Case report 817

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Clinical information

A 74-year-old man presented in February 1991 with a prolonged history of intermittent pain and swelling of the right knee with progressive loss of range of motion. There was no history of previous trauma. In 1986, the patient had undergone arthroscopy of the knee. Physical examination revealed a healthy-looking man in no apparent distress. Examination of the right knee revealed loss of range of motion (20°–90°). In the popliteal fossa, there was a large, firm, nonmobile mass with joint effusion. Plain roentgenograms of the knee showed punctate calcification in the popliteal region with pressure erosion of the femoral intercondylar notch and the lower pole of the patella (Fig. 1).

Magnetic resonance imaging (MRI) revealed a large, heterogeneous, lobulated mass occupying the entire knee joint and extending to involve the popliteal fossa. The mass showed a low signal intensity on T1-weighted images and bright signal on T2-weighted images (Fig. 2). Arteriography demonstrated the popliteal artery to be displaced and stretched over the mass. Open biopsy was performed.

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Diagnosis: Synovial chondrosarcoma secondary to synovial chondromatosis

Differential diagnosis: Tuberculous arthritis, pigmented villonodular synovitis, synovial chondromatosis, synovial sarcoma.

Open biopsy revealed low-grade chondrosarcoma. It showed cartilage nodules containing atypical chondrocytes which lost their clustering arrangement in a myxoid background (Fig. 3). Review of the histological slides from the arthroscopy done 6 years earlier revealed synovial chondromatosis. Intralesional resection of the popliteal mass with decompression of the knee joint was then performed. At surgery, white-gray cartilage lobules of variable sizes were removed. The cartilage nodules were viable and attached to the posterior capsule and extended into the intercondylar notch. Six months later, because of knee pain and decreased range of motion, arthroscopy of the knee joint was performed. Multiple cartilaginous nodules embedded within the synovium were removed. In the last two procedures, the coexistence of the two components, synovial chondromatosis and chondrosarcoma, were found (Fig. 3). After 18 months' follow-up, the patient is pain-free, with an improved range of motion. There is still residual disease at the posterior aspect of the knee, with no evidence of metastases.

Discussion

Synovial chondromatosis is a self-limiting condition of an unknown etiology. Islands of cartilage are formed by synovial metaplasia. In the early phase, metaplastic foci of cartilage are embedded within the synovium. These become pedunculated and later detached. In the late phase, synovial disease becomes quiescent, with multiple osteocartilaginous loose bodies in the joint [12-14]. The condition is mono- and intra-articular, most commonly affecting the knee joint. It is typically seen in the middle-aged patient, affecting both males and females. Long-standing disease may cause damage to the articular cartilage that leads to osteoarthritis with pain, swelling, and loss of range of motion.

Cases of primary chondrosarcoma arising from the synovium [1, 4, 5] and chondrosarcoma secondary to synovial chondromatosis have been well documented in the literature [1-3, 5-8, 10, 11, 14, 16, 17]. The clinical and radiographic features of synovial chondromatosis and synovial chondrosarcoma, either primary or secondary, are the same. It is, therefore, difficult to distinguish between the two entities. In both conditions the patients have a prolonged history of pain, swelling and decrease in range of motion. Local recurrences with invasion of the surrounding soft tissue