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Case Report

Asymptomatic Synovial Chondromatosis of the Ankle: An Incidental Finding

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ABSTRACT

Synovial chondromatosis is an uncommon, benign lesion of nodular cartilaginous neoplastic development of the synovium that can lead to loose bodies and arthritic degeneration if left untreated. Although very rare, malignant transformation to chondrosarcoma can occur. Primary and secondary forms of synovial chondromatosis also exist, and each has distinct clinical, radiographic, and histologic characteristics. In this article, we describe a case of extensive primary synovial chondromatosis of the ankle that was asymptomatic until just before presentation, and that was treated by means of open synovectomy with excision of the osteochondromatous lesions within the joint.

First described by Leannac in 1813, synovial chondromatosis is a relatively rare, generally benign, monoarticular lesion consisting of multiple nodular cartilaginous bodies once thought to be the result of hyper-metaplastic development of the synovium. More recently, some investigators (1, 2) have come to consider the lesion to be the result of a benign, neoplastic process (1, 2); one that can lead to the presence of loose intra-articular bodies and subsequent degenerative joint changes if left untreated (1–8). The exact prevalence of ankle involvement with synovial chondromatosis is unknown, although it is thought to be a rare entity (3, 4). Larger joints are more commonly affected, with the knee being involved in up to 65% of reported cases (2). Other common sites include the hip, elbow, and shoulder, although cases have been reported to involve the wrist and interphalangeal and temporomandibular joints, as well as extra-articular locations (1–3, 7, 8). Males in the third to fifth decades of life are affected twice as often as are females (2, 4, 5, 9). Trauma has been considered the inciting factor in up to 50% of reported cases (1, 5), and surgical excision is considered to be the definitive treatment, although recurrence has been reported in up to 23% of patients (2, 8, 10). Although synovial chondromatosis is generally considered a chronic, progressive entity, with some cases reported to have spontaneously resolved (1, 2), malignant transformation is thought to occur in approximately 5% of cases associated with an extended clinical course and recurrent lesions (1, 2, 7, 8, 10).

In this article, we describe the case of an adult female who presented with right heel pain at the insertion of her Achilles tendon that, upon clinical and imaging examinations, incidentally revealed the presence of asymptomatic synovial chondromatosis localized to her right ankle. The heel pain, we determined, was a result of the space-occupying lesion within the ankle, and the chondromatosis was treated by means of surgical excision. The patient responded well to surgical excision with partial synovectomy, and heel pain had resolved by post-operative week 3.

Case Report

A 58-year-old-female presented with a chief complaint of the sudden onset of pain localized to the posterior aspect of her right heel, aggravated by standing and walking. There was no history of recent trauma. She wore over-the-counter shoe inserts, and occasional warm soaks with Epsom salts had been performed with only minimal relief. Her past medical history included uterine carcinoma that was in remission, sarcoidosis with ocular manifestations, no current active lung disease (although approximately 20 years earlier she had pulmonary complications). In addition, the medical history was positive for right kidney disease, gout, hypertension, sciatica, and osteoarthritis. The surgical history included hysterectomy for the treatment of uterine carcinoma, left shoulder replacement, and repair of a traumatic laceration to the peroneus brevis that had occurred more than 50 years earlier. She had been a smoker for a 25-year duration, although she had quit smoking approximately 9 years before presentation to our clinic, otherwise the social history was unremarkable. Her family history was positive for diabetes mellitus affecting her mother and 2 female siblings.

Physical examination of the symptomatic area revealed mild tenderness to palpation over the tendo-Achillis insertion into the right heel, and the biomechanical evaluation demonstrated bilateral

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ankle equinus and flatfoot. Ankle range of motion was symmetrical bilaterally. Incidentally, soft tissue edema was noted overlying the anteromedial aspect of the right ankle, along with an underlying painless, indurated, mobile nodule that measured approximately 2.5 × 1.5 cm. The lesion was firm, nonpulsatile, and did not exhibit percutaneous transillumination of light. The affected area also demonstrated no deviation in skin temperature, hydration, or hair growth in comparison with the same areas on the contralateral lower extremity (Fig. 1). When questioned, the patient denied any pain associated directly with the palpable mass and the immediately adjacent surrounding tissues, although she did recall having intermittent swelling localized to the right ankle for several months before presentation. The remainder of the physical examination was unremarkable.

Standard weight-bearing radiographs of the right foot revealed soft tissue edema surrounding multiple nodules with punctate calcifications approximately 2-mm to 3-mm in diameter, likely cartilaginous in nature, located at the anterior aspect of the right ankle. No adjacent cortical disruption, osteophytic proliferation, or cystic formation was identified within the affected ankle (Fig. 2). Magnetic resonance (MR) images were obtained to further characterize the lesion, and our differential diagnoses included malignancy, pigmented villonodular synovitis (PVNS), and synovial chondromatosis. In particular, the presence of overt cortical destruction with adjacent marrow invasion would have been suggestive of possible malignancy (2). Contrast studies, which could have been helpful in delineating the lesions, were not used because of the patient's known renal disease. The noncontrast MR studies demonstrated synovial thickening with the presence of multiple intrasynovial round to ovoid bodies that were centrally isointense relative to muscle on T1-weighted sequences. On both T1- and T2-weighted

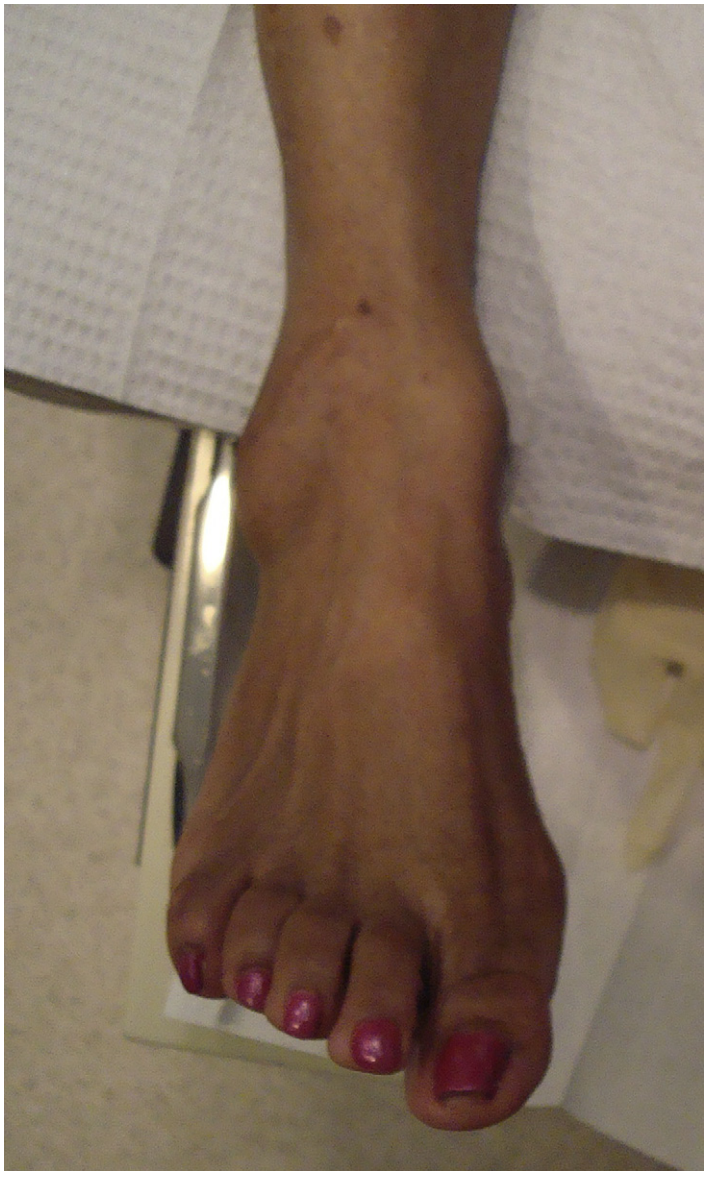

Fig. 1. Soft tissue mass, anteromedial aspect of the right ankle.

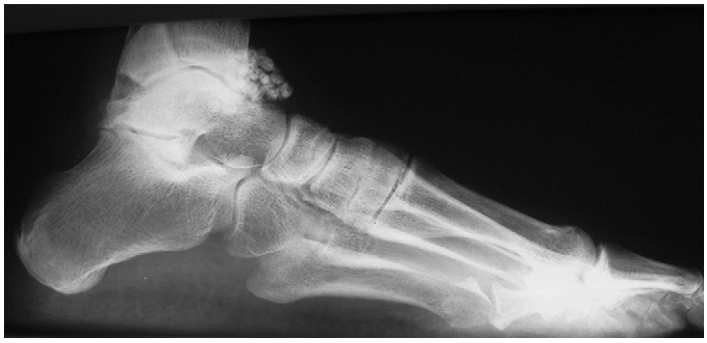

Fig. 2. Weight-bearing lateral radiograph, right ankle, showing multiple calcified nodules anteriorly.

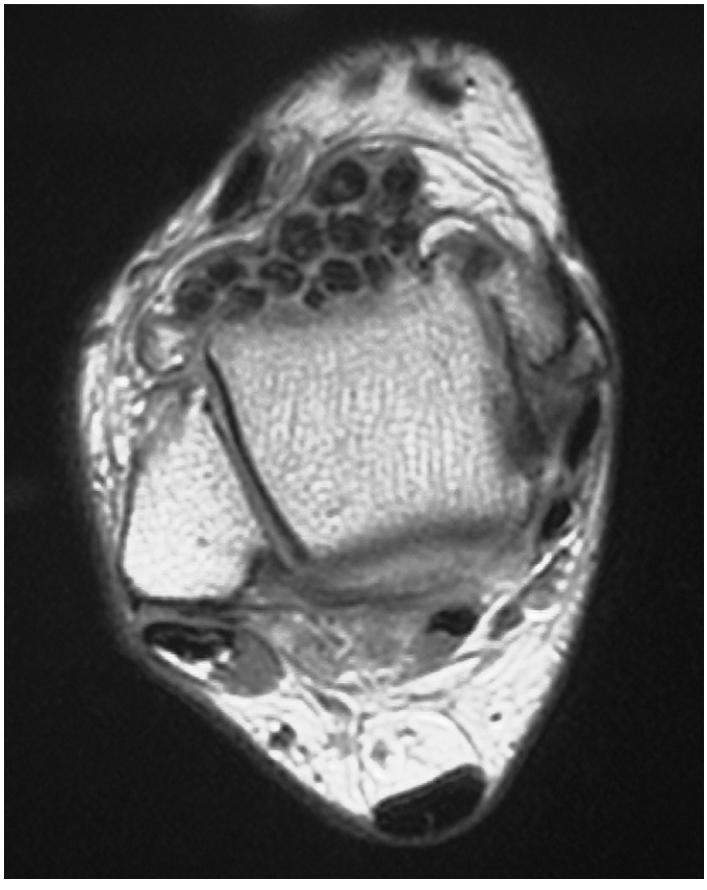

Fig. 3. T1-weighted axial magnetic resonance image scan showing multiple osteocartilaginous bodies, focal low-intensity areas within each body, well-defined rim with the central aspect isointense to muscle, with synovial hyperplasia.