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Tenosynovial Giant Cell Tumor in the Gruberi Bursa

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A 34-year-old man presented with a three-month history of persistent right ankle swelling. The patient also reported mild pain and stiffness in the morning. There was no history of trauma or any systemic symptoms. Physical examination revealed a soft, mobile, non-tender swelling on the lateral aspect of the right ankle. No signs of local inflammation or skin abnormalities were evident.

Magnetic resonance imaging (MRI) of the ankle revealed a mass located anterolateral to the talus. The mass was anteriorly bounded by the fibularis tertius and extensor digitorum longus (EDL) tendons and extended into the sinus tarsi. A clear plane was observed between the lesion and the aforementioned tendons, excluding the origin of the tendon synovial sheath. The described location corresponded to the anatomical topography of the Gruberi bursa. The neoformation was heterogeneous and predominantly hypointense on the T1-, T2- and proton density-weighted images, with areas of markedly low signal intensity in the different sequences (Figure 1a, b). Furthermore, the mass exhibited a moderate heterogeneous enhancement after contrast administration (Figure 1c). No joint effusion, bone erosion, or abnormal marrow signal were visualized.

The mass was completely resected. Histopathological examination of the resected mass revealed a fibrohistiocytic tumor with a villonodular architecture. The tumor consisted of numerous xanthomatous macrophages, scattered multinucleated giant cells, and multiple depositions of hemosiderin pigment (Figure 1d). There was no cell atypia or necrotic areas.

The clinical, radiological, and histologic results were consistent with a tenosynovial giant cell tumor (TGCT) in the Gruberi bursa. TGCT is a rare, slow-growing, benign neoplasm that arises from the synovium of joints, bursae, and tendon sheaths. They commonly occur in young adults, usually aged 30-50 years, and exhibit a slight female predilection.[1]

According to the growth pattern, TGCT can be classified as localized tenosynovial giant cell tumor (L-TGCT) or diffuse tenosynovial giant cell tumor (D-TGCT). L-TGCT presents as a well-circumscribed and encapsulated mass. However, D-TGCT is not as well-defined as an L-TGCT, and it grows in a multinodular pattern, often infiltrating the joint space and surrounding soft tissues. L-TGCT primarily affects the fingers, while D-TGCT frequently affects the knee joint.[1,2] The clinical presentation of TGCT depends on the tumor type, tumor location, and joint affected. Patients mostly complain of pain, swelling, and stiffness.[3]

MRI is the preferred imaging modality for diagnosing TGCT, allowing for the accurate assessment of tumor location and extent. The signal intensity of TGCT varies on MRI according to the proportion of fibrous stroma, cellular elements, and hemosiderin.[4] These tumors predominantly exhibit low signal intensity on T1- and T2-weighted images.[1,5,6] Gadolinium administration usually produces moderate enhancement of the tumor. The presence of a blooming artifact, which is a hemosiderin-induced paramagnetic susceptibility artifact on gradient-echo sequences, is a characteristic, but not unique, feature of this pathology.[6]

The definitive diagnosis is confirmed histologically by identifying a tumor composed of histiocytes, multinuclear giant cells, mononuclear cells, and hemosiderin deposits.[2,7,8]

Surgical resection is the primary treatment for L-TGCT and D-TGCT. Radiotherapy and radiosynoviorthesis may be used as adjuvant therapy for D-TGCT due to its high recurrence rate. However, evidence of their efficacy remains limited. Systemic drugs such as emactuzumab, imatinib, and pexidartinib have also demonstrated promising efficacy in treating TGCT.[9] In our patient, only surgical resection was performed; no other treatments were administered. Currently, the patient has been disease-free for 6 months.

Data on the Gruberi bursa, a synovial bursa in the dorsolateral aspect of the ankle between the EDL tendon and talus, are limited.[10] Furthermore, there are no reports of TGCT in this location. Thus, we have presented such a case in this report.

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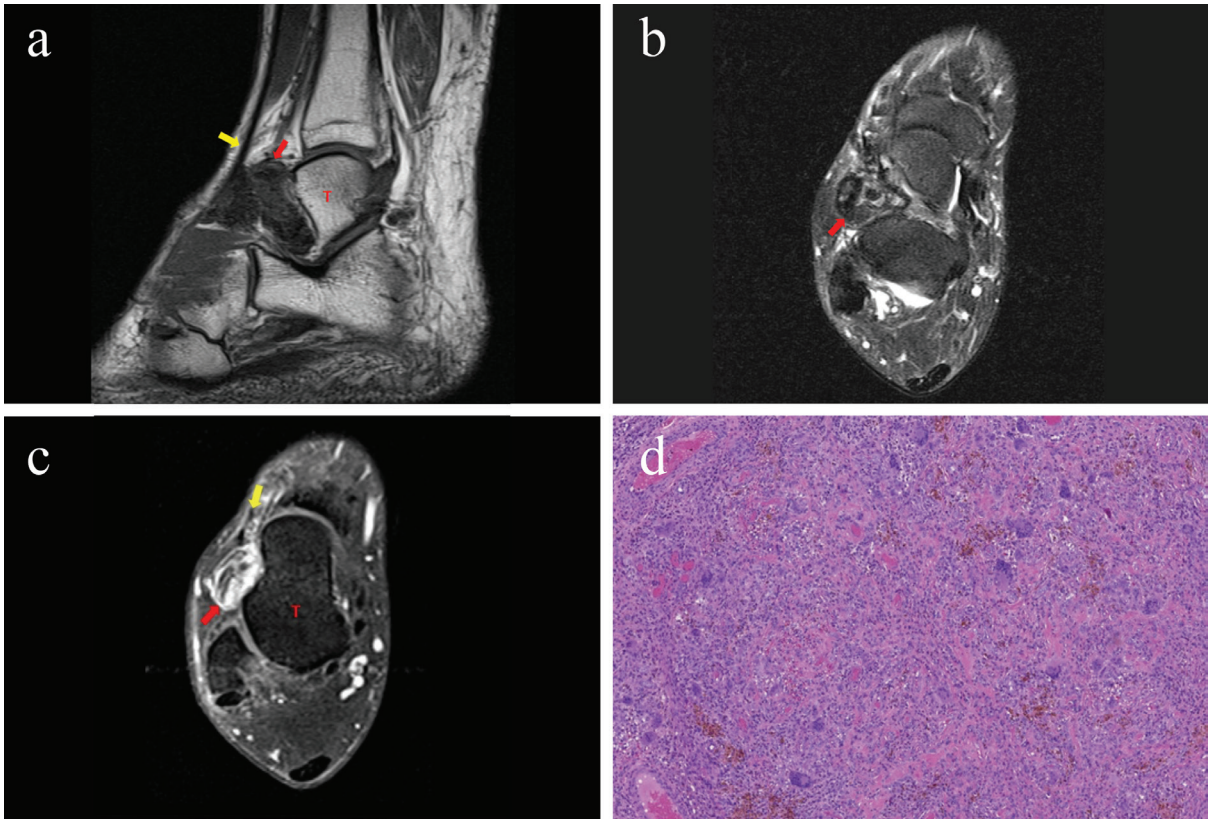

FIG. 1. Imaging and pathological findings of a patient with a tenosynovial giant cell tumor. (a) Sagittal T1-weighted and (b) axial T2-weighted fat-saturated magnetic resonance images showing a heterogeneous soft-tissue mass (red arrows) in the lateral aspect of the right ankle, with extension into the sinus tarsi. (c) Heterogeneous enhancement is observed on contrast-enhanced T1-weighted sequences with fat suppression.The mass (red arrow) is located between the extensor digitorum longus tendon (yellow arrow) and the talus (T), which corresponds to the topography of the Gruberi bursa. (d) Histological examination of the excised tumor revealing numerous blood vessels, histiocytic cells, scattered multinucleated giant cells, and hemosiderin pigment deposition (hematoxylin-eosin-stained section; magnification, x160).

Informed Consent: Informed consent was obtained from the patient.

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