



## Spectrum of soft tissue tumours in rural area of Telangana

Vani Tellapuram<sup>1</sup>, Sirisha Ommi<sup>2</sup>, Vijay Sreedhar Veldurthy<sup>3</sup>, Charan Paul<sup>4</sup>, Narsing Rao. M<sup>5</sup>

Dept of Pathology, Bhaskar Medical College, Yenkapally(V), Moinabad(M), Rangareddy district, Telangana, pin: 500075. 1&2- Assistant Professor, 3-Professor & Head, 4- Associate Professor, 5-Professor

**Corresponding Address:** Dr. O. Sirisha, Assistant Professor, Dept of Pathology, Bhaskar Medical College, Yenkapally(V), Moinabad(M), Rangareddy district, Telangana, pin: 500075. Email: [psirisharaj@gmail.com](mailto:psirisharaj@gmail.com)

### Abstract:

**Introduction:** Soft tissue can be defined as non-epithelial extra-skeletal tissue of the body and is represented by the voluntary muscles, fat, and fibrous tissue, along with the vessels serving these tissues & the peripheral nervous system. The understanding of neoplasms of soft tissue has increased significantly, both from a histopathological and genetic point of view. **Objectives:** 1. To study the clinic-pathological spectrum of soft tissue tumours received in a tertiary care centre in telangana. 2. To analyse the frequency of various soft tissue tumours in rural area of Telangana. **Materials & Methods:** The present study included 104 cases of soft tissue tumours. Demographic parameters were analysed & spectrum of histopathological diversity was analysed. **Results:** Benign tumours constituted 88% of the cases. Lipomatous tumours were the most common histological type (47%) followed by vascular tumours (17%). Trunk was the most common site of malignant soft tissue tumours. **Conclusion:** Malignant tumours constituted only 12% of soft tissue tumours. Lipomatous tumours were the predominant histologic subtype.

**Key words:** extraskeletal, genetic, demography

### Introduction:

Soft tissue tumors are a highly heterogeneous group of tumors that are classified on a histogenetic basis according to the adult tissue they resemble [1]. The large majority of soft tissue tumours are benign, with a very high cure rate after surgical excision. Malignant mesenchymal neoplasms amount to less than 1% of the overall human burden of malignant tumours but they are life threatening and may pose a significant diagnostic and therapeutic challenge. The close interaction of surgical pathologists, surgeons and oncologists has brought about a significant increase in disease-free survival for tumours. Soft tissue sarcomas occur more commonly in males, but gender and age-related incidences vary among the histologic types. Soft tissue sarcomas may occur anywhere but three fourths are located in the extremities (most common in thigh) and 10 percent each in the trunk wall and retroperitoneum [2].

The aetiology of most benign and malignant soft tissue tumours is unknown. In rare cases, genetic and environmental factors, irradiation, viral infections and immune deficiency have been found associated with the development of usually malignant soft tissue

tumours [3]. With a few notable exceptions, histologic typing does not provide sufficient information for predicting the clinical course of a sarcoma and, therefore, must be accompanied by grading and staging information. *Grading* assesses the degree of malignancy of a sarcoma and is based on an evaluation of several histologic parameters, whereas *staging* provides short hand information regarding the extent of the disease at a designated time, usually the time of initial diagnosis. In the present study, we aimed at assessing the clinic-pathological correlation of various soft tissue tumours with the histopathological findings with addition of special tests wherever necessary.

### Materials & methods:

It is a prospective study conducted at Bhaskar Medical College, Moinabad during the period of October 2014 to September 2016. The total number of cases included in the study were 104. Clinical details of all the cases presenting to the Department of Surgery with soft tissue tumours were recorded and histopathology samples of the same were analysed at the department of Pathology. The samples included

both incisional & excisional biopsies. All cases presenting for the first time with a soft tissue tumour between the ages of 1 year to 70 years were included in the study. Morbid patients not willing for surgery and patients who refused surgery were excluded from the study. Tumours were grossed as per the standard grossing protocols and processed. Paraffin embedded-H & E stained sections were studied. Tests like special stains & Immunohistochemistry were applied wherever necessary.

### Results:

The present study included 104 cases in a period of 2 years at Bhaskar Medical College, Telangana. Age & Sex distribution, histological typing of soft tissue tumours, detailed distribution of the two most common types of soft tissue tumours were analysed. Males constituted 57% of the cases with a male: female ratio of 1.3 : 1. Benign tumours far outnumbered the malignant tumours (Benign – 92 & Malignant – 12). 24%(n = 25) of the cases were in the age group of 41 to 50 years. Only 2 malignant tumours were noted in the age-group of 11 to 20 years, both of which were diagnosed as Alveolar Rhabdomyosarcoma. 34%(n = 36) of the soft tissue tumours were located in the lower extremity. Highest number of malignant cases occurred in the trunk location. 47%(n = 49) were lipomatous tumours out of which 4 were malignant tumours followed by Vascular tumours – 17%(n = 18) out of which 2 were malignant tumours. Three cases of Malignant Peripheral Nerve Sheath Tumours were diagnosed out of which one patient had multiple neurofibromas as a predisposing factor. There was one case of angiosarcoma upper arm which occurred in a female patient with a past history of treatment to Carcinoma breast which was treated by radiation therapy.

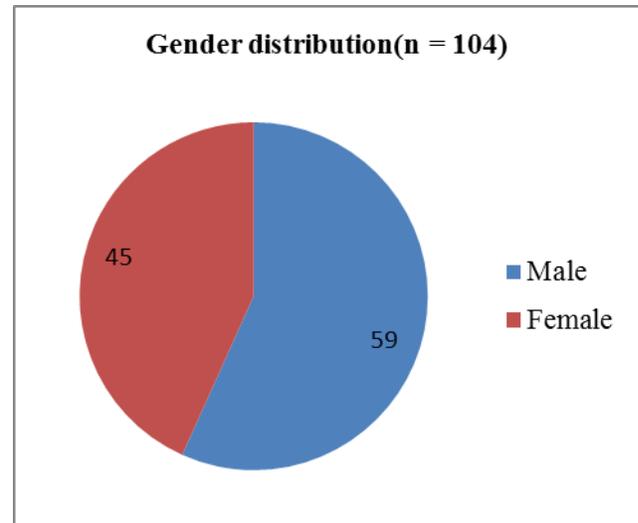


Figure 1: Gender distribution of soft tissue tumours(n = 104).

Males constituted 57% of the cases with a male: female ratio of 1.3 : 1.

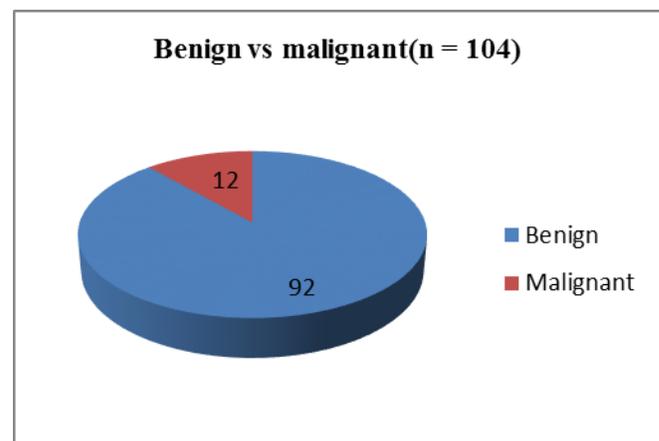


Figure 2: Ratio of benign and Malignant tumours

88% of the cases are benign soft tissue tumours.

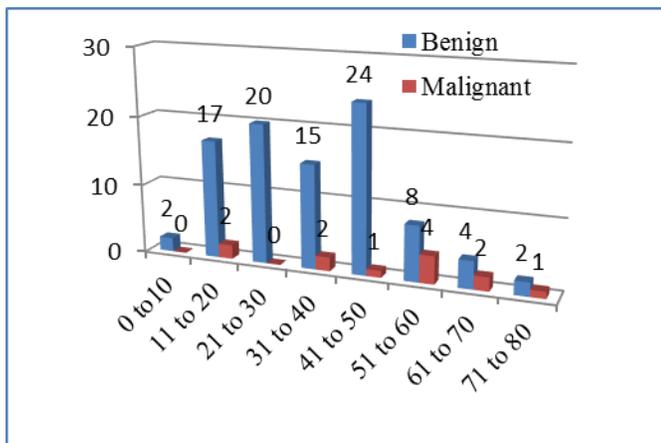


Figure 3: 24%(n = 25) of the cases were in the age group of 41 to 50 years. Only 33% of the malignant cases were seen below the age of 40 years.

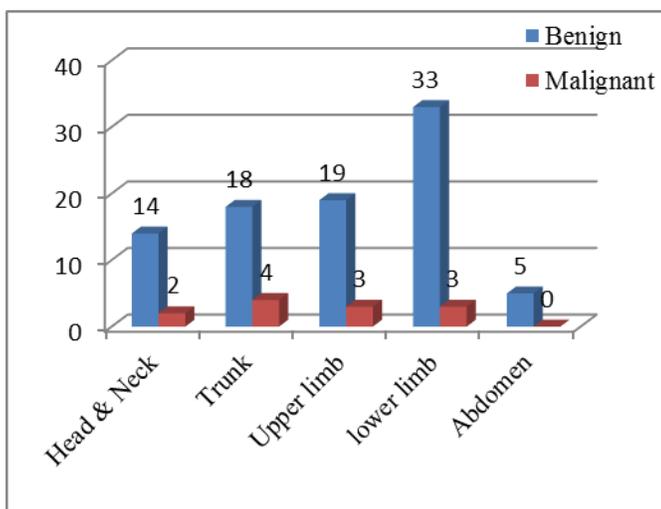


Figure 4: 34%(n = 36) of the soft tissue tumours were located in the lower extremity Out of which 33 cases were benign. 1/3<sup>rd</sup> of the malignant cases were located in the trunk.

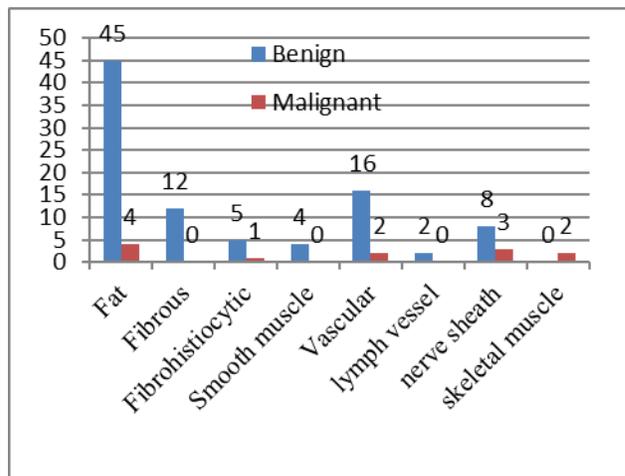


Figure 5: 47%(n = 49) were lipomatous tumours out of which 4 were malignant tumours followed by Vascular tumours – 17%(n = 18) out of which 2 were malignant tumours.

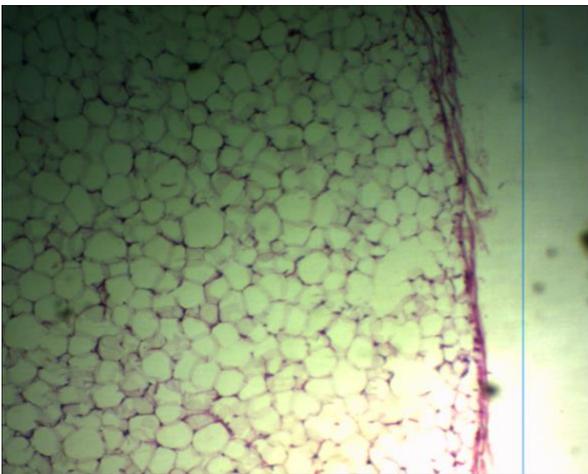
**Table 1:** Distribution of lipomatous and vascular tumours and their commonest site of occurrence.

Type of fat tumours	Number of cases	Common site
Lipoma	32	Upper limb
Fibrolipoma	8	Upper limb
Angiolipoma	3	Head & Neck
Myolipoma	2	Lower limb
Myxoid liposarcoma	2	Thigh
Dedifferentiated liposarcoma	1	Gluteal region
Pleomorphic liposarcoma	1	Thigh
Total	49	

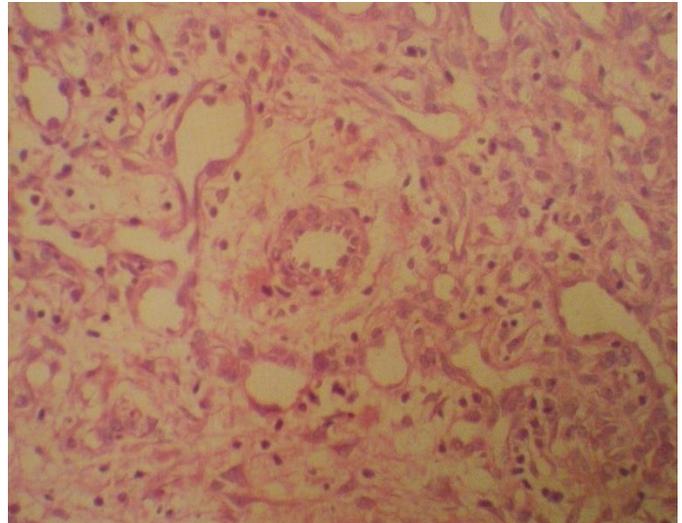
Types of Vascular tumours	Number of cases	Common site
Capillary hemangioma	9	Head & neck
Cavernous hemangioma	3	Upper limb
Mixed type	2	Upper limb
Intramuscular hemangioma	2	Head & Neck
Hemangioendothelioma	1	Upper limb
Angiosarcoma	1	Arm
Total	18	



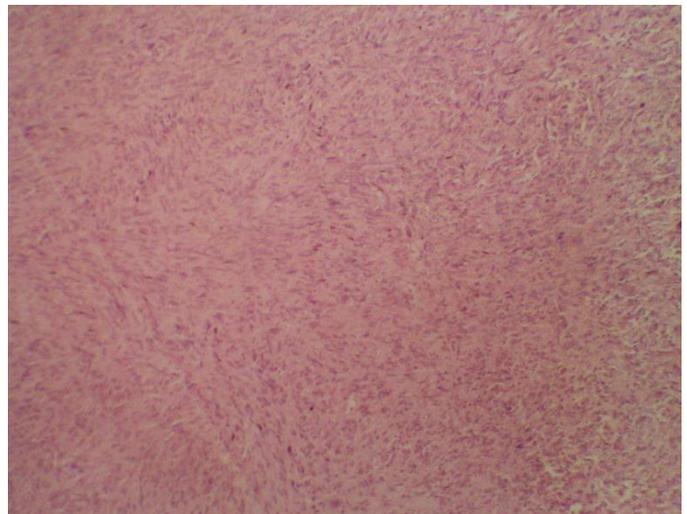
**Figure 6a: Gross picture of Lipoma – yellowish, capsulated mass.**



**Figure 6b: Photomicrograph of Lipoma showing mature adipocytes in sheets surrounded by a capsule.**



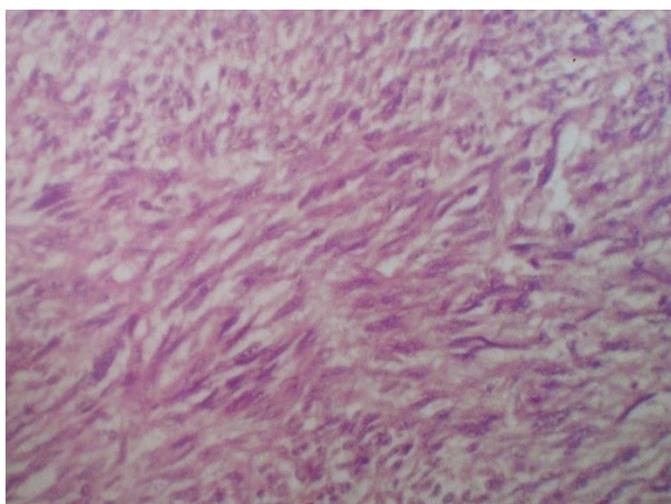
**Figure-7a: Photomicrograph of Capillary hemangioma showing tumour composed of numerous blood vessels.(H&E,X200)**



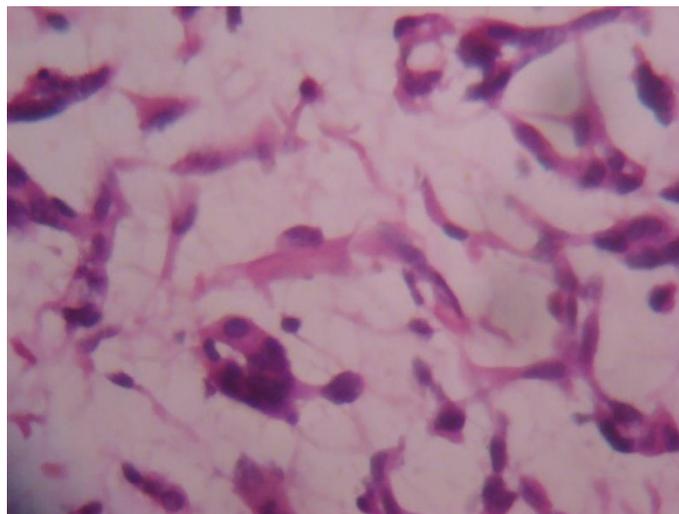
**Figure 7b: Photomicrograph of benign fibrous histiocytoma showing intersecting bundle of cells with foamy cytoplasm.(H&E,X100)**



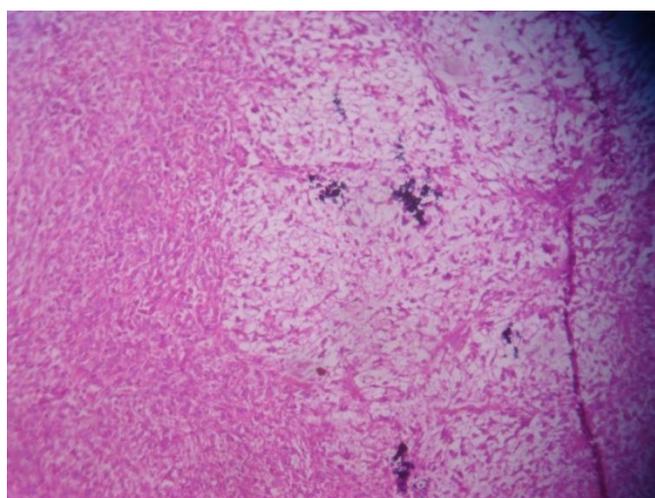
**Figure 8a: Gross picture of Malignant Peripheral Nerve Sheath tumour showing variegated appearance.**



**Figure 8b: Photomicrograph of Malignant Peripheral Nerve Sheath Tumour showing spindle cells with wavy, hyperchromatic nuclei & fibrillary cytoplasm.(H&E,X200)**



**Fig-9a: Photomicrograph of Myxoid Liposarcoma showing lipoblasts.(H&E,X400)**



**Figure 9b: Photomicrograph of Dedifferentiated Liposarcoma showing the abrupt transition between Liposarcoma component & the spindle cell component.(H&E,X100)**

#### **Discussion:**

The present study was conducted at Bhaskar Medical College, Telangana which mainly caters to the rural population of Rangareddy district of Telangana. 104 cases were included in the present study. The study aimed to describe the demographic distribution, histopathological spectrum of soft tissue tumours in rural area of Telangana on the basis of hospital data and compare it with other studies. There was a male predominance in our study with a male – female ratio of 1.3 : 1. The finding correlated with that of Subhash et al[4] in which the male – female ratio was 1.4 : 1 and also Krishnakanth et al[5], in which 54% of the cases were males. However Agravat et

al[6] reported a slight female preponderance in their study(m: f – 1.3: 1).

88% of the cases were proved to be benign soft tissue tumours in our study, which correlated with the findings of Agravat et al in which 86% of the cases were benign and Heerchandani et al[7] who noted 88% of benign lesions in their observations. In the present study, 24% of the cases were in the age group of 41 to 50 years, out of which only 1 case was malignant – diagnosed as Malignant Peripheral nerve Sheath Tumour. The next age group which showed higher number of benign cases was the age of 21 to 30 years - all of which were benign. In the study by Krishnakanth et al and Agravat et al, the same findings were observed. In the present study, 33% of malignant cases were seen in the age group of 51 to 60 years. The findings correlated with that of Subhash et al & Umarani et al[8]. Two cases of malignant soft tissue tumours were in the age group of 11 to 20 years, both of which were diagnosed as Rhabdomyosarcoma of the embryonal type – one in the head & neck region & the other in the genito-urinary tract. 2 cases of malignancy were seen in the age group of 31 to 40 years, out of which one was a Malignant peripheral nerve sheath tumour – the patient had multiple neurofibromas over the entire body and the other was a case of Malignant fibrous histiocytoma in a 38 year old male.

In the present study, lower limb was the most common site of presentation for benign tumours(35%) followed by upper limb(20%). Trunk was the most common site of presentation of malignant soft tissue tumours(50%). In the study by Abbas et al. study [9], 49% of the cases were located over extremities, 10% of the cases over head & neck region, 26% cases over trunk and 15% cases in retroperitoneum. In the study by Subhash et al, Upper extremities and head and neck were the most commonly encountered sites for benign soft tissue tumors, while the most common sites for malignant soft tissue tumors were lower extremities and abdomen.

In the present study, Lipomatous tumours were the most common histological type(47%) followed by Vascular tumours(17%). In the study by Ramnani et al, 50.8% of tumours were lipomas, vascular tumours constituted 17.5%. In the study by Agravat et al, 33% of the tumours were lipomatous tumours and 22% of the tumours were vascular tumours. In the present study, 4 malignant lipomatous tumours were studied out of which 2 were diagnosed as myxoid liposarcoma & 1 each was diagnosed as pleomorphic liposarcoma and dedifferentiated liposarcoma. One case of angiosarcoma was seen in

the present study – a 58 year old woman with history of radiation for breast carcinoma 6 years back. The other case of intermediate grade vascular tumour was a hemangioendothelioma. In the present study, 45/49 cases of lipomatous tumours were benign of which classic lipoma was the most common followed by fibrolipoma. In our study, 50% of the vascular tumours were capillary hemangiomas followed next by Cavernous hemangioma. Out of 3 cases of Malignant nerve sheath tumours, one had a history of multiple neurofibromas while the other two cases, it occurred *denovo*.

### Conclusion:

The present study is a first of its' kind in the Institute. In the present study, benign soft tissue tumours clearly outnumbered the malignant tumours. Lipomatous tumours were the most common subtype – be it benign or malignant. Predisposing risk factors were noticeable in angiosarcoma (radiation) & malignant peripheral nerve sheath tumour (neurofibromas).

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