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*Original Research Article*

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## The Frequency and Distribution of Benign Soft tissue tumors in A Tertiary Hospital of Delhi

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### Abstract

**Introduction:** Soft tissue tumors are a diverse & comprise a large spectrum of diagnostic entities.

**Aims:** To study the incidence, age, and sex and site distribution of benign soft tissue tumors & to study histopathology of benign, soft tissue tumors and to compare these findings with the workers doing similar studies.

**Materials and Methods:** It was a retrospective study, conducted in Tertiary Hospital, Delhi. Data from records of surgical biopsy specimen and demographic data for 3yrs [2015-2017] of all the patients with benign soft tissue tumors were included in the study. The distribution and prevalence of soft tissue lesion was noted.

**Results:** 56 cases of benign soft tissue tumors were included in the study. Lipomas formed the major bulk of benign soft tissue tumors (55%), followed by hemangioma. (25%) The peak incidence of benign soft tissue tumors was observed in the age group of 31 to 40 yrs (23.2%) followed by 51 to 60yrs (19.6%). The most common site of occurrence for benign tumors was upper extremity, followed by head & neck.

**Conclusion:** Extremities were the most common site for benign tumors. Lipomas was the largest group histopathologically, followed by hemangiomas.

**Keywords:** Soft Tissue Tumors; Hemangioma; Lipoma; Extremities.

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(Received on 08.06.2018,

Accepted on 22.06.2018)

### Introduction

Tumors arising from non epithelial extra skeletal tissue of the body excluding the reticuloendothelial system, glia and supporting tissue of various parenchyma organs is the definition of soft tissue tumors [1]. Soft tissue tumors comprise a large heterogeneous group of mesenchymal neoplasms that is classified according to their normal tissue

counterpart [2]. They constitute a large group of neoplasm's consisting of greater than 200 benign types of neoplasm's & 90 malignant conditions [3]. Benign tumors are at least 100 times more common compared to their malignant counterparts. The annual incidence of benign soft tissue tumors has been estimated to be about 3000/million population whereas that of soft tissue sarcoma is about 30/million that is less than 1% of all

malignant tumors [4]. They arise nearly everywhere in the body, the most important locations being the extremities, trunk and abdominal cavity.

The aim was to study the histopathology & to determine the prevalence of benign soft tissue tumors & to evaluate in relation to different age groups, sex & site distribution & to compare with other studies.

### Material & Methods

This retrospective study was conducted in the Department of Pathology, in a tertiary hospital, in Delhi. All the benign soft tissue tumors received during a period of 3 years in our department (2015 to 2017) was evaluated.

#### Main objective was

1. To study the relative frequency of different types of benign soft tissue tumors.
2. To study the age, site, distribution of these tumors & histopathological features of soft tissue tumors.

All the specimens received in the laboratory were fixed in 10% formalin fixative and processed through paraffin wax embedding method. All

the slides were examined under microscope a diagnosis was given. Patients with peripheral soft tissue tumors like those of the upper and lower extremities, trunk, head and neck were included in the study. Those with visceral and retroperitoneal soft tissue tumors were excluded from the study.

### Results

Out of total 56 cases of benign soft tissue tumors, lipoma formed the largest group constituting 31cases (55%). Hemangiomas were the second commonest comprising 14 cases (25%) followed by benign fibrohistiocytic tumors (5.3%), benign spindle lesions, neurilemmoma & fibroma accounting for 2cases each (3.6%) & neurofibroma & keloid single case each [Table 1]. Most common age group for benign soft tissue tumor were 31-40 y (23.0%) followed by 51-60yrs (19.6) [Table 2]. Overall benign soft tissue tumors were more common in males. In our study lipoma, hemangioma, were found to be commoner in males. Extremities 28/56 (50%) and head neck 17/56 (30.35) areas were the common location of soft tissue tumors. Most common site for lipoma was upper extremity (25%) followed by trunk (14.3%) and head & neck (10.7%). Hemangioma was found most commonly in head and neck region (17.9) [Table 3].

Table 1: Distribution of Soft tissue tumors

Serial No.	Diagnosis	No.of Cases(n=56)	Percentage
1.	Lipoma	31	55%
2.	Hemangioma	14	25%
3.	Benign Fibrous Histiocytoma	03	5.3%
4.	Benign spindle Lesion	02	3.6%
5.	Neurilemmoma	02	3.6%
6.	Fibroma	02	3.6%
7.	Neurofibroma	01	1.8%
8.	Keloid	01	1.8%
	Total	56	

### Discussion

Soft tissue tumors are classified according to the adult tissue types that the lesional cells resemble. Eight entities were found in this study. i.e. lipoma (55.0%), hemangioma (25.0%), benign fibrous histiocytoma (5.3%), neurilemmoma, benign spindle cell lesion, fibroma (3.6%) each, neurofibroma & keloid (1.8%) each In our study of 56 cases, the most frequent tumors were lipomas constituting 55% followed by 25.0% cases of

Table 2: Age specific distribution of benign soft tissue tumors:

Age (yrs)	Lipoma	Hemangioma	Benign fibrohistiocytic tumors	Benign Spindle Lesion	Neurilemmoma	Neurofibroma	Keloid	Fibroma
<10	-	03	-	-	-	-	-	-
11-20	02	03	-	01	-	-	-	01
21-30	05	03	-	01	-	-	01	-
31-40	07	02	02	-	-	01	-	01
41-50	07	01	01	-	-	-	-	-
51-60	07	02	-	-	02	-	-	-
61-70	03	-	-	-	-	-	-	-
Total	31	14	03	02	02	01	01	02

**Table 3:** Site Distribution of Benign Soft Tissue Tumor

Serial No:	Histologic type	Upper limb	Lower limb	Trunk	Head & Neck	Total
1)	Lipoma	13	03	08	07	31
2)	Hemangioma	01	01	02	10	14
3)	BFH	01	02	-	-	03
4)	Benign Spindle Lesion	-	02	-	-	02
5)	Neurilemmoma	01	01	-	-	02
6)	Neurofibroma	-	-	01	-	01
7)	Fibroma	01	0	-	01	02
8)	Keloid	-	01	-	-	01
	Total	17	10	11	18	56

**Table 4:** Comparative Analysis of Relative Incidence of Various Benign Tumors by different studies

Serial No.	Tumor type	Geetha Dev (%) (1974)5	Myhre Jensen (1981)6 (%)	Kransdorf (1995)7 (%)	Inamdar S.S (2014)8 (%)	Bharti G Ramnani (2014)4 (%)	Present study (%)
1)	Adipocytic	38.3	48.1	16.1	54.27	50	55
2)	Vascular	21.3	11.7	7.6	29.55	17.8	25
3)	Fibroblastic	2.3	10.5	20.6	6.03	-	
4)	Fibrohistiocytic	0.6	15.8	12.8	8.54	4.2	5.3
5)	Smooth muscle	3.2	3.8	1.7	1.00	-	
6)	Skeletal muscle	0	0	0	0	-	
7)	Neurofibroma					7.5	1.8
8)	Neurilemmoma					5.0	3.6

**Table 5:** Comparative Analysis of Site Incidence of Benign Soft Tissue Tumors by different studies

Authors	UL	LL	Trunk	Head & Neck
1) Geetha Dev[5]	22.5%	13.6%	24.8%	32%
2) Kransdorf[7]	31.8%	28.8%	20.1%	13.8%
3) Present study	32.1%	17.8%	19.6%	30.0%

hemangiomas. Third in frequency were benign fibrohistiocytic tumors & neurilemmomas. Our study was in accordance to a different studies conducted from 1974-2014 [4,5,6,7,8,]. The most common site of occurrence of benign soft tissue tumor was extremities, followed head & neck & trunk in our study. Different authors have reported either as extremities or head & neck as the common site depending on the sample size [5,7].

Most common age group for benign soft tissue tumour were 31-40 y (23.2) followed by 51-60 y (19.6). Similar results were seen by Batra et al. [9] and Bharti et al. [4] & G. Krishna Kanthh et al. [10] who reported the common age for benign soft tissue tumor in 30-50yrs. Male preponderance was observed in almost all soft tissue tumours in the studies available. Jain et al. [11] found a male to female ratio of 1.2:1, while those reported by Mynes Jensen [6] and Beg [12] were 1:1 and 1.8:1 respectively. In our study, though male preponderance was seen for all soft tissue tumors,

Adipose tissue tumors appear to be the most common category of tumors in all these studies. [4,5,6,7,8,]. These tumors span from benign to malignant tumors, but lipomas greatly outnumber the malignant ones, the sarcoma Lipoma was most common in age group 30-60 y (37.5%) Lipoma which form one-third of the benign tumors is very uncommon in children [13]. According to different location, lipomas may arise from subcutaneous tissue (superficial lipoma) or within deep soft tissue (deep lipoma) or even from surfaces of bone (parosteal lipoma) [14]. There are several microscopic types of lipomas like angiolipoma, chondrolipoma, fibrolipoma, osteolipoma, myxolipoma & myolipoma [13]. The most common site for lipoma was upper limb followed by lower limb & trunk in our study. In the study carried out by, Bharti G Ramnani et al. [4] lipomas were more common in trunk than in limbs.

Hemangioma showed maximum occurrence (16%) in age group 0-30 y in our study The term capillary hemangioma includes number of distinct neoplastic entities like juvenile hemangioma, lobular capillary hemangioma, cherry angioma, verrucous hemangioma & acquired tufted hemangioma. [15] According to literature, lobular capillary hemangioma [LCH] was common that clinically resemble exuberant granulation

tissue [16]. It occurs on the extremities or at sites of trauma in children [17]. In present study also LCH was the commonly seen, out of 14 cases, 8 were LCH. Hemangioma was found most commonly in head and neck region similar findings was also reported by a study carried out by Dev Geeta et al. [5].

In surgical pathology reporting fibrohistiocytic lesions, encompass a large group. Benign fibrous histiocytoma also known as dermatofibroma represents a common mesenchymal tumor. It presents as a swelling in the extremities in post pubertal, often middle aged patients. In the present study 3 cases of BFH & 2 cases of benign spindle lesions, all the 5 lesion were seen the extremities. In the study carried out by Calonje E et al., [18], common sites for BFH were upper limb/limb girdle (34%), lower limb/limb girdle (27%), and head and neck region (20%).3 cases were reported as benign spindle lesion due to smaller size of biopsies, a definitive diagnosis was not possible.

Neurofibroma, Neurilemmoma constituted 1.8% & 3.6% of benign soft tissue tumours respectively in our study. In the study carried out by, Bharti G Ramnani et al neurofibroma constituted 7.5% & neurilemmoma 5.0% of benign tumours respectively [4]. Their study constituted 120 cases in comparison to 56 cases so for which an increase in number of the cases. The two cases of Schwannoma were found in the extremities, in this study whereas in the study carried out by Tapas K Dasgupta et al., [4], most common site was head and neck, followed by upper extremity, trunk and lower extremity. (Table 4, 5).

## Conclusion

Soft tissue tumors are frequently encountered in surgical pathology specimens reporting. Benign tumors are managed with simple excision. But sarcomas present frequently in a way indistinguishable from benign tumors', so histopathological examination of all tumors' should be mandatory. The chief limitation of our study is that the sample size is small, and the cases diagnosed as malignant or suspicious of malignancy on FNAC were referred to super specialty hospital for further diagnosis and management.

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