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Giant Solitary Synovial Osteochondroma of the Subtalar Joint

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ABSTRACT

A rapidly progressing calcified mass was found in the left sinus tarsi in a 12-year-old female after a trivial ankle sprain. The lesion mimicked an aggressive lesion clinically and radiographically. Ultrasound-guided biopsy confirmed the diagnosis of a synovial chondroma. Excision of the tumor and partial synovectomy were performed. The histologic diagnosis was a solitary synovial osteochondroma. The condition had not recurred after a follow-up period of 12 months.

Milgram (1) classified the disease process of synovial (osteo) chondromatosis into 3 distinct phases. The first phase is characterized by metaplastic cartilaginous nodules within the synovial membrane of the articular joint without loose bodies. The second phase includes both active intrasynovial proliferation and free loose bodies, and the third phase demonstrates only multiple free loose bodies without intrasynovial disease. The lesions can have various degrees of calcification and ossification. Edeiken et al (2) have described a large solitary chondroma as a fourth phase of the disease process. It can originate from either the chondroma coalesces or a single enlarged chondroma (2). It is an intra- and/or extra-articular lesion measuring >1 cm in size, sometimes as large as 20 cm (2). It has been reported in the hip (2), knee (2–4), elbow (5), ankle (6), temporomandibular joint (7), and soft tissues of the feet (2,8,9). We report a case of a giant solitary osteochondroma of the subtalar joint that was mimicking a malignant lesion clinically and radiographically.

Case Report

A 12-year-old female had sustained an inversion injury to her left ankle during rope skipping and then noticed swelling at the lateral side of her left ankle. All along she had experienced only mild pain over the swelling. She was treated by a bonesetter (traditional Chinese medical practitioner of joint manipulation), but the swelling persisted. She was then referred to our clinic for subsequent management 7 months after the injury.

Clinically, a mobile bony hard mass was present at her left sinus tarsi. Diffuse swelling was found over the medial, lateral, and posterior heel. The subtalar joint motion was limited, especially on eversion. The left heel was in a slightly varus position compared with the right heel (Fig. 1). Radiographs were taken and showed a calcified mass that had increased in size compared with the size found on the previous radiographs (Fig. 2). Computed tomography (Fig. 3) and magnetic resonance imaging (MRI) (Fig. 4) showed a soft tissue mass with calcification arising from the lateral side of the posterior subtalar joint. MRI also showed effusion of the posterior subtalar joint, with rim contrast enhancement suggesting diffuse synovitis. Ultrasound-guided biopsy was performed, and the histologic diagnosis was a soft tissue chondroma without evidence of malignancy. Excision of the mass was performed. The mass was found to be an intracapsular lobulated cartilage mass with a soft tissue stalk arising from the interosseous ligament of the posterior subtalar joint (Fig. 5). No bone or cartilage invasion had developed. The surrounding soft tissue was plicated to reinforce the deficient lateral capsuloligamentous restraints after the excisional biopsy. Postoperatively, a short leg cast was applied, and she was instructed in non-weightbearing walking. The cast was removed 3 weeks after the operation, and she was advised on weightbearing walking with an air cast for another 3 weeks. Histologic examination confirmed the diagnosis of chondroma (Fig. 6). The soft tissue swelling required 6 months to subside. The bony mass had not recurred at 12 months postoperatively. However, the subtalar motion was still limited.

Discussion

Synovial osteochondromatosis can be found equally in males and females, occurring most frequently in those aged 30 to 50 years (11). Giant solitary synovial chondroma is a rare disease entity and has been reported only in case reports or series. The epidemiologic

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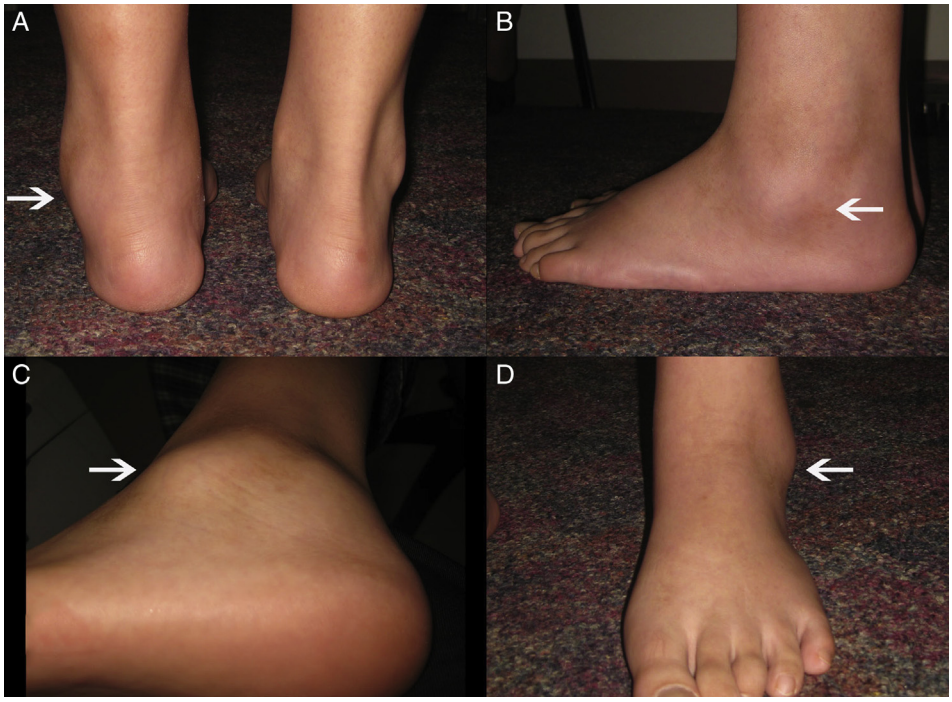

Fig. 1. (*A* to *D*) Clinical photographs showing different views of the lesion (*arrow*) at the sinus tarsi, with the left heel in a slight varus position in (*A*).

features are not known. To our knowledge, giant solitary synovial chondroma of the subtalar joint has not been reported in English published studies. It could not be determined whether the synovial chondroma in our patient developed after the ankle sprain or was just an incidental finding, although it has been reported after trauma (6). The clinical symptoms of intracapsular tumors and tumor-like lesions, such as pain, swelling, effusion, and joint locking, are not specific (10). The differential diagnosis includes extraskeletal osteochondroma, synovial (osteo) chondroma, chondrosarcoma, parosteal osteochondroma, tophaceous pseudogout, extraosseous osteosarcoma, and myositis ossificans circumscripta.

Extraskeletal osteochondroma is histologically similar to conventional osteochondroma, but it will not be attached to a parent bone or joint (11). This diagnosis was excluded in the present patient, because the mass had arisen from the posterior subtalar joint. Tophaceous pseudogout is a disease entity of tumor calcium deposition in the soft tissues and can be a complication of trauma, with associated tissue necrosis (12). Radiographs will show calcified lesions with a granular

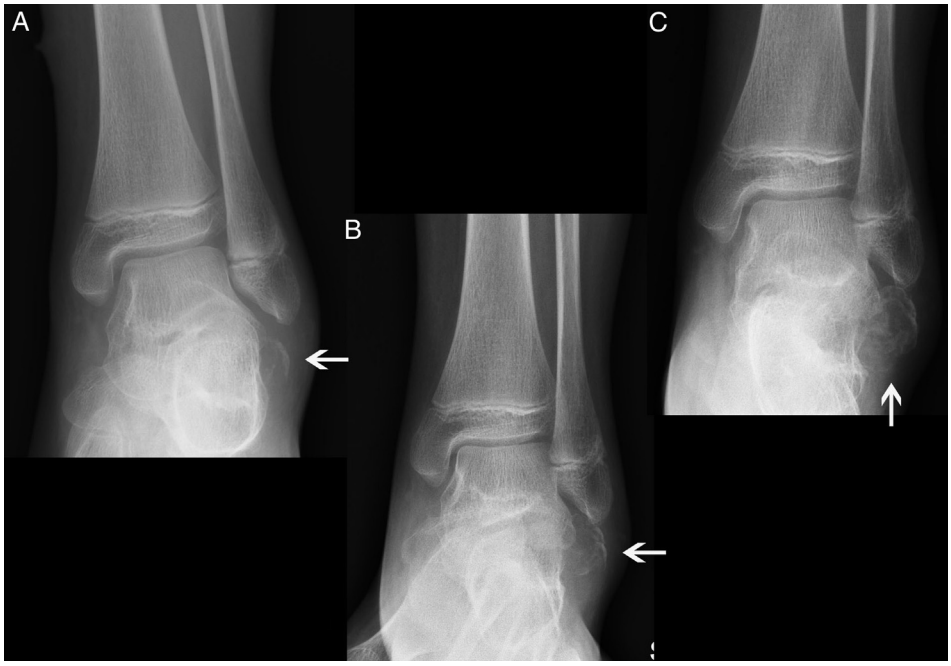

Fig. 2. Sequential radiographs showing the calcified lesion had progressively increased in size: (*A*) 2 months, (*B*) 6 months, and (*C*) 8 months after the injury.