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Increased levels of chondrocalcin in knee joint fluid in synovial chondromatosis—a case report

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A 70-year-old man was admitted to our department with a 5-month history of spontaneous pain and limitation of motion in his left knee. Radiographs of the knee were normal, but MRI showed fluid in the joint. The concentration of chondrocalcin in articular fluid measured by EIA was 18 ng/mL.

Arthroscopy revealed only mild cartilage erosion. During surgery, abundant cellular debris was removed. Histological evaluation of the cellular debris showed typical findings of synovial chondromatosis, but the synovium was normal or only slightly inflamed. The patient had no complaints at 7 months postoperatively.

Discussion

Synovial chondromatosis is a rare disorder characterized by the formation of multiple cartilaginous nodules in the synovial joint, bursae or tendon sheaths (Murphy et al. 1962, Sim et al. 1977). Although the disease is considered by most authors to be metaplastic rather than neoplastic, little is known about its etiology (Sciot et al. 1998).

In cases with no calcification or ossification of the cartilage, it is difficult to diagnose of synovial chondromatosis without the use of arthrography or arthroscopy (Norman and Steiner 1986, Nokes et al. 1987, Burnstein et al. 1988).

Ryan et al. (1982) reported that chondromas obtained from the synovium of a patient who had typical synovial chondromatosis mainly contained type II collagen. This composition is distinct from that of rheumatoid and normal synovium. Normal synovium usually produces only types I, III, and V collagen.

Choi et al. (1983) reported a newly discovered protein that was isolated from fetal epiphyseal cartilage; it was called "chondrocalcin". Thereafter, the primary structure of chondrocalcin was found to be identical with that of the C-propeptide of type II procollagen (Van Der Rest et al. 1986). The joint fluid levels of this molecule reflect the synthesis of type II collagen increase in primary osteoarthrosis and traumatic arthritis joint fluid

(Shinmei et al. 1995). Shinmei et al. (1995) reported that the mean (SE) and median values of chondrocalcin in joint fluids of osteoarthrosis (94 cases), rheumatoid arthritis (141 cases), and traumatic arthritis (30 cases) groups were 4.9 (4.71), 1.1 (0.1), and 2.1 (2.0) ng/mL, respectively. The mean chondrocalcin value of normal joint fluids drawn by the injection of physiological saline from 15 healthy controls was 0.3 (0.1) ng/mL.

Since the degree of cartilage erosion was mild in our case, we conclude that the increased level of chondrocalcin reflected an increased synthesis of type II collagen in synovium caused by synovial chondromatosis. Estimates of chondrocalcin in joint fluid may be useful for diagnosing synovial chondromatosis.

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Delayed diagnosis and treatment of Tillaux fracture—a case report

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A 14-year-old boy injured his left ankle while playing football at school and was brought to the local hospital, where anteroposterior and lateral roentgenograms were taken (Figure 1). The physician in the Emergency Department diagnosed an infraction of the lateral malleolus and a short leg cast was applied for 30 days.

After the cast was removed the patient continued to complain of ankle pain during walking and joint movements. He was referred to our department where new radiographs showed a Salter Harris type III injury of the lateral portion of the distal tibial physis (Salter and Harris 1963). Reexamination of the first radiographs showed a Tillaux fracture with widening of the tibiofibular mortise. A CT scan confirmed this diagnosis and also showed a rotational displacement of the fragment (Figure 2).

5 weeks after the injury, the fracture was exposed through a small anterolateral incision. The tibiofibular mortise appeared widened and unstable and the bone was soft. The displaced fragment was cleaned respecting the intact anterior tibiofibular ligament. The original site was cleaned with a curette; the fragment was reduced and fixed with a 3.5-mm cancellous screw to the intact epiphysis.

The boy was discharged from hospital after 3 days with the ankle free and he was told not to