Gouty synovitis after total knee arthroplasty: a case report

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ABSTRACT
We report a case of acute gouty synovitis after total knee arthroplasty (TKA) in a patient with no history of gout. The diagnosis was confirmed by the presence of urate crystals in the synovial fluid. Acute gouty synovitis, though rare, should be considered in the differential diagnosis of an inflammed knee after TKA to avoid unnecessary surgical revision.

Key words: arthroplasty, replacement, knee; gout; synovitis

CASE REPORT
In January 2005, a 59-year-old woman underwent total knee arthroplasty (TKA) for primary osteoarthritis of the left knee. She had hypertension and non-insulin dependent diabetes mellitus. The surgery and early postoperative period were uneventful and recovery was satisfactory. At 3 months, the patient felt generally unwell with malaise but had no fever or chills. Clinical examination revealed a warm, moderate effusion of the knee joint with mild erythema and a range of movement of 5° to 90° with some discomfort. She was apyrexial throughout. Radiographs showed no signs of loosening, and blood investigations showed a white cell count of 8.2, an erythrocyte sedimentation rate of 27, and C-reactive protein of 15. Because of her persistent symptoms the joint was aspirated through a medial approach, and cloudy fluid was obtained. The fluid showed needle-shaped, negatively birefringent monosodium urate crystals, which are characteristic of gout. The gram stain was negative and the cultures grew no organisms. Further blood investigations showed an elevated level of urate of 0.48 (normal range, 0.38–0.42), which confirmed the diagnosis of gout. The patient was treated conservatively with a combination of non-steroidal anti-inflammatory drugs and allopurinol. At the one-year follow-up, the patient was asymptomatic and had a satisfactory radiological outcome.

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DISCUSSION

The presentation of gouty synovitis is similar to that of infectious arthritis. Both conditions are characterised by rapid onset of pain, erythema, effusion, and associated constitutional symptoms. The inflammatory markers are usually elevated. In gouty arthritis the synovial fluid white cell differential count shows that 60 to 90% of cells are polymorphonuclear cells, whereas in infectious arthritis polymorphonuclear cells are >90%. An elevated serum uric acid level suggests a diagnosis of gout but a normal level does not rule out gout. The main diagnostic characteristic is the presence of needle-shaped, negatively birefringent monosodium urate crystals seen in the synovial fluid under polarised light. Acute gout after TKA is very rare. One study reported 2 such cases: one patient had no history of gout but had undergone renal transplantation and another had a history of gout and chronic renal insufficiency. Another study reported 2 patients with a history of gout, one of them also had septic arthritis. A third study reported one patient with a history of gout who was negative for crystals and bacteria in 2 separate aspirates, although the serum uric acid level was slightly elevated. The diagnosis was confirmed by histological examination of the synovial tissue, obtained at arthrotomy for presumed septic arthritis.

Our patient had no history of gout or chronic renal insufficiency or any other risk factors predisposing to the development of gout. Therefore, we recommend that aspirate from a swollen, warm, and erythematous joint after replacement surgery should be routinely sent for a cell count, gram stain, crystal analysis, and cultures. As synovial fluid cannot be fixed, it should be sent immediately to the laboratory in a sterile container for examination. Gout and septic arthritis can coexist, so the presence of one does not rule out the other. When joint aspirate is negative for crystals in patients with a history of gout or when patients fail to respond to medical treatment, an arthroscopic washout should be considered. Arthroscopy not only helps relieve the symptoms but also allows synovial biopsy to confirm the pathological diagnosis. Although acute gout after TKA is rare, it should be considered in the differential diagnosis of a painful swollen joint.

REFERENCES