Asymptomatic solitary nodule on palmar surface of the right hand

AK Douieb,[1] MD, Bayoumi Eassa,[2] MD

[1]*Consultant, Department of Dermatology, HPLM, Larache, Morocco*

[2]*Department of Dermatology, Farwaniya Hospital, Kuwait*

A 40-year old Egyptian male patient presented with skin lesion in the palm of right hand since 2 years. The lesion had a gradual onset and slowly progressive course. There were no associated symptoms such as pain, tenderness and limitation of movement of the right hand. There was no previous history of similar lesions or other skin problems. The patient did not complain of any systemic illness and there was no family history of similar lesions.

On physical examination, there was a solitary, subcutaneous brownish nodule with in palm of right hand (Fig. 1 A, B). There was no tenderness or pain on palpation. The nodule was firm in consistency and not attached to underlying structures. Routine laboratory investigations including CBC, blood sugar, hepatic and renal profile revealed no abnormal findings. X-ray on the right hand showed no attachment of the lesion to underlying bones. Total excisional biopsy was performed

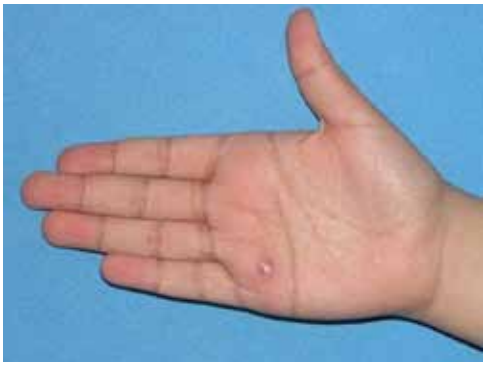

Fig. 1A Solitary reddish, Brownish nodule in palmar surface of right hand.

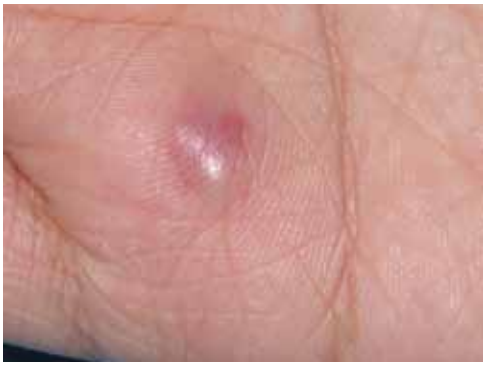

Fig. 1B Closeup

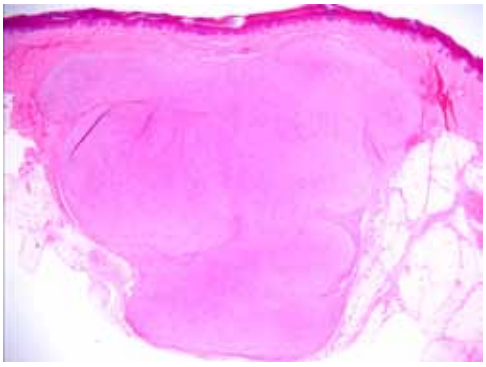

Fig. 2A. Multinodular dermal mass surrounded with fibrocollagenous capsule.

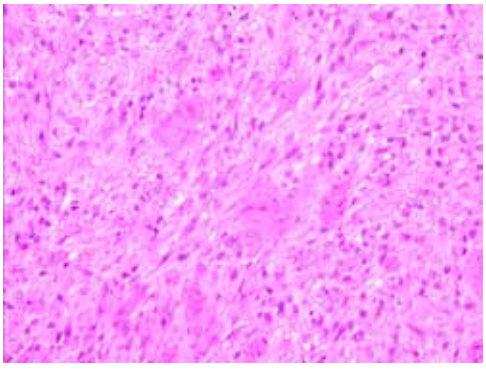

Fig. 2B. (High power) Dermal tumor mass formed of epithelioid cells, foamy cells, spindle shaped cells and osteoclast like giant cells.

Correspondence: *Dr. AK Douieb, Consultant, Department of Dermatology, HPLM, Larache, Morocco, Email: douieb@menara.ma*

for removal of the tumor and histological analysis revealed exophytic nodule with encapsulated dermal mass formed of epitheliod cells, spindle shaped cells, foamy histiocytes and eosteoclast like giant cells. There was no residual pathology beneath the excised lesion (Fig. 2 A, B)

What is the clinical diagnosis?

1. Ganglion.
2. Dermatofibroma.
3. Epidermiod cyst.
4. Eccrine adenoma.

DIAGNOSIS

Giant tumor of tendon sheath

DISCUSSION

Giant cell tumor of the tendon sheath (GCTTS) was first described by Chassaignac in 1852 as fibrous xanthoma and has since been referred to by multiple names, including localized nodular tenosynovitis, pigmented villonodular proliferative synovitis, sclerosing hemangioma, benign synovioma, proliferative synovitis, xanthoma, xanthogranuloma, xanthosarcoma, myeloid endothelioma, fibrohemosideric sarcoma, giant cell fibrohemangioma, pigmented villonodular tenosynovitis, fibroma, myeloma, myeloxanthoma, and fibrous histiocytoma.[1-5] Giant cell tumor of the tendon sheath (GCTTS) is the most common benign tumor of the hand after ganglion cysts.[1] The large range of nomenclature indicates disagreement as to the etiology of giant cell tumors. The prevailing divergence is between a neoplastic[1-3,6-9] and inflammatory origin[10-12] of the tumor, with numerous studies presenting confirmation for the etiology of GCTTS.

In spite of undetermined etiology, the clinical presentation, diagnosis, and surgical treatment of GCTTS are described. The tumor is most commonly diagnosed in the fourth and fifth decades of life (range, 4-82 years),[13,14] females(64.3%) are more affected than male.[2,3,15] Although GCTTS most commonly presents in a digit of the hand, it may also present in the palm,[1,16] wrist,[2,17] foot,[7,13,18] knee,[7,13,18] ankle,[13] elbow,[13] or hip.[2] Macroscopically, GCTTS is a multilobular and generally well-circumscribed tumor. It may be partially or completely encapsulated and may have extensions and/or satellite lesions connected by as little as a few strands of fibrous tissue.[6,15] Coloration varies from gray to yellow-orange with some brownish areas, depending on the amounts of hemosiderin, collagen, and histiocytes present in the tumor.[15]

Microscopically, giant cell tumor consisted of 4 main cell types, namely the principal synovial cell, multinucleated giant cell, foam cell, and histiocyte-like cell.[18] These cells are surrounded with a fibrous collagenous stroma, form synovial-lined spaces, and are often surrounded by a thin, fibrous septae.[6,13,18]

The most common sites for Giant cell tumor of the tendon sheath are distal interphalangeal (DIP) joint[2,15,19] and the proximal phalanx.[2,4,20-22] Some studies explored a link with rheumatoid arthritis,[15] while others describe an association with osteoarthritis;[2,4] however, these findings are not conclusive and furthur randomized studies with large number of patients are required to evaluate the link between GCTTS and rheumatoid arthritis in addition to osteoarthritis .

Giant cell tumor of the tendon sheath appears as solitary, firm, non-tender, none fluctuant nodule in a digit of the hand. The most common occur-

rence is in the index finger (26%), followed by the long finger, thumb, ring finger, and small finger, respectively. The tumor is predominantly palmar,[1,4,16,19,20,23] although Jones et al[2] and Ushijima et al[13] reported dorsal tumors to be more prevalent. Because of the slow-growing nature of the tumor, patients present an average of 6 months to 2.5 years after the initial onset of symptoms.[6,20] Our case was in palmar surface of right hand.

Clinical diagnosis of GCTTS is common especially for palmar and digital tumor; however, giant cell tumor may be misdiagnosed or left without definitive diagnosis until intraoperative findings are available. For example, Monaghan reports a provisional diagnosis of GCTTS in only 4.2% of 71 affected patients, with the remainder of tumors diagnosed as ganglion or epidermoid cyst.[18] In less extreme cases, 41.5%,[7] 87.5%,[23] and 92%[16] of tumors were diagnosed as GCTTS preoperatively. Radiographic features for GCTTS are not specific.[8] Roentgenographic findings indicate a soft tissue mass in the majority of cases; however, Reilly et al[4] reported normal findings in 32% of patients. Ultrasonography shows a solid, homogeneous, hypoechoic mass generally in relation to the flexor tendons of the fingers, with increased vascularity on Doppler studies.[19] Magnetic resonance imaging reveals decreased signal intensity on T1- and T2-weighted images.[8] A preoperative pathological diagnosis can be made using fine-needle aspiration biopsy.[24] Although radiography cannot be used to make a definitive diagnosis, it is useful in showing bony erosion and is widely available. Magnetic resonance imaging is the most definitive imaging study.[24]

Surgical excision is the most effective method for treatment for giant cell tumor. Care must be taken to preserve the flexor tendons, extensor tendons, digital arteries, and nerves if possible. Because of the usual presence of a pseudocapsule, the tumor can often be removed en bloc. All surrounding tissues should be examined for satellite lesions, and such lesions and connections to these lesions should be excised. Rather than opening the entire site, satellite lesions can often be removed using a teasing technique,[15] which utilizes gentle, slow dissection. If erosion of the bone has occurred, curettage to remove the cortical shell is advised.[3] Flexor and extensor tendons invaded by the tumor should be repaired. GCTTS usually recurs after excision, with rates of up to 44% being reported.[6] Exsicion of the tumor with margin included is recommended to prevent the recurrence of tumor.

Recurrence of giant tumor of tendon sheath can be prevented by radiotherapy that acting as an adjuvant therapy to prevent the recurrence. Previous studies observed marked reduction in recurrence rates with the use of radiotherapy after surgery.[16,23]

REFERENCES

1. Phalen GS, McCormack LG, Gazale WJ. Giant-cell tumor of tendon sheath (benign synovioma) in the hand: evaluation of 56 cases. Clin Orthop. 1959; 15:140-51.
2. Jones FE, Soule EH, Coventry MB. Fibrous xanthoma of synovium (giant-cell tumor of tendon sheath, pigmented nodular synovitis) J Bone Joint Surg Am. 1969; 51 (1):76-86.
3. Walsh EF, Mechrefe A, Akelman E, Schiller AL. Giant cell tumor of tendon sheath. Am J Orthop (Belle Mead NJ) 2005; 34 (3):116-21.
4. Reilly KE, Stern PJ, Dale A. Recurrent giant cell tumors of the tendon sheath. J Hand Surg Am. 1999; 24:1298-302.
5. Booth KC, Campbell GS, Chase DR, Linda L. Giant cell tumor of tendon sheath with intraosseous invasion: a case report. J Hand Surg Am. 1995; 20 (6):1000-02.
6. Wright CJE. Benign giant-cell synovioma. An investi-

gation of 85 cases. Br J Surg. 1951; 38 (151):257-71.
7. Rao AS, Vigorita VJ. Pigmented villonodular synovitis (giant-cell tumor of the tendon sheath and synovial membrane). A review of eighty-one cases. J Bone Joint Surg Am. 1984; 66 (1):76-94.
8. Glowacki KA, Weiss APC. Giant cell tumors of tendon sheath. Hand Clin. 1995; 11 (2):245-53.
9. Grover R, Grobbelaar AO, Richman PI, Smith PJ. Measurement of invasive potential provides an accurate prognostic marker for giant cell tumour of tendon sheath. J Hand Surg Br. 1998; 23 (6):728-31.
10. Jaffe H, Lichtenstein L, Sutro CJ. Pigmented villonodular synovitis, bursitis and tenosynovitis. Arch Pathol. 1941; 31:731-65.
11. Granowitz SP, D'Antonio J, Mankin HL. The pathogenesis and long-term end results of pigmented villonodular synovitis. Clin Orthop Relat Res. 1976; 114:335-51.
12. Moore JR, Weiland AJ, Curtis RM. Localized nodular tenosynovitis: experience with 115 cases. J Hand Surg Am. 1984; 9 (3):412–17.
13. Ushijima M, Hashimoto H, Tsuneyoshi M, Enjoji M. Giant cell tumor of the tendon sheath (nodular tenosynovitis). A study of 207 cases to compare the large joint group with the common digit group. Cancer. 1986; 57 (4):875-84.
14. Beekman F. Giant-cell tumors of the tendon sheaths. Ann Surg. 1915; 62 (6):738-45.
15. Glowacki KA. Giant cell tumors of tendon sheath. J Hand Surg Am. 2003; 3 (2):100-07.
16. Garg B, Kotwal PP. Giant cell tumour of the tendon sheath of the hand. J Orthop Surg (Hong Kong) 2011; 19 (2):218-20.
17. Gholve PA, Hosalkar HS, Kreiger PA, Dormans JP. Giant cell tumor of tendon sheath: largest single series in children. J Pediatr Orthop. 2007; 27 (1):67-74.
18. Monaghan H, Salter DM, Al-Nafussi A. Giant cell tumour of tendon sheath (localised nodular tenosynovitis): clinicopathological features of 71 cases. J Clin Pathol. 2001; 54 (5):404–07.
19. Middleton WD, Patel V, Teefey SA, Boyer MI. Giant cell tumors of the tendon sheath: analysis of sonographic findings. AJR Am J Roentgenol. 2004; 183:337-39.
20. Ozalp T, Yercan H, Kurt C, Ozdemir O, Coskunol E. Giant cell tumour of the tendon sheath involving the hand or wrist: an analysis of 141 patients. Acta Orthop Traumatol Turc. 2004; 38 (2):120-24.
21. Uriburu IJF, Levy VD. Intraosseous growth of giant cell tumors of the tendon sheath (localized nodular tenosynovitis) of the digits: report of 15 cases. J Hand Surg Am. 1998; 23:732-36.
22. Williams J, Hodari A, Janevski P, Siddiqui A. Recurrence of giant cell tumors in the hand: a prospective study. J Hand Surg Am. 2010; 35:451-56.
23. Kotwal PP, Gupta V, Malhotra R. Giant-cell tumour of the tendon sheath. J Bone Joint Surg Br. 2000; 82 (4):571-73.