SKIN

SKINmages

Giant Cell Tumor of Tendon Sheath: A Fixed, Firm, Protuberant Finger Nodule

Alexandra L. McLennan, BS[1], Clay J. Cockerell, MD[2], Vicky Z. Ren, MD[3]

[1] School of Medicine, Baylor College of Medicine, Houston, Texas, USA
[2] Cockerell Dermatopathology, Dallas, Texas, USA
[3] Department of Dermatology, Baylor College of Medicine, Houston, Texas, USA

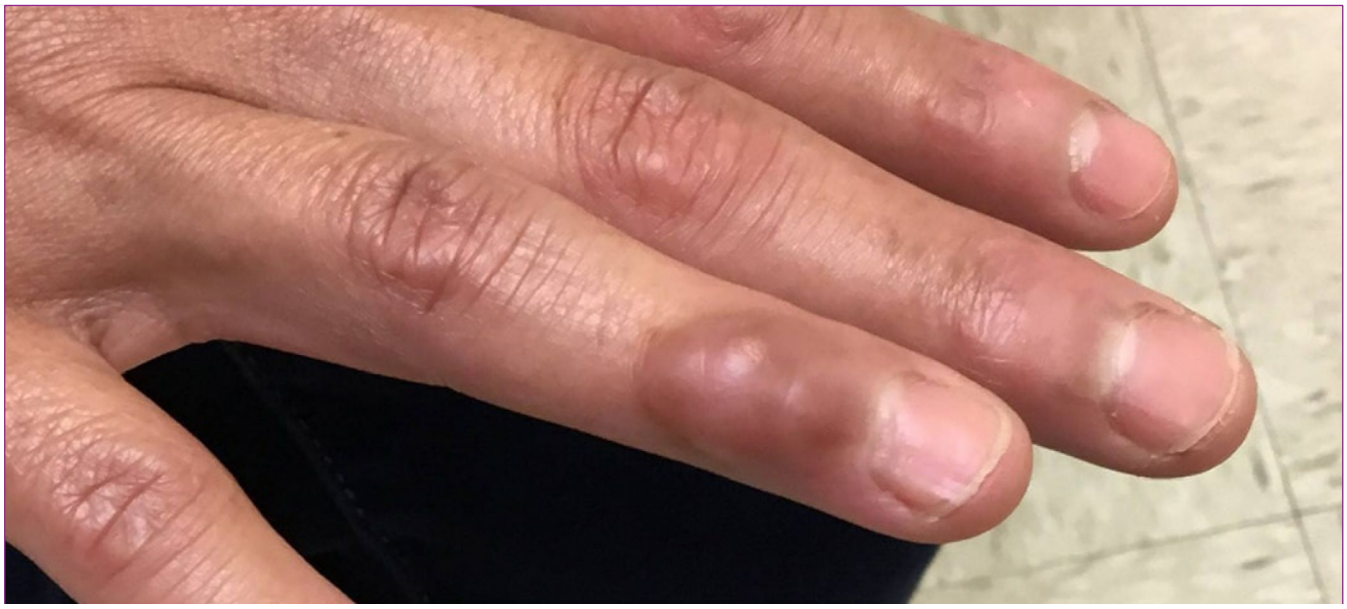

Figure 1. Smooth, firm, slightly hyperpigmented protuberant nodule on the distal right fourth finger

CASE REPORT

A healthy 49-year-old woman presented with a 1-year history of an enlarging, tender lesion on her right fourth digit. She denied prior injury or surgery to the affected area. Physical examination revealed a non-mobile, non-transilluminating, firm, skin-colored to hyperpigmented nodular mass on the dorsal aspect of the right fourth finger (**Figure 1**). Motor strength and sensation remained intact. Radiographic imaging revealed a nonspecific soft tissue mass overlying the distal interphalangeal joint without any associated bone abnormalities. A tangential biopsy was obtained for routine histopathology (**Figure 2**).

DISCUSSION

Histopathological examination showed a deep nodular proliferation of fibrous tissue

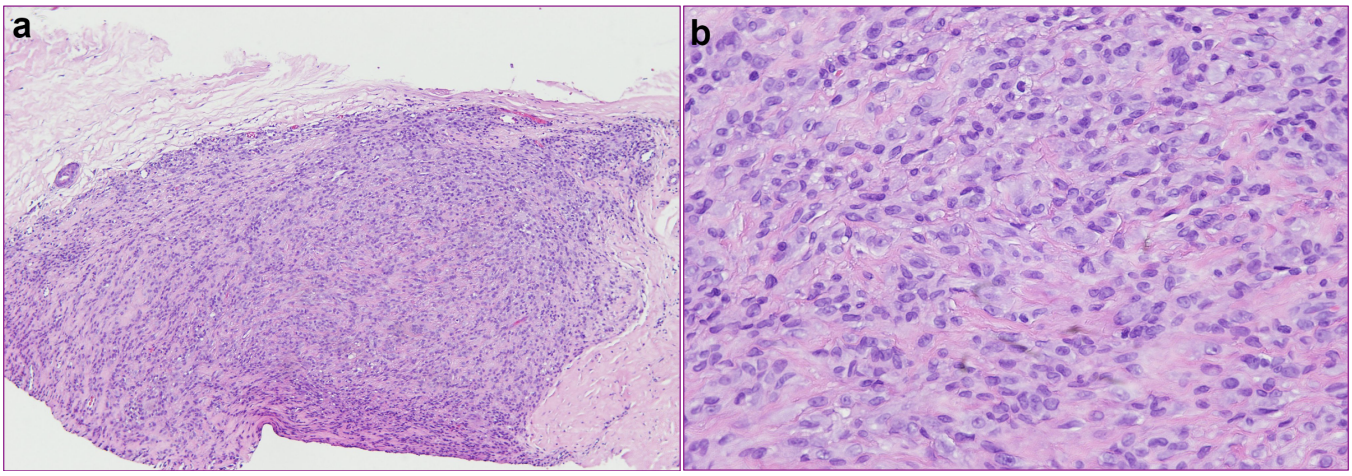

Figure 2. (a) Nodular proliferation of fibrous tissue with histiocytes and multinucleated giant cells (hematoxylin and eosin, x100) (b) Osteoclast-like giant cells with histiocytes and hemosiderin (hematoxylin and eosin, x400)

with histiocytes. The circumscribed, lobulated mass was pseudo-encapsulated by dense collagen and contained multinucleated giant cells with amphophilic cytoplasm and prominent epithelioid mononuclear cells with rounded vesicular nuclei. A diagnosis of giant cell tumor of tendon sheath (GCTTS) was made, and the tumor was subsequently excised by orthopedic surgery.

GCTTS, also known as localized tenosynovial giant cell tumor, is one of the most common tumors of the hand.[1] Thought to arise from the synovial lining cells of tendon sheaths or joints, it commonly presents as a slow-growing, painless mass in the soft tissue surrounding tendons, particularly of the hands and fingers.[1,2] Patients typically seek medical attention due to the development of a palpable mass or discomfort caused by compression of adjacent structures. GCTTS is most frequently diagnosed in individuals between the ages of 30 and 50, with a slight predilection for females.[1,3]

Although the exact etiology of GCTTS remains elusive, trauma, inflammation, and hormonal influences may contribute to tumor development.[2,3] Similarly, the pathophysiology of GCTTS is incompletely understood; however, translocation of the *CSF* gene, which encodes colony stimulating factor 1, is frequently implicated.[1,2,4]

Surgical excision, the primary treatment modality for GCTTS, aims for complete resection while preserving adjacent structures and function.[3] However, the optimal surgical approach (e.g., open versus arthroscopic) and extent of resection (e.g., marginal versus intralesional) remain subjects of debate, particularly in regards to the mitigation of recurrence.[3] Adjuvant therapies, such as radiation therapy or intralesional corticosteroid injections, may be considered in cases of unresectable tumors or as adjuncts to surgical management.[5] It is crucial to note that local recurrence after surgical excision is not uncommon, especially in cases of incomplete resection or aggressive tumor behavior.[1,3] While GCTTS generally does not metastasize, its locally invasive nature can result in the destruction of adjacent structures and functional impairment if left untreated. Hence, long-term follow-up is essential to monitor for recurrence or malignant transformation, although the latter is exceedingly rare. Despite the potential for recurrence, the

overall prognosis for GCTTS is favorable, with low rates of metastasis and excellent long-term functional outcomes following appropriate treatment.[1]

We present here a case of GCTTS where clinicopathologic correlation was instrumental in diagnosis and treatment. Prompt identification and intervention can diminish the morbidity associated with this soft tissue mass. Research efforts aimed at elucidating the underlying pathophysiology and optimizing treatment strategies can improve outcomes for patients with GCTTS.

Conflict of Interest Disclosures: None

Funding: None

Corresponding Author:
Alexandra McLennan
1 Baylor Plaza, Houston, TX 77030 USA
Phone: 512-550-5475
Email: alexandra.mclennan@bcm.edu

References:

1. Darwish FM, Haddad WH. Giant cell tumour of tendon sheath: experience with 52 cases. *Singapore Med J*. 2008 Nov;49(11):879–82.
2. Di Grazia S, Succi G, Fraggetta F, Perrotta RE. Giant cell tumor of tendon sheath: study of 64 cases and review of literature. *Il G Chir*. 2013 Jul 10;34(5–6):149–52.
3. Suresh SS, Zaki H. Giant cell tumor of tendon sheath: case series and review of literature. *J Hand Microsurg*. 2010 Dec;2(2):67–71.
4. West RB, Rubin BP, Miller MA, Subramanian S, Kaygusuz G, Montgomery K, et al. A landscape effect in tenosynovial giant-cell tumor from activation of CSF1 expression by a translocation in a minority of tumor cells. *Proc Natl Acad Sci U S A*. 2006 Jan 17;103(3):690–5.
5. Kotwal PP, Gupta V, Malhotra R. Giant-cell tumour of the tendon sheath. Is radiotherapy indicated to prevent recurrence after surgery? *J Bone Joint Surg Br*. 2000 May;82(4):571–3.