

Fibroma of the palmar flexor sheath: Correlation of cytological and histopathological morphology with clinical presentation

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Citation

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Abstract

Fibroma of tendon sheath is a slowly growing dense fibrous nodule attached to the tendon sheath and is commonly found in the extremities. These lesions are well circumscribed with lobulated appearance. We present two cases fibroma of tendon sheath in palm with their cytological findings and histopathological correlation.

INTRODUCTION

The fibroma of tendon sheath (FTS) is an uncommon small benign fibrous nodule which is intimately associated with tendons or tendon-sheaths. FTS is synonymous with tenosynovial fibroma¹. The majority of FTS present in the upper extremity in male subjects in their 2nd to 5th decades². The volar aspect of the thumb, index and middle fingers are the commonest sites of origin³.

To the best of our knowledge, the fine needle aspiration cytology (FNAC) findings of FTS had not been documented in the literature. The authors present two cases of fibroma of tendon sheath in the palm and discuss their cytological findings and histopathological correlation.

CASE 1

A 35 year old male presented with a two years history of swelling and mild discomfort on the volar and ulnar aspect of the left hand. Clinical examination revealed a firm swelling with deep fixation but no skin involvement.

A plain radiograph of the hand showed soft tissue swelling without any calcification or ossification and normal appearance of the underlying bones. Magnetic resonance imaging (MRI) of hand revealed a lobulated swelling at the level of distal palmar crease in hypothenar area measuring 3x2.5x2.5 cm (Fig. 1). FNAC of the swelling was performed using all aseptic precautions. Repeated aspiration were attempted because of low cellularity. Smears comprised of

few groups of loose cohesive clusters and singly scattered bland appearing spindle shaped cells having oval to elongated nuclei and variable cytoplasm. Occasional hyalinised collagenous fragments and myxoid substance were also noted in a hemorrhagic background (Fig. 2). Cytological features were suggestive of a benign fibroblastic lesion. The lesion was resected along with its capsule (marginal excision) preserving other anatomical structures. The histopathological examination of the excised mass showed well circumscribed area with spindle shaped fibroblasts embedded in a collagenous stroma and numerous cleft like vascular channels in between the matrix (Fig.3). The diagnosis of fibroma of tendon sheath was rendered based on its characteristic histopathological appearance. The patient is on regular follow up without any complication till date.

Figure 1

Figure 1: MRI (T1 weighted contrast enhanced image) revealing a lobulated swelling at the level of distal palmar crease in hypothenar area with low signal intensity.

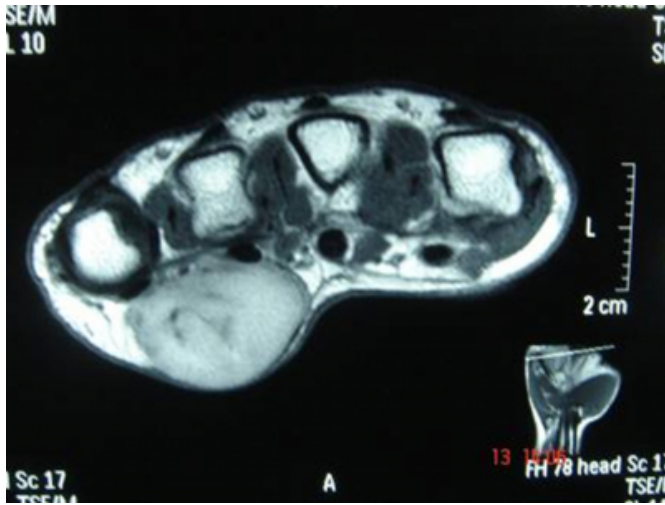


Figure 2

Figure 2: FNAC revealing loose cohesive clusters of bland appearing spindle shaped cells having oval to elongated nuclei and variable cytoplasm. (MGG stain 400x)

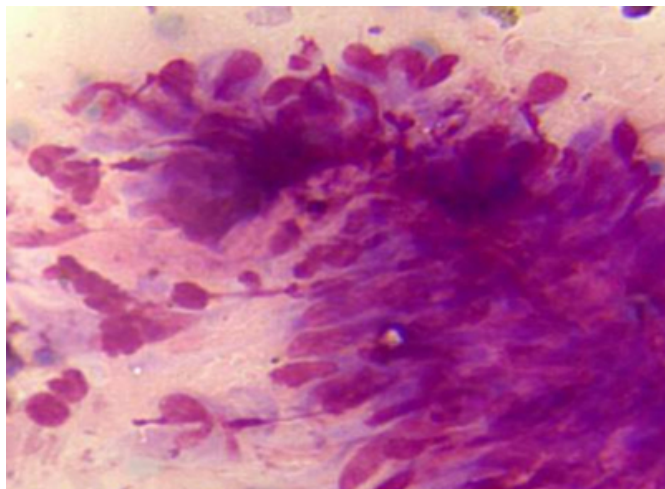
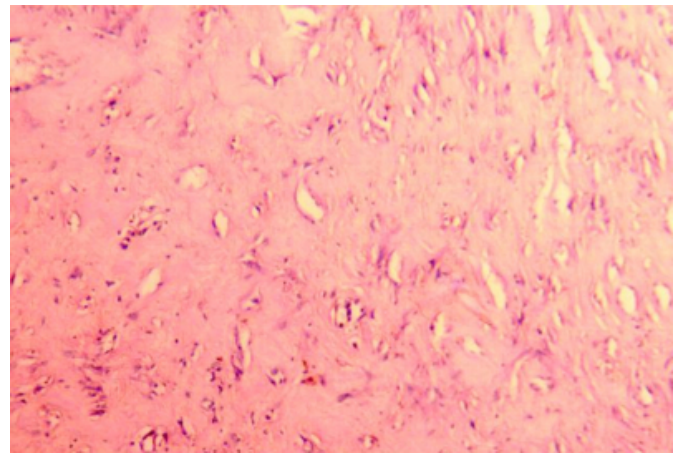


Figure 3

Figure 3: Photomicrograph showing spindle shaped fibroblasts embedded in a collagenous stroma along with slit like vascular channels. (H & E stain 100 x)



CASE 2

A 55 year old male presented with swelling in mid palmar region of right hand. Clinical examination revealed a firm, non-mobile mass located along the tendons of middle finger.

A plain radiograph of hand did not reveal any abnormality where as MRI showed a well circumscribed mass along the tendons of index, middle and ring finger measuring 2.5x2.5x2cm (Fig.4). FNAC revealed hypocellular smears comprising of occasional tiny cluster and few singly scattered spindle shaped cells with bland appearance. Few hyalinised fragments were also seen in the smear (Fig.5). A cytological diagnosis of benign spindle cell lesion of fibrous origin was rendered. Histopathological examination of the excised mass revealed similar findings as in above case (Fig.6) and was reported as fibroma of tendon sheath in the palm. At a follow up of one year, there was no local recurrence.

Figure 4

Figure 4: MRI (T1 weighted contrast enhanced image) revealing a well circumscribed mass along the tendons of Index, middle and ring finger.

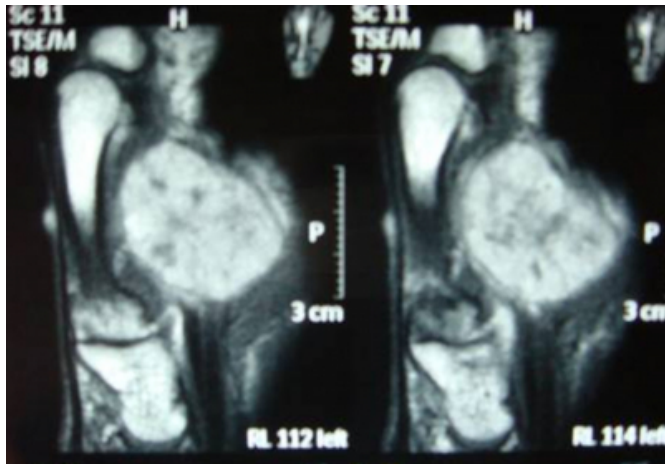


Figure 5

Figure 5: Cytology smear showing spindle shaped cells and hyalinised collagenous fragments.(MGG stain 100x)

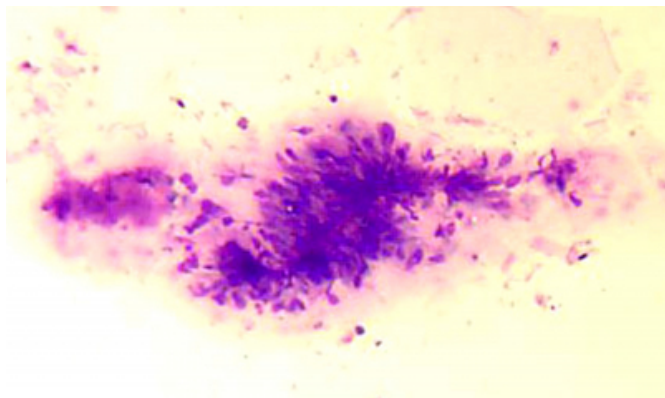
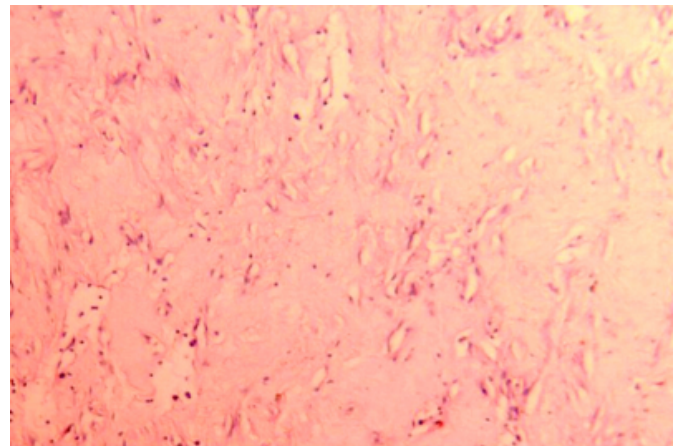


Figure 6

Figure 6: Photomicrograph showing spindle shaped fibroblasts, collagenous stroma and numerous cleft like vascular channels. (H & E stain 100x)



DISCUSSION

Fibroma of tendon sheath was first described by Geschickter and Copeland (1949) which was later described as a separate clinicopathological entity by Chung and Enzinger⁴.

This lesion presents as a small, firm, slow growing, painless mass that is thought to be either a reactive fibrosing process or a benign neoplasm. The predilection for specific digits of the right hand and the finding of fasciitis-like areas in some cases suggest a possible reactive origin. A history of trauma has been reported in approximately 9% of these cases. A minority of fibromas may also arise secondary to hyalinization of benign mesenchymal tumours^{2,3}. Genetically, a clonal chromosomal abnormality t(2;11)(q31-32; q12) has been described in one case. Notably, an identical translocation has been observed in desmoplastic fibroblastoma. This neoplasm may impinge on the median nerve to produce carpal tunnel syndrome, finger triggering and ulceration or may show intra-articular involvement of the wrist and knee^{1,4,5}.

Grossly, FTS is well encapsulated, firm and multilobular with a fleshy and grey-white cut surface. Microscopically, the lesion is multilobulated and characterized by spindle-shaped fibroblasts without cytological atypia or mitotic activity. Dense eosinophilic hyalinized collagenous stroma and numerous cleft-like vascular spaces are the characteristic findings seen on histopathology. However, the differential diagnosis includes tenosynovial giant cell tumour, nodular fasciitis, fibromatosis, pigmented villonodular synovitis and fibrous histiocytoma^{4,5}. The aspiration cytology of such lesions reveals a hypocellular smear with bland appearing

spindle shaped cells having oval to elongated nuclei and variable cytoplasm. Few hyalinised collagenous fragments and myxoid substance can also be evident. The differential diagnosis of the tumour on aspiration cytology ranges from a reactive fibrous lesion secondary to an inflammatory process to a low grade malignant spindle cell mesenchymal neoplasm⁶. Although MRI is an useful radio imaging technique prior to surgery but a definitive diagnosis of FTS cannot be made on the basis of MRI characteristics which are non-specific^{3,6}.

Treatment consists of local excision with preservation of important anatomical structures. The excision of the tumour is difficult at times because of its adherence to tendinous structures and it is aimed to relieve symptoms in such cases. Prognostically, up to 24% of lesions recur months to years after diagnosis, sometimes repeatedly but non-destructively⁴. The higher rate of recurrence may be due to incomplete excision of the lesion. However, there is no evidence of its malignant transformation or mitosis. A correct diagnosis can be rendered in such cases based on clinical history, physical findings and cytological observations supported by radioimaging, which can always be confirmed on histopathology. The case being reported has two points in mind to discuss that fibroma of tendon sheath is uncommon in the palmar region of the hand in contrast to the fingers and the lesion could be diagnosed on cytology. The cytopathologists should be aware of this uncommon

clinicopathological entity which can always be differentiated from the other common lesions of hand based on the cytological appearance. This report also highlights the utility of fine needle aspiration cytology as an important diagnostic tool in cases of soft tissue tumours of hand.

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References

1. Farshid G, Bridge JA. Fibroma of tendon sheath. In pathology and genetics of tumour of soft tissue and bone. Eds. Fletcher CDM, Unni KK, Mertens F. IARC Press Lyon 2002 Pg. 66.
2. Weiss W S, Goldblum J R. In : Enzinger and Weiss's Soft Tissue Tumors. Mosby Elsevier, Philadelphia 5th edition 2008 pp203-206.
3. Athwal GS, Beuno RA, Bansal M, Mintz DN, Athanasian EA. Intra-articular fibroma of tendon sheath involving the scaphohamate and radiocarpal joints. Skeletal Radiol 2006; 35 : 599-602.
4. Garrido A, Lam WL, Stenley PRW. Fibroma of a tendon sheath at the wrist. A rare cause of compression of the median nerve. Scand J Plast Reconstr Surgery. Hand Surgery 2004; 38 : 314-36.
5. Takakubo Y, Fukushima S, Asano T, Yamakawa M. Intraarticular fibroma of the tendon sheath in the knee. Clin Orthop Relat Res 2005; 439: 280-285.
6. Raab SS, Siulverman JF, McLeod DL, Benning TL, Geisinger KR. Fine needle aspiration biopsy of fibromatosis. Acta Cytol 1993; 37(3) : 323-328.

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