

HISTOPATHOLOGICAL PATTERN OF SOFT TISSUE TUMORS IN A TERTIARY CARE CENTRE IN NORTH INDIA: A RETROSPECTIVE STUDY

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Article Info: Received 06 February 2020; Accepted 27 February 2020

DOI: <https://doi.org/10.32553/ijmbs.v4i3.1019>

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Conflict of interest: No conflict of interest.

Abstract

Background: Soft tissue tumors are a diverse group of lesions arising from the supporting soft tissue of the body. Though pathologically diverse, they frequently exhibit similar clinical presentations and radiological features. Correct histopathological diagnosis is therefore crucial for further management.

Aim/Objectives: To evaluate the spectrum of benign as well as malignant soft tissue tumors in a tertiary care centre in North India.

Material and Methods: This retrospective study was carried out in the Department of Pathology from April 2017 to March 2018. All cases of soft tissue tumors in this period were included in the study. Gross findings were recorded from Histopathology request forms. Histology slides stained with haematoxylin and eosin stain were reviewed and findings recorded.

Results: Majority of patients were males with maximum cases in the 4th decade. Of all soft tissue tumors, 90.4% were benign, 4.0 % intermediate and 5.6% were malignant. Benign Adipocytic tumors (48.0%) were the commonest soft tissue tumors, followed by benign vascular tumors (24.0%). Malignant Fibrous Histiocytoma was the commonest malignant neoplasm in our study (42.8 %).

Conclusions: Soft tumors pose diagnostic challenges because of confounding morphological characteristics. The incidence of benign tumors (90.4%) was much higher than malignant tumors in our study with benign lipomatous tumors (48.0%) being most common tumors.

Keywords: Histopathology; Tumors; Lipomatous; Malignant

Introduction

Soft tissue tumors are defined as mesenchymal proliferation occurring in extra-skeletal non-epithelial tissue of the body, excluding the viscera, covering of brain and lymphoreticular system [1]. These are a heterogeneous group of tumors that are classified on histogenetic basis according to the adult tissue they resemble. Majority of soft tissue tumors are benign while malignant mesenchymal neoplasms amount to less than 1% of the overall malignant tumors in the body. Many risk factors like genetic factors, environmental factors, irradiation, viral infections and immune deficiency have been found to be associated with malignant soft tissue tumors. Commonest locations of soft tissue tumors include extremities, trunk, abdominal cavity and head and neck region [2].

Fine needle aspiration cytology (FNAC) plays an important role in diagnosing the soft tissue lesions. CT-guided FNAC can be particularly helpful in diagnosis of intra-abdominal and retroperitoneal lesions [3]. However sometimes

definite diagnosis of the lesion cannot be made on FNAC. Biopsy of soft tissue tumors is an essential part of preoperative evaluation of soft tissue tumors. A core biopsy, an excisional biopsy and an incisional biopsy are used for diagnosing majority of soft tissue masses. Soft tissue tumors pose a great diagnostic challenge, with constantly evolving histopathological criteria, particularly concerning ancillary investigations such as immunohistochemistry and molecular genetics [4]. So the study was performed to evaluate the spectrum of soft tissue tumors in a tertiary care centre in North India.

Material and Methods:

This retrospective study was conducted for a period of one year in histopathology section of Department of Pathology, GMC Jammu from April 2017 to March 2018. All specimens of soft tissue neoplasms including biopsy specimens as well as completely surgically excised specimens received in the department during this period were included in the study. Non-neoplastic, insufficient and autolysed biopsy specimen were excluded. The clinical data pertaining to patient's age, sex and anatomical site were recorded from the

requisition forms and data registers. All the specimens were received in 10% buffered formalin, labelled, representative sections taken and processed in ethanol, xylene and paraffin wax, blocks prepared and microtome sections 5 micron thick taken. Slides were prepared, stained with Haematoxylin and Eosin and reported by histopathologist. The findings were recorded in detail and tabulated.

Results:

125 biopsy specimens formed the material of the study. Majority of the patients were males with male to female ratio of 1.8:1. Majority of cases (90.4%) were benign, 7 (5.6%) were malignant and 5 (4.0 %) intermediate tumors. The peak age incidence for malignant tumors was in 6th decade while for benign tumors it was 3rd decade. Majority of the benign tumors were located in head and neck region (61.9%) while majority of malignant tumors had predilection of extremities (85.7%).

Adipocytic tumors were the commonest lesion among the benign tumors followed by vascular tumors and Nerve sheath tumors. Lipoma was the most common benign tumor in our study, seen in 40% cases. Among other

adipocytic tumors, 3 cases of fibrolipoma and 2 cases of angioliopoma were also seen. Among the vascular tumors, capillary hemangioma was the commonest tumor (9.6%) followed by AV malformation (8.8%) and cavernous hemangioma (4.0%). One case each of glomus tumor and Angio-lymphoid Hyperplasia with Eosinophilia were also seen. 11 cases of peripheral Nerve sheath tumors including 7 cases of Neurofibroma and 4 cases of schwannoma were observed in the study. Among Fibrous tumors, fibroma was the commonest benign tumors in our study seen in 4 cases followed by fibroma of tendon sheath and dermatofibroma (3 cases each). Other benign fibrous tumors included benign fibrous histiocytoma and solitary fibrous tumor (Table 1).

Among malignant lesions, malignant fibrous histiocytoma was the commonest lesion accounting for 2.5% of all cases. Other malignant tumors included malignant peripheral nerve sheath tumor, liposarcoma, Epithelioid Hemangio-endothelioma and Leiomyosarcoma. Among the intermediate category lesions, three cases of Desmoid tumor and solitary case each of hemangiopericytoma and dermatofibrosarcoma protuberans were also seen.

Table 1: Distribution of Soft Tissue Tumors (n=125)

Tumor	Benign	Intermediate	Malignant
Adipocytic	-Lipoma (55) -Fibrolipoma (3) -Angioliopoma (2)	-	-Liposarcoma (1)
Vascular	-Capillary Hemangioma (12) -Cavernous Hemangioma (5) -AV Malformation (11) -Glomus Tumor (1) -Angiolymphoid Hyperplasia with Eosinophilia (1)	-Hemangiopericytoma (1)	-Epithelioid Hemangio-endothelioma (1)
Fibrous	-Fibroma (4) -Fibroma of Tendon Sheath (3) -Dermatofibroma (3) -Benign Fibrous Histiocytoma (1) -Solitary Fibrous Tumor (1)	-Desmoid (3) -Dermatofibrosarcoma Protuberans (1)	-Malignant Fibrous Histiocytoma (3)
Nerve Sheath	-Neurofibroma (7) -Schwannoma (4)	-	-Malignant Peripheral Nerve Sheath Tumor (1)
Smooth Muscle	-	-	Leiomyosarcoma (1)
Total	113	5	7

Discussion:

125 soft tissue tumors were included in our study. Age of the patients in our study ranged from 6 months to 98 years. Majority of the patients were males with male to female ratio of 1.8:1, similar to results of Mandong BM et al [5] and Thaker BD et al [6]. Majority of tumors in our study were benign tumors followed by malignant tumors and indeterminate lesions, similar to results of Batra P et al [7] and Jain P et al [1]. Benign tumors were common in younger population whereas malignant tumors were common in 5th to 6th decade of life. This result was in concordance with studies conducted by Agravat et al [8] and Wimber et al [9].

Among benign tumors, adipocytic tumors were the commonest lesions followed by vascular tumors and Nerve sheath tumors similar to results of previous studies [1,6,8]. Lipoma was the commonest benign tumor seen in our study. Similar results were seen in study by Agravat AH et al [8], Thaker BD et al [6] and Gogi AM et al [10]. Among the adipocytic tumors, 1 case each of angio-lipoma and fibrolipoma were also seen. Among benign vascular tumors, Capillary hemangioma was the commonest type followed by AV malformation and cavernous hemangioma. Among Nerve sheath tumors, Neurofibroma was seen in majority of cases similar to that seen by Umarani MK et al [11]. Other benign tumors observed in our study included fibroma, fibroma of tendon sheath and dermatofibroma. Among the intermediate category lesions, 3 cases of

desmoid tumour were seen with a single case each of hemangiopericytoma and dermatofibrosarcoma protuberans.

Among malignant tumors, malignant fibrous histiocytoma was the commonest lesion seen in 2.5% cases. Naik V et al [12] also observed malignant fibrous histiocytoma as the commonest malignant lesion in their study. Other malignant lesions observed in our study were malignant peripheral nerve sheath tumor, liposarcoma, epitheloid hemangioendothelioma and leiomyosarcoma. Umarani MK et al [12] found 11 malignant cases in their study, out of which 3 cases were liposarcoma followed by 2 cases each of rhabdomyosarcoma, Ewings Sarcoma and Synovial sarcoma.

Head and neck was found to be the commonest site involved by benign tumors similar to previous studies [6]. Malignant tumors were found to have predilection for extremities followed by trunk similar to previous studies Swagata D et al [4] and Thaker BD et al [6].

Conclusions:

Soft tissue tumors are commonly encountered in surgical pathology and sometimes pose diagnostic challenge. Benign soft tissue tumors were more common than malignant soft tissue tumors in our study. Males were more commonly affected than females. Benign Lipomatous tumors were the most common type of tumors in our study. Benign tumors predominantly involved head and neck area whereas malignant tumors were common in Extremities.

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