

Case Report: Open Resection of Giant Tendon Sheath Giant Cell Tumor around the Ankle

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Abstract: Background:Tendon sheath giant cell tumor (GCT-TS) is an extremely rare tumor with highly nonspecific symptoms. It usually originates in the tendon sheath and periarticular soft tissue of the facet joint. Rarely involve the large joints that occur around the knees, ankles, elbows, and hip joints. The benign but aggressive disease progresses slowly. However, it can eventually lead to irreversible damage to the joint. Case presentent: we briefly describe a misdiagnosed case of a giant cell tumor of the unilateral tendon sheath of the ankle joint. A 77-year-old man developed swelling in his ankle, which though mild, affected his walking gait and quality of life. At present, Conclusion:giant cell tumor of tendon sheath of ankle joint is very rare, and its clinical manifestations are not obvious, and it is often easy to be wrongly diagnosed. MRI is the best examination method to determine the scope of soft tissue destruction, and pathological examination is the most important means to diagnose giant cell tumor of tendon sheath at present.

Keywords: Benign Tumour, Diagnosis, Giant Cell Tumor

Introduction

Tendon sheath giant cell tumors (GCT-Ts) are benign, slow-growing tumors that are caused by the tendon sheath of the joint and surrounding soft tissue. The exact histopathology of the tumor remains controversial, and it may appear as a tumor or as a massive reactive proliferation.GCT-Ts have been classified as fibrohistiocytic neoplasms by the World Health Organization (WHO) (1). GCT-Ts are relatively rare, typically occurring in people between 30 and 50 years of age, and are more common in women (2). At present, the involvement of GCT-TS in the large joint is rare. The purpose of this paper is to report a rare case of right ankle GCT-TS, and briefly describe its diagnosis, treatment and prognosis. Here, we describe a case of GCT-TS in the ankle joint, an extremely rare tumor that is managed by surgical excision. To our knowledge, this is one of the few cases of tumor in our hospital (3).

Case Report

A 77-year-old male was admitted for "right ankle pain caused by fall for 5 months". He reported that he accidentally injured his right ankle 5 months ago, with

obvious pain and bruising, limited movement, and no active bleeding. The patient received no special treatment at that time, but now his symptoms have not been relieved and his skin appears patchy erosion. Therefore, he went to the outpatient department of our hospital to seek treatment, and was hospitalized as "tuberculosis of ankle joint" in the outpatient department.Physical examination: right leg next paragraph pretibial inside visible scattered flake pigment AD cool-headed, central is about 6 * 5 cm size red maculopapule rash, a few small blisters, individual breakage, ooze a few pale yellow liquid, right ankle swelling, local skin skin temperature a little higher, ankle joint clearance and internal and external ankle toothache ahead, ankle joint activity (10 to 20 degrees, Extension/flexion), drawer test (+), right foot distal blood supply and sensation. Primary diagnosis: tuberculosis of the ankle (right ankle tuberculosis?).Auxiliary examination: hypersensitive C-reactive protein 12.63mg/ L, erythrocyte sedimentation rate: 120mm/h; MRI of ankle joint (Figure 1); Three-dimensional CT reconstruction of ankle joint (Figure 2)

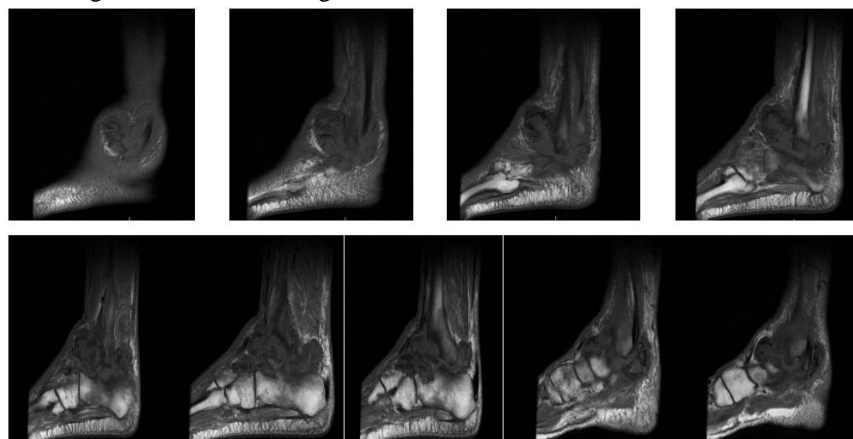


Figure 1: MRI of the right ankle: bone marrow edema, multiple osteolytic destruction and local pathological fracture of the distal tibia and fibula, calcaneus, talus,

cuboid, scaphoid and medial, medial and lateral cuneus. The lump-high and low-mixed signal foci in the upper part of the talus are considered to distinguish infectious



lesions from allergic inflammation. Please combine with laboratory examination. Tendon injury of peroneus brevis longus muscle and flexor longus muscle; Peroneus longus tendon and tendon sheath fluid; Injuries of the posterior talofibular ligament, talocalcaneal interosseous ligament, talocalcaneal

ligament and plantar ligament of calcaneal cuboid; Injury of peroneus brevis, abductor of little toe and extensor of toe brevis; Edema of plantar quadratus muscle and flexor digitorum brevis; Degenerative changes of the ankle; Slight effusion in the joint cavity.)



(Figure 2: Three-dimensional CT reconstruction of the ankle: multiple osteolytic destruction of the distal tibia and fibula, calcaneus, talus, and scaphoid.)

Treatment

This patient was admitted to hospital due to ankle injury caused by fall. Auxiliary examination: hypersensitive C-reactive protein 12.63mg/ L, erythrocyte sedimentation rate: 120mm/h; MRI showed that the patient had severe soft damage to the ankle joint, and the disease and clinical manifestations of the tuberculosis patient were consistent with the diagnosis of tuberculosis of the ankle joint. Considering the increased inflammatory indicators in all the patients, regular quadruple anti-tuberculosis treatment was conducted, and the next treatment plan was formulated after the infection indicators of the patients in the later stage were controlled. Due to the skin itching and small blisters and local damage on the front of the right ankle in the anti-tuberculosis treatment process of the patient, the local skin condition was treated under the guidance of the dermatology department and the use of tuberculosis drugs was adjusted under the guidance of the pharmacy department. After a month of reexamination, the infection index of the patient decreased, the skin lesions recovered well, and the contraindication of the relevant surgery was eliminated. Therefore, the patient underwent right ankle joint exploration and clearance, synovectomy, removal of dead bone and fixation with external fixation frame under the proposed lumbar anesthesia. Intraoperative diagnosis, right ankle mass to be examined (tendinous sperm giant cell pain? Synovial tuberculosis?)

Operative process: 1. After successful anesthesia, the patient was placed in supine position, and a pneumatic tourniquet was placed on the root of the right thigh. After routine disinfection and laying the towel, the tourniquet was inflated. 2. Pick the right ankle example to probe into the way of incision, ca. 4 cm long, layered cut skin, subcutaneous tissue, the deep fascia, cut the extensor retinaculum and joint capsule, right ankle cavity to see a lot of unusually proliferous hypertrophy with pale yellow clear organization and inflammatory granulation tissue filling film samples, no significant pus in the joints of necrosis or dry and cool. The anterior subarticular bone of the right distal tibia was severely damaged. Cartilage was punctured and a few dead bones and bone fragments were observed. There were large defects in the body and articular surface of the right talus, local cartilage stripping and destruction, and a few dead bones and bone fragments were observed. Local abnormal synovial tissue and inflammatory granuloma were excised, and samples were taken for pathological examination. Scratching for removal of talus, tibia and internal asasfor local cartilage removal and free bone tissue. In the same way, the right anterolateral ankle was explored through the approach incision, and the abnormal hyperplasia of synovial-like tissue and inflammatory granuloma in the anterolateral ankle were explored and cleared. The talus, transbone and local decartilage of the lateral malleolus as well as the dead bone tissue of the lateral malleolus were cleaned and removed. In the same

method, the posterior lateral malleolus was taken to explore the approach incision, and the incision was made through multiple layers to the posterior right malleolus, and the abnormal hyperplasia of synovial-like tissue and inflammatory granuloma were removed posterolateral malleolus. A large amount of normal saline was used to flush the local incision. Further investigation of the local incisions showed no residual dead bone, abnormal synovial-like tissue or giveaway granulation tissue in the articular cavity. 3. Take a single external fixation and place it in the right small energy case to adjust and determine the location of the local screw. Two small incisions were made in the middle and upper segment of the right tibia successively, and the skin, subcutaneous tissue and deep navigation membrane were cut through. After the hole was made by electric drill, the threaded bone needle was drilled through the hole to the cortex of the light bone pairs. Two small incisions were made in the right source bone and in the anterior and lower part of the right talus, and the skin, subcutaneous tissue and

deep fascia were cut continuously. After drilling with electric drill, the screw needle was drilled through the hole to the heel and the right talus contralateral parenchyma, and an external fixator was installed to adjust the lower limb force line, and then the joint and screw head were fastened. 4. Daye normal saline was used to cleanse the local incision. Sterile numeral material was bandaged to stop the bleeding. The operation was smooth and the anesthesia was satisfactory. The blood loss during the operation was about 50ml. The patients were routinely treated with anti-infection, analgesia, stomach care and albumin supplementation after surgery. One month later, the patient was discharged from hospital with stable condition and good postoperative healing. The patient's ankle symptoms are now completely resolved 3 months after tumor resection. Radiotherapy is recommended and follow-up will be followed up after 6 months and MRI will be taken for monitoring study. Postoperatively, see Figure 3 and 4.



Figure 3: postoperation picture



Figure 4: Anteroposterior and lateral radiographs of DR after right ankle surgery
Pathological examination revealed diffuse GCT-TS. The final diagnosis: giant cell tumor of the tendon sheath of the right ankle

Discussion

GCT-Ts are generally believed to originate from benign tumors of the synovial mesenchymal tissue of the tendon sheath and its bursa, including local and diffuse types (4). The tumor is pathologic characterized by local proliferation of monocytes, multinucleated

giant cells, lipid carriers, ferric phages, and variable amounts of fibrous tissue. The tumor can occur in any location, most commonly in the knee and its facet joints, but rarely in the hip, shoulder, and ankle, and occurs more frequently in women than in men (5). Giant cell tumors of the tendon sheath of the ankle joint

are rare in clinical practice and their treatment is a challenge for surgeons. Striking the right balance between complete removal of the tumor and aggressive removal of the tumor and preservation of vital tissue is a challenge because tumors may invade joints, bone cortical and soft tissue, and even extend into the tendon sheath and block neurovascular structures. Currently, MRI is an important diagnostic tool for patients with soft tissue mass during preoperative examination. In addition to providing information about surrounding soft tissue and skeletal involvement, MRI helps to distinguish GCT-Ts from other underlying pathology. GCT-Ts had low signal intensity on both T1 and T2 images, and the region of mixed intensity was associated with the deposition of hemosiderin (6). Lesions will also show homogeneous enhancement and changes in density. These findings are unique when compared to other differential diagnoses, including hemangioma, neurofibroma and hemangioma. In addition to advanced imaging tests, the study included bacterial and fungal cultures to further rule out other potential causes of infection for synovitis. In particular, tuberculosis has caused multiple symptoms that overlap with countless other inflammatory or neoplastic processes, namely pain, swelling, reduced range of motion, and bone destruction (5). A clear diagnosis is critical in the planning of appropriate treatment and in determining whether surgical intervention is required.

Studies have shown that complete surgical resection is the gold standard for the treatment of GCT-TS (7), and open synovectomy and bone grafting may be safe and effective surgery to save the ankle joint. Xingchen Li et al. (8) believe that external fixation should be performed simultaneously to prevent pathological fracture in patients with severe bone and soft tissue damage. Ankle arthrodesis can be performed if necessary, and the patient will be transferred to the oncology department for further radiation therapy after the patient's condition stabilizes. Radiotherapy is an effective method for the treatment of GCT-TS, and targeted therapy can be added when necessary to significantly reduce the recurrence rate. The final pathological examination indicated giant cell tumor of tendon sheath.

Conclusion

In conclusion, the symptoms of giant cell tumor of tendon sheath of ankle joint are often not obvious, and its imaging often lacks characteristic manifestations, so it is easy to be wrongly diagnosed in clinical practice. Early and correct diagnosis of diffuse giant cell tumor of tendon sheath of ankle-foot joint is crucial. Only early diagnosis can prompt and appropriate treatment plan be taken. Finally prevent the further destruction of bone and soft tissue, improve the quality of life of patients. In the future, it is necessary to conduct more

studies to understand the manifestations of this tumor in different clinical Settings, so as to avoid misdiagnosis and missed diagnosis in heavy clinical work as much as possible (9),(10),(11),(12).

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