Case reports

Synovial chondromatosis of the wrist and hand—a case report

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A 75-year-old man with large bone-like tumors on the dorsum of the left wrist and hand as well as on the radiovolar side of the wrist was referred to the orthopedic outpatient department (Figure 1). Tumors of the left hand had been present for 15 years, and had increased in number and size over the last 6 years. Radiographs showed diffuse soft tissue swellings, and bone erosions in the distal radius, the carpus, and in the proximal regions of the metacarpal bones (Figure 2). MRI revealed numerous tumors, most notable on the dorsal side of the wrist and hand in the vicinity of the extensor tendons and on the radiovolar side, with extensive bone erosion (Figure 3). The patient's history, physical examination and diagnostic imaging modalities suggested synovial chondromatosis.

Figure 1. Multilobular tumors on the dorsal and radiovolar side of the wrist.

During surgery, it was clearly visible that the tumors originated in the tendon sheaths. 80 g of fragmented material were removed. The fragments were white-to-gray and nodular, with a granular surface. The largest specimen measured 4.5 × 4 × 2 cm. Histological examination showed nodules of cartilage embedded in connective tissue and surrounded by fat tissue. The cartilage appeared mature, cellularity was low, and some double-nucleated cells were found. Fragments of synovium were seen. These findings were typical of synovial chondromatosis.

7 months postoperatively, the patient experienced no pain although some limited movement of the wrist remained. There were no signs of local recurrence.

Discussion

Synovial chondromatosis is an unusual non-neoplastic condition of joints in which foci of cartilage develop in the synovial membrane of joints, bursae or tendon sheaths (Norman and Steiner 1986, Maurice et al. 1988, Unni 1996). The etiology is unknown (Taconis et al. 1997). It is commonest in young adults (Schroeder and Axelrod 1996). The lesion is almost always monoarticular and tends to involve the major joints. Pain, swelling and limited motion in the affected joint are the major complaints. Crepitus and locking have also been described (Ballet et al. 1984, Ono et al. 1994, Unni 1996). This is an uncommon condition in the wrist and hand (DeBenedetti and Schwinn 1979, Ballet et al. 1984, Rogachefsky et al. 1997).

Figure 2. Extensive erosion of the metacarpal bones, carpal bones and distal radius.

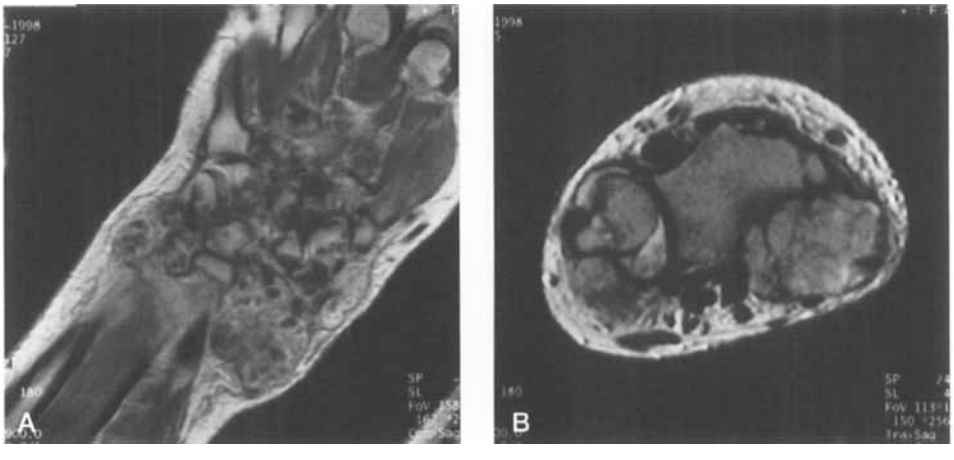

Figure 3. MRi of the left wrist. Cartilaginous bodies can be seen on the dorsum of the wrist (A). B clearly shows erosion of the distal radius on the radiovolar part of the synovial chondromatosis.

In the early stage of synovial chondromatosis, plain radiographs may be normal and MRI scans may reveal only a nonspecific increase in fluid (Rogachefsky et al. 1997). In the advanced stage, plain radiographs may show diffuse soft-tissue swelling or radiopaque densities, depending on the degree of calcification or ossification in the cartilage, whereas MRI scans reveal cartilaginous bodies (Ballet et al. 1984, Unni 1996, Rogachefsky et al. 1997). Erosion of the underlying bone may occur during the years, as was clearly seen in our patient. The radiological findings in synovial chondromatosis must be distinguished from soft tissue chondrosarcoma, pigmented villonodular synovitis, psoriatic arthropathy and the early stages of infective or inflammatory arthritis, including

gout (Maurice et al. 1988, Taconis et al. 1997). Synovial chondromatosis should not be confused with lesions of degenerative joint disease that secondarily give rise to the presence of loose bodies in the joint cavity (Ballet et al. 1984, Unni 1996). On the other hand, synovial chondromatosis may give rise to degenerative joint disease. When the radiographs and MRI images fail to demonstrate the typical features of synovial chondromatosis, one should always consider a malignancy (Sakellariou et al. 1998). In such situations, a biopsy must be taken before any operative procedure.

Synovectomy and excision of loose bodies is the most current treatment of synovial chondromatosis (DeBenedetti and Schwinn 1979). Milgram (1977), however, classified synovial chondromatosis into three phases and based treatment on this classification (Milgram 1977). In the early phase, there is active intrasynovial disease, but no loose bodies. Synovectomy is recommended in this phase. In the second, transitional phase, there is active disease combined with loose bodies and treatment consists of synovectomy and excision of loose bodies. In the third, late phase, there are multiple loose bodies but no intrasynovial disease, for which excision of the loose bodies alone is performed. Spontaneous regression, recurrence as well as malignant transformation of synovial chondromatosis have all been reported, but the exact rates are unknown (Swan and Owens 1972, DeBenedetti and Schwinn 1979, Hamilton et al. 1987, Maurice et al. 1988, Perry et al. 1988, Unni 1996). Long-term follow-up therefore seems indicated.

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Accidental *Salmonella enteritidis* vaccine injection leading to finger necrosis—a report of 4 cases

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Case 1

A 24-year-old man presented with a painful, discolored and markedly swollen index finger of his dominant right hand, 2 days after being accidentally stabbed at the level of the distal palmar crease, during poultry vaccination with Salmonel-