

Evaluation of soft tissue tumors by MRI in Telangana population

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Abstract

Background: MR Imaging has become established as an important cross sectional study to evaluate soft tissue tumors.

Method: 85 patients having soft tissue were made to MRI examination 1.5 T Philips Achiva MRI scanner using a surface coil with size of location of lesion. Axial T₁, T₂, STIR, T₂ sagittal and coronal STIR were performed. **Results:** 25 (29.4%) had lipoma, 12 (14.1%) Benign myofibroblastic proliferation, 10 (11.7%) Fibromatosis, 2 (2.35%) Lymphangioma, 3 (3.52%) glomus tumor of middle finger 11 (12.9%) nerve sheath tumor, 8 (9.41%) malignant fibrous histiocytoma, 6 (7.05%) synovial sarcoma, 6 (7.05%) fibro sarcoma 2 (2.35%) had liposarcama, malignant tumor in lower limbs were 2 (2.35%) left LL, 4 (4.70%) right LL malignant fibrous histiocytoma, 4 (4.70%) in left LL, 2 (2.3%) in right LL synovial sarcoma, 1 (1.17%) left LL, 4 (4.70%) in left LL fibro sarcoma, 1 (1.17%) in left LL, 2 (2.35%) in right LL was observed.

Conclusion: This perspective study will be useful to evaluate role of MRI in characterizing the soft tissue tumors with histo-pathological findings so that further spreading of malignancy can be prevented and treat the patients efficiently.

Key Words: Benign, Malignant, Sigma GE MRI, LL = Lower limb.

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INTRODUCTION

MRI images are currently considered superior to CT for imaging soft tissue tumors^{1,2} soft tissue sarcomas (STS) can arise almost anywhere in the body. Various types of STS include malignant fibrous histiocytoma, liposarcoma, synovial sarcoma, angiosarcoma, etc. Imaging is required to confirm the clinical diagnosis, to delineate the extent and for staging MRI provides superior soft tissue contrast, allows multi-planar image acquisition, obviates iodinated contrast agents and ionizing radiation and is divided of streak art crafts commonly encountered with CT³. Local

staging is best accomplished using MRI, which can accurately depict the anatomic spaces and structures involved by tumor⁴. Hence to evaluate the soft tissue tumors of both extremities were visualised to know the staging of malignancies.

MATERIAL AND METHODS

85 patients aged between 8-70 years referred to Radiology department of Medciti institute of Medical Sciences, Ghanpur, Medchal-501401. (Telannaga) were studied.

Inclusion Criteria: Clinically suspected to have soft tissue tumors involving extremities were selected for study.

Exclusion Criteria: The patients having venous Malformations hemangiomas, intravenous malformations, soft tissue tumors not involving extremities. HIV positive patients were excluded for the study.

Procedure: Every patients was made to be in supine position and MRI examination were done with 1.5 T Philips Achiva MRI scanner using a surface coil with size of the coil dependent on the size and location of the lesion. Axial T₁, T₂, STIR, T₂ sagittal and coronal STIR are performed. For optimal sagittal to noise ratio and spatial

resolution, MR imaging examinations are performed with the smallest coil that fits tightly around the body part being studied while covering the entire lesion. Images are obtained 3- to 10 mm collimation; a 1- to 2-mm inter space gap to reduce cross – talk between consecutive section, one to two acquisitions; a 192 x 256 matrix (or 256 x 256 if more detail is desired) and the smallest field of view possible. Thinner slice (3 to 5 mm) is preferred for the evaluation of small lesions and through areas of maximum interest, where thicker slices (6 to 10 mm) are used for a general survey of larger lesion or entire extremity. The duration of study was September 2018 to July 2020.

Statistical analysis: Types of benign and malignant tumors were segregated and classified with percentage. The analysis was done SPSS software. The ratio of male and females were 2:1.

Table-1: Study of various soft tissue tumors – 25 (29.4%) had lipoma, 12 (14.1%) had Benign myofibroblastic proliferation 10 (11.7%) had Fibromatosis 3 (3.52%) had glomus tumour of middle finger, 11 (12.9%) nerve sheath tumour. 2 (2.35%) had lymphangioma, 8 (9.41%) had malignant fibrous histiocyoma, 6 (7.05%) synovial sarcoma, 6 (7.05%) fibrosarcoma, 2 (2.35%) had well differentiated liposarcoma.

Table-2: Study of malignant tumors in lower limb – 2 (2.35%) in left-lower limb, 4 (4.70%) right lower limb, (LL) of malignant fibrous histiocyoma was observed, 4 (4.70%) synovial sarcoma in left LL and 2 (2.35%) in right LL.

1 (1.17%) of fibro sarcoma in left LL and 4 (4.70%) in right LL.

1 (1.17%) well differentiated liposarcoma in left LL, 2 (2.35%) in right LL.

OBSERVATION AND RESULTS

Table 1: Study of various soft tissue tumors/ with percentage

Sl. No	Type of tumour	No. of patients (85)	Percentage (%)
1	Lipoma	25	29.4
2	Benign myofibro blastic proliferation	12	14.1
3	Fibromatosis	10	11.7
4	Glomus tumour of middle finger	3	3.52
5	Nerve stealth tumour	11	12.9
6	Lympho angioma	2	2.35
7	Malignant fibrous histiocyoma	8	9.41
8	Synovial sarcoma	6	7.05
9	Fibro sarcoma	6	7.05
10	Well differentiated liposarcoma	2	2.35

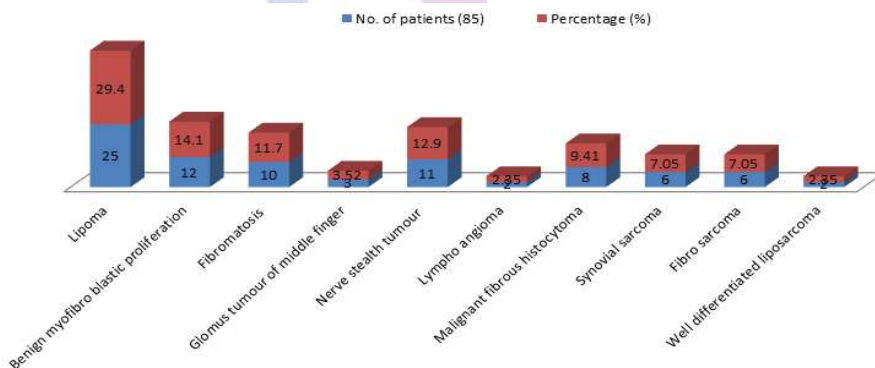


Table 1: Study of various soft tissue tumours with percentage

Table 2: Study of Malignant tumors in lower limbs

Sl. No	Malignant Tumours	Left Lower limb	Right lower limb
1	Malignant Fibrous histiocyoma	2 (2.35%)	4 (4.70%)
2	Synovial Sarcoma	4 (4.70%)	2 (2.35%)
3	Fibro sarcoma	1 (1.17%)	4 (4.70%)
4	Well differentiated liposarcoma	1 (1.17%)	2 (2.35%)

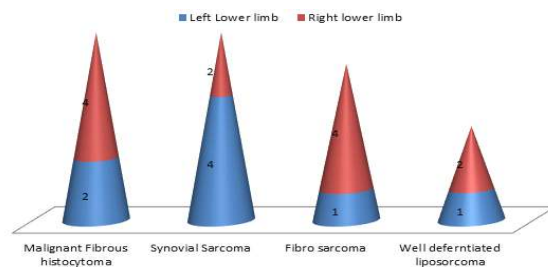


Table 2: Study of Malignant tumours in lower limbs

DISCUSSION

The present study of Evaluation of soft tumors by MRI in Telangana population, 25 (29.4%) lipoma, 12 (14.1%) benign myofibroblastic proliferation, 10 (11.7%) Fibromatosis, 3 (3.52%) glamus tumour of middle finger 11 (12.9%) nerve sheath tumor, 2 (2.35%) lymphangioma, 8 (9.41%), 6 (7.05%) synovial sarcoma, 6 (7.05%), 2 (2.35%) well differentiated liposarcoma (Table-1). Malignant tumors in lower limb, (LL) were 2 (2.35%) right LL, 4 (4.70%) had malignant fibrous histocytoma, 4 (4.70%) in left LL, 2 (2.35%) in right LL synovial sarcoma, 1 (1.17%) in left LL, 4 (4.70%) in right LL had fibrosarcoma, 1 (1.17%) in left LL, 2 (2.35%) in right LL had well differentiated liposarcoma (Table-2). These findings were more or less in agreement with previous studies^{5,6,7}. For any given mass regardless of cause, margins were typically better defined on T₂ – Weighted image. Benign and malignant causes were not readily distinguished on the basis of margins⁸. The over whelming majority of both benign and malignant lesions displayed intensity equal to less than that of *skelet al.* muscle on T₁ weighted pulse sequences on the other hand malignant tumors including synovial sarcomas, soft tissue myxoid chondro sarcomas, neurofibrosarcoma, had signal intensity was T₂ approximating that of sub-subcutaneous fat. Hence no unique features have been identified to reliably distinguish benign or malignant soft tissue lesions⁹. It was also reported that, benign soft tissue lesions may appear on MRI as poorly defined but it remained controversial in many cases. But in the case of fatty tumours were found to be intramuscular lipomas in which the fatty elements predominated, although the tumor was inhomogeneous on MR because of inter spread regions of decreased signal on both pulse sequences. Hence benign fatty tumors are easily identified on both CT and MR¹⁰. Sub acute hemorrhages were diagnosed easily because of high signal intensity on both T₁ and T₂ weighted pulse sequences.

SUMMARY AND CONCLUSION

MR of benign fatty tumors, Pigmented villonodular synovitis, haemangioma and hematomas can be quite characteristic images, although not pathognomonic. There are no reliable criteria to distinguish the MR images of malignant from benign soft tissue tumors or tumor like masses. The MR images only reflect underlying lesion morphology like fat content, hemosiderin deposition, cyst formation, haemorrhage etc but not the specific histology. Hence histo-pathological reports can only confirm the diagnosis.

This research work was approved by ethical committee of MediCii institute of medical sciences, Ghanpur Medchal – 501401. (Telangana)

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