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Pathology

HISTOPATHOLOGICAL STUDY OF SOFT TISSUE TUMORS

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ABSTRACT **Background:** Soft tissue tumors account for less than 1% of overall human burden of tumors. Increasing incidence of these tumors have been noted worldwide. **Aims:** to study the histological features, relative frequency of benign and malignant lesions, age and sex distribution and burden. **Materials and Methods:** Total of 250 cases of soft tissue lesions were analysed in a period of two years. In addition to routine Hematoxyline and Eiosin attained sections of all the specimens, special stains with immunohistochemical markers were done wherever necessary. **Results:** Of 250 lesions analysed, 44cases(17.6%) were soft tissue sarcomas. They were slightly more in males than females. The most common site of occurrence was trunk(40%). Malignant Fibrous Histiocytoma was the most common malignant soft tissue tumour (9cases,20.45%). Majority of soft tissue sarcomas were grade III accounting for 17(38.63%) cases. **Conclusion:** even though soft tissue sarcomas are rare, they are life threatening posing a significant diagnostic and therapeutic challenge and must be diagnosed early for better management. Immunohistochemistry plays a vital role in precise diagnosis and sub categorization. Grading is the most important prognostic factor and the best indicator of metastatic risk. Therefore it should be part of the pathology report for treatment stratification.

KEYWORDS : Benign soft tissue tumors; Soft tissue sarcomas, Grading and IHC

INTRODUCTION

Soft tissue is defined as non-epithelial extra skeletal tissue of the body exclusive of the reticuloendothelial system, glial and supportive tissue of various parenchymal organs. It is composed of connective tissue, adipose tissue, skeletal muscle, smooth muscle, blood vessels, lymphatics and peripheral nervous system[1]. The most common sites where malignant soft tissue tumours spread are the lungs and the liver[2]. They arise nearly everywhere in the body, the most common locations being the extremities, trunk, abdominal cavity and head and neck region[3]. The overall annual incidence of soft tissue sarcomas ranges from 15 to 35 per 1 million populations. The incidence increases steadily with age and is slightly higher in men than in women. Soft tissue sarcomas constitute less than 1% of all cancers and occur twice as often as primary bone sarcomas[4,5]. Soft tissue sarcomas are the fourth most common malignancy in children, after hematopoitic neoplasms, neural tumors and wilms tumor. It accounts for 15% of all childhood cancers[6].Soft tissue sarcomas may occur anywhere but three fourths are located in the extremities(most common in thigh) and 10% each in the trunk and retroperitoneum[7]. The different types of soft tissue tumors have distinct age distributions. Rhabdomyosarcoma is seen more frequently in children and young adults. Synovial sarcoma arises in young adults. Malignant fibrous histiocytoma and liposarcoma generally occur in older adults[5].Certain sarcomas may metastasize widely despite of their relative high degree of differentiation while on the other hand tend to pursue an aggressive clinical course that one would expect from their immature histological appearance[4,8].The recurrence rate of primary soft tissue sarcomas after treatment is approximately 40 to 60%. Factors accounting for local recurrence are tumor size, tumor differentiation, histological grade, and type of local treatment recived[9]. It is critical to recognize immunohistochemistry as an adjunctive technique, which does not supercede or replace the traditional morphologic diagnosis on hematoxyline and eosin stained sections[10].

MATERIALS AND METHODS :

The soft tissue tumors received at the Department of Pathology, Kurnool Medical College, Kurnool, were studied for a period of two years. Clinical details of all the cases were collected in pre-tested proforma meeting the objectives of the study. A detailed gross examination of the soft tissue specimen was performed to record the tumor size, shape, color, consistency and distance from the deep resected margins.

The hematoxyline and eosin stain sections of the specimens obtained by routine processing and paraffin embedding were studied to evaluate histopathological features. Special stains such as periodic acid schiff (PAS), reticulin along with immuno histochemical markers were done, whenever necessary. The classification adopted for the present study is based on the WHO classification of soft tissue tumors 2013[11]. During the study period, among 250 cases studied 200 benign and 44were malignant. Tumors of fibrohistiocytic differentiation accounted for the majority of malignant soft tissue tumors which is summarized in table1.

Table-1: Distribution of soft tissue tumors with grade and sex wise

	Class of tumor	Grade			Sex		
		Benign	Intermediate	Malignant	Male	Female	Total
1	Adipocytic	92	01	02	55	40	95
2	Fibroblastic/ Myofibroblastic	12	-	06	12	06	18
3	Fibrohistiocytic	07	04	09	14	06	20
4	Smooth muscle	02	-	08	07	03	10
5	Perivascular/peri cytic	01	-	-	01	00	01
6	Skeletal muscle	01	-	07	07	00	08
7	Vascular	52	01	01	21	31	54
8	Chandro/ osseous	01	-	03	01	03	04
9	Nerve sheath	28	-	01	10	15	29
10	Tumors of uncertain differentiation	04	-	06	06	04	10
11	Undifferentiated/unclassified	-	-	01	01	00	01
	Total	200	06	44	132	108	250

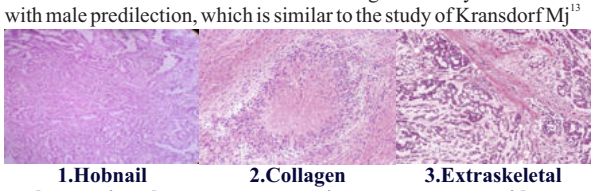
Table-2: Age wise distribution of cases

	Age	Benign	Intermediate	Malignant	Total
1	0-10	25	0	3	28
2	11-20	32	0	2	34
3	21-30	42	1	4	47
4	31-40	32	2	3	37
5	41-50	24	2	10	36
6	51-60	20	1	10	31
7	61-70	18	0	9	27
8	71-80	07	0	3	10
9	Total	200	6	44	250

DISCUSSION :

In the present study common histological type was Malignant Fibrous Histiocyoma. The age distribution of various malignant soft tissue

tumors ranged from 4 months to 89 yrs. The average age in the case of malignant tumors was 43.6 yrs, which is comparable to the studies of Jensen OM[12]. In case of malignant tumors there were 23 males and 21 females with a male to female ration 1.1 : 1 which is comparable to the Jensen OM[12] . Malignant soft tissue tumors were observed to have a greater predilection for trunk(40%) followed by lower extremity, in contrast to the study of Krandorf MJ where the common site was lower extremity. 9 cases of malignant fibrous tumors were encountered in the present study occurring over the extremity with male preponderance. This is in similar to the study of Krandorf MJ where the common site was trunk with slight male preponderance. There were 6 cases of pleomorphic sarcoma with female preponderance, the most common site being the lower extremity. This is in contrast to the study of Kransdorf MJ where pleomorphic MFH was the most common variant with male preponderance. 7 cases of rhabdomyosarcomas were encountered in the present study the common site being lower extremities with male preponderance. This is in contrast to the study of Kransdorf MJ wherein rhabdomyosarcomas were more common in head and neck with male predilection. There were 6 cases of malignant tumors of uncertain differentiation occurring commonly in extremities with male predilection, which is similar to the study of Kransdorf Mj[13]



1.Hobnail hemangioendothelioma | **2.Collagen rosettes in LGFMS** | **3.Extraskeletal myxoid chondrosarcoma**

CONLUSION:

Even though malignant mesenchymal neoplasms account to less than 1% of overall human burden of malignant tumors, they are life threatening and may pose a significant diagnostic and therapeutic challenge. Even though soft tissue sarcomas are rare and usually present as painless mass, they must be diagnosed early for better management. The diagnosis and management of soft tissue tumors required a team perspective consisting of clinical, radiological and pathological correlation. A careful gross examination of the specimen and adequate sampling of the tumor is essential. Special stains and IHC are helpful in addition to the routine haematoxylin and eosin for the proper diagnosis of STT's. Undifferentiated malignant neoplasms are a daunting diagnostic problem for anatomical pathologist, calling for a tour de force in morphological skill and clinical-pathological correlation. Grading is the best prognostic indicator of malignant soft tissue tumors and predictor of metastasis outcome, it should be a part of the pathologic report. Grading should be adapted to the modern management of patients complemented by molecular parameters and genetic analysis.

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