

Spectrum of Soft Tissue Lesions – A Retrospective Histopathological Study in ESIC Kalaburagi

Shreyanka¹, Vishali Patale², Pavan³, V. Srinivas Murthy⁴

¹Senior Resident, Department of Pathology, Employees' State Insurance Corporation and Medical College Hospital, Kalaburagi

²Senior Resident, Department of Pathology, Employees' State Insurance Corporation and Medical College Hospital, Kalaburagi

³Senior Resident, Department of Pathology, Employees' State Insurance Corporation and Medical College Hospital, Kalaburagi

⁴Dean and Head of the Department, Department of Pathology, Employees' State Insurance Corporation and Medical College Hospital, Kalaburagi

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Corresponding Author: Dr. V Srinivas Murthy

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Abstract:

Background: Soft tissue lesions show diverse histological patterns, most of which are benign. Regional variation is noted in incidence and presentation.

Aim: To study the age, gender, site distribution, and histological types of soft tissue lesions received at ESIC Kalaburagi.

Materials & Methods: A retrospective descriptive study conducted over 5 years (April 2020–March 2024) at ESIC Medical College, Kalaburagi. 71 histologically confirmed cases were included. Data on demographics, anatomical site, and histopathology were analyzed using descriptive statistics.

Results: Most cases occurred in the 21–40 age group with a male predominance (50.7%). The most common site was the head and neck region (42.5%) followed by upper limb (26.7%). Lipoma was the most common lesion (45%), followed by Capillary Hemangioma (19.7%) Neurofibroma (9.8%) and Schwannoma (5.6%).

Conclusion: Benign soft tissue lesions predominate, with lipomas being the most frequent. Histopathological examination is vital for accurate classification and management.

Keywords: Soft Tissue Tumors, Lipoma, Histopathology, Retrospective Study, Kalaburagi.

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Introduction

Soft tissue lesions, ranging from benign to malignant, exhibit varied histological patterns and clinical presentations. A precise histopathological diagnosis is critical for guiding treatment. Despite global data availability, regional variability exists in lesion frequency and presentation. In Kalaburagi, Karnataka, there is a lack of comprehensive data on soft tissue lesions. This study aims to fill this gap by retrospectively analyzing soft tissue lesion cases reported at ESIC Medical College, thereby contributing to regional data and supporting better diagnostic and therapeutic approaches [1, 2].

Objectives:

- 1) To assess the distribution of lesions by age, sex, site, and histological type.
- 2) To classify the lesions into benign, intermediate, and malignant categories based on WHO classification.

- 3) To compare findings with previously published national and international studies to identify any unique regional patterns.

Materials & Methods:

Study Design: Retrospective, descriptive observational study.

Study area: Department of Pathology, ESIC Medical College and Hospital, Kalaburagi, Karnataka

Study duration: 5 years (April 2020-March2024)

Source of Data: Histopathology records from the Department of Pathology, ESIC Kalaburagi

Sampling Method: Convenience sampling (Non probability).

Sample Size: 71 soft tissue lesion cases meeting inclusion criteria were taken.

Inclusion Criteria

- 1) All histopathologically confirmed soft tissue lesions received during the study period.
- 2) Adequately preserved tissue samples with complete records.

Exclusion Criteria

- 1) Inadequate or autolyzed tissue samples.
- 2) Incomplete histopathological or demographic records.
- 3) Bone tumours or lesions primarily involving bone or epithelial tissues

Method of collection of data (Including sampling procedure, if any): Data was retrieved from archived histopathology reports and gross/microscopic examination records. Patient demographic details, clinical history, anatomical site, gross features, and final histopathological diagnosis was recorded in a structured proforma.

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Results**Table 1: Age Distribution**

Age Group (Years)	Total Cases	Percentage
0–20	10	14%
21–40	39	55%
41–60	17	24%
>60	05	07%
	71 cases	100%

Table 2: Gender Distribution

Gender	Number of Cases	Percentage
Male	36	50.7%
Female	35	49.3%
	71 cases	100%

Table 3: Site-wise Distribution

Site	Number of Cases	%
Upper limb	19	26.7%
Lower limb	11	15.4%
Abdomen	6	8.4%
Back	5	7%
Head & neck	30	42.5%
	71 cases	100%

Table 4: Classification of lesions as per WHO classification.

Adipocytic tumors	Number of Cases	%
Lipoma	32	45%
Fibrolipoma	3	4.2%
Spindle cell lipoma	1	1.4%
Vascular tumors		
Capillary hemangioma	14	19.7%
Cavernous hemangioma	1	1.4%
AV Malformation	1	1.4%
Fibroblastic and Myofibroblastic tumors		
Angiofibroma	2	2.8%
Dermatofibroma	1	1.4%
Calcifying aponeurotic fibroma	1	1.4%
Pericytic tumors		
Glomus tumor	1	1.4%
So called fibrohistocytic tumor		
GCT	1	1.4%
Skeletal muscle tumor		
Embryonal RMS	1	1.4%
Peripheral nerve sheath tumor		
Schwannoma	4	5.6%
Ancient Schwannoma	1	1.4%
Neurofibroma	7	9.8%
	71 cases	100%

Out of the 71 cases, cytology was performed in 17 cases. Of these:

True Positives (TP): Cytology and histopathology both identified malignant lesions – 1 case

True Negatives (TN): Cytology and histopathology both identified benign lesions – 15 cases.

False Positives (FP): Cytology reported malignant, but histopathology revealed benign – 1 cases

False Negatives (FN): Cytology reported malignancy or was inconclusive, but histopathology showed benign lesion – 0 cases

From this, the diagnostic performance of cytology was calculated:

Sensitivity	100%
Specificity	93.75%
Diagnostic Accuracy	94.12%

These findings indicate that FNAC is a highly specific tool in the preoperative assessment of soft tissue lesions.

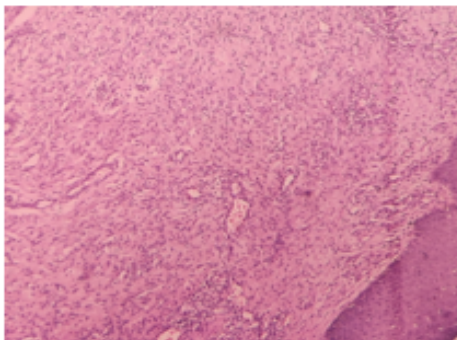


FIG 1: NEUROFIBROMA(H&E,40X)

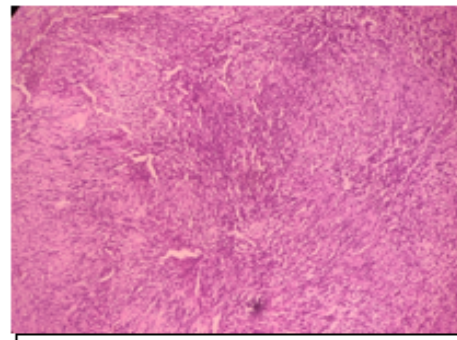


FIG 2: SCHWANNOMA(H&E,40X)

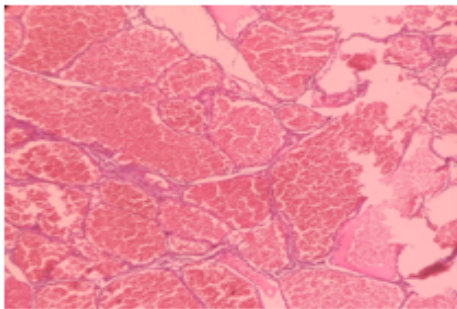


FIG 3: CAVERNOUS HEMANGIOMA(H&E,40X)

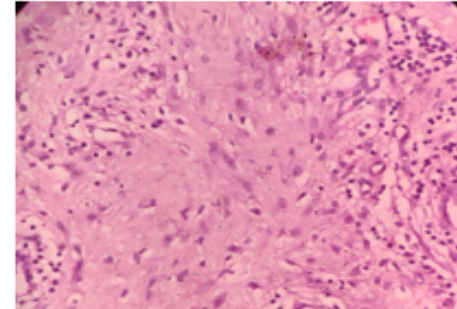


FIG 4: GLOMUS TUMOR (H&E,40X)

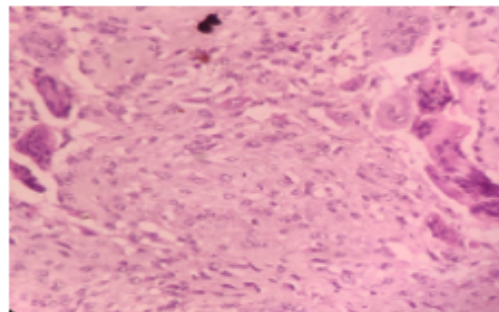


FIG 5: GIANT CELL TUMOR (H&E,40X)

Discussion

This retrospective study analyzed 71 cases of soft tissue lesions over a five-year period. The most commonly affected age group was 21–40 years

(55%), followed by 41–60 years (24%). These findings are consistent with studies by Srivastava et al. [7] and Sharma et al. [11], who also noted that soft tissue tumors tend to occur more frequently in young to middle-aged adults. This trend may reflect

higher healthcare awareness, physical activity levels, and increased medical surveillance in this age group.

A slight male predominance (50.7%) was observed, although the gender distribution was almost equal. This is similar to findings from Indian studies like those by Patel et al. [6] and Rao et al. [10]. Interestingly, some Western studies such as those by Kransdorf et al. [4] report a more pronounced male predominance, suggesting regional differences in disease presentation or healthcare access. When analyzing the site of occurrence, the head and neck region emerged as the most common location (42.5%), followed by the upper limb (26.7%) and lower limb (15.4%). This contrasts with classical Western data that shows a preference for limb involvement [2,4]. However, Indian studies like Nayak et al. [8] have also reported a similar trend toward head and neck involvement, possibly due to better visibility, cosmetic concerns, or referral bias.

Based on WHO classification, adipocytic tumors formed the largest group (50.6%), with lipomas being the most common diagnosis (45%). This aligns with the findings of Chouhan et al. [5], Bharti et al. [9], and Weiss & Goldblum [2], reaffirming lipoma as the predominant benign soft tissue tumor. Peripheral nerve sheath tumors made up 16.8% of the total cases, predominantly consisting of neurofibromas and schwannomas. These tumors were most frequently found in the head and neck and upper limbs, mirroring findings from Sharma et al. [11] and Miettinen [14]. Notably, one case of ancient schwannoma was also identified, which can sometimes be mistaken for a malignant tumor due to its degenerative changes. Vascular tumors accounted for nearly 22.5% of the lesions, with capillary hemangioma being the most frequently observed type (19.7%). These were commonly found in the head and neck region, in agreement with the findings of Kaya et al. [12] and Khan et al. [13]. The rich vascularity and visibility of these areas may contribute to earlier detection.

Fibroblastic and myofibroblastic tumors such as angiofibroma, dermatofibroma, and calcifying aponeurotic fibroma were less commonly encountered but are significant because of their variable presentation. These lesions often require histological evaluation to differentiate them from more aggressive tumors. Only one malignant case was encountered—embryonal rhabdomyosarcoma—highlighting the low incidence of soft tissue sarcomas in routine surgical practice. This observation is consistent with other Indian and international studies [1, 3, 6]. Cytology-histopathology correlation was evaluated in 17

cases. The calculated sensitivity was 100%, specificity 93.75%, and diagnostic accuracy 94.12%. Although FNAC is useful for preliminary diagnosis, especially of benign lesions, it has limitations in diagnosing rare or malignant cases. This emphasizes the importance of histopathology, as echoed by Bharti et al. [9] and Rao et al. [10].

Conclusion

The study highlights a clear predominance of benign soft tissue tumors, with lipoma being the most frequent. Histopathological examination remains indispensable for accurate diagnosis, especially in rare malignant tumors

Limitations of this study: No molecular studies were done to classify them in recent WHO classification of soft tissue tumors.

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