IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 14, Issue 4 Ver. X (Apr. 2015), PP 74-80
www.iosrjournals.org

Histopathological Spectrum of Soft Tissue Tumors in a Teaching Hospital

Umarani M.K[1], Prima Shuchita Lakra[2], Bharathi M[3]
[1]*Associate Professor, Department of Pathology, Mysore Medical College and Research Institute, India*
[2]*Post graduate, Department of Pathology, Mysore Medical College and Research Institute, India*
[3]*Professor and Head of Department, Department of Pathology, Mysore Medical College and Research Institute, India*

Abstract
Background*: Soft tissue tumor is defined as mesenchymal proliferation that occurs in extra skeletal non epithelial tissue of the body excluding the viscera, covering of brain and the lymphoreticular system.*
Aims*:*
1. To study the histopathological features of soft tissue tumors.
2. To study the relative frequency of benign and malignant cases.
3. To estimate the age and sex distribution.
Method: *The present study comprised of all soft tissue tumors, received in the Department of Pathology. Retrospective study was undertaken for a period of 5 years starting from October 2009 to October 2014*
Result: *Benign soft tissue tumors constituted 92.2% of all the cases whereas malignant formed 5%. Soft tissue tumours in general had a slight male preponderance. The commonest benign tumor was adipocytic tumor and liposarcoma was the commonest malignant tumor.*
Conclusion: *The diagnosis and management of soft tissue tumours require a team perspective. A careful gross examination of the specimen and adequate sampling of the tumor is essential. Special stains, immunohistochemistry, electron microscopy, molecular genetic methods are helpful in addition to the routine Haematoxylin and Eosin for the proper diagnosis of soft tissue tumors.*
Keywords: *Benign soft tissue tumor, Malignant, Soft tissue tumor.*

I. Introduction

Soft tissue tumors are defined as mesenchymal proliferation, that occur in extraskeletal nonepithelial tissue of the body, excluding the viscera, covering of brain and lymphoreticular system.[1]Soft tissue tumors can occur at any age. Both benign and malignant soft tissue tumors commonly present as painless mass .They arise everywhere in the body, the most common locations being the extremities, trunk, abdominal cavity and head and neck region. [2] Soft tissue tumors have fascinated pathologists for many years because of the wide variety of tumors and histopathological similarities between some tumors with only subtle difference which is discernable on careful microscopic examination thus posing a diagnostic challenge to the histopathologist.

Objectives:
1. To study the histopathological features of soft tissue tumors.
2. To study the relative frequency of benign and malignant cases.
3. To estimate the age and sex distribution.

II. Materials And Methods

The present study comprised of all soft tissue tumors, both benign and malignant received in the Department of Pathology. Retrospective study was undertaken for a period of 5 years starting from October 2009 to October 2014. Detailed clinical data including history, clinical features, ultrasonography and radiological findings, and gross findings were taken from Histopathology record section. The blocks were recut and stained by routine Haematoxylin and Eosin (H&E) stain. Special stains like Periodic Acid Schiff (PAS) stain and Phosphotungstic acid-haematoxylin (PTAH) stain were used wherever necessary. They were further examined microscopically and categorized.

III. Observations And Results:

Total number of cases of soft tissue tumors during the period of study was 220, of which 204 were benign, 5 were intermediate type and 11 were malignant.

Table 1: Incidence of soft tissue tumors according to age and sex

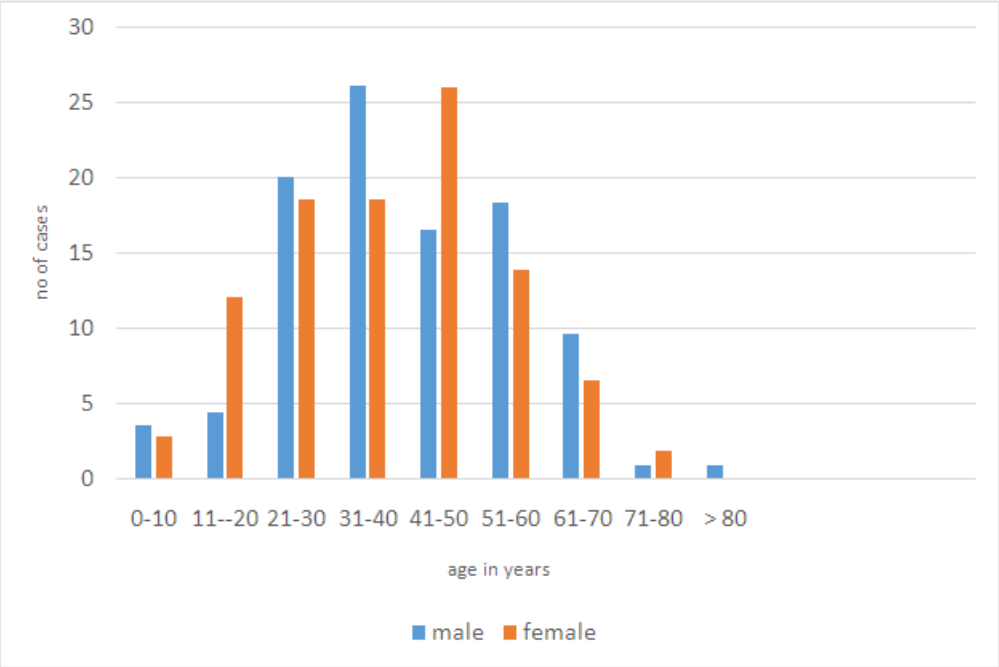


Table 2: Distribution of cases

	Benign	Intermediate	Malignant
Adipocytic tumors	123	01	03
Fibroblastic/Myofibroblastic tumors	06	03	00
So called Fibrohistiocytic tumors	01	01	00
Nerve sheath tumors	42	00	00
Vascular tumors	27	00	00
Pericytic/ Perivascular tumors	01	00	00
Smooth muscle tumors	02	00	01
Skeletal muscle tumors	01	00	02
Tumors of uncertain differentiation	00	00	04
Gastrointestinal stromal tumors	01	00	01
TOTAL CASES	204	05	11

Table 3: Distribution of benign cases:

	No of cases
Adipocytic tumors :	
Lipoma	114
Angiolipoma	04
Fibrolipoma	05
Fibroblastic / myofibroblastic tumors :	
Nodular fasciitis	02
Angiomyofibroblastoma	02
Cellular angiofibroma	02
So called Fibrohistiocytic tumors :	
Benign fibrous histiocytoma	01
Nerve sheath tumors :	
Schwannoma	26
Neurofibroma	16
Vascular tumors :	
Capillary haemangioma	18
Cavernous haemangioma	08
Intramuscular haemangioma	01
Pericytic / Perivascular tumors :	
Myofibroma	01
Smooth muscle tumors :	
Leiomyoma	02
Skeletal muscle tumors :	
Rhabdomyoma	01
Tumors of uncertain differentiation	00
Gastrointestinal stromal tumors	01

Adipocytic tumors were the commonest followed by nerve sheath tumors (Fig.1) and vascular tumors.

Among vascular tumors, one case of pure epidural cavernous haemangioma (Fig.2) was seen causing progressive weakness and loss of sensation in lower limbs and loss of sphincter control. In another case, a 17 year old female had deep seated swelling in the thigh which was excised and found histologically to be intramuscular haemangioma.

5 cases of intermediate type were seen**.**

Table 4: Distribution of intermediate cases

	No of cases :
Adipocytic tumors : Lipoma – like atypical lipomatous tumor	 01
So called fibrohistiocytic tumors : Dermatofibrosarcoma protuberans Solitary fibrous tumor	 02 01
Fibroblastic/ Myofibroblastic tumors : Tenosynovial Giant Cell Tumor-diffuse type	 01
Total cases	05

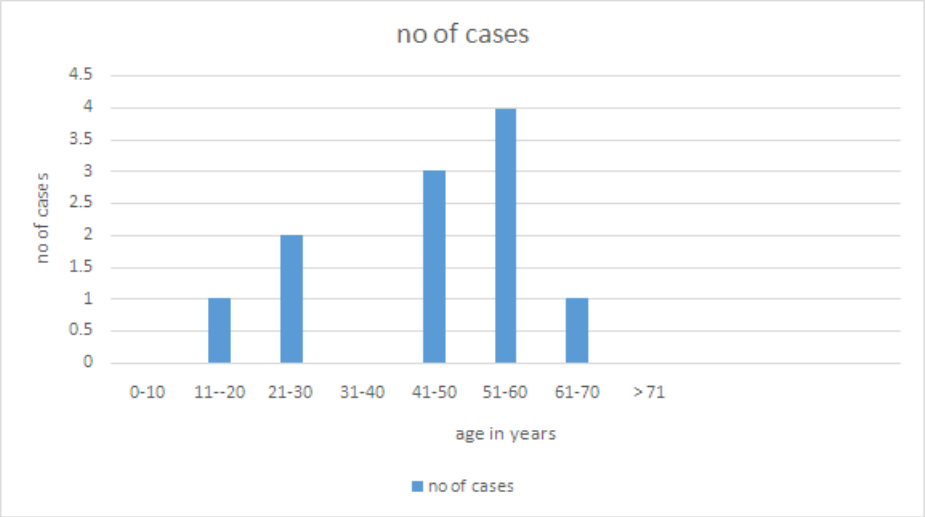
A 25 year old female had painless swelling in the right foot which was excised. On microscopy, a tumor composed of adipocytes of varying sizes , few mono and multivacuolated lipoblasts and scattered hyperchromatic stromal cells were seen. The diagnosis was Lipoma – like Atypical Lipomatous Tumor which is a locally aggressive tumor. There were two cases of Dermatofibrosarcoma Protuberans and one case of Solitary fibrous tumor which are of intermediate type.

A case of Pigmented Villo Nodular Synovitis presented as a slowly growing swelling in the right knee in a 45 year old male. Grossly it measured 12×11×10 cm. Microscopically it showed features of Tenosynovial Giant cell tumor- diffuse type.

Table 5: Distribution of malignant cases

	No of cases
Adipocytic tumors Liposarcoma	 03
Fibroblastic / Myofibroblastic tumors	 00
So called fibrohistiocytic tumors	00
Smooth muscles Leiomyosarcoma	 01
Skeletal muscles Rhabomyosarcoma	 02
Tumors of uncertain differentiation Extraskeletal Ewing sarcoma Synovial sarcoma	 02 02
Gastrointestinal stromal tumor	 01
Total cases	 11

Table 6 : Distribution of malignant cases according to age:



Malignant lesions with distinct histological features could be diagnosed with ease. In some cases, special stains like Periodic acid- Schiff and Phosphotungstic acid-haematoxylin stain were used. Sometimes, a combination of light microscopy and immunohistochemistry (IHC) becomes necessary in classifying a neoplasm. In one case, a provisional diagnosis of monophasic synovial sarcoma had been done and it was confirmed by IHC. In another case, the report was small round cell tumor with differential diagnosis of Rhabomyosarcoma and Extraskeletal Ewing sarcoma (Fig.3). It was found to be Extraskeletal Ewing Sarcoma by IHC. There were three cases of liposarcoma of which one was pleomorphic type and two were of myxoid type (Fig.4). One case of malignant gastrointestinal stromal tumor in a 45 year old male which was located in the 3rd part of duodenum was seen. One case of leiomyosarcoma was seen in a 45 year old female.

IV. Discussion

Soft tissue tumors are a heterogeneous group of tumors which are classified on histogenetic basis. Benign soft tissue tumors outnumber malignant tumors by a margin of about 100: 1 in hospital population[3].In this study benign soft tissue tumors formed 92.2% and malignant formed 5%. Malignant tumors had a peak incidence between 5th and 6th decade. Soft tissue tumors had a slight male preponderance.

On detailed histopathological examination the largest histological group was adipose tissue. Most common benign tumor was adipocytic tumors followed by nerve sheath tumors. The most common malignant tumor was liposarcoma.

Table 7: Distribution of cases in various studies

	Benign cases	Malignant cases
Jain P et al.[1]	90.6%	9.4%
Batra P et al.[3]	89.2%	10.8%
Kransdorf MJ et al.[4,5]	60.2%	39.8%
Petersen I et al.[6]	35%	49%
Makino Y [7]	96%	45%
Present study	92.2%	5%

Table 8: Sex distribution of cases

	Male : female
Jain P et al.[1]	1.2:1
Batra P et al. [3]	2.1:1
Kransdorf MJ et al.[4,5]	1.2:1
Myhre- Jensen O [8]	1:1
Mandong BM et al.[9]	2:1
Beg S et al.[10]	1.8:1
Present study	1.1:1

In the study by Jain P et al , commonest benign tumor was Lipoma (50.27%) followed by vascular tumors (20%).[1]Petersen I et al did a retrospective study and found 49% malignant, 11.4% intermediate, 35% benign and 4.6% tumors of uncertain potential.[6] In another study of soft tissue tumors of head and neck, Makino Y stated 96% tumors as benign and 45 % as malignant.[7] Myhre-Jensen O reported that most common benign soft tissue tumors were Adipocytic (48.1%) constituted mainly by lipoma followed by benign

fibrohistiocytic tumors (15.8%). [8] In our study male: female ratio was 1.1:1 which is comparable with studies of Myhre -Jensen O. [8] and Beg S et al [10] where male: female ratio were 1:1 and 1.8:1 respectively.

The other studies [1, 3, 4, 5] have categorized soft tissue tumors as benign and malignant. In the present study, the soft tissue tumors have been grouped as benign, intermediate and malignant. Since the intermediate type is placed in a separate group, the percentage of malignant cases is less compared to other studies.

V. Conclusion

The diagnosis and management of soft tissue tumors require a team perspective. Even though soft tissue sarcomas are rare and usually present just as painless mass, the clinician must be able to diagnose it early for better management. A careful gross examination of the specimen and adequate sampling of the tumors is essential. Light microscopic evaluation of H&E stained sections remain the standard technique for initial diagnostic approach of these tumors and is sufficient in the majority of cases. However, there are special techniques that have been successfully applied to increase diagnostic accuracy. These include special stains, IHC, electron microscopy and molecular genetic methods.

References

[1]. Jain P, Shrivastava A, Mallik R.Clinicomorphological Assessment of Soft Tissue Tumors.Sch J App Med Sci 2014; 2(2D):886-90.
[2]. Hassawi BA, Suliman AY, Hasan IS.Soft tissue tumours – Histopathological study of 93 cases. Ann Coll Med Mosul 2010; 36 (1&2): 92-8.
[3]. Batra P, Gupta DO, Batra R, Kothari R, Bokariya P. Pattern of Soft Tissue Tumours In A Rural Population Of Central India. Innovative Journal of Medical and Health Science 3: 3 May – June. (2013) 124-6.
[4]. Kransdorf MJ. Benign soft-tissue tumours in a large referral population: distribution of specific diagnoses by age, sex, and location. AJR Am J Roentgenol 1995; 164(2): 395-402.
[5]. Kransdorf MJ.Malignant soft tissue tumours in a large referral population: Distribution of specific diagnosis by age, sex and location. AJR Am J Roentgenol 1995; 164(1): 129-34.
[6]. Petersen I, Gunther B, Mildner K, Subhi F, Knosel T, Altendorf-Hofmann A, Katenkamp D. Update from the soft tissue tumour registry. Jena Pathologe 2011; 32(1): 40-46.
[7]. Makino Y. A clinico pathological study on soft tissue tumours of the head and neck. Acta Pathol Jpn 1979; 29(3): 389-408.
[8]. Myhre-Jensen O.A consecutive 7-year series of 1331 benign soft tissue tumours. Clinicopathologic data. Comparison with sarcomas. Acta Orthop Scand 1981; 52(3): 287-93.
[9]. Mandong BM, Kidmas AT, Manasseh AN, Echejoh GO, Tanko, Madaki A.Epidemiology of soft tissue sarcomas in Jos, North Central Nigeria. Niger J Med 2007; 16(3): 246-9.
[10]. Beg S, Vasenwala SM, Haider N, Ahmad SS, Maheshwari V, Khan MA. A comparison of cytological and histopathological findings and role of immunostains in the diagnosis of soft tissue tumours. J Cytol 2012; 29(2): 125-130

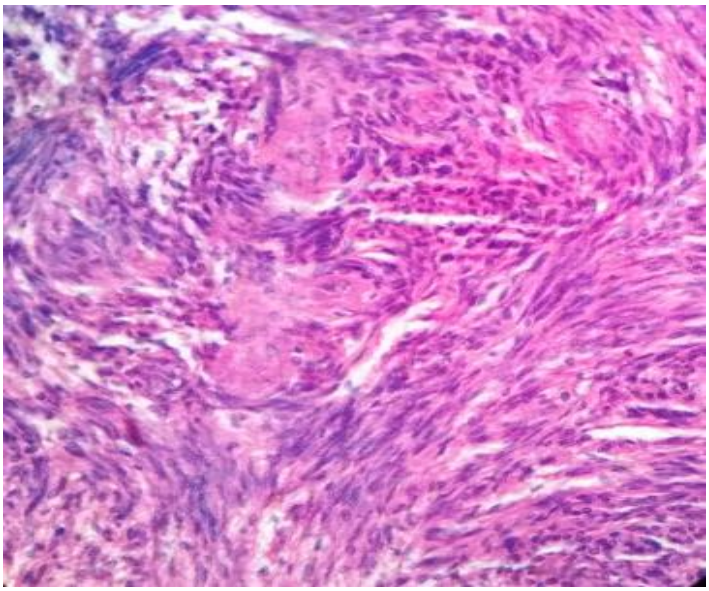


Figure 1.Schwannoma, showing hyper and hypocellular areas with nuclear palisading. (x40, H&E)

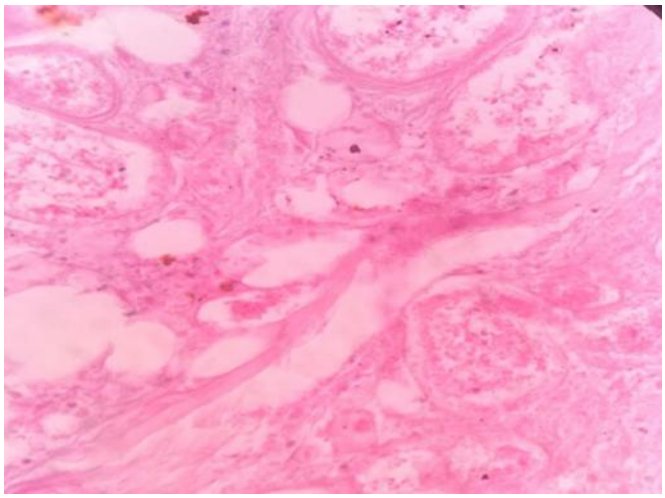


Figure 2. Large dilated vascular spaces filled with blood (x 40: H&E)

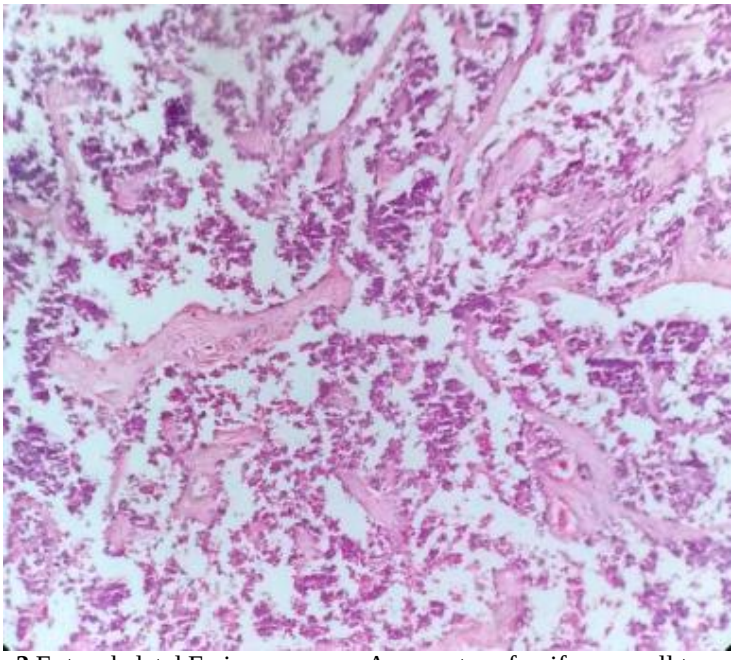


Figure 3.Extra skeletal Ewing sarcoma. Aggregates of uniform small tumor cells separated by fibrous tissue septa. (x10, H&E)

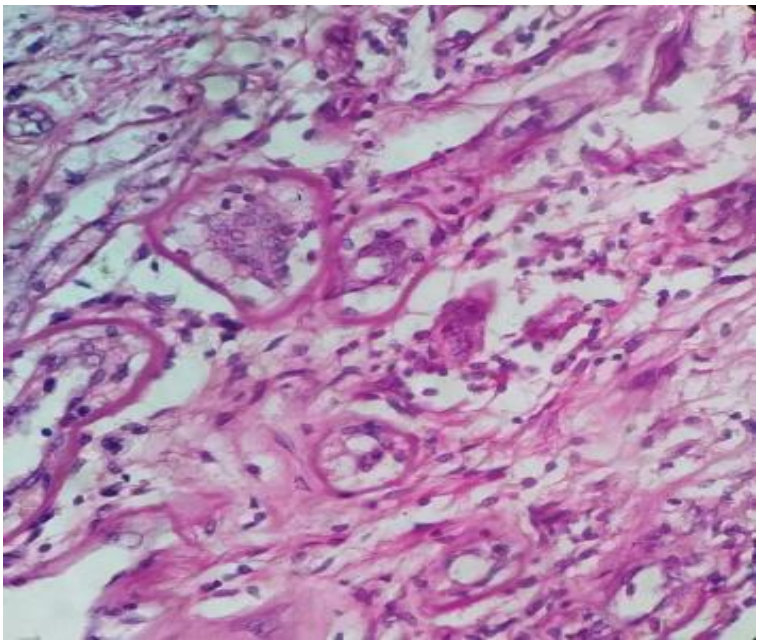


Figure 4. Myxoid liposarcoma. Lipoblasts against a background of myxoid stroma (x40, H&E)