Case reports

Dislocation of mobile meniscal-bearing element by massive joint effusion—a case report

Juhae Jahng, Hyung-Kwan Kim, Jong-Min Sohn and Dae-Hyun Baek

Department of Orthopaedic Surgery, Our Lady of Mercy Hospital, College of Medicine, The Catholic University of Korea, 665, Pupyong-dong, Pupyong-gu, Inchon 403-720, Korea. Tel : +82 32 510 5512. E -mail: hgkim101@olmh.cuk.ac.kr
Correspondence: Dr. Hyung-Kwan Kim
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A 61-year-old man had a total knee replacement arthroplasty with the low-contact stress (LCS, DePuy, Warsaw, Indiana) system for posttraumatic osteoarthrosis of the right knee resulting from ligament injuries sustained in a traffic accident 20 years ago. The tibial component was implanted with cement and the femoral and patellar components without cement. The patellar tendon was inadvertently avulsed from the tibial tuberosity during the operation and was reattached with 2 staples (Figure). A superficial infection was found around the tibial tuberosity 5 months after the operation. The infection healed after removal of the staples, two debridement operations and parenteral antibiotic therapy. Thereafter, the patient was lost to follow-up. He came back 3.5 years later complaining of severe swelling in the right knee joint for about 5 months. He had suddenly developed a genu varum deformity and walking had been difficult for one day. There was no history of new trauma. The active range of motion of the right knee was 0º–70º. There was a large intraarticular effusion and 130 mL of exudate was aspirated from the joint. Standing anteroposterior radiographs showed abutment of the femoral and tibial components in the medial compartment and the meniscal-bearing element was displaced superiorly into the suprapatellar pouch. The ESR was 32 mm/hr, but CRP was normal. A bacterial culture showed pseudomonas aeruginosa.

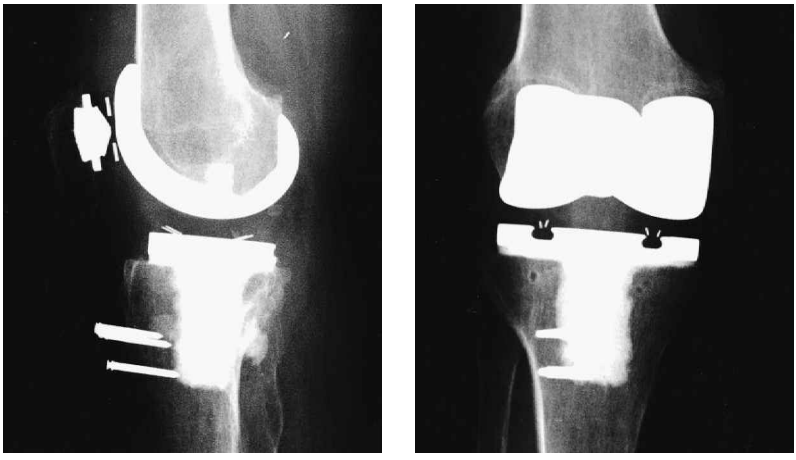
Intraoperatively, we noted no bony destruction, but moderate synovial hypertrophy and slight attenuation of the posterior cruciate ligament. No scratches or defects could be detected on the surface of the dislocated meniscal-bearing element, so it was put back in the original site after only synovectomy and profuse irrigation. The joint effusion persisted despite the prolonged antibiotic treatment and the replaced meniscal-bearing was eventually redislocated into the suprapatellar pouch 6 months after the operation. Therefore we decided to perform a revision arthroplasty in two stages.

All implant components were removed and antibiotic-impregnated cement beads were inserted into the space between the femur and tibia. Antibiotics were given parenterally for 4 weeks and then orally until the ESR was normal. 5 months after removal of the implants, reimplantation with the LCS total knee system, using rotating platform meniscal bearing, was performed uneventfully. 10 months have elapsed since the reimplantation and there is no evidence of recurrence of infection. The active range of motion of the operated knee is 0°–110°.

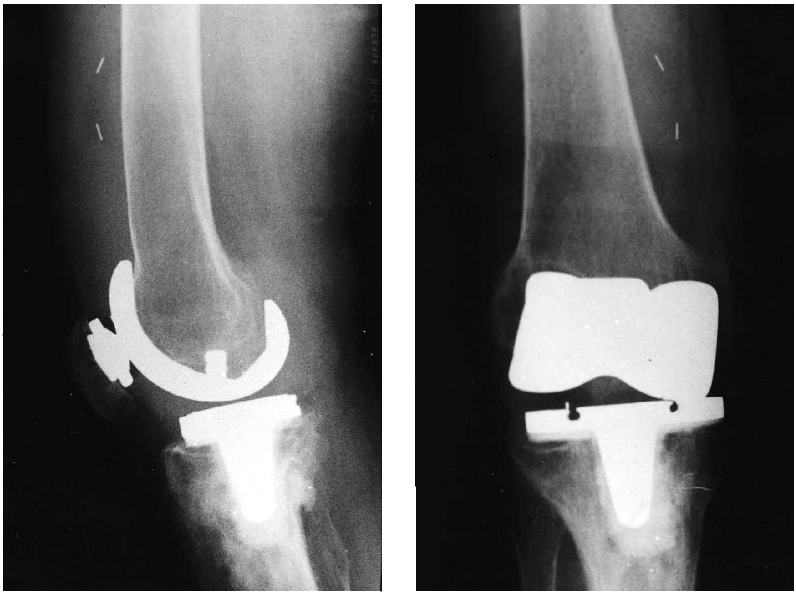
Discussion

The mobile meniscal-bearing elements of the LCS total knee system are thought to reduce the risk of loosening and wear by translational and rotational mobility with low constraint forces between the femoral and tibial components (Buechel and Pappas 1982). At the same time, accoarding to this concept, there is a greater likelihood of subluxation or dislocation of mobile meniscal-bearing elements after LCS total knee replacement, which has been reported (Buechel and Pappas 1989, Bert 1990, Weaver et al. 1991).

Several factors causing subluxation or dislocation of the meniscal-bearing elements have been



Total knee arthroplasty, LCS. Fixation for avulsion of the patellar tendon with 2 staples.



3.5 years after the operation. Contact of femoral and tibial components in the medial compartment and superiorly-displaced mobile meniscal-bearing element.

described: 1) Failure at surgery to produce accurate flexion and extension gaps, which provide compressive-contact stability for the bearing elements. 2) Malrotation of the tibial component at surgery, such that one bearing becomes subluxed from the track. 3) Early or late rupture of the posterior cruciate ligament. 4) Traumatic twisting of the knee beyond the limits of the tibial plateau tracks (Buechel and Pappas 1989).

In our case, the flexion and extension gap was accurately adjusted intraoperatively, the tibial component was accurately positioned without malrotation, and no evidence of rupture of the posterior cruciate ligament was noted. There was no history of traumatic twisting of the knee.

We believe that extensive ballooning of the joint capsule and resultant widening of the tibiofemoral joint space by the massive intraarticular effusion led to loss of compressive-contact force in the meniscal-bearing element and was the major cause of dislocation of the mobile element in our case.

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Fracture of the hip after knee arthroplasty—an unusual case with pain in the knee

David Hendel[1], Yichayaou Beloosesky[2] and Moshe Weisbort[1]

Departments of [1]Orthopedics, Rabin Medical Center, Golda Campus, Sackler School of Medicine, Tel Aviv University, Petach Tikvah, Israel. Tel +972-3-9372237. E-mail: davidhe@clalit.org.il; [2]Geriatrics, Rabin Medical Center, Golda Campus, Sackler School of Medicine, Tel Aviv University, Petach Tikvah, Israel
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A 73-year-old man had a total knee arthroplasty of the left knee due to arthrosis with varus deformity. Before the operation, he had been housebound for 3 months due to severe pain. After surgery, he used a walker for 2 months and then a single cane.

6 months postoperatively, he had had severe pain for 1 week at the medial aspect of the knee, but no history of trauma. Physical examination revealed slight swelling of the calf and knee. Radiographs showed good alignment of the prosthesis. Blood count and chemical analysis were normal, with a sedimentation rate of 50 mm during the first hour.

Displaced subcapital stress fracture of the hip.

A bone scan with 99-Tc-MDP and gallium showed a slightly increased isotope uptake surrounding the prosthesis with no further uptake elsewhere. A low-grade infection was suspected, but culture from knee aspiration was negative. 7 days later, the patient was unable to walk. The pain had then spread to the upper thigh, limiting hip movements.

Radiographs showed a displaced subcapital fracture of the hip (Figure). A bipolar hemiarthroplasty was performed. 1 year after the operation, the patient is pain-free and ambulatory with one cane, has no pain or symptoms in the hip or knee.

Discussion

Subcapital stress fracture following total knee arthroplasty is very rare. Only 16 cases have been reported in the literature, and 15 of them presented with ipsilateral hip pain (Lesniewski and Testa 1982, McElwaine and Sheehan 1982, Brooks 1987, Fiff 1988, Hardy et al. 1992, Palance et al. 1994, Raws et al. 1995) and 1 case presented with knee pain (Guss 1997).

The commonest etiology of these stress fractures seems to be severe osteoporosis in rheumatoid arthritic patients receiving steroid therapy. Many case reports in the literature have this etiol-