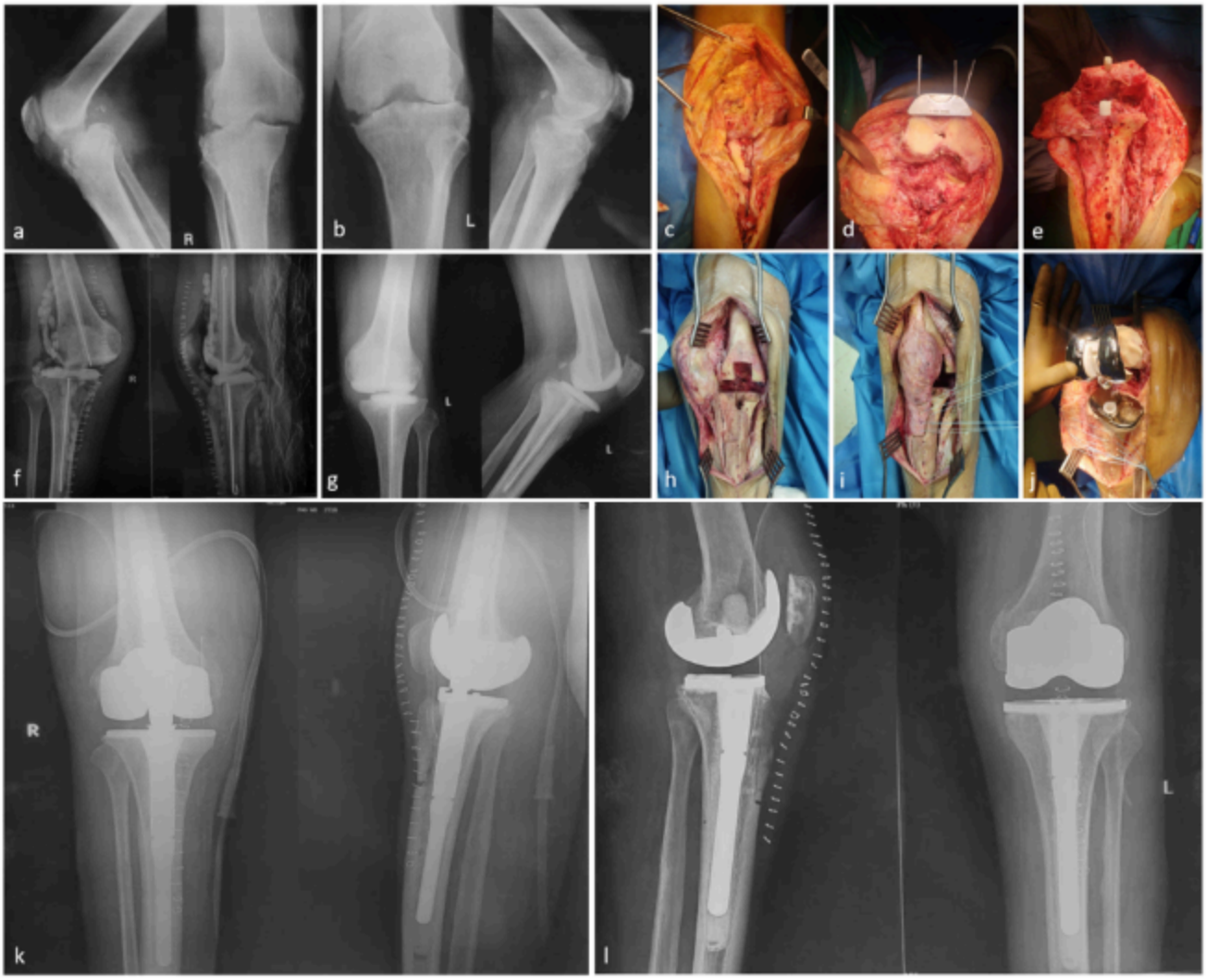


Figure 3

A 57-year-old man presented with bilateral acute septic arthritis and underwent bilateral staged reconstruction. (a, b) Preoperative radiographs demonstrate advanced osteoarthritis with severe bilateral joint-space narrowing and degenerative changes. (c) Intraoperative findings demonstrate extensive fibrosis, hypertrophic synovium, and drainage of seropurulent fluid. (d-e) Complete synovectomy and debridement were performed, followed by femoral and tibial bone cuts. (e) Antibiotic cement stems can be seen protruding from the cut joint surfaces. (f, g) Postoperative radiographs demonstrate articulating spacers in the right and left knees, respectively. Antibiotic beads can be appreciated in the extraarticular region in the right knee. (h, i) At the second-stage procedure, extensive fibrosis required tibial tubercle osteotomy to obtain adequate exposure. (j) Due to global ligamentous deficiency, the right knee was reconstructed with a revision hinged knee implant, followed by restoration of the extensor mechanism and fixation of the tibial tubercle osteotomy with FibreWire®. (k, l) Postoperative radiographs demonstrate the final cemented stemmed implants in the right and left knees, respectively.

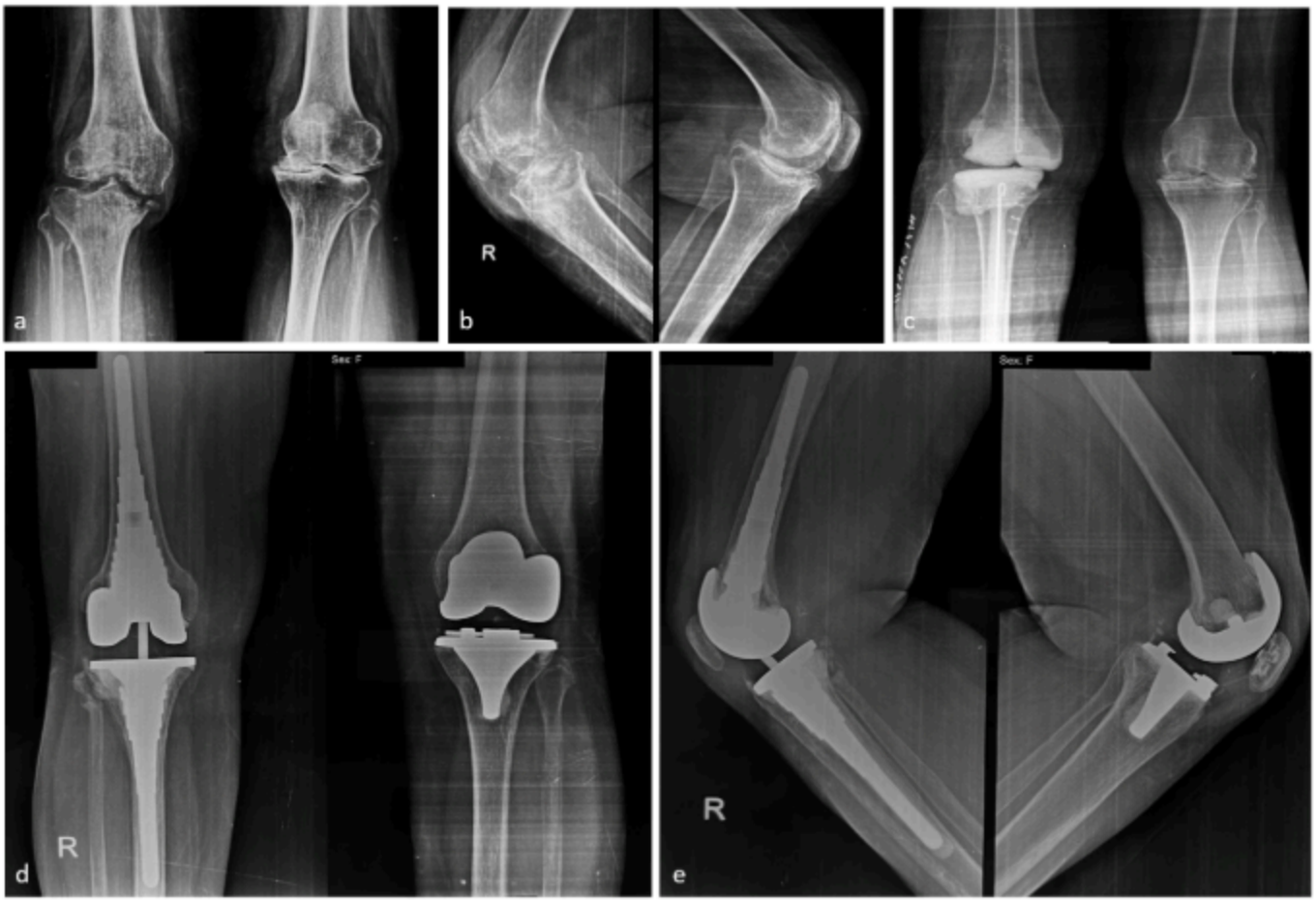


Figure 4

A 60-year-old woman with rheumatoid arthritis in remission presented with acute right knee swelling and fever. (a, b) Preoperative radiographs demonstrate advanced degenerative changes in bilateral knees, with marked joint-space narrowing and erosive changes. The right knee is more severely infected due to the superimposed infection, with extensive osteolytic changes and a bone defect appreciated in the medial tibial plateau. A slight subluxation of the right femoral condyle over the plateau can be appreciated, suggestive of MCL insufficiency. (c) Postoperative radiographs of the right knee following the first-stage procedure demonstrate an articulating antibiotic-loaded cement spacer. Intraoperative cultures grew Group A *Streptococcus*, and the patient received 8 weeks of intravenous vancomycin followed by a 2-week antibiotic holiday. (d, e) At 10 weeks following the first stage, right second-stage TKA and left primary TKA were performed after normalization of inflammatory markers; intraoperative frozen section and cultures were negative for infection. A modular, constrained TC3 femoral component with an MBT metaphyseal sleeve can be appreciated in the right knee, and a primary posterior-stabilized implant in the left.