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Histopathological Characteristic of Soft Tissue Tumors in Lower Sindh in Pakistan

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Abstract

Background: Through the use of soft tissue component analysis, soft tissue tumors can be distinguished between benign and malignantwith varying degrees of accuracy based on signal intensity and morphologic features.

Aim. Soft tissue tumors are a group of lesions that arise from the body's mesenchymal tissues and have overlapping clinical and radiological characteristics. To make a proper diagnosis, a histopathological investigation is required. The study's major goal is to look at the trend and pattern of soft tissue lesions in different age groups and genders.

Methods: This is a prospective study that included all specimens suspected of having a soft tissue lesion clinically. Processed and inspected under the microscope are the formalin-fixed specimens. There were soft tissue tumors were found in 482 instances in which 435 (90.3%) were benign and 47 (9.7%) were malignant. The most prevalent kind of soft tissue tumor is benign in this age range 21-30 (117 cases, 26.9%), while in this age range 31-40 (9 cases, 19.11%), malignant soft tissue tumors were the most common.

Results: Findings showed females 240 (94.1%) were more likely than males to have head and neck 200 (46 percent) had the most benign soft tissue tumors, with males predominating in often tissue tumors in the lower extremities that are malignant21 (44.7%). Lipoma was the most prevalent benign soft tissue tumor, capillary hemangioma, pyogenic granuloma and fibroma, these accounted for 140 (32.2%), 105 (24.1%), 65 (14.9%) and 56 (12.9%) respectively. Fibrosarcoma, MFH, ASPS and Pleomorphic Liposarcoma were common malignant tumors accounted for 17 (36.2%), 15 (31.9%), 3 (6.4%) and 3 (6.4%) respectively.

Conclusion: It has been determined that exceptional stain can guide the diagnosis, but Other auxiliary procedures, such as IHC, can help to fine-tune the type-specific diagnosis.

Key Words: Histopathological Characteristic, Soft Tissue Tumors, Lower Sindh, Pakistan

Introduction

Harpal and Richika (2006)define soft tissue tumors as mesenchymal neoplasms that arise from extra-skeletal tissues of the body, such as adipose tissue, neural tissue, blood vessels, muscle, and fibrous tissues. They are a group of neoplasms having similar clinical and radiological characteristics (Jobanputra et al. 2016). As a result, histology is required for accurate diagnosis. Soft tissue sarcomas are the fourth most prevalent malignancy in children, accounting for 15% of all neoplasms in children (Sajjad et al. 2016). These tumors occur at a rate of 1.4 per 100,000 people (Jain & Jadav, 2017).They are classed as benign, malignant, or intermediate, depending on how aggressive they are locally. Benign tumors outnumber malignant tumors, with benign tumors accounting for roughly 3000 per million compared to 30 per million for malignant tumors. 1 Males are more typically affected, and the extremities are the most common site, followed by the head and region, and the abdominal cavity. Other diagnostic procedures, such as specific stains, immunohistochemistry, and molecular investigations, improve diagnostic accuracy (Narayanan et al. 2016).

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Benign

Soft tissue tumors are the most commonare hemangiomas, which account for up to 7% of all benign soft tissue tumors. These benign lesions are usually perceived in children. Vessel hemangiomas are the utmost general kind usually diagnosed throughout 1st year of life and are often found in the epidermis and subcutaneous layer of the skin tissue. Capillary microscopically hemangiomas composed of vessel sized vessels of blood. Utmost of these hemangiomas spontaneously involute. Cavernous hemangiomas are bigger and profounder are occurs later in life. Cavernous hemangiomas are composed of dilated blood-filled compartments, lined through flattened endothelium(Boc et al. 2011).

In addition, Lobular Capillary Hemangioma (Pyogenic Granuloma) is a reactive angiomatous growth of the skin and mucous membranes that occurs often. The chest, upper extremities, and head are the most prevalent cutaneous locations. Mucosal lobular capillary hemangiomas include mostly the oral mucosa and affects women as compare to men, mostly usually seen in second and third eras of lifeby Wk et al. (2009). Epithelioid hemangioma is a benign vascular lesion with well-formed capillary-sized capillaries bordered by histiocytoid or epithelioid endothelial cells with inflammatory infiltrate.This uncommon lesion affects young adults who have a proclivity for head and neck cancers by Stratton and Billings (2009). Lymphangiomas are usually noted with equal sex incidence, at birth or within the second year of life. They prefer the head and neck, the axilla, the retroperitoneum, and the extremities. Lymphangiomas are characterized by dilated lymphatic channels and are categorized as follows:

Cavernous and Capillary and Cystic lymphangiomas.

Moreover, the capillary method is composed of lymphatic vessels with thin walls. Cavernous consists of large adventitial coatings on lymphatic vessels. The cystic lymphangiomas is composed of macroscopic lymphatic spaces(Zhang et al. 2010).

Malignant

Epithelioid hemangioendothelioma are mostly prevalent on the extremities and is usually found deep in soft tissue (65 percent), with the reminder positioned on the head and neck, the trunk, the mediastinum, and the retroperitoneum. This cancer can present over a broad he ages of 9 and 93 are most commonly affected, with a median age of 50. Tumor cells form connections that lead to small epithelioid cell nests buried in myxohyaline stroma., as seen by microscopy. Tumor cells having intracytoplasmic vacuoles are typical of tumor cells (Fukunaga et al. 2007).

Angiosarcoma of soft tissue is a group of neoplasms that all have a malignant process originating from the vessel's endothelial cells. These uncommon soft tissue tumors make up about 1.6 percent of all sarcomas of the soft tissues These cancers in the head and neck's superficial soft tissue, and they primarily affect elderly individuals with a male preference (Johnson et al. 1997).

Although the large majority of soft tissue tumors are both benign and malignant, accounting for less than 1% of all malignant tumors in humans, although they are life threateningand sub classification of these tumors is necessary for both prognosis and treatment. Classically, sub classification is based on histomorphological a ground that is done on Hematoxylin and Eosin stain section (H&E). The histomorphological diagnosis on H&E stain section remain a goal slandered technique and is

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sufficient for majority of these tumors. However, in addition to H&E-stained slides, additional special stains known as histochemical techniques often applied to increase diagnostic accuracy(William & Wilkins, 2006).

Masson's Trichrome stain, for example, is used to distinguish fibrous tissue from muscle. Phosphotungistic acid hematoxylin (PTAH) is used to stain muscle striation while reticulin is used to stain vascular structurestumors(Rosai& Ackerman, 2004). The purpose of goal of this research was to look at the histological characteristics of soft tissue tumorswith the help of special stain and to describe the site of lesion, age and sex distribution of these various types of tumors in lower Sindh.

Method

Research Design and Sample

The study was a descriptive institution-based study. From January 2009 to December 2010, all The Department of Pathology, Liaquat University of Medical & Health Sciences, Jamshoro, received soft tissue tumors, both benign and malignant. 482 instances of soft tissue tumors were collected between January 2009 and December 2010. Formalin-fixed specimens with age, sex, and location data were included. Cases in which the biopsy specimen reveals autolytic alterations and cases in which the data is lacking.

Data Collection and Procedure

Various soft tissue biopsy specimens, including incisional and excisional biopsies, as well as paraffin embedded blocks, were among the materials used. As demonstrated in the proforma, a comprehensive clinical history and results were recorded. Gross observations were made, size, shape, color, and consistency are all factors to consider. The results for earlier cases were obtained from the Pathology Department's records. The specimen was preserved in 10% neutral formalin for 24 hours before being cut into 4mm thick sections from a representative location and sent for dehydration, which was accomplished by running them through various ascending consecrations for prescribed periods of time (80 percent, 90 percent & 100 percent). Tissues were cleaned by immersing them in a 50 percent volume/volume (v/v) solution of alcohol, followed by two changes in pure xylene for two hours. For impregnation of the tissue Paraffin wax with the blocks had an 85°C melting point, and the tissues were embedded in L-shaped paraffin wax moulds, which were allowed to harden before being frozen in the freezer. These tissue blocks are made of paraffin wax were sliced into 2-5n thick slices using a rotating manual microtome. These sections were placed in a 37°C round water bath before being transferred on egg albumin-layered slides. The tissue sections were fixed on slides for roughly 2-3 hours in a fixer, and then routine staining with hematoxylin and eosin was performed.

Sections were deparaffinized for staining with hematoxylin and eosinstaining by passing through two changes of xylene, then through graded alcohol (100 percent, 95 percent, 80 percent & 70 percent) to distilled water. Then sections were maintained in Harris hematoxylin solution for 5-10 minutes for staining and quickly passed through acid water (1 percent) to eradicateextra stain. After that, tap water was used to wash the parts and stained with eosin for 5-10 minutes and dehydrated through passing by 70 percent, 80 percent, 95 percent, and 100 percent graded alcohol The parts were then cleaned with xylol and placed

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on mounting media. Units were examinedwith light microscope and special staining was done on selected cases to confirm diagnosis.

Procedure for Special Staining:

To distinguish between smooth muscle and fibrous tissue, Masson's Trichrome Stain was used, and Three options were considered: 1) Mix to prepare the acid fuchsin solution, combine 0.5mg acid fuchsin salt with 0.5ml glacial acetic acid in 100ml distilled water. 2) Phosphomolybdic acid was made by combining one gramme of the acid with one hundred milliliters of distilled water. 3) Methyl green was made by diluting 2.0 g of methyl green in 100 mL distilled water with 2.0 mL glacial acetic acid.For trichrome staining of masonrequired section was recut, dewaxed and bring to distilled water as described above and After 5 minutes of staining with iron hematoxylin, the image was washed with distilled water, 1 percent acid water, and finally tap water. Sections were stained for 5 minutes with the above produced acid fuchsin solution, then washed with distilled water, for 5 minutes with the phosphomolybdic acid solution, then drained, and finally for 2-5 minutes with the methyl green solution, then washed with distilled water. Sections were dehydrated in graded alcohol, clear in xylene, and mounted in mount medium after being treated with 1% acetic acid for 2 minutes. Nuclei were blue-black under a light microscope. Smooth muscle cytoplasm was red, while fibrous tissue was green.

A stain called Periodic Acid Sciff's (PAS) was used on ASPSwas applied. By dissolving 1.0 g of periodic acid salt in 200 ml of water that has been distilled, Schiff's reagent was employed to generate a periodic acid solution. Sections were recut, dewaxed, brought to distilled water, and stained during 5 minutes in the presence of a periodic acid solution. After that, the parts were washed multiple times with distilled water, Sciff's solution was applied for 15 minutes, and then the area was cleansed with 5-10 minutes under running tap water Harris's bluing staining was then applied to the nuclei. Hematoxylin and rinsed in water, absolute alcohol, xylene, and mounted in mount media as usual. Magenta with a glycogen stain.

One benign vascular tumor and one hemangiopericytoma were stained with Retic Stain to determine whether it was either an intravascular or perivascular tumor. The retic solution was created by gradually adding powerful ammonia to the water to 5ml of 10% aqueous silver nitrate solution (to dissolve the precipitate).Then 5ml of 3% sodium hydroxide solution and again concentrated ammonia was added drop by drop. Solution was filter and kept in dark bottle.Recut and dewaxed pieces were necessary for staining and bring to water through graded alcohol and After 5 minutes of treatment with a It was rinsed with tap water and bleached with a 1 percent oxalic acid solution after being soaked in a 1 percent potassium per magnate ($KMnO_4$) solution. Following a series of cassette water changes, sections were treated with for at least 15 minutes in a 2.5 percent iron alum solution before being rinsed in distilled water Sections were stained for two minutes in a prepared retic solution in a coplin jar, then reduced for two minutes in a 10% aqueous formalin solution before being rinsed in tap water, counterstained as desired eosin, dehydrated, clear in xylene and mounted in mount media.

For staining required sections were recut, dewaxed and bring to water through graded alcohol and 5 minutes in a 1% potassium per magnate ($KMnO_4$) solution, washed

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with tap water, and bleached in a 1% oxalic acid solution Following a wash in tape water, pieces were treated for at least 15 minutes with a 2.5 percent iron alum solution and washed multiple times in distilled water. Sections were stained for two minutes in a coplin jar with a prepared retic solution, then reduced for two minutes in a 10% aqueous formalin solution before being rinsed in tap water, counterstained as desired eosin, dehydrated, clear in xylene and mounted in mount media.

Phosphotungistic Acid Haemotoxylin (PTAH) stain was prepared when: 1) 0.5gm of haemitin and 5gm of in 500 mL of distilled water, phosphotungistic acid was added 2) PATH 0.25 percent KMnO4 solution was used to oxidize a solution (0.5 gramme Harris hematoxylin and 10 gramme phosphotungistic acid in 500 mL distilled water) (0.25 gm in 100 mL distilled water) 3) PTAH solution (0.5 gm phosphotungistic acid + 5 gm phosphotungistic acid in 500 mL distilled water).Sections were dewaxed, hydrated with graded alcohol, and brought to water for staining. After 30 minutes in an acid dichromate solution, the sections were rinsed in using tap water, an acid per magnate solution was applied for 1 minute. Bleach with 1% oxalic acid after rinsing with tap water, then rinse with tap water again. Finally, sections were stained overnight with the above-mentioned Mallory's PTAH stain, dehydrated in graded alcohol, cleaned in xylene, and mounted in mount medium. The color of a muscle striation was blue, while the color of the color of collagen was a dark brownish red.

Analysis

SPSS 16 version was used in this study. Descriptive statistical analysis was used to explore the frequency and percentage of soft tissue tumors through age, gender, and tumor site.

Results

The current research is based on 482 soft tissue tumor cases out of a total of 5354 tumors of all types during period of 1st January 2009 to 31st December 2010, reported in the department of Pathology, LUMHS Jamshoro. This laboratory represents the teaching hospital of the Jamshoro and Hyderabad and receives samples from various departments of this institute and private hospitals of Hyderabad. This research aims to determine the histopathological features of soft tissue malignancies, according to classification proposed by WHO (2002). The histopathological diagnosis was carried out on H&E-stained sections and help was also taken with some of the histochemical (special) stain on selected cases to highlight characteristic features. The percentage of the spread of soft tissue tumors of morphological (histological) characteristic of soft tissue tumors according to in the next paragraphs and tables, age, sex, and location are discussed:

Table1. Frequency, Age, Sex, Common Site and Histological Pattern of Benign Soft Tissue Tumors

Sr No#	Histological Type	No: (%)	Age in Mean (Range)	Sex		Site			
				Male (N/%)	Female (N/%)	H & N[1](N/%)	Trunk (N/%)	U L[2](N/%)	L L[3](N/%)

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1.	Lipoma	140(32.2 %)	36.9 (9-80 Y)	59 (42.1%)	81 (57.9%)	28 (20.0%)	54 (38.6%)	26 (18.6%)	32 (22.8%)
2.	Fibrolipoma	8(1.8%)	39.8 (20-70 Y)	6 (75%)	2 (25%)	2 (25%)	4 (50%)	0 (.0%)	2 (25%)
3.	Infiltrating Lipoma	2(.0.5%)	24.5 (14-35 Y)	2 (100%)	0 (.0%)	1 (50%)	0 (.0%)	0 (.0%)	1 (50%)
4.	Angiolipoma	1(0.2%)	3.0	0 (.0%)	1 (100%)	1 (100%)	0 (.0%)	0 (.0%)	0 (.0%)
5.	Fibroma	56(12.9%)	31.98 (3-66 Y)	27 (48.2%)	29 (51.8%)	20 (35.7%)	11 (19.6%)	7 (12.5%)	18 (32.2%)
6.	Angiofibroma	6 (1.4%)	20.16 (12-35Y)	5 (83.3%)	1 (16.7%)	6 (100%)	0 (.0%)	0 (.0%)	0 (.0%)
7.	Fibromatosis	3 (0.7%)	33.33 (10-50 Y)	1 (33.3%)	2 (66.7%)	0 (.0%)	2 (66.7%)	0 (.0%)	1 (33.3%)
8.	Myositis Ossificans	1(0.2%)	12	0 (.0%)	1 (100%)	0 (.0%)	0 (.0%)	0 (.0%)	1 (100%)
9.	Hemangiopericytoma	4 (0.9%)	43.75 (25-75 Y)	4 (100%)	0 (.0%)	1 (25%)	2 (50%)	0 (.0%)	1 (25%)
10.	BFH	13 (3.0%)	38.61 (18-60 Y)	9 (69.2%)	4 (30.8%)	0 (.0%)	4 (30.8%)	4 (30.8%)	5 (38.4%)
11.	Giant Tumor of Tendon Shaeth	8 (1.8%)	34.75 (25-45 Y)	3 (37.5%)	5 (62.5%)	0 (.0%)	0 (.0%)	6 (75%)	2 (25%)
12.	Capillary haemangioma	105 (24.1%)	21.81 (5 M-65 Y)	44(41.9%)	61 (58.1%)	73 (69.5%)	11 (10.5%)	9 (8.6%)	12 (11.4%)
13.	Pyogenic granuloma	65 (14.9%)	28.05 (1 M-70 Y)	22(33.8%)	43 (66.2%)	59 (90.8%)	4 (6.2%)	1 (1.5%)	1 (1.5%)
14.	Cavernous haemangioma	11 (2.5%)	16.75 (3 M-48 Y)	7 (63.6%)	4 (36.3%)	7 (63.6%)	1 (9.1%)	2 (18.2%)	1 (9.1%)
15.	Lymphangioma	8 (1.8%)	20.37 (2-60 Y)	5 (62.5%)	3 (37.5%)	2 (25%)	3 (37.5%)	1 (12.5%)	2 (25%)
16.	Glomus Tumor	2 (0.5%)	26.50 (25-28 Y)	1 (50%)	1 (50%)	0 (.0%)	1 (50%)	1 (50%)	0 (.0%)
17.	Angiomyxomas	2(0.5%)	16.50 (3-30 Y)	0 (.0%)	2 (100%)	0 (.0%)	0 (.0%)	0 (.0%)	2 (100%)
	Total	**435(100%)**							

1= Head & Neck, 2= Upper Limb, 3= Lower Limb

Table-10 showed Lipoma was the most common benign soft tissue tumor 140 (32.2%), commonly occurred in trunk 54 (38.6%) and lower extremities 32 (22.8%) with female predominance. Fibrolipma, infiltrating lipoma and angiolipoma accounted for 8 (1.8%), 2 (0.5%) and 1 (0.2%) respectively. Fibrolipoma commonly occurred in males (75%) while 2 (100%) cases of infiltrating lipoma occurred in males and 1 (100%) case of angiolipoma occurred in female.

Capillary haemangioma was next in frequency 105 (24.1%), followed by pyogenic granuloma 65 (14.9%), both these benign vascular tumors were showing striking prevalence in the head & neck and commonly occurred in females. Cavernous haemangioma 11 (2.5%) and lymphangioma 8 (1.8%) commonly occurred in males. Cavernous haemangioma commonly occurred in head and neck 7 (63.6%) and lymphangioma common in trunk 3 (37.5%).

Fibroma was fourth common benign soft tissue tumor 56 (12.9%), relatively common in females 29 (51.8%) and prevalent in head & neck 20 (35.7%) and lower extremities 18

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(32.2%). BFH accounted for 13 (3.0%) commonly prevalent in lower extremities 5 (38.4%) with male predominance 9 (69.2%). Four cases (0.9%) occurred in males (100%) and common on trunk 2 (50%).

On 8 examples of benign soft tissue tumors, special stains were used, including mason's trichrome on 4 cases of fibroma that were diagnosed on H&E as spindle cell lesion / fibroma / Leiomyoma. On four cases, the reticulin stain was usedof hemangiopericytoma for confirmation.

Table 2. Frequency, Age, Sex, Common Site and Histological Pattern of Malignant Soft Tissue Tumors

Histological Type	No: (%)	Age in Mean (Range)	Sex		Site			
			Male (N/%)	Female (N/%)	H & N[1] (N/%)	Trunk (N/%)	U L[2](N/%)	L L[3] (N/%)
WDL	1(2.1%)	60	1 (100.0%)	0 (.0%)	0 (.0%)	1 (100.0%)	0 (.0%)	0 (.0%)
Pleomorphic Liposarcoma	3(6.4%)	47.3 (30-62 Y)	1 (33.3%)	2 (66.7%)	0 (.0%)	0 (.0%)	3 (100.0%)	0 (.0%)
Fibrosarcoma	17(36.2%)	43.55 (1.5-82 Y)	13 (76.5%)	4 (23.5%)	3 (17.7%)	4 (23.5%)	0 (.0%)	10 (58.8%)
Fibromyxosarcoma	1(2.1%)	20	1 (100.0%)	0 (.0%)	0 (.0%)	0 (.0%)	0 (.0%)	1 (100.0%)
Storiform MFH	15(31.9%)	43.96 (2.5-80 Y)	9 (60.0%)	6 (40.0%)	4 (26.7%)	3 (20.0%)	5 (33.3%)	3 (20.0%)
Giant cell MFH	1(2.1%)	40	1 (100.0%)	0 (.0%)	0 (.0%)	0 (.0%)	1 (100.0%)	0 (.0%)
Embryonal Rhabdomyosarcoma	2(4.3%)	9.5 (3-16 Y)	2 (100.0%)	0 (.0%)	1 (50.0%)	0 (.0%)	0 (.0%)	1 (50.0%)
Pleomorphic Rhabdomyosarcoma	2(4.3%)	47.5 (45-50 Y)	1 (50.0%)	1 (50.0%)	0 (.0%)	0 (.0%)	0 (.0%)	2 (100.0%)
ASPS	3(6.4%)	29.33 (18-45 Y)	1 (33.3%)	2 (66.7%)	0 (.0%)	1 (33.3%)	0 (.0%)	2 (66.7%)
Synovial sarcoma	2(4.3%)	40 (20-60 Y)	2 (100.0%)	0 (.0%)	0 (.0%)	0 (.0%)	0 (.0%)	2 (100.0%)
Total	**47 (100%)**							

1= Head & Neck, 2= Upper Limb, 3= Lower Limb

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Fibrosarcoma was the most common malignant soft tissue tumor 17 (36.2%), followed by Storiform MFH 15 (31.9%). Both these malignant tumors commonly occurred in males, fibrosarcoma was common on lower extremities 10 (58.8%) while Storiform MFH was common on upper extremities. There were cases of Rhabdomyosarcoma, 2 (4.3%) were embryonal type and 2 (4.3%) pleomorphic type. 3 (6.4%) case of pleomorphic liposarcoma occurred in upper extremities and common in females in present study. ASPS 3 (6.4%) was also common in females and prevalent in lower extremities 2 (66.7%) (Table-2).

Table 3. Correlation of H&E and Special Stain in Diagnoses of Soft Tissue Tumors

	Special Stain		**Total**
	Confirmed	Confused	
H & E Stain	29(87.9%)	4(12.1%)	33(100%)
Total	38(88.4%)	5(11.6%)	43(100%)

A total of 43 cases 33 were diagnosed on H&E and 10 were confusing. From 10 confusing cases 9 were confirmed on special stain and only one case was remained confusing on both H&E and Special stain (Table-3).

Table 4. H&E and Special Stain Histological Diagnoses of Malignant Soft TissueTumors

		H&E		**Special Stain**	
No.	**ID**	**Histological Type**	**Status**	**Histological Type**	**Status**
1	440	Fibrosarcoma	Confirmed	Fibrosarcoma	Confirmed
2	441	Fibrosarcoma	Confirmed	Fibrosarcoma	Confirmed
3	442	Fibrosarcoma	Confirmed	Fibrosarcoma	Confirmed
4	443	Fibrosarcoma	Confirmed	Fibrosarcoma	Confirmed
5	444	Fibromyxosarcoma	Confirmed	Fibromyxosarcoma	Confirmed
6	445	Fibrosarcoma	Confirmed	Fibrosarcoma	Confirmed
7	446	Fibrosarcoma	Confirmed	Fibrosarcoma	Confirmed
8	447	Fibrosarcoma	Confirmed	Fibrosarcoma	Confirmed
9	448	Fibrosarcoma	Confirmed	Fibrosarcoma	Confirmed
10	449	Fibrosarcoma	Confirmed	Fibrosarcoma	Confirmed

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11	450	Fibrosarcoma/Sarcoma	Confused	Fibrosarcoma	Confirmed
12	451	Fibrosarcoma	Confirmed	Fibrosarcoma	Confirmed
13	452	Fibrosarcoma	Confirmed	Fibrosarcoma	Confirmed
14	453	Fibrosarcoma	Confirmed	Fibrosarcoma	Confirmed
15	454	Fibrosarcoma	Confirmed	Fibrosarcoma	Confirmed
16	455	Fibrosarcoma/Sarcoma	Confused	Fibrosarcoma	Confirmed
17	456	Fibrosarcoma	Confirmed	Fibrosarcoma	Confirmed
18	457	Fibrosarcoma/Sarcoma	Confused	Fibrosarcoma	Confirmed
19	458	Storiform MFH	Confirmed	Storiform MFH	Confirmed
20	459	Storiform MFH	Confirmed	Storiform MFH	Confirmed
21	460	Storiform MFH	Confirmed	Storiform MFH	Confirmed
22	461	Storiform MFH	Confirmed	Storiform MFH	Confirmed
23	462	Storiform MFH	Confirmed	Storiform MFH	Confirmed
24	463	Storiform MFH/Rhabdo	Confused	Storiform MFH	Confirmed
25	464	Storiform MFH	Confirmed	Storiform MFH	Confirmed
26	465	Storiform MFH/Rhabdo	Confused	Storiform MFH	Confirmed
27	466	Giant Cell MFH	Confirmed	Giant Cell MFH	Confirmed
28	467	Storiform MFH	Confirmed	Storiform MFH	Confirmed
29	468	Storiform MFH	Confirmed	Storiform MFH	Confirmed
30	469	Storiform MFH	Confirmed	Storiform MFH	Confirmed
31	470	Storiform MFH	Confirmed	Storiform MFH	Confirmed
32	471	Storiform MFH	Confirmed	Storiform MFH	Confirmed

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33	472	Storiform MFH/Leiomyosarcoma	Confused	Storiform MFH	Confirmed
34	473	Storiform MFH/Rhabdo	Confused	Storiform MFH	Confirmed
35	474	Embryonal Rhabdo*	Confirmed	Embryonal Rhabdo*?	Confused
36	475	Embryonal Rhabdo*	Confirmed	Embryonal Rhabdo*?	Confused
37	476	Pleomorphic Rhabdo*/Pleomorphic Sarcoma	Confused	Pleomorphic Rhabdo*?	Confused
38	477	Pleomorphic Rhabdo*/ASPS	Confused	Pleomorphic Rhabdo*	Confirmed
39	478	Synovial Sarcoma	Confirmed	Synovial Sarcoma?	Confused
40	479	Synovial Sarcoma	Confirmed	Synovial Sarcoma?	Confused
41	480	ASPS	Confirmed	ASPS	Confirmed
42	481	ASPS/Rhabdomyosarcoma	Confused	ASPS	Confirmed
43	482	ASPS	Confirmed	ASPS	Confirmed

On H&E, 33 cases of malignant soft tissue tumors were found out of a total of 43according to their histomorphologic characteristics. There were 10 confusing on H&E. Out of 10 confusing cases, 3 were diagnosed as Fibrosarcoma/Sarcoma, 3 as MFH/Rhabdomyosarcoma, 1 as an MFH/Leiomyosarcoma and 1 as a Pleomorphic Rhabdomyosarcoma/Pleomorphic Sarcoma and 2 as an ASPS/Rhabdomyosarcoma. Out of 43 cases of malignant soft tissue tumors, 38 were found to be cancerous.on special stain and 5 were confusing. Out of 5 confusing cases, 3 cases were Rhabdomyosarcomas because of lack of muscle striations and 2 cases of Synovial Sarcoma because of lack of intracytoplasmic PAS positive material (Table 4).

Discussion

Hemangiomas is the most frequent benign STT is lipoma, which is followed by other benign STTs. Fibrosarcoma was the most prevalent malignant STT, followed by MFH, rhabdomyosarcoma, liposarcoma, and ASPS. In a study of histopathological and histochemical pattern of soft tissue sarcomas in Nigeria, Bezabih (2001) found that out of 148 cases of STSs, 84 (56.8%) were male and 64 (43.2%) were female, and 60 (40.6%) were

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found in the lower limb, 53 (35.8%), 19 (12.6%) in the head and neck, and 16 (19.8%) in the upper limb.

In the current investigation, there were 47 cases of STSs, 30 of which were male and 15 of which were female, with 21 (44.7%) being found in the lower extremities, 9 (19.1%) in the trunk, 9 (19.1%) in the upper limb, and 8 (17%) in the head and neck. A nationwide survey of clinical presentation, pathology, and management of soft tissue sarcomas in adults was conducted in the United States, and data was obtained from 504 hospitals who volunteered reports on 2355 patients in the long-term study and 645 institutions who reported on 3457 patients in the short-term study. In this large retrospective investigation, Kransdorf and Murphy (2000) found that STTs had a little male predominance and were usually found in the lower extremities (46.4 percent).In contrast, the current investigation revealed a strong male preponderance, with 21 (44.7%) STSs localized in the lower extremities, which is consistent with Kransdorf and Murphy (2000) findings.

Ahmad et al. (2016) revealed that soft tissue sarcomas typically form in the extremities and commonly occur in males in a study of epidemiological data of common soft tissue sarcomas encountered in our practice in Pakistan. Another study in Pakistan by Katenkamp and Katenkamp (2009) found that 237 (65%) of the 364 STS cases were males and 127 (35%) were girls. The lower extremities were the most common site (29 percent). In a study of the epidemiology of soft tissue sarcomas in Karachi South, Pakistan (1995-7), Katenkamp and Katenkamp (2009) found that there were 96 cases of STS, 63 of which were male and 33 of which were female, with the lower limbs in males and the upper limbs in females being the most common anatomical site involved.

The MRI features of 55 consecutive individuals with neoplastic (benign and malignant) lesions detected clinically and on ultrasound were compared with the findings on surgical exploration and histopathologic testing in a study of benign vs malignant soft tissue neoplasms. According to Dey et al. (2004), benign masses were slightly more common (59 percent) in the lower limbs, while malignant masses were more common in the upper limbs (61 percent). In the current study, benign soft tissue tumors were common in the head and neck, while malignant soft tissue tumors were widespread in the lower limbs.

In a study of histological diagnosis and grading of soft tissue sarcomas, Cormier and Pollock (2004) found that the majority of lesions can be identified using H&E-stained sections and other conventional special stains. In some circumstances, electron microscopy and immunohistochemistry (IHC) are required for diagnosis. In a study of modern morphological diagnosis and current classification of soft tissue sarcomas using immunohistochemistry and molecular genetic technique, Mandahl (2000) and Somerhausen (2007) reported that the gold standard morphological diagnosis is still represented by H&E-stained histological sections, but that modern methods are also helpful in diagnosis.

Somerhausen (2007) reported that current trends and advances in histopathology require the use of immunohistochemistry for the definitive diagnosis in selective cases. Another cross-sectional study of second opinion and discrepancy in the diagnosis of soft tissue lesions included 34 cases of soft tissue sarcomas and immunohistochemistry was used as an ancillary method. One of the reasons for the significant discrepancy rate in our setup has been linked to the lack of supplementary techniques such as immunohistochemistry. The majority of soft

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tissue cancers were diagnosed using H&E and special stain sections in the current investigation;however, immunohistochemistry was also required in few cases.

Conclusion

Despite the enormous increase in new techniques, the gold standard procedure for morphologic diagnosis is an H&E stain slice. Other auxiliary procedures, such as Immunohistochemistry (IHC) studies, can further refine type-specific diagnostic, and it is recommended that it be placed inareas like ours where these critical diagnostic services are lacking.

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