

Calcium Pyrophosphate Dihydrate Deposition Disease in a Knee With Total Joint Replacement

Stephen Soloway, MD, FACP, FACR* and Bradford S. Tucker, MD†

A 71-year-old white woman underwent a right total knee arthroplasty because of osteoarthritis 8 years ago. Approximately 1 year ago, the patient developed a swollen, boggy, and warm right knee. The patient returned to the orthopedic surgeon who performed the surgery. The surgeon was concerned about infection and referred the patient for arthroscopic evaluation. The patient had synovial fluid Gram stain, cultures, cell count, crystal analysis, and an α -defensin (used to detect infection in synovial fluid¹). The white blood cell count of the fluid was measured as 384 μ L by cell counter with neutrophils 9.7% and mononuclear cells 90.3%. Culture results were negative. Gram stain finding was negative. Result of α -defensin was negative. Crystal identification was positive for calcium pyrophosphate (CPP) crystals. The synovium was loaded visibly with crystalline material (Figure). The patient was referred to my clinic where I aspirated 10 mL of fluid from the knee joint and confirmed sheets of CPP crystals. I was unable to obtain preoperative radiographs to look for chondrocalcinosis. However, recent films of the patient's wrists reveal chondrocalcinosis in a triangular fibrocartilage of each wrist, and the other knee did show medial joint space narrowing with chondrocalcinosis in the lateral joint space. The patient has undergone a complete metabolic workup, which revealed treated hypothyroidism with thyroid-stimulating hormone now at 0.02 μ IU/mL.

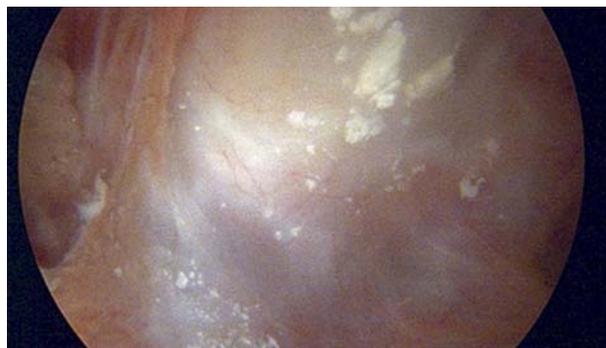


FIGURE. Gross specimen showing calcium pyrophosphate as seen within the synovium. Color online-figure is available at <http://www.jclinrheum.com>.

This is a reminder that crystal arthritis (gout or CPP deposition arthropathy) can occur in an artificial joint.¹⁻³ It is often not known how crystal deposition was carefully considered at the initial surgery.

The patient is currently maintained on colchicine 0.6 mg daily. She had 1 corticosteroid injection to the knee and no longer has synovitis, and the patient is ambulating and doing well with no complaints.

REFERENCES

1. Holt G, Vass C, Kumar CS. Acute crystal arthritis mimicking infection after total knee arthroplasty. *BMJ*. 2005;331:1322-1323.
2. Soloway S. Tophaceous gout in a knee with total joint replacement. *J Clin Rheumatol*. 2011;17:48.
3. Hirose C, Wright R. Calcium pyrophosphate dihydrate deposition disease (pseudogout) after total knee arthroplasty. *J Arthroplasty*. 2007;22:273-276.

From the *Arthritis & Rheumatology Associates of South Jersey, PC, Vineland; and †Rothman Institute, Egg Harbor Township, NJ.

The authors declare no conflict of interest.

Correspondence: Stephen Soloway, MD, FACP, FACR, CCD, Arthritis & Rheumatology Associates of South Jersey, PC, Vineland, 2848 S. Delsea Dr, Ste 2C, Vineland, NJ 08360.

Copyright © 2016 Wolters Kluwer Health, Inc. All rights reserved.

ISSN: 1076-1608

DOI: 10.1097/RHU.0000000000000384