

## Case Report

# Simultaneous bilateral total knee arthroplasty in acute severe gouty arthritis with valgus deformity: a case report

Nikunj Agrawal<sup>1</sup>, Voonna Charan Kumar<sup>2\*</sup>, Sunil Kumar Sharma<sup>3</sup>, Abhishek Sharma<sup>4</sup>

<sup>1</sup>Department of Orthopaedics, Max Super Speciality Hospital, Vaishali, Delhi NCR, India

<sup>2</sup>Department of Orthopaedics, Sarvodaya Healthcare, Greater Noida West, Delhi NCR, India

<sup>3</sup>Department of Orthopaedics, Yashodha Medicity, Indirapuram, Delhi NCR, India

<sup>4</sup>Department of Orthopaedics, Metro Hospital, Noida, Delhi NCR, India

**Received:** 08 February 2026

**Accepted:** 03 April 2026

### \*Correspondence:

Voonna Charan Kumar,

E-mail: [krsnacharanvonna@gmail.com](mailto:krsnacharanvonna@gmail.com)

**Copyright:** © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

## ABSTRACT

Gouty arthritis (GA) is a crystal arthropathy that may coexist with osteoarthritis (OA), particularly in large joints such as the knee. We present a 72-year-old male with bilateral knee pain, valgus deformity and acute GA superimposed on severe OA. Despite conservative therapy, symptoms persisted. Bilateral total knee arthroplasty (TKA) was performed, with intraoperative findings of urate crystal deposition. Simultaneous bilateral TKA provided pain relief, deformity correction and functional restoration, with no recurrence of gout flares at six months.

**Keywords:** Gouty arthritis, Osteoarthritis, Valgus deformity, Total knee arthroplasty

## INTRODUCTION

Gout is a metabolic inflammatory condition caused by monosodium urate crystal deposition due to hyperuricemia.<sup>1</sup> While the first metatarsophalangeal joint (MTP) is most commonly affected, larger joints such as the knee may also be involved.

OA predisposes joints to urate deposition, increasing the likelihood of concurrent disease.<sup>5</sup> Although medical therapy remains the cornerstone of management, advanced cases with deformity and functional limitation may require surgical intervention. We present a rare case of acute bilateral GA with severe OA and valgus deformity managed successfully with simultaneous bilateral TKA.

## CASE REPORT

A 72-year-old male presented with progressive bilateral knee pain and swelling for three months, worsened over the past 10 days. Despite conservative management,

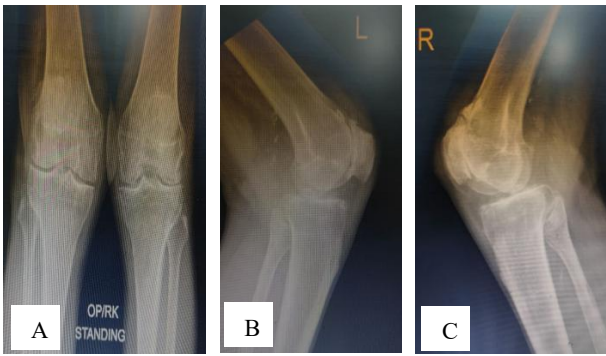
symptoms did not improve. He had a six-year history of gout. Clinical examination revealed subcutaneous tophi on the extensor surfaces of both elbows as shown Figure 1, genu valgum deformity and bilateral fixed flexion deformities 10° on the right and 5° on the left. Both knees were tender and exhibited limited terminal flexion and crepitus.

Laboratory tests showed elevated erythrocyte sedimentation rate ESR (61 mm/h), C-reactive protein CRP (88 mg/l) and serum uric acid (9.6 mg/dl). Radiographs confirmed severe OA (Kellgren-Lawrence grade 4) with marked joint space narrowing and osteophytes as depicted in Figure 2.

Synovial fluid analysis demonstrated needle-shaped, negatively birefringent monosodium urate crystals, confirming GA. Preoperative knee injury and osteoarthritis outcome score for joint replacement (KOOS JR) scores- right knee: 25/100, left knee: 20/100.



**Figure 1: Gouty tophaceous nodules over extensor aspect of both elbows.**



**Figure 2 (A-C): X-ray both knees anteroposterior and lateral views show marginal osteophytes, sub chondral sclerosis with tricompartmental involvement.**

### **Surgical technique**

Under spinal-epidural anaesthesia with a tourniquet (280 mm Hg), bilateral TKA was performed via a medial parapatellar approach.

Intraoperatively, chalky white deposits consistent with urate crystals covered the articular surfaces and synovium as shown in Figure 3.

Osteophytes and loose bodies were debrided. Posterior cruciate ligament was released. Femoral and tibial cuts were made with appropriate jigs. Tibial stem was press-fit; femoral component was cemented. Valgus-varus constrained tibial inserts were used. Patellar denervation was performed. Postoperative radiographs showed well-aligned implants and correction of deformity as depicted in Figure 4.

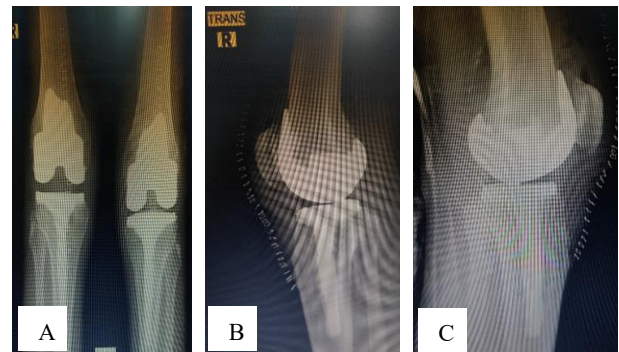
### **Postoperative management and follow-up**

NSAIDs and febuxostat (80 mg OD) initiated. Follow-ups at 3 weeks, 6 weeks, 3 months and 6 months. Monitored ESR, CRP and uric acid levels at each visit. At six months, the patient had notable improvement in pain,

stability, range of motion and daily activity function. KOOS JR scores improved to 85/100 bilaterally.



**Figure 3: Intraoperative picture of right knee-blue arrows shows chalky white tophaceous material over degenerated articular cartilage.**



**Figure 4 (A-C): Post operative X-ray of both knees anteroposterior and lateral views shows well aligned components.**

### **DISCUSSION**

Subcutaneous and intra-articular tophi are common in chronic gout with high uric acid levels.<sup>12</sup> While the MTP joint is the classic site, knees are frequently affected, particularly in the presence of OA.<sup>5</sup> Teng et al reported a three-fold increased risk of knee OA in patients with gout.<sup>3</sup> Crystal deposition within the synovium and cartilage contributes to pain and deformity. Arthroplasty not only restores function but may also reduce acute gout flares by removing diseased tissue.

Reports of crystalline arthropathy in prosthetic joints are limited.<sup>4-7</sup> In our case, acute gouty arthritis subsided post-TKA, with no recurrence during six months of follow-up. This case highlights the importance of considering arthroplasty in patients with advanced OA complicated by gout, especially when deformity and functional limitation are severe.

## CONCLUSION

This case report demonstrates the challenges in managing OA secondary to gout. Bilateral semi-constrained TKA effectively addressed deformity and pain. Surgical debridement of urate deposits and prosthesis implantation offered functional restoration and prevented further gouty flares.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: Not required*

## REFERENCES

1. Buck M, Delaney M. Diagnosis and management of gout in total knee arthroplasty. *Orthop Nurs.* 2014;33(1):37-40.
2. Buruian A, Angelo S, Seiça E, Fernandes F, Mendes A. Advanced erosive gouty arthropathy of the knee. *Cureus.* 2024;16(1):e51432.
3. Teng GG, Leung YY, Ang LW, Yuan JM, Koh WP. Gout and risk of knee replacement for severe knee osteoarthritis in the Singapore Chinese Health Study. *Osteoarthritis Cartilage.* 2017;25(12):1962-8.
4. Green AM, Gemayel A, Silberg E. Crystalline-Induced Arthropathy Following Total Knee Replacement. *Cureus.* 2021;13(8):e17619.
5. Roddy E, Zhang W, Doherty M. Are joints affected by gout also affected by osteoarthritis?. *Ann Rheum Dis.* 2007;66(10):1374-7.
6. Krishna MS, Reddy YKC, Reddy GG. Arthroscopic image of tophaceous gout of the knee: A case report. *Int J Orthop Sci.* 2023;9(4):19-22.
7. Fokter SK, Repse-Fokter A. Acute gouty arthritis in a patient after total knee arthroplasty. *Wien Klin Wochenschr.* 2010;122(12):366-7.
8. Malkus JB, Goedhart LM, Verra WC. Acute haematogenous periprosthetic joint infection due to *Streptococcus sanguinis* along with coexistent crystalline arthropathy after total knee arthroplasty: a rare combination. *BMJ Case Rep.* 2022;15(5):e249154.
9. Moon HS, Yoo JH, Park SH, Jung SH, Choi CH. Acute Gout Attack Immediately After Total Knee Arthroplasty: A Case Report. *JBJS Case Connect.* 2020;10(1):e0062.
10. Cole MW, Collins LK, Wilder JH, Ross BJ, Hawkins BJ, Sherman WF. The Effects of Gout Following total Knee Arthroplasty: A Retrospective Analysis. *J Arthroplasty.* 2023;38(8):1499-503.
11. Jabalameli M, Bagherifard A, Hadi H, Behshad V, Ghaffari S. Chronic tophaceous gout. *QJM.* 2017;110(4):239-40.
12. Lu CC, Wei JC, Chang CA, Chen CM, Tsai SW, Yeh CJ. Limited Knee-Joint Range of Motion in Patients with tophaceous gout improved with medical treatment: A 18-Months Follow Up. *Front Med (Lausanne).* 2020;7:74.

**Cite this article as:** Agrawal N, Kumar VC, Sharma SK, Sharma A. Simultaneous bilateral total knee arthroplasty in acute severe gouty arthritis with valgus deformity: a case report. *Int J Res Orthop* 2026;12:1162-4.