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Case report

Primary synovial chondromatosis of the talonavicular joint: A case report☆

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ABSTRACT

Synovial chondromatosis developes by metaplasia of the synovial cells in the synovium of joints, and is a benign synovial tumor with multiple cartilaginous nodules. It is most commonly found in single and large joints, such as the knee, hip, and shoulder. Occurrence in the foot and ankle is uncommon, although there have been previous reports in the orthopedic and radiological literature of primary synovial chondromatosis in the subtalr, calcaneocuboid, naviculocuneiform, and metatarsaophalangeal joints.

To our knowledge, occurrence in the talonavicular joint is even rarer, with only one report in the literature to date.

Here, we report a case of synovial chondromatosis of the talonavicular joint, alongside a review of the literature.

1. Introduction

Synovial chondromatosis is an uncommon disorder characterized by the formation of multiple cartilaginous nodules. It developes by metaplasia of the synovial cells in the synovium of joints [1]. Synovial chondromatosis usually affects only a single site, and occurs most frequently in large joints, such as the knee, hip and Shoulder [1–3].

Synovial chondromatosis is very rarely found in the foot or ankle, although there have been previous reports in the orthopedic and radiological literature of primary synovial chondromatosis in the subtalar, calcaneocuboid, naviculocuneiform, and metatarsaophalangeal joints [2,4].

To our knowledge, occurrence in the talonavicular joint is even rarer, with only one report [5] in the literature to date.

Here, we report a case of synovial chondromatosis of the talonavicular joint, alongside a review of the literature.

2. Case report

A 45-year-old woman presented for evaluation with persistent foot pain and swelling, and discomfort. The patient had no history of trauma or other joint disease. She noted progressively worsening swelling, and recently increasing foot pain, as of 2 months previously. She did not have symptoms of catching, or locking.

Physical examination identified symmetrical normal alignment of the hindfoot, midfoot, and forefoot. Focal swelling, without erythema, was present around the anterolateral ankle with a nontender 4.0 × 3.0 cm soft tissue mass, and around the anterior to the medial malleolar with a nontender 1.0 × 2.0 cm soft tissue mass. The mass was firm and immobile. She presented an increasing complaint when walking and wearing the shoes, sometimes feeling a tingling sense. Her medical history and a review of her systems revealed nothing of note.

Plain radiographs of the ankle obtained at the initial examination identified mineral densities distal to the fibula, and over the dorsum of the midfoot (Fig. 1). No loose bodies or osteochondral defects were seen in the adjacent joint.

Magnetic resonance imaging (MRI) identified a cystic mass, which had an intermediate signal change in the T1- and T2-weighted images, extending from the talonavicular joint with an extension into the sinus tarsi (Fig. 2A and B).

Surgical excision of this mass was carried out. A lateral approach, centered over the mass, was carried out to expose the palpable mass. The dilated joint capsule was identified and excised. Following this, we found multiple loose bodies and hypertrophied synovium; multiple loose bodies were removed. A synovectomy was performed, which included the removal of multiple cartilaginous lesions attached to the soft tissue surface. Additionally, a skin incision

☆ Level of clinical evidence: level 5, expert opinion.

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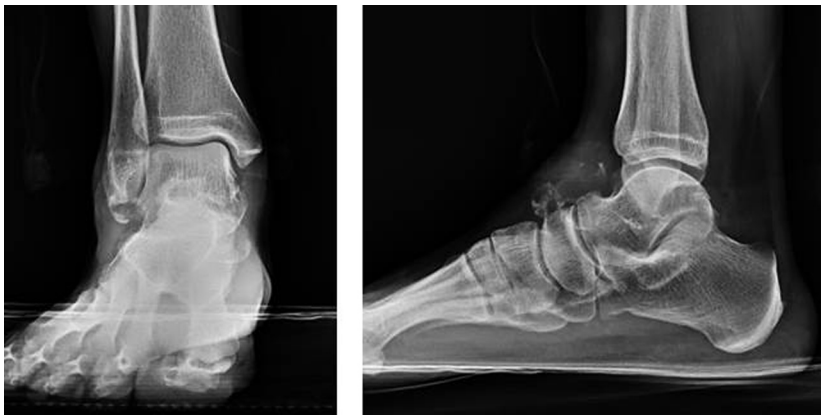

Fig. 1. An anteroposterior and lateral plain radiograph of the ankle, showing soft tissue ossification just distal to the lateral malleolus and over the dorsum of the foot.

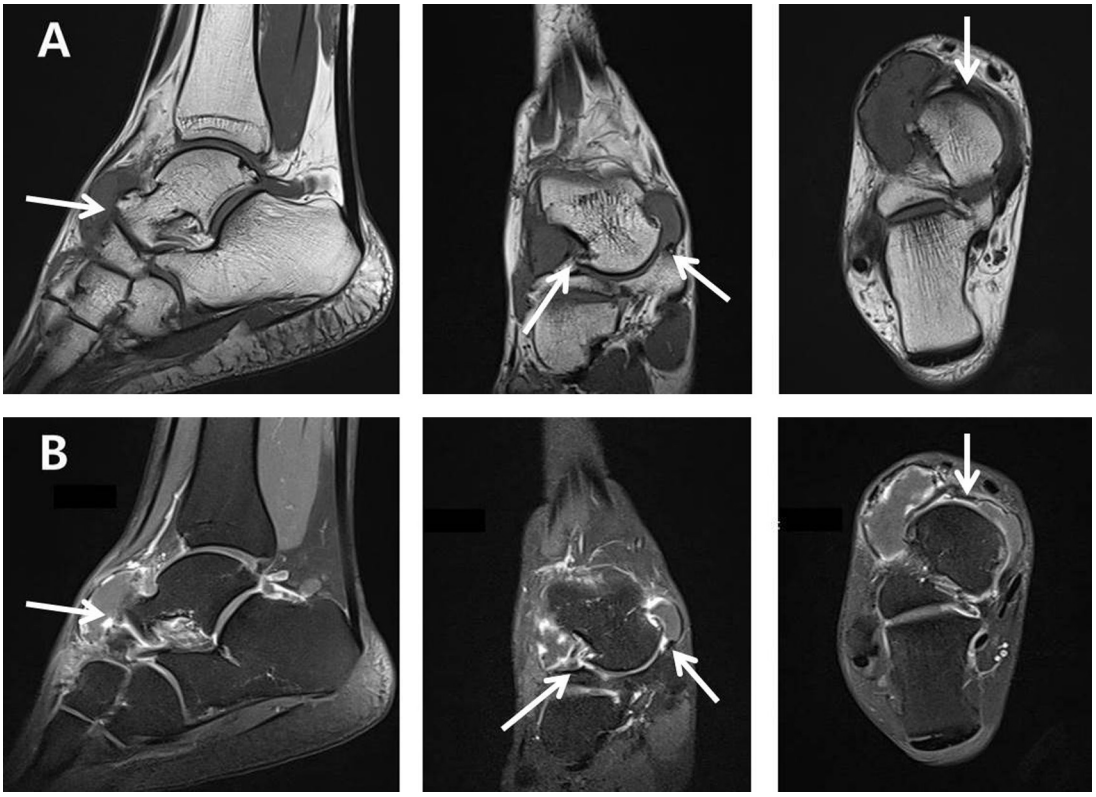

Fig. 2. T1 (A) and T2 (B) weighted sagittal, coronal, and axial images show multiple nodular lesions with intermediate signal changes, surrounded by fluid collections around the talonavicular joint (white arrow).

was performed to the anterior of the medial malleolar in order to expose the medial mass. Again, the masses were identified and removed using the same method as above. A total of 8 white osseous bodies were removed from around the talonavicular joint. The dimensions of these bodies ranged from $1.0 \times 1.0 \times 0.5$ cm to 3.5×1.5 cm $\times$ 1.2 cm (Fig. 3A and B). Intraoperatively, a thickened white synovium was found at the site of the talonavicular joint; further, inspection of the talonavicular joint's articular surface revealed no visible defects, or joint surface damage.

Histopathological examination revealed findings consistent with synovial chondromatosis, with no evidence of malignant transformation (Fig. 4).

At the 12 month follow-up, the patient was pain-free and had no restrictions in activity or shoe wear. Radiographs of the ankle showed no evidence of recurrent lesions and no further signs of degenerative arthritis in the talonavicular joint.

3. Discussion

Synovial chondromatosis is a rare synovial proliferative disease and occurs as a result of chondral metaplasia within the synovium [1,3]. It may occur intra- or extra-articularly, and, although normally affecting synovial joints, the disease may also rarely occur in bursae and tendon sheaths [4,5]. The cause of this disorder is unknown. Metaplastic synovial cells are stimulated by an unknown mechanism that results in the proliferation and differentiation of the synovial cells into cartilaginous loose bodies [4].

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