

Case Report

A Case Report of Tenosynovial Chondromatosis of the Calcaneal Tendon in a 43-Year Old Man

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Abstract

Tenosynovial chondromatosis is an uncommon benign affection characterized by the presence of multiple cartilaginous nodules within the tendon sheaths.

Case presentation: A 43-year old man, presented at the hospital-center, with a complaint of a mass next to the right calcaneal tendon. A surgical excision was performed, and histological examination suggests an Osteochondroma. Twelve years later, the patient consulted again for recurrence of the mass. X-ray showed calcified bodies at the distal part of calcaneal tendon. The patient had a resection of a mass of 3 cm × 2 cm × 1 cm. A large gap within the tendon was covered by a Turndown Flap with a good outcome at 6 months of follow up.

Keywords: Tenosynovial chondromatosis; Ankle; Flap; Tendon

Introduction

Tenosynovial Chondromatosis (TC) is an uncommon benign affection characterized by the presence of multiple cartilaginous nodules within the tendon sheaths [1]. It is thought to originate from a metaplasia of the synovial membrane. Malignant transformation to chondrosarcoma is uncommon but has been described [2].

We report a case of a 43-year-old man, who presented with a one-year history of mass on the right ankle, whose histologic analysis concluded to TC.

Case Presentation

A 43-year old man, without any past medical history, presented at the hospital-center, with a complaint of a painless but irregular mass next to the right calcaneal tendon. He had noticed it since one year, and recalled no history of trauma or infection.

The mass was then resected, and referred for histological examination which suggested an Osteochondroma without any malignancy criterion. Twelve years later, the patient consulted again for recurrence of the mass. He suffered from pain despite rehabilitation sessions.

On physical examination a 3 cm, slightly painful hard mass was palpable over the calcaneal tendon; the range of motion of the ankle was slightly reduced. An x-ray was performed showing multiple-calcified bodies at the distal part of calcaneal tendon (Figure1).

In prone position, under general anesthesia, with a pneumatic tourniquet at the root of the limb, the patient had a resection of a mass of 3 cm × 2 cm × 1 cm (Figure 2).

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We thus notice a large gap within the tendon (Figure 3). The solution chosen to avoid the weakness of the tendon was to perform a Turndown Flap: A distally based 1 by 5 cm flap was fashioned in the proximal part of the tendon and turned down to cover the defect. The defect produced by the flap was also closed (Figure 4).

Cast immobilization in plantar flexion of the ankle was established for 3 weeks, then at 90° for another 3 weeks. Rehabilitation sessions were then started, with a good result at 6 months of follow up.



Figure 1: X-ray of the right ankle in profile.



Figure 2: Synovial Osteochondroma in the sheath of the calcaneal tendon.

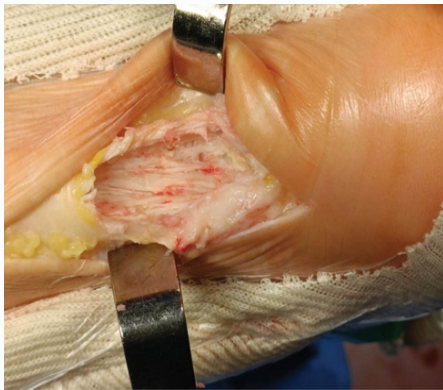


Figure 3: Aspect of the tendon after Tumor's resection.



Figure 4: Turn down flap of the calcaneal Tendon.

Discussion

Extraskelatal osteochondromas, compared to their counterparts occurring in the bone, are uncommon. These include the soft tissue chondromas, tenosynovial and synovial osteochondromatosis [2]. Synovial chondromatosis may involve joints, tendon sheath, or bursa. TC is the extra-articular form of the tumor [1]. It involves the tendon sheath, especially in the hands or feet [3]. It is less common than the synovial chondromatosis and has a higher recurrence rate: 88% in contrast to 60% [3-5].

The flexor sheath is more affected by the disease than the extensor [5]. We believe that, no significant determinant factors have been reported to be associated with this entity [4,6]. The 50-year-old-group is the most affected by TC [4]. The clinical diagnosis of TC is difficult because of an intermittent histological nature, a slow evolution and atypical manifestations [3]. Patients are usually asymptomatic; otherwise the two most common symptoms are painless swelling and slight tenderness over the lesion.

X-ray may show nonspecific signs such as calcifications, soft tissue mass and ossification in the cartilaginous nodules [4,6]. Studies have shown the usefulness of other imaging examinations such as ultrasound, CT-scan and MRI, to further evaluate TC. CT-scan can clearly detect non-calcified loose bodies that are not visible on X-Ray as well as cortical erosions. MRI can determine the exact location of the nodules, and the signal differs according to the degree of mineralization. In the reported cases, the nodules show a low signal on T1-weighted images, and a high signal on T2-weighted images.

Ultrasound is also a good sensitive examination to detect nodules affecting the tendon sheath [3,4].

The treatment of choice for TC is surgical resection. Some authors recommend a nonsurgical approach with surveillance of the progression when swelling, reduced range of motion, and pain are tolerable [1]. TC surgery allows complete excision of the loose bodies with curettage of the excavation [7]. It has been shown that after surgery the main symptoms such as pain and mechanical deficiencies are relieved [7]. Further surgical treatment of the surrounding synovial membrane has remained controversial. Some authors support loose bodies resection with synovectomy, while others recommend loose bodies resection alone [8].

According to a cohort study of 37 cases, the local recurrence of TC is high ranging from 24% to 88% [4,6], and it can take several months to several years. To the best of our knowledge, No case of malignant transformation has been reported.

The loss of tendon substance following the resection of the tumor is the equivalent of a chronic rupture, and its management is challenging. Several surgical techniques have been described, such as V-Y Tendon Alignment, Turndown Flaps, Peroneus Brevis, Flexor Digitorum Longus, Flexor Hallucis Longus graft.

The Turndown Flap that we used in our case was described by Christensen. He used it for both chronic and acute tendon ruptures. It is a 2 × 10 cm flap with a distal base shaped in the proximal part of the tendon and folded down to cover the defect. The defect produced by the flap was also closed. Twenty-nine of thirty-nine patients in that series were reported as having a satisfactory outcome [9]. Arner and al used two flaps, one medial and the other lateral, and rotated both, in opposite directions [10].

V-Y and turndown flaps have been combined, with good results. In a series of six patients who underwent postoperative isokinetic strength testing, deficiencies in peak torque plantar flexion were found to range from 2.5% to 22% compared with values for the unaffected limb [11].

Conclusion

TC is a rare extra-articular twin of synovial chondromatosis. It's in most cases asymptomatic, and has a high recurrence rate, ranging from 24% to 88%. CT-scan or MRI can highlight the characteristic features of the lesion and suggest the diagnosis of TC. Its treatment consists of a block resection with filling of the loss of substance by a flap or a tendon graft.

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