MRI AND US APPEARANCE OF AN INTRAMUSCULAR MYXOMA: A CASE REPORT

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ABSTRACT

The author reports a case of an intramuscular myxoma of the left shoulder of a middle-aged woman and discussion of the MRI and US appearance of the lesion as well as the radiological differential diagnosis.

INTRODUCTION

Myxoma is a mesenchymal tumor composed of stellate-shaped cells in an abundant myxoid matrix.[1] The most common type of myxoma is cardiac myxoma while extracardiac soft-tissue myxoma is much rarer and mostly occur in the muscles of the thigh and shoulder girdle.[1,9] These intramucular myxomas have distinctive MRI features that distinguish them from all other types of masses except cystic myxoid liposarcomas, which can be problematic.[3,9]

CASE REPORT

A 42-year-old woman came to the hospital with a lump in her left shoulder that she had had for two months. It was slightly painful. Physical examination showed an ill-defined mass in the proximal part of the left arm, not fixed to the underlying tissues. There were no skin changes. A plain film of the left humerus was normal. Magnetic resonance imaging was performed using a 1.5 Tesla scanner, with the following pulse sequences: 1) a spin-echo T1-wt. pulse sequence with TR/TE 500/8Fr; 2) a dual-echo fast-spin-echo PD- and T2-wt. pulse sequence with TR,TE1, and TE2 values of 3000,14, and 84 repectively ; an echo train length of 8 echoes; and fat saturation. The sections were in axial and coronal planes, with 4-5mm. thickness and 1mm. skip, without enhancement by contrast medium. Ultrasonography of the lesion was also done after the MRI examination.

The MRI study showed an oval well-circumscribed mass in the left upper arm, arising and embedded in the distal portion of the deltoid muscle. It had a homogenous low T1 signal intensity, much lower than that of the muscle, and appeared uniformly very bright on fat-saturated FSE PD- and T2-wt. images resembling a cystic lesion, (Fig.1 and 2). It measured approximately 2.0 x 1.4 x 2.5 cm. and displaced the surrounding muscular bundles, without evidence of invasion. There was no involvement of the adjacent bony structure. Ultrasonographically, the lesion was an oval well-marginated and anechoic with posterior enhancement, surrounded by muscles (Fig 3).

The tumor was excised; the histopathological diagnosis was myxoma.

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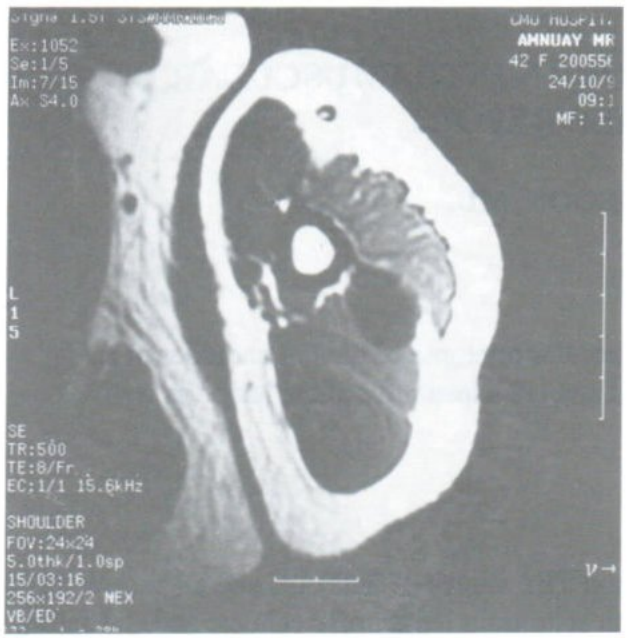

Fig. 1 Axial T1-wt. image of the left upper arm shows an oval mass with very low homogenous T1-signal-intensity, and good margination, embedded in the distal portion of the deltoid muscle.

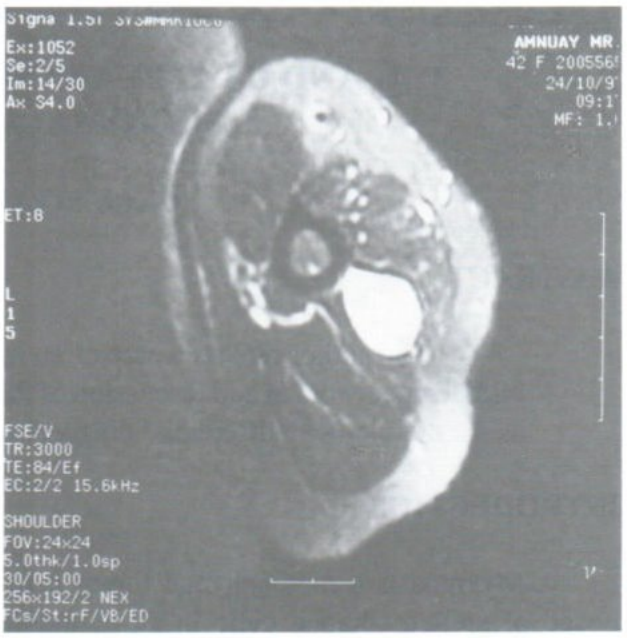

Fig. 2 Axial fat-saturated FSE T2-wt. image, at the same location as Fig 1, reveals a uniformly very bright tumor.

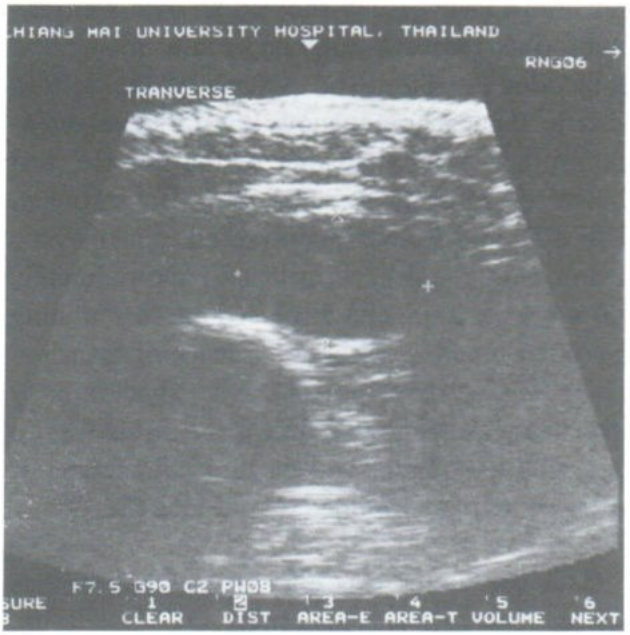

Fig. 3 An ultrasonographic axial image of the lesion depicts it as an anechoic mass with posterior enhancement in the lateral portion, whereas posterior to the medial portion of the mass, there is curvilinear high echogenicity of the humeral shaft.

DISCUSSION

Intramuscular myxomas are rare benign tumors arising in the skeletal muscles, usually in the shoulder or thigh.[1,7,9] The lesion in our case was in the shoulder, especially in the deltoid muscle. The age of patients with these tumors ranges from the fouth to the seventh decade , with females predominating slightly,[1,7,9] as in our case. Histologically, the tumors consist of fibroblast-like, histiocyte-like and myofibroblast-like cells in a myxoid matrix.[9]

The MRI appearance of the lesion in our case was typical of intramuscular myxomas, which show homogenous low T1 and bright T2 signal intensity with well-circumscribed borders.[1,5,7,9] Actually the signal intensities described resemble those of cystic lesions, since fluid and myxoid tissue have the same signal patterns.[1,3] The ultrasonographic findings of the tumor in our case were also the same as those of cystic lesions.

Other lesions with these MRI charateristics are cystic lesions, such as synovial cysts, intramuscular ganglion cysts, and cysticercus cellulose.[1] Synovial cysts occur at the sites of various bursae, which have specific locations relative to the joint. Ganglion cysts may be located near joints or may occur at various other locations, at varying distances from the joint capsule. Demonstration of a small connection between an intramuscular cyst-like lesion and the adjacent joint can confirm the diagnosis of an intramuscular ganglion; however this finding is not consistently detected in every ganglion cyst.[10] Gadolineum enhancement may be useful in differentiating intramuscular myxomas from other cystic lesions, as the tumors may show increased signal intensity nonuniformly.[1,5] Acute hematoma can have tha same signal intensity pattern but the clinical signs and symtoms are totally different[1]. Solid tumors that may mimic intramuscular myxomas in MRI appearance are schwannomas and malignant tumors with myxoid degeneration, but usually these tumors have[1] T1 signal intensity equal to or greater than muscle and[2] inhomogenous T2 signal intensity,[1,2,3] and most malignant tumors usually show regions of poor margination, in contrast to the well-circumscribed borders of intramuscular myxomas.[2] As for myxoid liposarcomas, which tend to appear more homogenous on both T1 and T2-wt. images, a majority of them still show mild heterogeneity, possibly with some linear or lacy fatty foci within the tumors, but a minority of the tumors may appear as benign purely cystic masses, with very long T1 and T2 relaxation times and sharply marginated borders, indistinguishable from other benign cystic lesions.[3,4]

The ultrasonographic appearance of our case was typical of cysts. Ganglion cysts or synovial cysts should be considered in differential diagnosis, especially when they are located near joints. Solid masses that ultrasonographically resemble cystic lesions are schwannomas, which can be hypoechoic with posterior enhancement.[8]

An association between intramuscular myxoma and fibrous dysplasia has been reported in both monostotic and polyostotic forms.[1,9] The tumors tend to occur predominantly in the latter form where they are found adjacent to the severely affected bones, sometimes in multiple. No features of fibrous dysplasia were detected in our patient.

Caution is necessary in interpretation of percutaneous needle aspiration or needle biopsy results of myxoid neoplasms, since some malignant tumors could be diagnosed as intramuscular myxomas.[5,6,7] The MRI appearance of the lesion may assist in the correct diagnosis of an intramuscular myxoma when the lesion is well-circumscribed, arises in the muscle and has uniformly decreased T1 and increased T2 signal intensity as well as inhomogenous contrast enhancement.[5] Otherwise a malignant myxoid tumor should be considered, but even if the above criteria are fullfilled, a possibility of misdiagnosing a cystic myxoid liposarcoma as an intramuscular myxoma still remains and the correct diagnosis can be reached only after excisional biopsy.[3,7,9]

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