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GIANT CELL TUMOUR OF TENDON SHEATH OF FLEXOR TENDON OF INDEX FINGER: THE IMAGING FEATURES

Orthopaedics

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ABSTRACT

Giant cell tumour of tendon sheath (GCTTS) is slowly growing, painless, benign soft tissue tumour of unknown etiology commonly seen affecting the hands. Large joints are uncommonly involved. Due to its benign nature it may cause scalloping of the underlying bone. Sonography helps to differentiate this lesion from ganglion cysts which are the most common lesions of the hands and feet. Clinical and imaging features are important for the diagnosis and surgical planning to completely excise the tumour which may prevent the recurrence. I report a case of twenty six years old male patient with classical features of GCTTS. The aim to report this case is to sensitize the clinicians and radiologists about the imaging features of this tumour which may be helpful in the diagnosis and surgical planning.

KEYWORDS

GCTTS, flexor, tendon, tumour, benign.

INTRODUCTION

Giant cell tumour of the tendon sheath (GCTTS) is one of the benign soft tissue tumours involving the hand. This tumour is thought to be of unknown aetiology seen arising from the tendon sheath and also referred as focal pigmented villonodular synovitis (PVNS). This lesion usually involves the volar aspect of the first three digits (1) and less commonly affects the wrist. It is divided into localized form and diffuse form. The localized form is benign and involves the hands and fingers, whereas diffuse form is more aggressive and usually occurs in large joints (2). These tumours typically present as solitary nodules on a single digit. The reported case revealed the classical features of GCTTS of the index finger.

Case Study

A 26-year-old male patient presented in the orthopaedic outpatient department of a tertiary healthcare centre with the chief complaints of swelling over the volar aspect of the right index finger for past 1½ years. No history of previous trauma or thorn prick was found. The swelling increased gradually in size and caused little discomfort in day-to-day and household activities. Examination revealed ~2 cm × 1.5 cm firm swelling situated on the volar aspect of the right index finger over the middle phalanx (Fig.1). There was no local rise of temperature or involvement of the skin. Swelling was well defined, of firm consistency with smooth surface. Its mobility along the finger was limited however, the swelling moved with the movement of the finger. The blood investigations were within normal limits.

Imaging Features:

X-ray of the hand showed localized soft tissue shadow over the middle phalanx of right index finger (Fig. 2). This has caused scalloping of the middle phalanx of right index finger at its radial aspect. For further workup MRI was done. On MRI there was a lesion measuring ~ 1.8x1.3cm encasing the tendon of the flexor digitorum profundus. It showed isointense signal in T1WI and hyperintense signal in T2WI & STIR images. On post contrast T1W FAT SAT images, the lesion showed strong enhancement (Fig.3). The surgical excision of the lesion was done and diagnosis of the giant cell tumour of tendon sheath was confirmed on histopathology.

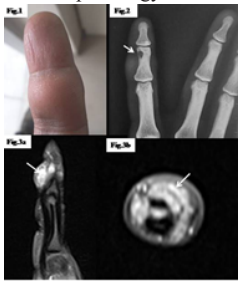

Fig. 1 shows the soft tissue swelling at the middle phalanx of the index finger of right hand. Fig.2 shows the underlying scalloping of middle phalanx (white arrow). Fig 3a (sagittal) and 3b (axial) post contrast T1 Fat Sat images are showing enhancement of the lesion and encasement of the flexor tendon (white arrows).

DISCUSSION

Soft tissue lesions of the hand are commonly encountered in the routine clinical practice.

However, most of these soft tissue lesions in the hand are benign (3). GCTTS is one of these soft tissue lesions which commonly affects the hands and feet. It is slow growing benign soft tissue tumour and usually presents as a firm, multilobular, non-tender mass located adjacent to the tendon sheath synovium. It commonly affects individuals aged 30–50 years with slight females predominance (4,5). Imaging is often required to determine the nature of the lesion and to look for the anatomical relationship with adjacent structures. Plain radiography has limited utility however, is useful in detection of the underlying bony changes and demonstrating calcification within lesion. The GCTTS causes scalloping of the underlying bone due to prolonged pressure by the lesion , however the erosion destruction of bone is typically absent given to its benign nature. Sonography is the cost effective modality to differentiate GCTTS from ganglion cysts which are the most common benign lesions of hand. However, Magnetic resonance (MR) is the imaging modality of choice as it can accurately characterise the lesion and reveal the anatomical relation to the surrounding tissues due to its high contrast and spatial resolution. On MRI GCTTS is seen in close relation to joints and tendons, predominantly of low signal on T1WI and of intermediate to slightly high signal on T2WI as seen in the reported case. The susceptibility artefact seen on GRE sequence is typical because of haemosiderin deposition and this is a clue to the diagnosis (6). Strong enhancement is seen on post contrast images because of the presence of numerous proliferative capillaries in the collagenous stroma as revealed in the present case. The surgical excision of the tumour is curative, however follow up should be done to manage any recurrence. Therefore, to conclude the GCTTS should be kept as differential diagnosis of the painless soft tissue tumours of hand and imaging should be obtained to assess the exact anatomical relation. This may be helpful in complete excision of the lesion and to prevent the recurrence.

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