

Histopathological Pattern of Soft Tissue Tumours in a Tertiary Care Centre in North India: A Retrospective Study

Prachi Singh¹, Nikhil Chaudhary¹, Seema Awasthi², Ashutosh Kumar³, Nidhi Singh⁴

¹Assistant Professor, Department of Pathology, TMMC&RC Moradabad, Uttar Pradesh, India. ²Professor & Head, Department of Pathology, TMMC&RC Moradabad, Uttar Pradesh, India. ³Professor, Department of Pathology, TMMC&RC Moradabad, Uttar Pradesh, India. ⁴Sr. Technical Architect [SAP], HCL Technologies Ltd.

Abstract

Background: All extra-skeletal, non-epithelial human body tissues that are not parts of the reticuloendothelial system are considered soft tissue. Based on their biological nature and tissue of origin these are assigned as benign, intermediate or malignant category of tumours. This study aimed to evaluate the histopathological spectrum of soft tissue tumours and analyze their distribution with respect to age, sex, anatomical site and biological behaviour. **Material and Methods:** The Department of Pathology at Teerthanker Mahaveer Medical College and Research Centre conducted a retrospective analysis of 82 cases. After receiving each specimen in 10% buffered formalin, the normal paraffin embedding procedure was applied. Haematoxylin and Eosin stain was applied to sections that were cut to a thickness of three to five micrometres. IHC (Immunohistochemistry) was performed utilizing appropriate antibody panels depending on morphological suspicion. Every STT was categorised using the WHO classification from 2020. **Results:** Of all STT, 2.4% were malignant, 1.2% was intermediate, and 96.3% were benign. Over the fourth decade, malignant tumours were more common. STTs showed a male preponderance with a male to female ratio of 1.8:1. Majority of the STTs were located on the extremities, followed by the head and neck region. Adipocytic tumours were the most common STTs, followed by vascular tumours and nerve sheath tumours. **Conclusion:** Benign tumours were more common than malignant. The most common benign tumours were lipoma followed by hemangioma and schwannoma. Although malignant sarcomas are rare and mostly asymptomatic, early diagnosis and improved treatment require a high level of clinical suspicion. Despite the emergence of numerous recently established auxiliary methodologies, histopathology remains gold standard for investigative purposes.

Keywords: Cholesterol, Ischemic Stroke, Hemorrhagic Stroke, Dyslipidemia, Mortality.

Received: 19 December 2025

Revised: 07 January 2026

Accepted: 29 January 2026

Published: 08 February 2026

INTRODUCTION

All extra-skeletal, non-epithelial human body structures that are not part of the reticuloendothelial system are referred to as soft tissue. This classification does not include glial tissues and the supportive connective matrices inherent to diverse parenchymal organs. This also covers other components like skeletal muscles, fibrous tissue, fat and vasculature serving them and peripheral nervous tissues. Developmentally the origin of soft tissue is from mesoderm with a part formed by ectoderm.^[1]

Soft tissue tumors (STTs) are classified as benign, intermediate, or malignant based on their biological makeup.^[2]

Less than 1% of all cancers are soft tissue sarcomas, which is uncommon when compared to carcinomas and other more prevalent cancers.^[3] More benign STTs than malignant ones are found.^[4]

STTs are categorized not by the type of tissue they originate from, but rather by the tissue component they recapitulate or primarily by the tumor's line of differentiation.^[5]

Recently, there has been a rise in the incidence of soft tissue sarcomas, which has led to increased interest in the tumor and improved diagnostic techniques. Benign soft tissue tumours seem to preponderate sarcomas by a wide margin. Males are more likely than females to develop soft tissue

sarcomas, however occurrences of each histologic category vary by age and gender.

Aims and objective

1. To research the range of soft tissue tumours' histopathology in our hospital.
2. The percentage of soft tissue tumours that are benign, intermediate, and malignant will be examined.
3. To investigate soft tissue tumour demographics and site dispersion

The World Health Organization's (WHO-2020) commonly accepted categorization of soft tissue tumors is the suggested classification.

MATERIALS AND METHODS

Address for correspondence: Dr. Prachi Singh,
Assistant Professor, Department of Pathology, TMMC&RC Moradabad, Uttar Pradesh, India
E-mail: drprachisingh20@gmail.com

DOI:

10.21276/amit.2026.v13.i1.347

How to cite this article: Singh P, Chaudhary N, Awasthi S, Kumar A, Singh N. Histopathological Pattern of Soft Tissue Tumours in a Tertiary Care Centre in North India: A Retrospective Study. Acta Med Int. 2026;13(1):326-325.

Study Design: The current study is a retrospective investigation that was conducted over a one-and-a-half-year period, from July 2023 to December 2024, at the histopathology section, department of pathology, Teerthanker Mahaveer Medical College and Research Centre, a tertiary care facility in the Moradabad district of Uttar Pradesh state, India.

Study Type: The study was retrospective in nature.

Data Collection Procedure: All excisional biopsy specimens obtained for histopathological evaluation from different surgical departments during the research period were carefully examined for histological evaluations. Only 82 individuals with proven soft tissue tumors were included in the study, and information on their demographics, clinical conditions, and radiological findings was recorded. We included small tissue biopsies also.

Inclusion Criteria: This study included all mesenchymal tumors originating from soft tissue components such as fibrous tissue, fat, skeletal muscle, blood, lymph arteries, and the peripheral nervous system.

Exclusion Criteria: The study did not include any known previously diagnosed tumors, bone tumors, or non-mesenchymal tumors.

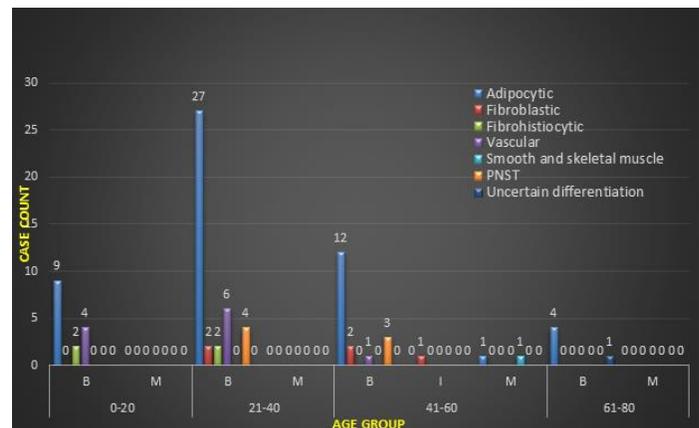
Methods: The histopathology records contained all pertinent clinical data, such as age, sex, anatomical location, clinical diagnosis, pertinent tests, and histological findings. The following anatomical places were classified: trunk, head and neck, lower extremities, upper extremities, and other regions. Each specimen obtained was meticulously evaluated in a gross manner for its dimensions, morphology, mass, consistency and overall appearance. The cut surface of the tissue was additionally scrutinized for the presence of hemorrhagic areas, necrotic tissue, and cystic formations. Furthermore, the involvement of any adjacent anatomical structures as well as the tumour's depth was duly recorded.

These samples were all preserved for a full day in 10% neutral buffered formalin. Several sections were obtained from several typical sites for assessment purposes based on the specimen's measurements. However, in the case of

minor biopsies the entirety of the specimen underwent processing. These sections were subsequently subjected to processing via an automated tissue processor. A rotary microtome was used to create paraffin-embedded slices that were 3–5 µm thick. After that, H&E was applied to these portions, with additional stains applied as needed. Special stains such as Masson Trichrome and PAS (Periodic acid Schiff) were utilized where indicated. All consecutive cases fulfilling inclusion criteria during the study period were included. Microsoft Excel 2510 was used for data analysis. Distributions of frequency and percentage were evaluated using descriptive statistics. The Institutional Ethics Committee (IEC) authorized the study.

RESULTS

Our study comprised 82 soft tissue tumour cases in total. [Table 1] displays the age range of the patients in this study. It was found that the patients' mean age was 46 years old, with ages ranging from 13 to 79. In the younger population, benign STTs were more common than malignant STTs, which were more common in the fifth and sixth decades of life, occurring most frequently in the third decade (22 cases, 26.8%) and fourth decade (19 cases, 23.17%).



Graph 1: Age-wise distribution (in years) of patients with soft tissue tumours.

Table 1: Age-wise distribution (in years) of patients with soft tissue tumours

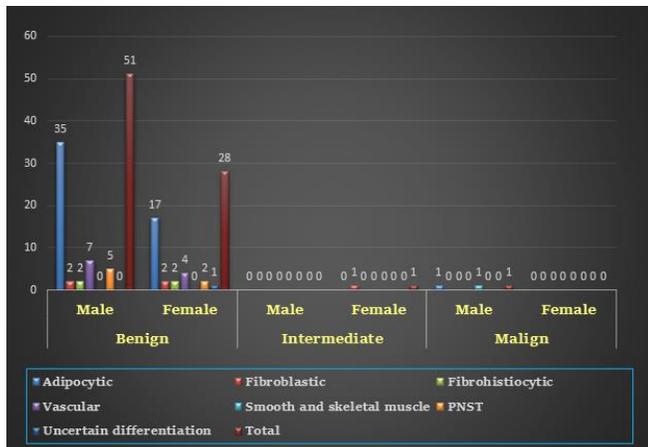
| S No. | Soft tissue tumours | 0-20 | | 21-40 | | 41-60 | | | | 61-80 | | Total |
|-------|----------------------------|------------|---|---------|---|------------|----|----|----|----------|----|-------|
| | | B | M | B | M | B | I | M | B | M | | |
| 1 | Adipocytic | 09 | 0 | 27 | 0 | 12 | 0 | 01 | 04 | 0 | 53 | |
| 2 | Fibroblastic | 0 | 0 | 02 | 0 | 02 | 01 | 0 | 0 | 0 | 05 | |
| 3 | Fibrohistiocytic | 02 | 0 | 02 | 0 | 0 | 0 | 0 | 0 | 0 | 04 | |
| 4 | Vascular | 04 | 0 | 06 | 0 | 01 | 0 | 0 | 0 | 0 | 11 | |
| 5 | Smooth and skeletal muscle | 0 | 0 | 0 | 0 | 0 | 0 | 01 | 0 | 0 | 01 | |
| 6 | PNST | 0 | 0 | 04 | 0 | 03 | 0 | 0 | 0 | 0 | 07 | |
| 7 | Uncertain differentiation | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 01 | 0 | 01 | |
| 8 | Total | 15(18.29%) | | 41(50%) | | 21(24.39%) | | | | 5(6.09%) | | 82 |

According to [Table 1], the most prevalent histological type of soft tissue cancers was adipocytic tumours, which made up 64.6% of all tumours. Vascular tumours (11 cases, 13.4%), and nerve sheath tumours (7 cases, 8.5%), were next in line. [Table 2] demonstrates the frequency of tumours based on their behaviour pattern, revealing that benign soft tissue tumours accounted for 96.34% of all soft

tissue tumours (of which 51% were in males and 35.44% were in females), intermediate soft tissue tumours made up 1.2% (all females), and malignant soft tissue tumours made up 2.43% (all males). The ratio was 39.5 between benign and malignant. S. No tumour, benign, intermediate, malignant.

Table 2: Sex-wise distribution of soft tissue Tumours

| S. No | Tumour | Benign | | Intermediate | | Malignant | |
|-------|------------------------------|-------------|-------------|--------------|----------|-----------|--------|
| | | Male | Female | Male | Female | Male | Female |
| 1 | Adipocytic | 35 | 17 | NA | NA | 01 | 0 |
| 2 | Fibroblastic | 02 | 02 | 0 | 01 | 0 | 0 |
| 3 | Fibrohistiocytic | 02 | 02 | NA | NA | 0 | 0 |
| 4 | Vascular | 07 | 04 | NA | NA | 0 | 0 |
| 5 | Smooth and skeletal muscle | 0 | 0 | NA | NA | 01 | 0 |
| 6 | PNST | 05 | 02 | NA | NA | 0 | 0 |
| 7 | Uncertain differentiation | 0 | 01 | NA | NA | 0 | 0 |
| | Sex wise distribution (%age) | 51 (64.55%) | 28 (35.44%) | 0 (0%) | 1 (100%) | 2 (100%) | 0 (0%) |
| | Total | 79(96.34%) | | 1(1.2%) | | 2(2.43%) | |



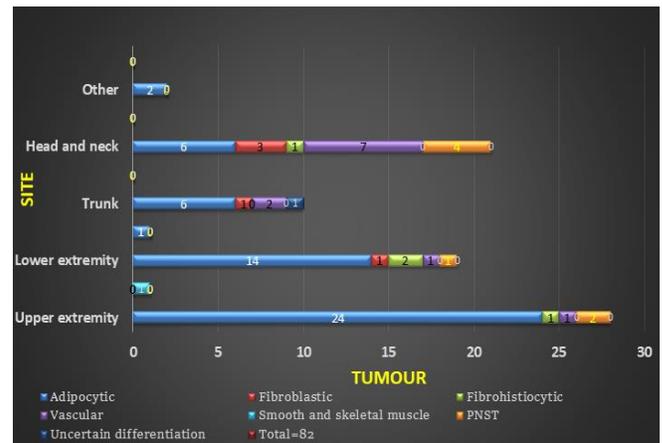
Graph 2: Sex-wise distribution of soft tissue tumours

Overall, the ratio of male to female soft tissue tumours was 1.8:1, with a slight male predominance. In the benign lesion category, it was 1.8:1, although sarcomas were more common in men [Table 2].

52 instances (63.4%) of the soft tissue tumors were benign adipocytic tumors. These tumors were seen in people of various ages. Our study indicates that lipoma with its subtypes fibrolipoma and intramuscular lipoma, comprise total 51 cases (62.2 %) is the most prevalent STT [Table 1]. The male-to-female ratio is 2:1, and the incidence peaks in the third and fourth decades. The most frequent sites of incidence were the trunk and upper extremities. There was one case reported as hibernoma [Figure 6] in 32-year female where site of occurrence was back [Table 3 & 4]

| SN | Tumor | Upper extremity | | Lower extremity | | Trunk | | Head and neck | | Other | |
|----|----------------------------|-----------------|----|-----------------|---|-------|---|---------------|---|-------|---|
| | | B | M | B | M | B | M | B | M | B | M |
| 1 | Adipocytic | 24 | 0 | 14 | 1 | 06 | 0 | 06 | 0 | 02 | 0 |
| 2 | Fibroblastic | 0 | 0 | 1 | 0 | 01 | 0 | 03 | 0 | 0 | 0 |
| 3 | Fibrohistiocytic | 01 | 0 | 02 | 0 | 0 | 0 | 01 | 0 | 0 | 0 |
| 4 | Vascular | 01 | 0 | 01 | 0 | 02 | 0 | 07 | 0 | 0 | 0 |
| 5 | Smooth and skeletal muscle | 0 | 01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 | PNST | 02 | 0 | 01 | 0 | 0 | 0 | 04 | 0 | 0 | 0 |
| 7 | Uncertain differentiation | 0 | 0 | 0 | 0 | 01 | 0 | 0 | 0 | 0 | 0 |
| | Total=82 | | | | | | | | | | |

TABLE-3: Anatomical site-wise distribution of soft tissue tumors



Graph 3: Anatomical site-wise distribution of soft tissue tumours.

Table 4: Benign soft tissue tumours: distribution according to histological subtypes, frequency, age, sex, and common site

| S. No. | Histology | No of Cases (%) | Age (years) | Sex | | Common sites |
|--------|---|-----------------|-------------|-----|----|---|
| | | | | M | F | |
| 1 | Lipoma | 43 | 16-70 | 29 | 14 | Arm, forearm, Hand, Axilla, Inguinal region |
| 2 | Fibrolipoma | 07 | 18-64 | 4 | 3 | Abdomen, Neck, Vulva |
| 3 | Intramuscular lipoma | 01 | 13 | 1 | 0 | Gluteal region |
| 4 | Hibernoma | 01 | 32 | 0 | 1 | Back |
| 5 | Fibroma | 04 | 18-55 | 2 | 2 | Oral cavity, vulva |
| 6 | Neurofibroma | 02 | 22-50 | 0 | 2 | Neck, trunk |
| 7 | Lobular Capillary Hemangioma | 04 | 15-58 | 03 | 01 | Tongue, occipital skin, upper eyelid |
| 8 | Schwannoma(PNST) | 05 | 23-47 | 05 | 0 | Thumb, Knee, Neck, Arm |
| 9 | Hemangioma-NOS | 05 | 17-30 | 03 | 02 | Nose tip, Tongue, pinna |
| 10 | Tenosynovial Giant Cell Tumour | 03 | 13-31 | 01 | 02 | Hand, toe |
| 11 | Intravenous lobular capillary hemangioma | 01 | 20 | 0 | 01 | Dorsum foot |
| 12 | Diffuse type Tenosynovial giant cell tumour | 01 | 30 | 01 | 0 | Toe |
| 13 | Tumour of uncertain differentiation | 01 | 79 | 0 | 01 | Leg |
| 14 | Epithelioid Hemangioma | 01 | 34 | 01 | 0 | Arm |

[Table 3 & 4] show anatomical distribution of all STTs with upper extremity being most common site (29 cases out of total 82, 35.3%) followed by head and neck region (21 cases out of total 82, 25.6%).

Vascular tumours, with 11 instances (13.4%) in the age range

of 15 to 58 years, were the second most common soft tissue tumours and the second most common group of benign tumours, according to Tables 4 and 5. The male-to-female ratio was 1.7:1, and these primarily affected the head and neck area.

Table 5: Soft tissue tumours: distribution according to histological subtypes, frequency, age, sex, and common site

| SN | Tumour histopathology | No of cases | Age range (yrs) | Gender | | Site |
|----|--|-------------|-----------------|--------|--------|--|
| | | | | Male | Female | |
| 1 | Lipoma | 43 | 16-70 | 29 | 14 | Arm, forearm, Hand, Axilla, Ing region |
| 2 | Fibrolipoma | 7 | 18-64 | 4 | 3 | Abdomen, Neck, Vulva |
| 3 | Intramuscular Lipoma | 1 | 13 | 1 | | Gluteal region |
| 4 | Hibernoma | 1 | 32 | 0 | 1 | Back |
| 5 | Myxoid Liposarcoma Low Grade | 1 | 42 | 1 | 0 | Thigh Antero-medial aspect |
| 6 | Fibroma | 4 | 18-55 | 2 | 2 | Oral cavity, vulva |
| 7 | DFSP Dermatofibrosarcoma protuberans | 1 | 59 | 0 | 1 | Leg |
| 8 | Neurofibroma | 2 | 22-50 | 0 | 2 | Neck, trunk |
| 9 | Schwannoma(Bn PNST) | 5 | 23-47 | 5 | 0 | Thumb, Knee, Neck, Arm |
| 10 | Hemangioma | 5 | 17-30 | 3 | 2 | Nose, tip, Tongue, pinna |
| 11 | Intravenous Lobular Capillary Hemangioma | 1 | 20 | 0 | 1 | Dorsum foot |
| 12 | Lobular Capillary Hemangioma | 4 | 15-58 | 3 | 1 | Tongue, occipetal skin, upper eyelid |
| 13 | Epithelioid Hemangioma | 1 | 24 | 1 | 0 | Arm |
| 14 | Tenosynovial Giant Cell Tumour | 3 | 13-31 | 1 | 2 | Hand, foot toe |
| 15 | Diffuse type Tenosynovial giant cell Tumour | 1 | 30 | 1 | 0 | Toe |
| 16 | Pleomorphic Spindle Cell sarcoma- Leiomyosarcoma | 1 | 54 | 1 | 0 | Arm |
| 17 | Tumour of uncertain differentiation | 1 | 79 | 0 | 1 | Lower abdomen |

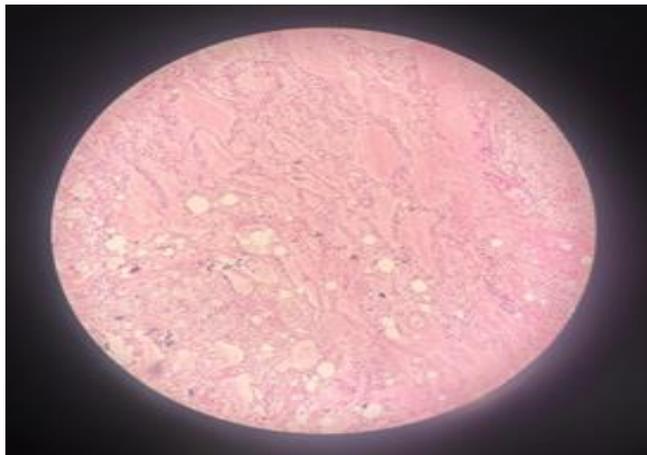


Figure 1: [A] H & E X (10x) Low Grade Myxoid Liposarcoma depicts multivacuolated lipoblasts with myxoid matrix

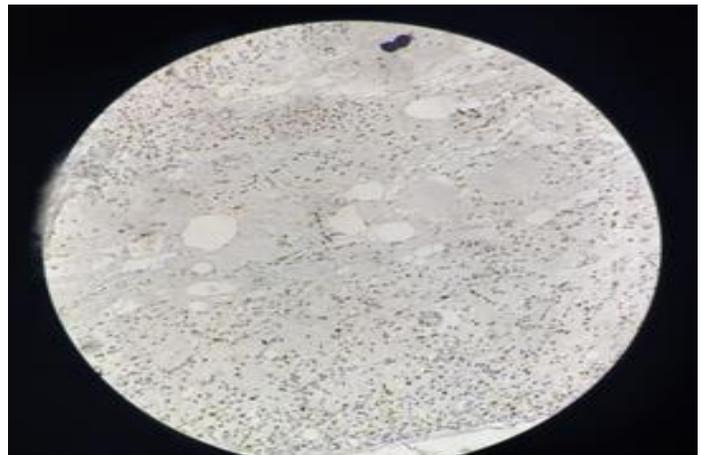


Figure 1: [C] S-100 X (10x) Low Grade Myxoid Liposarcoma demonstrates positivity for tumour cells

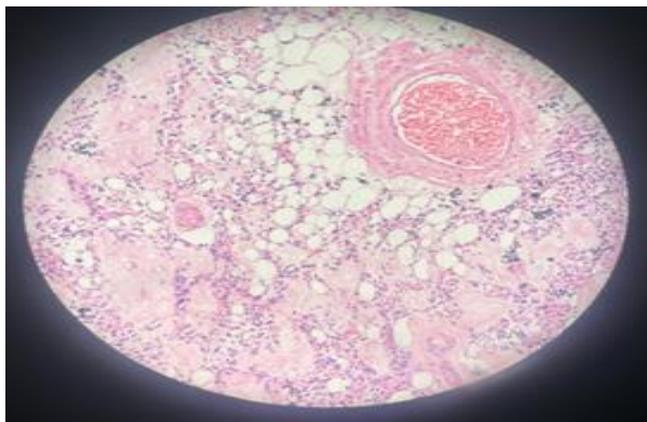


Figure 1: [B] H & E X (20x) Low grade Myxoid liposarcoma depicts Stellate tumour cells with signet ring lipoblasts

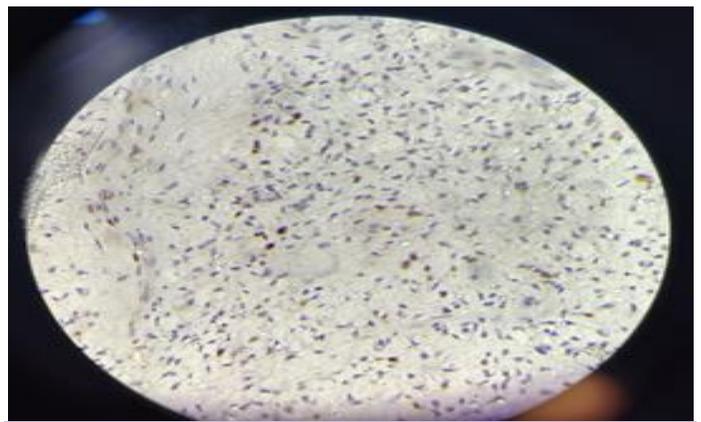


Figure 1: [D] Ki-67 X (40x) Low Grade Myxoid Liposarcoma demonstrates positivity for tumour cells

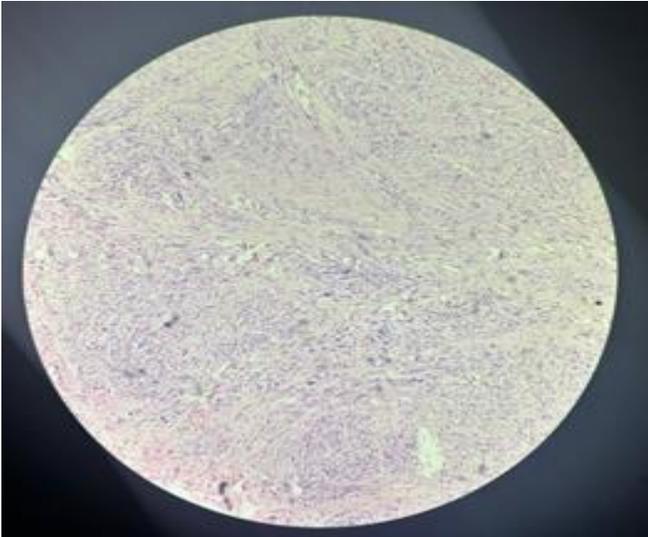


Figure 2: [A] H&E (10x) demonstrates Pleomorphic spindle cell sarcoma-Leiomyosarcoma

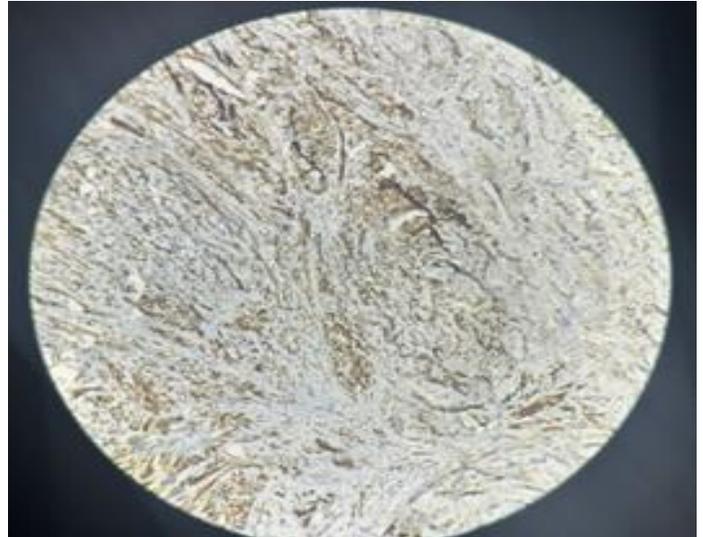


Figure 3: [B] Desmin X (20X) shows positivity for tumour cells Pleomorphic spindle cell sarcoma-Leiomyosarcoma

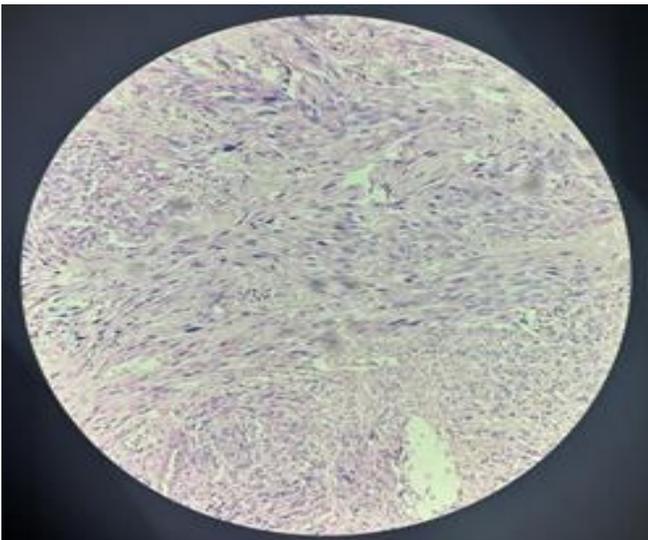


Figure 2: [B] H&E X (20x) Pleomorphic spindle cell sarcoma-Leiomyosarcoma

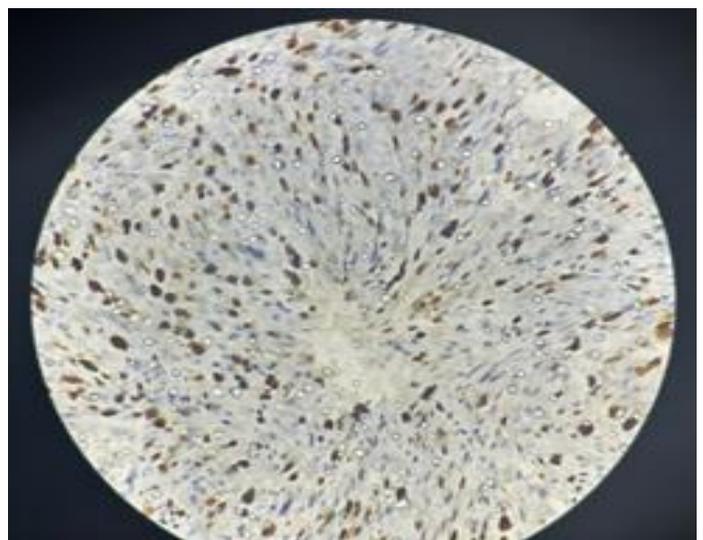


Figure 4: [A] Demonstrates Ki-67 Proliferation Index

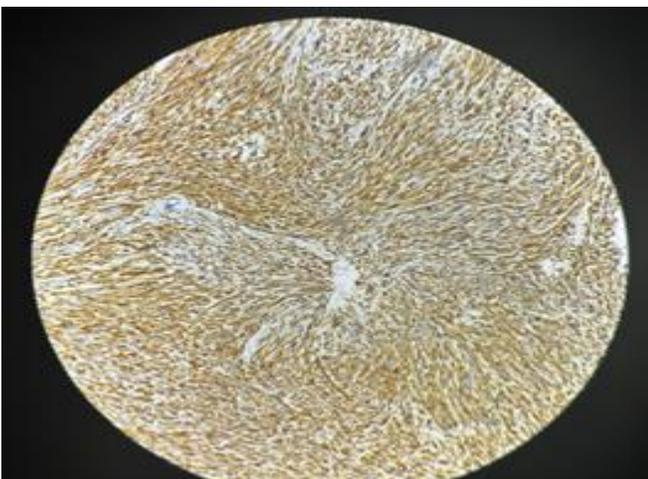


Figure 3: [A] Vimentin X (20x) demonstrates positivity for tumour cells

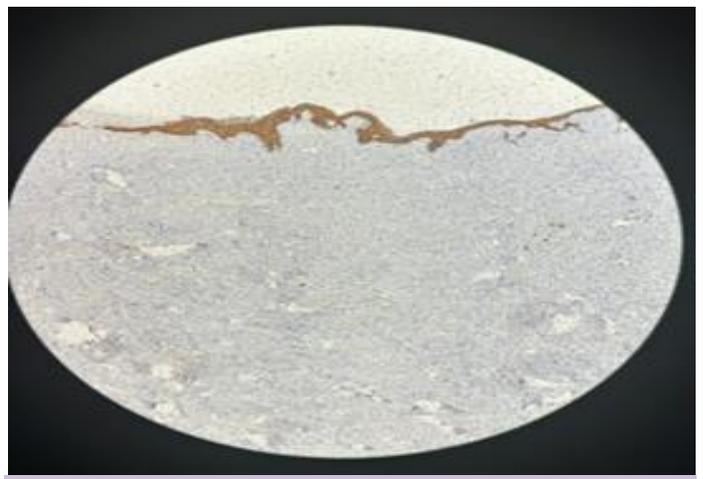
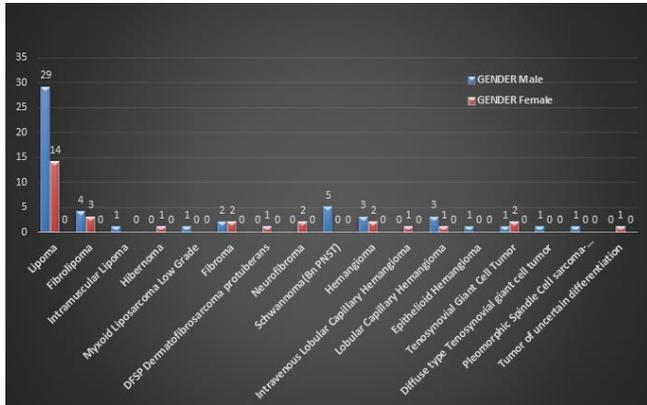


Figure 4: [B] Depicts Melanosome negativity for pleomorphic spindle cell sarcoma-leiomyosarcoma



Graph-5: Soft tissue tumours - distribution

With seven occurrences (8.5%), benign peripheral nerve sheath tumors (PNSTs) ranked third in frequency. Patients between the ages of 22 and 50 had these tumors, which were mostly seen in the extremities, with a 2.5:1 male-to-female ratio, indicating a male predominance. The most common subtypes found in this group were schwannomas (5 cases) and neurofibromas (2 cases).

Four cases (4.9%) of benign fibroblastic tumors were observed in people between the ages of 18 and 55. These tumors showed no sex predilection and most commonly affected the head and neck region and upper extremities

Out of all benign soft tissue tumors, benign fibrohistiocytic tumors accounted for four instances (4.9%) and were most frequently seen in the lower limbs.

There was only one instance of a benign tumor with unclear distinction.

Soft tissue tumours of the intermediate grade, a case of DFSP was reported in a 59-year female on leg.

The malignant soft tissue tumours found were Low Grade Myxoid Liposarcoma and Pleomorphic Spindle Cell sarcoma-Leiomyosarcoma.

Malignant soft tissue tumors were located deeper, whereas the majority of benign and intermediate tumors were determined to be superficial. Most common site of occurrence was upper extremities and head, neck region.

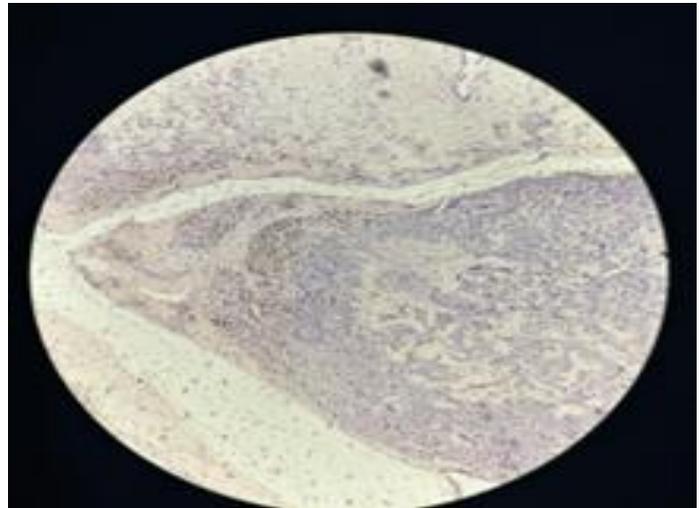


Figure 5: [B] Diffuse type giant cell tumour H&E on 10x

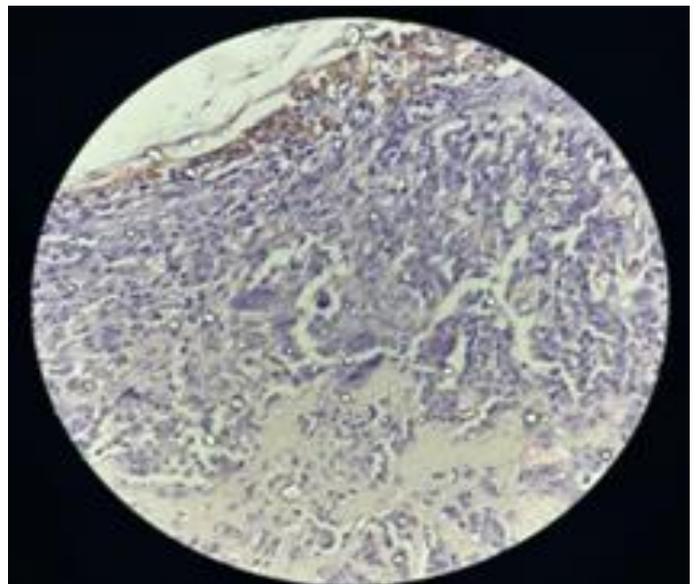


Figure 5: [C] Diffuse type giant cell tumour H &E on 40x
Figure 5: Benign fibrohistiocytic tumours

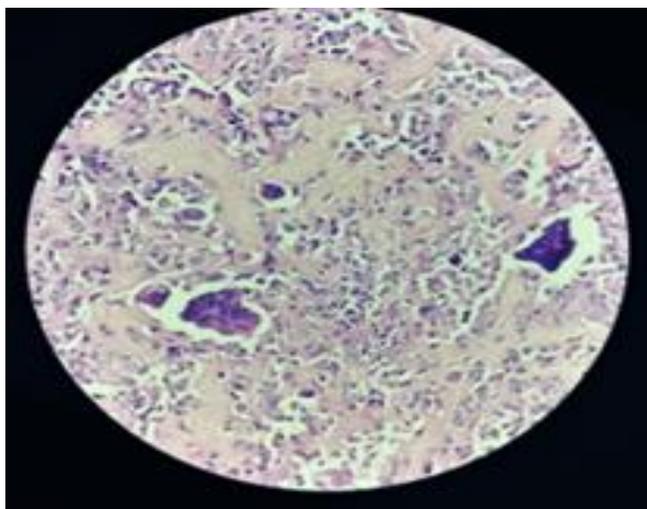


Figure 5: [A] Tenosynovial giant cell tumour H &E on 40x

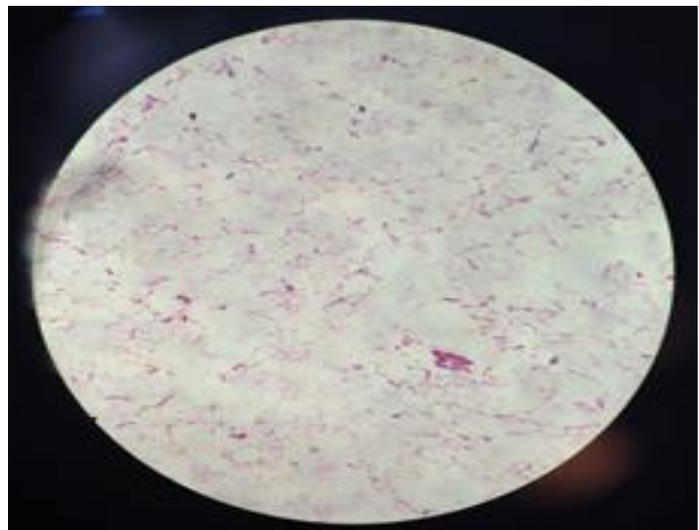


Figure 6: [A] Intramuscular lipoma H&E on 20x

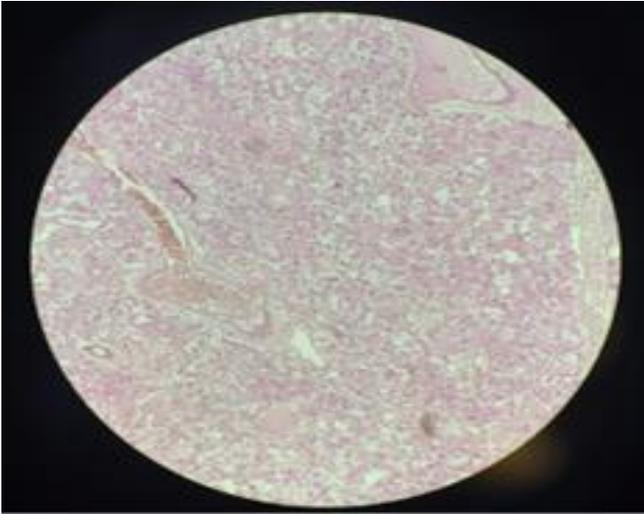


Figure 6: [B] Hibernoma H&E (10X)

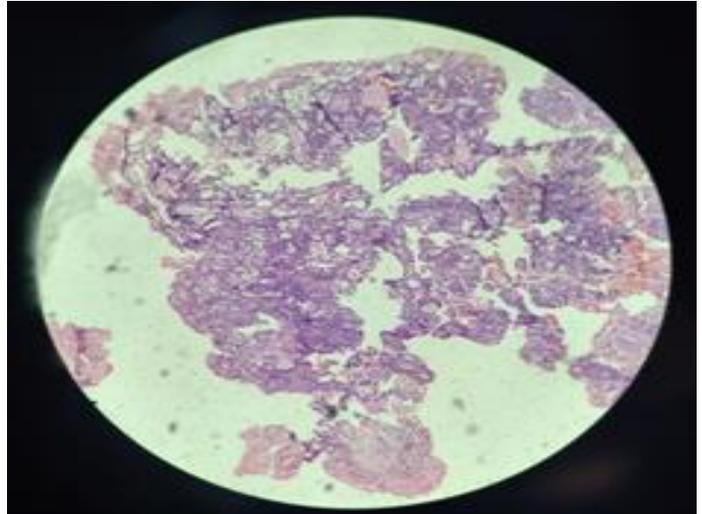
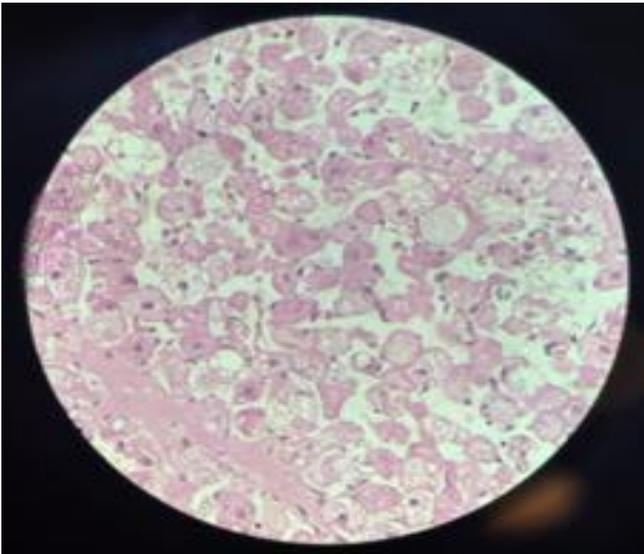
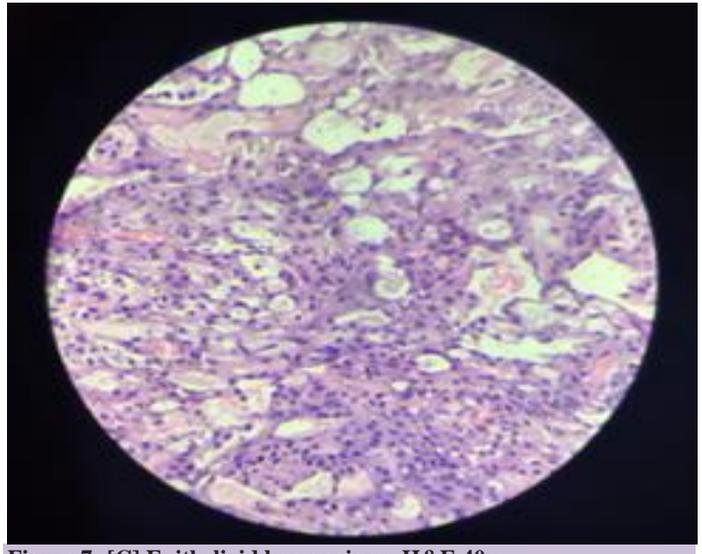


Figure 7 [B] Epithelioid Hemangioma H&E on 10x



**Figure 6: [C] Hibernoma (40X)
Figure-6: Benign adipocytic tumours**



**Figure 7: [C] Epithelioid hemangioma H&E 40x
Figure 7: Benign Vascular Tumour**

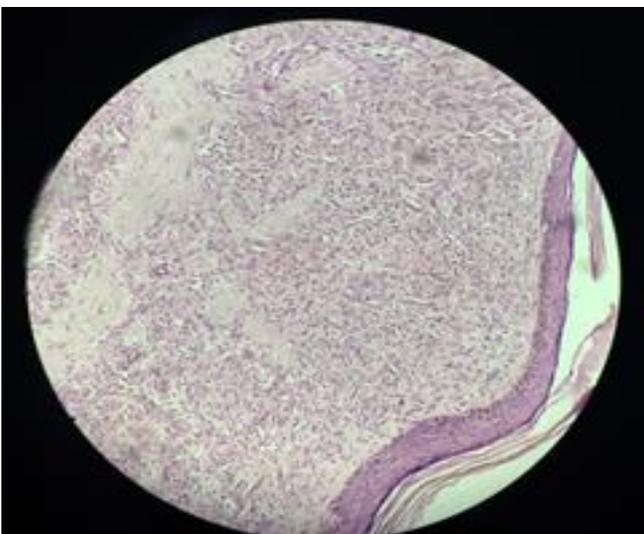


Figure 7: [A] Capillary hemangioma H&E 20 x

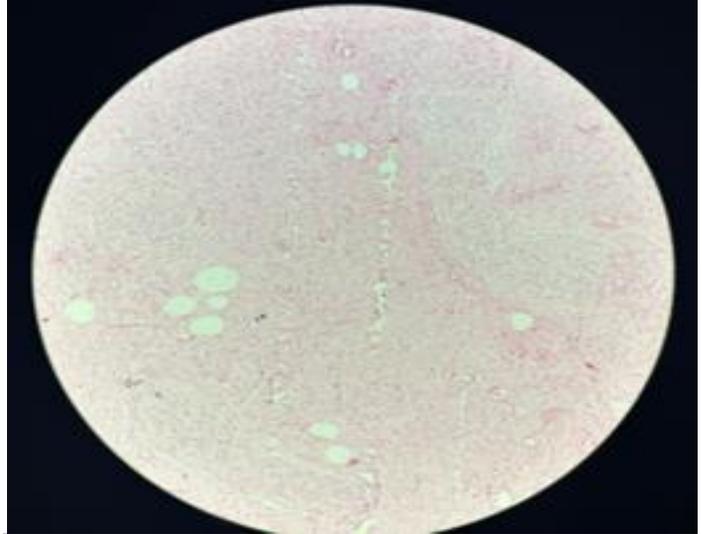


Figure 8: [A] Plexiform Neurofibroma H&E Stain on 10x

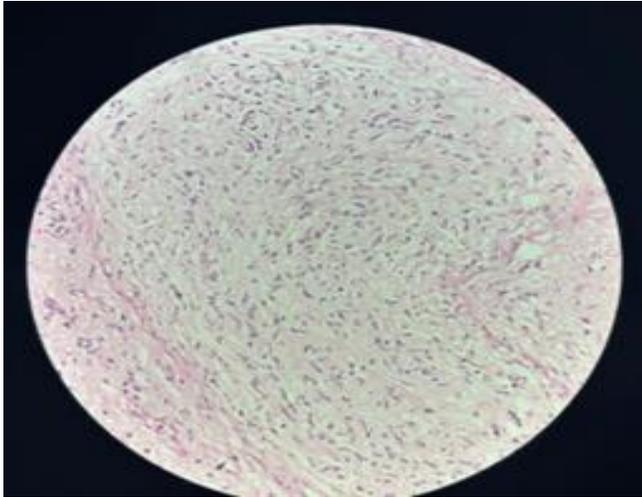


Figure 8: [B] Plexiform Neurofibroma H&E Stain on 40x
Figure 8: Benign peripheral nerve sheath tumours

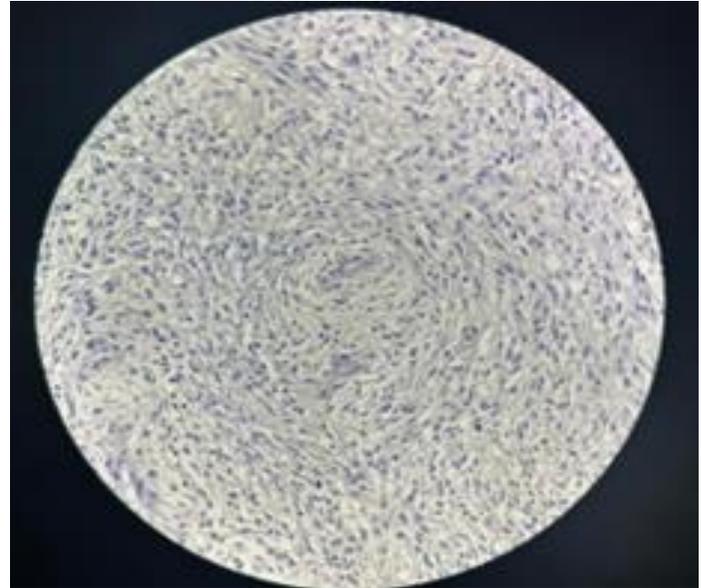


Figure 9: [B] Dermatofibrosarcoma protuberans H&E on 40x
Figure 9: Intermediate Category STT

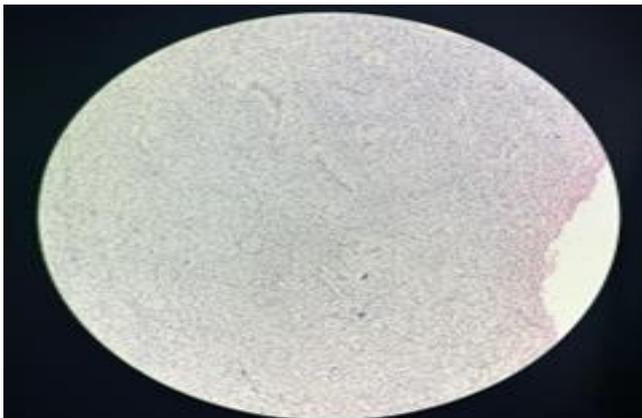


Figure 9: [A] Dermatofibrosarcoma protuberans H&E on 10x

DISCUSSION

Soft-tissue tumours constitute a large and heterogeneous group of neoplasms.

In this retrospective study 82 cases of soft tissue tumours were analyzed, which comprise all benign, Intermediate and malignant types. The objective of the investigation was to analyze the data derived from our hospital concerning the incidence and proportion of both malignant and benign soft tissue tumours (STTs), as well as to explore variances in parameters such as age, gender, anatomical location, and histopathological characteristics.

Table 6: Soft tissue tumour distribution in several studies

| Year | Study | Benign | Intermediate | Malignant | Total |
|------|--------------------------|--------|--------------|-----------|-------|
| 2025 | Paul6 et al | 188 | 0 | 12 | 200 |
| 2019 | Pagaro11 et al | 90 | 02 | 08 | 100 |
| 2016 | Narayanan12NO et al 2016 | 273 | 10 | 08 | 291 |
| 2016 | Swagata10D et al 2016 | 44 | 01 | 05 | 50 |
| 2015 | Umarani9 MKet al 2015 | 204 | 05 | 11 | 220 |
| | Present Study | 79 | 01 | 02 | 82 |

In every study that was done, it was discovered that benign soft tissue neoplasms were significantly more common than malignant neoplasms.

Patients between the ages of 13 and 79 were found to have benign soft tissue neoplasms, with the 20–40 age group having the highest frequency, paralleling the results of previous research done by Paul6 et al. Two cases (2.4%) of malignant soft tissue tumors, one case (1.2%) of intermediate category, and 79 cases (96.3%) of benign STT were found in our study. Malignant soft tissue neoplasms were found in patients' age range between 42 and 54 years. The majority of the 270 STTs examined in Singh et al,^[7] study were benign tumors, Intermediate and malignant tumours came next. In this investigation, tumours in the intermediate category were the least frequently found. Research by Agravat et al,^[8] Umarani M K et al,^[9] Swagata

D et al,^[10] and Pagaro et al,^[11] also revealed similar results, while Narayanan NO et al,^[12] examined 291 soft tissue tumour cases and found that 93.8% of them were benign, 3.4% were intermediate, and 2.8% were malignant. [Table 6].

Pagaro P M et al,^[11] examined the histopathology of human STTs and discovered a 90:8 ratio of benign to malignant soft tissue neoplasms. In our investigation, the percentages of benign and malignant neoplasms were comparable.

Both our study and investigations by Singh et al,^[7] Trojani et al,^[3] Ducimetière,^[14] Gustafson,^[15] and Jemal A et al,^[16] show a male predominance in STTs. In our study benign soft tissue tumours (STTs) were identified as prevalent within the younger demographic, while malignant STTs exhibited a higher incidence during the fifth and sixth decades of life. This observation aligns with the findings reported in previous research studies conducted in this domain by Agravat et al,^[8]

and Wibmer et al,^[18] We found that the most prevalent cancers in children were vascular and nerve sheath tumours. In comparison to Agravat et al,^[8] and Hasan et al,^[18] 52 instances (52%) of all soft tissue neoplasms were benign adipocytic tumors. Ramnani¹⁸ et al. examined the clinicopathological characteristics of benign STTs, discovering that the highest proportion of cases—50.8%—were lipomas and their variations. Lipomas were most common in people between the ages of 21 and 50. The age group between 31 and 40 had the highest frequency (37.7%), indicating a male predominance. The majority of the study's benign and intermediate tumors were discovered to be superficial in nature, while malignant soft tissue tumours were deep seated. Most common site of occurrence was upper extremities and head, neck region. In our study benign adipocytic tumours comprised 52 cases (63.4%) of all soft tissue neoplasms. These tumours were found across all age groups. Our investigation indicates that lipoma with its sub-types fibrolipoma and intramuscular lipoma, with a male-to-female ratio of 2:1 and a peak occurrence in the third and fourth decades, which makes up 51 instances (62.2%) of the most common STT. The most frequent sites of incidence were the trunk and upper extremities, which was true for all main study groups. There was one case of hibernoma (figure-6) where site of occurrence was back. Of them, hemangiomas were the most prevalent, whereas the second most prevalent (13.41%) were vascular tumors [Figure 7]. This finding is consistent with research by Kransdorf,^[20] Makino et al,^[21] and Agravat et al.^[8] Similar to the research by Kim et al,^[22] the most prevalent benign PNST in our study were Schwannoma and neurofibroma (figure 8). According to research by Agravat et al,^[8] fibroblastic tumors were the fourth most prevalent; in our analysis, we discovered one case of dermatofibrosarcoma [Figure 9].

Two malignant soft tissue tumours were low grade myxoid liposarcoma [Figure 1] and pleomorphic spindle cell sarcoma-Leiomyosarcoma [Figure 2-4] which was located in the extremities. Similar findings were reported by Samartha V et al,^[23] Jain P et al.^[24] In our study most common site of occurrence was extremities followed by head and neck region and trunk, according to the Mandong et al,^[25] study, the most common location for malignant soft tissue tumours is the extremities (45.7%). According to the 2020 WHO classification of soft tissue tumours, there is an intermediate category of these tumours that are known to have a low to moderate risk of spreading and to generate recurrent local recurrences. One instance of intermediate soft tissue lesions, dermatofibrosarcoma protuberans [Figure 9], was found in a 59-year-old woman's thigh. There was a case of tumour of uncertain differentiation where the biopsy was obtained from 79-year female patient presented with abdominal lump. Histopathological examination showed benign spindle cells morphology of tumour cells with bland nuclei and eosinophilic cytoplasm. For further categorization biopsy from deeper tissue and immunohistochemistry (IHC) was advised to patient but we lost follow up on patient.

Limitations: The limited sample size and hospital setting of

this study are its limitations. We need more research with a larger sample size to confirm our findings.

CONCLUSION

Soft tissue tumours represent a heterogeneous group of lesions with diverse histomorphological patterns and biological behaviour, with benign tumours being more common. Histopathological examination remains the cornerstone for accurate diagnosis, whereas immunohistochemistry serves as a valuable adjunct in difficult cases. Correlation with clinical and anatomical features is essential for appropriate classification and management. Adherence to updated WHO classification ensures uniformity in diagnosis and reporting.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Ingale YP, Bavikar RR, Kulkarni SP, Kale NC: Histological spectrum of benign soft tissue neoplasm in a tertiary care center. *Clin Cancer Investig J.* 2021, 10:108-11.
2. Ahlawat S, Fayad LM: Revisiting the WHO classification system of soft tissue tumours: emphasis on advanced magnetic resonance imaging sequences. Part 1. *Pol J Radiol.* 2020, 85:396-408.
3. Chakrabarti P R, Chakravarti S, Pandit A, Agrawal P, Dosi S, Mukul Raj et al: Histopathological study of soft tissue tumours: a three year experience in tertiary care centre. *Indian J Pathol Oncol.* 2015, 2:141-9.
4. Begum S ,Kathirvelu S , AnandrajVaithy K, Srinivasan S: Clinic-pathological study of soft tissue tumours . *Indian J Pathol Oncol.* 2020, 7:259-65.
5. Enzinger FM, Weiss SW, Goldblum JR. *Enzinger and Weiss's Soft Tissue Tumors.* 6th ed. Philadelphia: Elsevier; 2014.p.719-760
6. Paul A U, Mane S M, Swami S Y. *Clinicopathological Study of Soft Tissue Neoplasms.* *Cureus* 17(5)
7. Singh HP, Grover S, Garg B, Sood N. Histopathological spectrum of soft-tissue tumours with immunohistochemistry correlation and FNCLCC grading: A North Indian Experience. *Niger Med J.* 2017;58:149-154.
8. Agravat AH, Dhruva GA, Parmar SA. Histopathology study of human's soft tissue tumours and tumour like lesions. *J Cell Tissue Res.* 2010;10:2287-90.
9. Umarani MK, Lakra PS, Bharathi M. Histopathological Spectrum of Soft Tissue Tumors in a Teaching Hospital. *IOSR J Dent Med Sci.* 2015;14:74–80.
10. Swagata D, Gobil T, Projnan S. Spectrum of soft tissue tumours at a tertiary care centre in North East India. *Indian J Basic Appl Medl Res.* 2016;5:303–6.
11. Pagaro P, Gambhir A, Agrawal N . A study of the histopathological spectrum of soft tissue tumours in a tertiary care centre: *Indian Journal of Pathology and Oncology* 2019;6:603–9.
12. Narayanan NO, Sapna M, Sumangala B. Spectrum of soft tissue tumours in a tertiary care centre- A 5 year study. *Natl J Med Dent Res.* 2016;4:83–8.
13. Trojani M, Contesso G, Coindre JM, Rouesse J, Bui NB, De Mascarel A et al. Soft-tissue sarcomas of adults; study of

- pathological prognostic variables and definition of a histopathological grading system. *Int J Cancer*. 1984;33:37-42.
14. Ducimetiere F, Lurkin A, Ranchere-Vince D, Decouvelaere AV, Peoch M, Istier L et al. Incidence of sarcoma histotypes and molecular subtypes in a prospective epidemiological study with central pathology review and molecular testing. *PLoS One*. 2011;6:1-6
 15. Gustafson P. Epidemiology and clinical course in soft tissue sarcoma. *Acta Orthopaedica*. 1994;65:7-10.
 16. Jemal A, Siegel R, Ward E, Murray T, Xu J, Thun MJ et al. Cancer statistics, 2007. *Cancer J Clinicians*. 2007;57:43-66.
 17. Wibmer C, Leithner A, Zielonke N, Sperl M, Windhager R. Increasing incidence rates of soft tissue sarcomas? A population-based epidemiologic study and literature review. *Ann Oncol*. 2010;21:1106-11.
 18. Hasan IS, Suliman AY, Hassawi BA: Soft tissue tumours - histopathological study of 93 cases. *Ann Coll Med Mosul*. 2010, 36:92-8.
 19. Ramnani BG, Kumar A, Chandak S, Ranjan A, Patel MK: Clinicopathological profile of benign soft tissue tumours: a study in a tertiary care hospital in Western India. *J Clin Diagn Res*. 2014, 8:01-4.
 20. 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;164:395-402.
 21. Makino Y. A clinicopathological study on soft tissue tumours of the head and neck. *Pathol Int*. 1979;29:389-408.
 22. Kim DH, Murovic JA, Tiel RL, Moes G, Kline DG. A series of 397 peripheral neural sheath tumours: 30 year experience at Louisiana State University Health Sciences Center. *J Neurosurg*. 2005;102:246-55.
 23. Samartha V, Hegde S, Ahmed Z, Umaru N. Histopathological Study of Malignant Soft Tissue Tumours. *J Evol Med Dent Sci*. 2015;4:3320-28.
 24. Jain P, Shrivastava A, Malik R. Clinicomorphological Assessment of Soft Tissue Tumors. *Sch J App Med Sci*. 2014;2:886-890.
 25. Mandong BM, Kidmas AT, Manasseh AN, Echejoh GO, Tanko, Madaki AJ. Epidemiology of soft tissue sarcomas in Jos, North Central Nigeria. *Niger J Med*. 2007;16:246-9.