

Calf swelling associated with a long-standing total knee arthroplasty

Ho-Rim Choi · Young-Min Kwon

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Introduction

Differential diagnoses for a soft tissue mass or swelling around the knee joint after total knee arthroplasty (TKA) include popliteal cyst, aneurysm, tumor, thrombophlebitis, and deep vein thrombosis. However, a periarticular soft tissue mass can also be a rare symptom that presents because of failed TKA without the presence of knee complaints. We report a case of failed TKA that presented as a painful paratibial soft tissue mass that deteriorated the patient's daily life 11 years after primary TKA.

Case report

A 71-year-old male patient visited our clinic complaining of a painful soft tissue mass on his right leg for 6 months. He had undergone staged bilateral total knee arthroplasty (PFC[®], Johnson & Johnson, USA) because of osteoarthritis 11 years earlier at an outside hospital. The postoperative course was uneventful, and he has been active in his life as a farmer. One year ago, the patient noticed a painful soft tissue mass developing around his popliteal fossa with intermittent swelling of the joint, which was treated by aspiration at a local clinic. Six months ago, the mass gradually increased with accompanying pain and disturbed his daily life. The patient did not complain of specific pain in the knee joint itself.

Upon physical examination, there was a 15 × 10-cm soft tissue mass at the posteromedial aspect of the right proximal leg (Fig. 1). The mass was moderately tender on palpation and non-pulsatile. The knee joint was swollen, but no signs of inflammation were noted. Active range of motion of the knee joint was 5°–120°, and the distal neurovascular status was intact. Radiographs showed loss of joint space between the femoral and tibial components and periprosthetic osteolysis on both the distal femur and proximal tibia (Fig. 2). A CT scan revealed a large cystic mass extending from the popliteal fossa to midcalf averaging 10 cm in diameter (Fig. 3). Serologic examination showed a normal white blood cell count. The erythrocyte sedimentation rate and C-reactive protein level were within normal range. With the presumptive diagnosis of failed TKA with a calf mass, the decision was made to treat the patient with revision surgery.

With the patient in the supine position under regional anesthesia, the mass was first excised through a posteromedial longitudinal skin incision. The mass was about 15 × 10 × 10 cm and was located between the tibia and medial gastrocnemius muscle with a thick cyst wall. The mass was connected with the posteromedial aspect of the knee joint, so the stalk was ligated near the posterior joint capsule, and the mass was removed (Fig. 4). The mass was filled with yellowish-gray necrotic material and was sent for pathologic examination. Microscopic examination showed fibrous tissue with a foreign body reaction around crystals of polyethylene debris (Fig. 5).

After skin closure, revision of the total knee arthroplasty was performed through the previous anterior midline skin incision and medial parapatellar arthrotomy. The joint showed severe synovitis with metallosis and extensive osteolysis. The posterior portion of the polyethylene insert was worn out, and the tibial metal plate was in direct

H.-R. Choi (✉) · Y.-M. Kwon
Harris Orthopaedic Laboratory, Department of Orthopaedic Surgery, Massachusetts General Hospital, 55 Fruit Street, GRJ-1126, Boston, MA 02114, USA
e-mail: choinagoya@yahoo.co.kr



Fig. 1 Photograph shows a large calf mass on the right leg

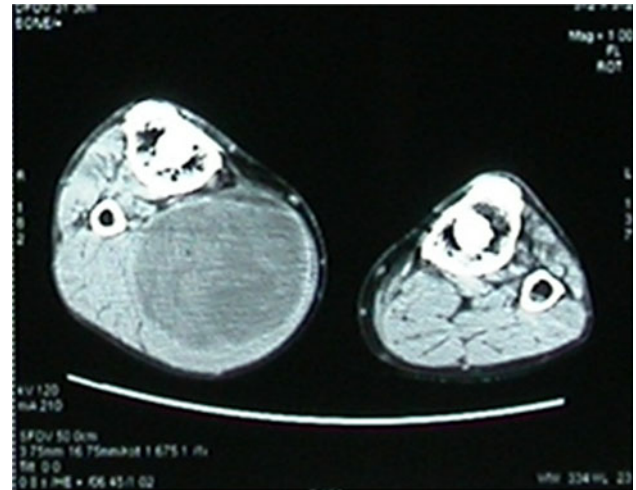


Fig. 3 Computed tomography shows a well-defined paratibial cystic mass over the right proximal leg



Fig. 2 Preoperative radiographs show loss of joint space between femoral and tibial components and periprosthetic osteolysis on both the distal femur and proximal tibia with a soft tissue mass shadow

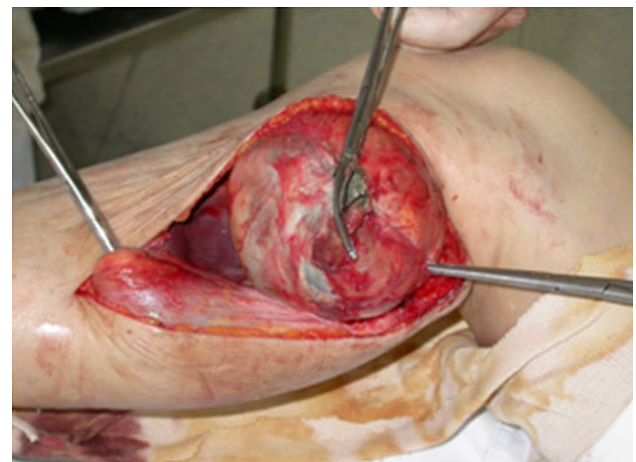


Fig. 4 Photograph of the paratibial cystic mass during surgery

contact with the femoral component. After extensive synovectomy, the joint was reconstructed with an allogeneous bone graft, metal augments, and stem extension on both the femoral and tibial side. The postoperative recovery course was uneventful. At 1 year follow-up, the joint was functioning well without pain or effusion, and the active joint motion was 0°–110° (Fig. 6). The patient was asked if data

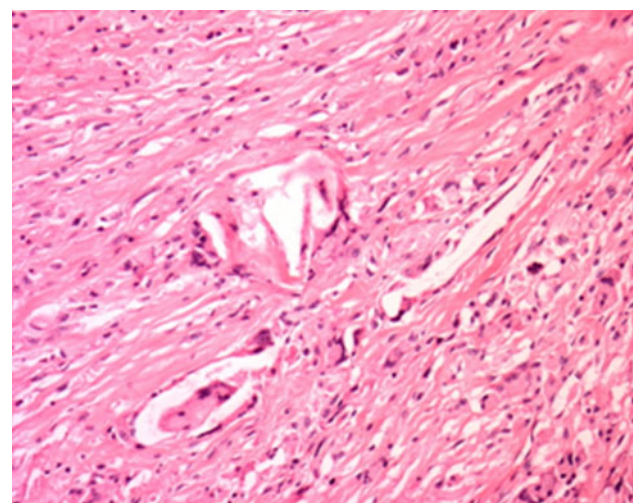


Fig. 5 Histologic examination of the cyst wall shows polyethylene debris and foreign body giant cells (H&E, ×200)

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