



Original Research Article

Spectrum of soft tissue tumors: A two year clinicopathological study at tertiary level hospital

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ABSTRACT

Introduction: Soft tissue sarcomas account for less than 1% of overall human burden of malignant tumors. Our study was conducted in a tertiary care hospital in konaseema region to identify various histological patterns of the soft tissue tumors along with their relation to age, sex and site.

Materials and Methods: 215 cases of soft tissue tumors were analysed both retrospectively and prospectively for two years during January 2015 to January 2017. A careful histopathological examination was done with clinical correlation.

Results: In a span of two years, we received 215 soft tissue tumors, 179 cases (83.2%) were benign in nature, 18 (8.3%) cases were of intermediate grade malignancy and 18 (8.3%) were malignant. Males were affected more than females. The most common site was lower extremities.

Conclusion: A vigilant Histopathological examination using Hematoxylin and Eosin stain (H&E) with clinical correlation is still an important tool and gold standard in diagnosing various patterns of soft tissue tumors.

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1. Introduction

Soft tissue is a non-epithelial supporting tissue which includes fat, fibrous tissue, muscle, vessels and peripheral nerves. These are mesodermal in origin with some contribution from neuro ectoderm.¹ The tumors of soft tissue are rare with varied types and histological patterns posing a challenge to the pathologist. Soft tissue tumors may arise from any location and can occur in all age groups of both sexes. A careful Histopathological examination with Hematoxylin and Eosin stain still holds the first and the best tool for diagnosing soft tissue tumors.

2. Materials and Methods

The study includes 215 cases of soft tissue tumors, which were received and analysed in the Department of Pathology at Konaseema Institute of Medical Sciences and Research Foundation, Amalapuram for a period of two years from

January 2015 to January 2017. Clinical history was taken. All the invasive and non-invasive diagnostic modalities and investigations undergone by the patient were recorded. A careful gross examination was done for all the specimens received. Tissue processing was done and sections were cut from the paraffin blocks and stained with Hematoxylin and Eosin.

3. Result

Out of the total 215 cases in our study, 179 cases were benign in nature, 18 cases were intermediate grade malignancy and 18 were malignant. The most common age was between second and fourth decades for benign tumors and fourth to sixth decade for the malignant lesions.(Table 1). The youngest age of presentation was 3yrs and oldest was 76yrs. In the present study, 55.8% (120/215) were males and 44.1% (95/215) were females (Table 2). The most common site was the lower extremities (Table 3).

We categorized the tumors based on the current WHO classification.² The most common tumors were lipomatous

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Table 1: Age wise distribution of soft tissue tumors

No. of years	Benign	Intermediate grade	Malignant	Total
0-20	15	0	4	19
21-40	78	5	4	87
41-60	73	11	6	90
61-80	13	2	4	19
Total	179	18	18	215

Table 2: Sex wise distribution of soft tissue tumors

Sex	Number of cases
Males	120 (55.8%)
Females	95(44.18%)
Total	215

Table 3: Site wise distribution of soft tissue tumors

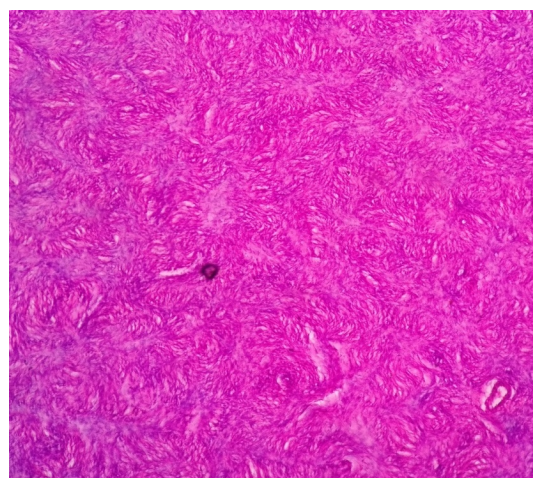
Site of lesion	Lower extremity	Upper extremity	Trunk	Head & neck	Other sites	Total
No. of cases	81	49	45	38	2	215
Percentage	37.6%	22.7%	20.9%	17.6%	0.93%	100%

tumors (n=108, 50.2%) followed by peripheral nerve sheath tumors (16.2%)

(Table 4). All were lipomas under the adipocytic tumor category. Schwannomas (n=19,8.8%) were most common benign tumors among the peripheral nerve sheath origin, followed by neurofibromas (5.58%). We diagnosed 3cases (1.39%) of Malignant peripheral nerve sheath tumors. 8.4% were fibrous tumors. Most of the fibromatosis cases were observed in females and most common site being trunk. Desmoid type fibromatosis is included under the locally aggressive type of intermediate grade malignancy, that requires excision with wide margins. The malignant tumors in this group were 2 cases (0.93%) of low grade fibromyxoid type fibrosarcoma and 2 cases of fibrosarcoma.

Out of the 19 cases (8.83%) of fibrohistiocytic tumors, 9 were benign, 6 were of intermediate grade malignancy (Dermatofibrosarcoma protuberance) and 4 were malignant. The Dermatofibrosarcoma protuberance is highly cellular and show spindle shaped cells arranged in storiform pattern and in fascicles (Figure 1) with extension into subcutis. The cells exhibit mild atypia and occasional mitotic figures. 2 cases (0.93%) of leiomyoma and 1 case of vascular leiomyoma were included under smooth muscle tumors. Among the vascular lesions, 8 cases (3.72%) of hemangiomas and 4 cases (1.86%) of glomus tumors were reported. The site for glomus tumors were phalanges of fingers and toes. 3 cases (1.39%) of Hemangiopericytoma were included under intermediate grade malignancy. 1 case of Masson's Hemangioma was reported in the spleen of a 26yr old male.

1 case of Biphasic Synovial sarcoma in the right thigh of a 28yr old male was included in the category of 'tumors of uncertain differentiation. 4 cases of

**Fig. 1:** Dermato fibrosarcoma Protuberance(H&E stain 10x)

Alveolar Rhabdomyosarcomas and 2 cases of Extraskkeletal chondrosarcomas were reported.

4. Discussion

The benign tumors were more common than the malignant ones in the present study. 83.2% were benign and intermediate malignant group and malignancy constitute 8.3% each. In a study conducted by Singh Harpal et al,³ 84.5% cases were benign, 10% cases were malignant and 5.5% were of intermediate grade, which correlated with our study. The median age in the present study was 41.3 years in correlation with Tatai et al⁴ study, in which the median age was 39.5years. In the present study the most common site was the lower extremities followed by upper

Table 4: Various histopathological patterns

Histopathology	No. of cases	Percentage
Fibrous tumors: 8.4%		
Fibroma	5	2.32
Fibromatosis	9	4.18
Low grade fibromyxoid type fibrosarcoma	2	0.93
Fibrosarcoma	2	0.93
Fibrohistiocytic tumors: 8.7%		
Benign fibrous histiocytoma	9	4.18
Dermato fibrosarcoma protuberens	6	2.7
Malignant fibrous histiocytoma	4	1.86
Lipomatous tumors: 50.2%		
Lipoma	108	50.2
Smooth muscle tumors: 1.4%		
Leiomyoma	2	0.93
Vascular leiomyoma	1	0.46
Skeletal muscle tumors: 1.9%		
Alveolar Rhabdomyosarcoma	4	1.86
Tumors of blood vessels: 7.4%		
Hemangioma	8	3.72
Glomus tumor	4	1.86
Hemangiopericytoma	3	1.39
Masson's hemangioma	1	0.46
Synovial tumors: 3.7%		
Tenosynovial giant cell tumor	7	3.25
Synovial sarcoma	1	0.46
Peripheral nerve sheath tumor: 16.3%		
Neurofibroma	12	5.58
Schwannoma	19	8.83
Neurothekeoma	1	0.46
Malignant peripheral nerve sheath tumor	3	1.39
Lymphangioma: 0.9%		
Lymphangioma	2	0.9
Extraskelatal osseous and cartilagenous tumor: 0.9%		
Chondrosarcoma	2	0.9
Total	215	100

extremity. In Enzinger¹ study, the most common site was lower extremity. According to Singh Harpal et al³ and Hassawi et al⁵ the most common benign tumor was lipoma. Parajuli and Lakhey⁶ observed lipoma followed by benign histiocytic tumors, while in our study adipocytic tumors were most common followed by peripheral nerve sheath tumors and fibroblastic tumors.

Under the category of benign lipomatous tumors, apart from conventional lipomas, our study includes the subtypes like spindle cell lipoma, Angiolipoma and Myolipomas. Spindle cell lipoma is a rare variant, occurring commonly on the shoulders and posterior neck, which can be mistaken for liposarcoma histologically.⁷ We encountered one case of spindle cell lipoma on the posterior scalp of a 50-year-old male. Histologically it shows mature adipocytes admixed with spindle cells and collagen bundles (Figure 2). Angiolipoma are also rare, shows mature adipocytes and capillary sized vessels with microthrombi (Figure 3). We reported three

cases of angiolipoma occurring on the forearm.

In malignant cases, Malignant fibrous histiocytoma and Rhabdomyosarcoma were the commonest tumors. Malignant fibrous histiocytoma (Figure 4) is highly pleomorphic with bizarre tumor cells, giant cells and atypical mitotic figures. It is the most common malignant soft tissue sarcoma in adults,⁸ involving predominantly the lower extremities. In recent update of WHO classification of soft tissue tumors, Malignant Fibrous histiocytoma was no longer used and included under the category of undifferentiated / unclassified sarcoma.⁹

Among the peripheral nerve sheath tumors, schwannomas were most common. These tumors are extremely rare in the pelvis and the retroperitoneal area.¹⁰ We report a case of schwannoma (Figure 5) arising in the ovary. There are only a few cases reported in the literature about schwannoma originating from the ovary.¹¹ Neurothekeomas are uncommon benign tumors of nerve sheath origin. We

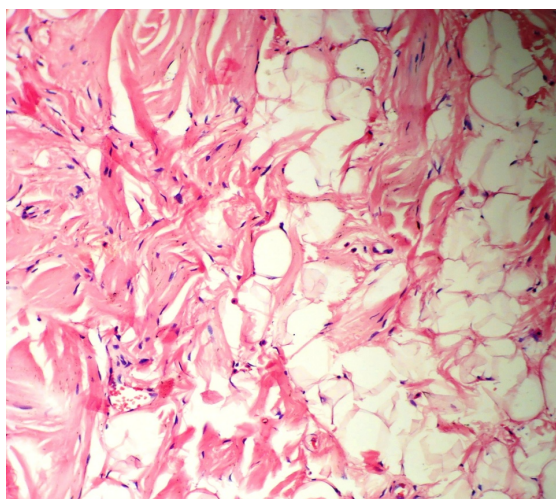


Fig. 2: Spindle cell lipoma (H&E stain 40x)

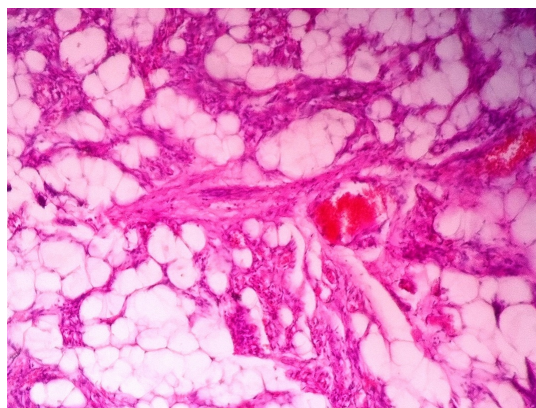


Fig. 3: Angioliipoma (H&E stain 40x)

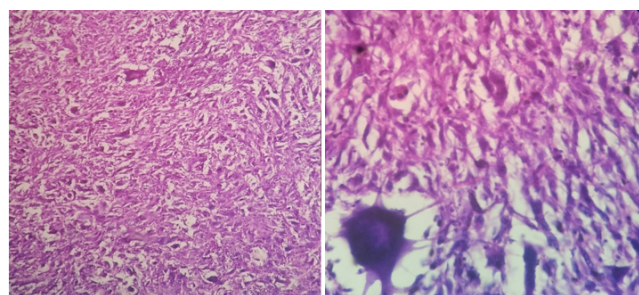


Fig. 4: Malignant fibrous histiocytoma (H&E stain) (A-10x, B-40x)

report a case of Neurothekeoma arising from left thumb in a 45yr old female.

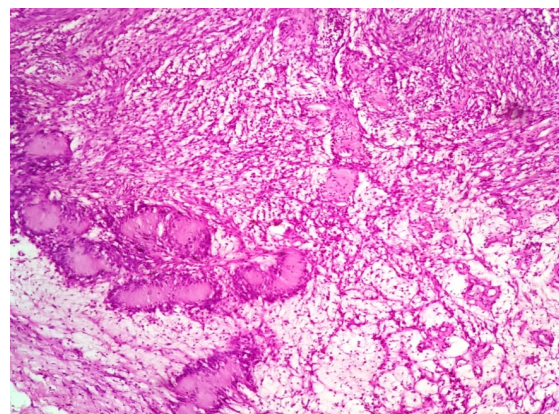


Fig. 5: Schwannoma showing verocay bodies (H&E stain 40x)

Masson's hemangioma, also called Intravascular papillary endothelial hyperplasia is a benign intravascular lesion resembling Hemangiosarcoma, identified by Masson in 1923 as a neoplasm characterized by endothelial proliferation. Many authors stated it as a reactive vascular lesion characterised by papillary proliferation of plump endothelial cells within a dilated vessel, without atypia with fibrin deposition. This lesion is rare in abdominal cavity.¹² We report a case of Masson's Hemangioma in the spleen (Figure 6) of a 26year old male.



Fig. 6: Gross and microscopic features of Masson's Hemangioma in spleen (H&E stain) (40x)

Synovial Sarcomas are rare soft tissue neoplasms. They occur in the extremities as a painless mass. We report a case of Biphasic synovial sarcoma in a 28yr old male in the right thigh. It shows both epithelial and stromal components. The epithelial component shows gland like areas (Figure 7). Extraskelatal chondrosarcomas exhibit a less aggressive behaviour than their skeletal counterparts.¹³ In the present study 2 cases of extraskelatal chondrosarcomas were reported.

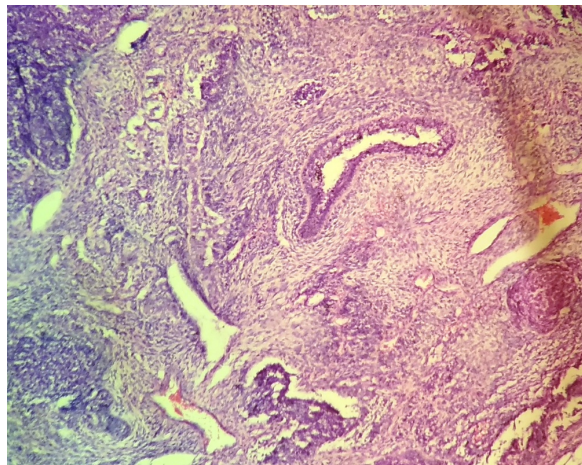


Fig. 7: Biphasic Synovial Sarcoma (H&E stain) (10x).

5. Conclusion

The soft tissue sarcomas are rare neoplasms which require careful gross and histopathological examination to arrive at a diagnosis. They exhibit various histological patterns and occur in different sites which pose a challenge to the pathologists. Histopathological examination with Hematoxylin and Eosin stain still holds the first and the best tool for diagnosing soft tissue tumors.

Benign tumors were more common than the malignant ones. Males are affected more than females in the present study.

6. Source of funding

None.

7. Conflict of interest

None.

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