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TENOSYNOVIAL GIANT CELL TUMOR CASE REPORT AND REVIEW: ROLE OF FINE NEEDLE ASPIRATION CYTOLOGY (FNAC)

Pathology

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ABSTRACT

46 year old female patient presented with a single, slightly tender & mobile swelling over dorsum of the left hand close to wrist joint for last 4 months with a provisional clinical diagnosis of a cystic swelling. Fine needle aspiration cytology (FNAC) was performed and a diagnosis of teno synovial giant cell tumor was suggested. Histopathological examination of the resected specimen reaffirmed the diagnosis. We report this case highlighting the role of FNAC as a tool for early & preoperative diagnosis of tenosynovial giant cell tumor.

KEYWORDS

Tenosynovial giant cell tumor (TGCT), FNAC.

INTRODUCTION

Tenosynovial giant cell tumor (TGCT) is a group of rare, typically non-malignant tumors of the joints. TGCT tumors often develop from the lining of joints (also known as synovial tissue).[1] Common symptoms of TGCT include swelling, pain, stiffness and reduced mobility in the affected joint or limb. This group of tumors can be divided into different subsets according to their site, growth pattern, and prognosis. Localized TGCT is sometimes referred to as giant cell tumor of the tendon sheath. Diffuse TGCT is also called pigmented villonodular synovitis. Classification for TGCT encompasses two subtypes that can be divided according to site – within a joint (intra-articular) or outside of the joint (extra-articular) – and growth pattern (localized or diffuse) of the tumours. Localized and diffuse subsets of TGCT differ in their prognosis, clinical presentation, and biological behaviour, but share a similar manner of disease development.[2]

The localized form of TGCT is more common. Localized TGCT tumors are typically 0.5 cm-4 cm), develop over years are benign and non-destructive to the surrounding tissue and may reoccur in the affected area. The most common symptom is painless swelling. Localized TGCT most often occurs in fingers, but can also occur in other joints.

TGCT tumors grow due to genetic overexpression of colony stimulating factor 1. This causes colony-stimulating factor-1 receptor (CSF1R) cells to accumulate in the joint tissue. [3, 4] . TGCT can be diagnosed by magnetic resonance imaging (MRI), by biopsy, or during surgery. The disorder is difficult to identify and is often not diagnosed for years due to nonspecific symptoms or a general paucity of symptoms. TGCT cases are often misdiagnosed as osteoarthritis, localized trauma, sports injuries, xanthomas, or other conditions. One study of 122 diffuse TGCT patients found that the average delay in diagnosis was 2.9 years.[5] Pathologic analysis along with clinical and radiographic findings are generally required to achieve a definitive diagnosis. Histopathologic examination remains the gold standard investigation for the final confirmation. FNAC diagnosis helps to recognize the lesion early.

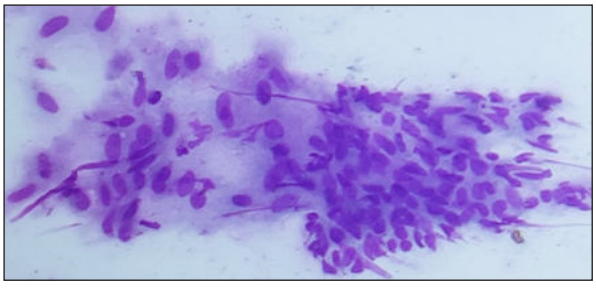
Aspiration cytology has an advantage that it helps in early and preoperative diagnosis and can be performed at outpatient department without any serious complications. We report a clinically suspected case in a 46-year-old patient. The initial clinical suspicion being a cystic swelling.

Case Report

A 46 year old female patient presented in the outpatient clinic with a single, slightly tender & mobile swelling over dorsum of the left hand close to wrist joint for last 4 months with a provisional clinical diagnosis of a cystic swelling. There was no prior history of trauma, inflammation, or any other known significant disease. Local examination revealed single, slightly tender, and firm to hard swelling ranging in size from 2 to 3 cm in diameter almost fixed with underlying tissues over dorsum of the left hand. On clinical examination of both the wrist & other joints did not reveal any other significant abnormality. A provisional clinical diagnosis of ganglion was made and a FNAC of the lesion was planned.

FNAC was performed using a 23-gauge needle with 10 ml syringe and scant blood mixed aspirate was obtained. Three smears were prepared, air dried and fixed with methanol. Now these fixed smears were stained with Giemsa stain. FNA smears showed plump to spindle shaped cells along with few giant cells. (Figure-1). Hence a diagnosis of tenosynovial giant cell tumor was suggested.

Later on surgical excision was performed for confirmation. Histopathological examination of the resected specimen reaffirmed the diagnosis. We report this case highlighting the role of FNAC as a tool for early, cost effective & preoperative diagnosis of Tenosynovial Giant Cell Tumor.



(Figure-1)

DISCUSSION

TGCT is more common among women than men, and commonly affects age group between 30 to 50 years [6]. TGCT is histologically comprised of multinucleated giant cells, polyhedral histiocytes, hemosiderin and fibrotic material [7,8].

In 1941 Jaffe described TGCT as a non-neoplastic reaction. He described pathology of TGCT as pigmented villonodular synovitis, bursitis, and tenosynovitis. [9]

A secreted hematopoietic growth factor also known as macrophage colony stimulating growth factor (CSF 1) plays important role in proliferation, differentiation and survival of macrophages, monocytes.it is believed to have oncogenic role in TGCT [10].

High levels of expression of receptor CSFR1 (it is a group 2 receptor kinase) is found in the study using molecular technique, so there is a possibility of involvement of autocrine mechanism in neoplastic cells. However neoplastic cells account only 2-16% of cells, rest of the cells are activated by CSF 1 (produced by neoplastic cells) and form non - neoplastic inflammatory cells. This phenomenon is known as Tumor landscaping. [11]

According to Fotidias et al (2011) the giant cell tumor of the tendon sheath affects more often women, with a male to female ratio 1:1,47 and the mean age ranged from 30 to 50 years [12]. The most frequent tumor location is the index finger (29,7%). Other tumor sites are the thumb (12,9%), the long (24,6%), the ring (16,8%) and little (16%) fingers[13]. In order to say whether tumor is solid or cystic, or if any satellite lesions are present, we use sonography, it is also used to check the relationship of lesions with surrounding structures.[14]

CONCLUSION

Fine needle aspiration cytology (FNAC) is a technique that has proved as easy, non-traumatic, safe and without any serious complications especially in differentiation of benign and malignant lesions. According to the results of this study, FNAC of cystic lesions may be useful for early preoperative diagnosis as in solid lesions.

This case report highlights the significant role of cytology in the quick diagnosis of the tenosynovial giant cell tumor. The simplicity, cost-effectiveness, outpatient department procedure, rapid and reliable results are the further criteria promoting it to be a better option when compared with other expensive and time taking techniques.

Conflict of Interest: None

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