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Histopathological Assessment of Soft Tissue Tumour

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Abstract
Introduction: *A wide variety of superficial soft-tissue masses may be seen in clinical practice, but a systematic approach can help achieve a definitive diagnosis or limit a differential diagnosis. Histopathological examination is a gold standard method in this diagnosis. The aim & objectives were to study the histopathological spectrum of various soft tissue tumours (STTs), to know the proportion of benign, and malignant soft tissue tumours and to know the age, gender and site distribution of these tumours.*
Materials and Methods*: : At Nalanda Medical College, Patna, total of 78 excisional biopsy specimen which were clinicoradiologically diagnosed as soft tissue tumors were taken for study over a period of one year from January 2018 to December 2018. All clinical data was collected such as age, sex, site of involvement on a proforma after informed consent to patient. Soft tissue was immediately fixed into 10 % formalin, then processed and embedded in paraffin blocks. Sections were stained by haematoxylin and eosin stain. Detailed microscopic study was done and findings and diagnosis were noted and compared to other studies.*
Results: *Out of the 78 cases of STTs, 85.89% were benign, and 14.11% were malignant. Most affected age group was 20-40 years. STTs showed a male preponderance with a male to female ratio of 1.7 : 1. Majority of the STTs were located on the extremities (41%), followed by the head and neck region (23%). Adipocytic tumours (51.2%) were the most common STTs, followed by vascular tumours (19.2%).* ***Conclusion****: In spite of various ancillary techniques like special stains, immunohistochemistry, in situ hybridization (ISH) and molecular genetics, histopathological examination is important initial step for the proper management of soft tissue tumours.*

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I. Introduction

Soft tissue tumors (STTs) are a complex group of pathologically diverse childhood and adult neoplasms with differentiation towards mesenchymal tissue, which may arise almost anywhere in the body.[1] Soft tissue encompasses the supportive connective tissue of various organs and the other non-epithelial, extra-skeletal structures excluding the viscera, lymphoreticular system and coverings of the brain (meninges). It is represented by adipose tissue, fibrous connective tissue, peripheral nervous system, skeletal muscle and blood/lymph vessels.[2]

Most of the soft tissues originate embryologically from the mesodermal layer. Benign mesenchymal tumours are commoner than the malignant ones and outnumber them by a ratio of almost 100:1. [3] But the fact that most of the benign lesions like lipomas and haemangiomas, are not investigated and biopsied, makes it difficult to apply data from many hospital studies for the general population.[4]

Soft tissue sarcomas comprise less than 1% of all the malignant tumours. Due to the rarity of these tumours, there is a paucity of the literature regarding the soft tissue sarcomas especially among the developing countries. [5]The pathogenesis of most of the soft tissue tumours is still unknown. [6] Some of the known causes are irradiations, immune deficiency, genetic factors, viral infections and environmental factors. Even though soft tissue tumours may appear at any age, there is a relation between the patient's age, gender, location and type of tumour.[7,8] Soft tissue sarcomas seem to show an upward trend, possibly because of increase in incidence, rising interest in tumour and better diagnostic capabilities.

A microscopic examination of the haematoxylin & eosin stained sections remains the gold standard in diagnosing soft tissue tumours.

The aim and objectives of this study are:

1. To study the histopathological spectrum of various
2. To study the proportion of benign, and malignant soft tissue tumours.
3. To study the age, gender and site distribution of soft tissue tumours.

II. Materials and Methods

The study was done in department of pathology, NMCH, Patna over a period of 1 year from January2018 to December 2018. A total of 78 biopsy cases received in histopathology taken for detailed study.

Inclusion criteria: clinicoradiologically suspected soft tissue tumor.
Exclusion criteria: Inadequate specimen.

The data were collected on proforma after informed consent to all patients. Brief essential clinical history such as the age, sex, anatomical site and radiological findings were taken. Biopsy was taken mainly by excisional method. In laboratory soft tissue were fixed in 10 % formalin. After that all tissue were processed by increasing concentrations of alcohol and paraffin blocks were prepared. Sectioned were stained with haematoxylin and eosin. After that all slides were examined under microscope, the final diagnosis was made into benign and malignant lesions accordingly.

III. Results

Table 1: Relative incidence of benign & malignant soft tissue tumours

Type	No. of soft tissue tumours	Percentage
Benign	67	85.89%
Malignant	11	14.11%
Total	78	100%

Table 2: Age & Sex incidence in soft tissue tumours

Age in yrs.	Sex		Total
	Male	Female	
Below 10	2	1	3
10-20	9	6	15
20-30	12	8	20
30-40	11	5	16
40-50	5	3	8
50-60	4	3	7
above 61	6	3	9
Total	49	29	78
Percentage	62.8%	37.2%	100

Table 3: Incidence of Benign & Malignant Soft Tissue Tumors

Type	Category of Soft tissue tumors		Total (%)
	Benign (%)	Malignant (%)	
Adipocytic	40(51.2%)	0	51.2 (52%)
Fibrous	3 (3.8%)	0	3.8 (2.5%)
Fibrohistiocytic	3 (3.8%)	2 (2.5%)	5 (6.3%)
Smooth Muscle	1 (1.2%)	1(1.2%)	2 (2.4%)
Skeletal Muscle	0	3 (3.8%)	3 (3.8%)
Blood Vessels	15 (19.2%)	0(0%)	15 (19.2%)
Peripheral nerve sheath tumors	5 (6.3%)	2(2.5%)	7 (8.8%)
Tumors of uncertain differentiation	0	3(3.8%)	3(3.8%)
Total	67(85.89%)	11(14.11%)	78(100%)

Table 4: Site distribution of Benign and Malignant Soft Tissue tumours

Site	Benign	Malignant	Total (%)
Extremities	28	4	32 (41%)
Head and Neck	15	3	18 (23%)
Back and Shoulder	8	2	11(14%)
Trunk and Abdomen	14	1	15 (19%)
Others	1	1	2 (3%)
Total	67	11	78 (100%)

IV. Discussion

In present study the frequency of benign tumour was 85.89% and malignant tumours was 14.11% which is in between study of Myhre- Jensen *et al*.[9] and Lazim *et al.*[10] whereas Kransdorf *et al*.[8] reported 60.2% benign and 39.8% malignant soft tissue tumour in their study. In other study of soft tissue tumors of head and neck by Makino[11] stated 96% tumors as benign and 4 % as malignant. In all their studies benign tumours predominated over malignant tumours. The relative frequency of benign to malignant soft tissue tumours is difficult to estimate accurately since many of the benign tumours cause not much problems and patients do not report to the clinicians and also most benign lesions are not removed.

All around the world many workers analyzed various aspects of soft tissue tumours like age and sex distribution, site, clinical features etc. which have been published in much literature. Specific sarcomas tend to appear in certain age groups. The male preponderance in almost all soft tissue tumours was observed. In the present study there were 49 males (62.8%) and 29 female (37.2%) out of total 78 cases of soft tissue tumour with male to female ratio 1.7:1 which is around the study of M.S. Kransdorf *et al.*[7] Our study is also comparable with studies of Myhre- Jensen *et al.* [9]and Beg [12] where M:F were 1:1 and 1.8:1 respectively. Lazim *et al.*[10] studied 213 cases of soft tissue tumours in one year and reported a male preponderance in all soft tissue tumour with M:F ratio of 1.7:1.Mandong et al.[13] done ten years retrospective study of soft tissue sarcomas and reported male to female ratio 2: 1., which is very close to study of Abudu et al. [14] where male to female ratio was 1.9:1. Agravat et al.[15] studied 100 cases of soft tissue tumors. Of these 86% were benign,.6% malignant, 2% borderline and 6% were tumor like lesions.

The adipocytic tumour (51.2%) is most common soft tissue tumours followed by vascular tumours (19.2%) and peripheral nerve sheath tumours (8.8%). There is a highly significant association between the type of tumours and the category of tumours. The benign adipocytic tumours accounted for the majority of benign soft tissue tumours (51.2%) followed by vascular tumours (19.2%). The malignant tumours of skeletal muscle accounted for majority of malignant soft tissue tumours followed by fibrohistiocytic tumours and peripheral nerve.

In present study 41% soft tissue tumours were seen in extremities followed by head and neck 23% which is comparable with Beg *et al*. studies.[12] The studies by Lazim and Beg *et al.*[10,12] stated commonest site was extremities for the malignant soft tissue tumours mainly lower extremities followed by trunk and abdomen. Whereas in case of Madong *et al.*[13] extremities followed by head and neck. Meis- Kindblom et al.[18] studied eighty cases of angiosarcoma and found most common site was extremities. A study of MPNST from 200 soft tissue sarcomas by Kar et al.[19] reported extremities as most common site followed by chest wall and trunk, pelvis and head and neck.

The malignant soft tissue tumours were observed to have a strong predilection for extremities specifically lower extremities, followed by trunk and abdomen. The predilection is confirmed by the studies of Kransdorf[7,8] Gebhard et al.[20]. Studies by Olivera AM et al.[21] and Weiss SW et al.[22] on extra skeletal myxoid chondrosarcoma and MFH respectively also reported extremities as most common site that too lower extremities more than upper extremities

particularly with poorly differentiated aggressive tumors. Whatever the type, the grade of a soft tissue sarcoma is important in predicting its behavior. Grading is largely based on degree of differentiation, average number of mitosis per high power field, cellular pleomorphism and extent of necrosis. In general tumors arising in superficial locations have better prognosis than deep seated lesions.

V. Conclusion

In our study, benign soft tissue tumours were more common (85.89%) than malignant soft tissue tumours (14.11%). Soft tissue tumours were more common in age group of 20-40 years. Males were more commonly affected than females with ratio of 1:7. Benign adipocytic tumours were the most common non-neoplastic lesion, followed by benign blood vessel tumours. In case of malignant soft tissue tumours, skeletal muscle tumour was the commonest. Extremities waere the most frequently affected location. All the lesions

were quite consistent in their occurrence with relation to age, sex and site of distribution. Therefore, if diagnosed with clinical, radiological and histopathology, proper diagnosis and treatment can be made.

References

[1]. Agravat AH, Dhruva GA, Parmar SA. Histopathology study of Soft Tissue Tumours and Tumour like Lesions. J Cell Tissue Res 2010;10:2287-92

[2]. Narayanan NO, Sapna M, Sumangala B. Spectrum of soft tissue tumors in a tertiary care centre - A 5 year study. *Natl J Med Dent Res*. 2016;4(2):83–88.

[3]. Weiss SW, Goldblum JR. General Considerations. In: Enzinger FM, Weiss SW, editors. Enzinger & Weiss's Soft Tissue Tumours. Mosby ; 2001,. p. 2011–2019.

[4]. GRamnani B, 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(10):1–4.

[5]. Shukla NK, Deo SVS. Soft Tissue Sarcoma-Review of Experience at a Tertiary Care Cancer Centre. *Indian J Surg Oncol*. 2011;2(4):309– 312.

[6]. Jain P, Shrivastava A, Malik R. Clinicomorphological Assessment of Soft Tissue Tumors. *Sch J App Med Sci*. 2014;2(2D):886–890.

[7]. Kransdorf MJ. Benign soft-tissue tumours in a large referral population: distribution of specific diagnoses by age, sex, and location. *Am J Roentgenol*.1995;164(2):395–402.

[8]. Kransdorf MJ. Malignant soft tissue tumours in a large referral population: Distribution of specific diagnosis by age, sex and location. *Am J Roentgenol*. 1995;164(1):129–134.

[9]. Myhre-Jensen O; A consecutive 7-year series of 1331 benign soft tissue tumours. Clinicopathologic data. Comparison with sarcomas. Acta Orthop Scand., 1981; 52(3): 287-293.

[10]. Lazim AF, Bedoor AK, Al-Irhayim; Soft tissue sarcomas in Mosul: a pathologic evaluation. Ann Coll Med Mosul., 2008; 34(2): 152-160.

[11]. Makino Y; A clinico pathological study on soft tissue tumours of the head and neck. Acta Pathol Jpn., 1979; 29(3): 389-408.

[12]. Beg S, Vasenwala SM, Haider N, Ahmad SS, Maheshwari V, Khan MA; A comparison of cytologifcal and histopathological findings and role of immunostains in the diagnosis of soft tissue tumors.JCyutol 2012;29(2):125-130.

[13]. 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(3): 246-249.

[14]. Abudu EK, Akinde OR, Oyebadejo TO, Efunshile AM, Musa OA, Banjo AA; Histopathological study of soft tissue malignancies in a teaching hospital, Sagamu, South-West Nigeria. Nig Q J Hosp Med., 2010; 20(1): 42-45.

[15]. Agravat AH, Dhruva GA, Parmar SA; Histopathology study of human soft tissue tumours And tumour like lesions. Journal of Cell and Tissue Research, 2010; 10(2): 2287- 2292

[16]. Kasraeian S, Allison DC, Ahlmann ER, Fedenko AN, Menendez LR; A Comparison of Fine-needle Aspiration, Core Biopsy, and Surgical Biopsy in the Diagnosis of Extremity Soft Tissue Masses. Clin Orthop Relat Res., 2010; 468: 2992-3002.

[17]. Zhi-wei F, Jing C, Sheng T, Yong C, Rui-feng X; Analysis of soft tissue sarcomas in 1118 cases. Chinese Medical Journal, 2009; 122(1): 51-53.

[18]. Meis-Kindblom JM, Kindblom LG; Angiosarcoma of soft tissue; a study of 80 cases. Am J Surg Pathol., 1998; 22(6): 683.

[19]. Kar M, Suryanarayana Deo SV, Shukla NK, Malik A, Dutta S, Gupta S *et al*.; Malignant peripheral nerve sheath tumours (MPNST) - Clinicopathological study and treatment outcome of twenty-four cases. World Journal of Surgical Oncology, 2006, 4: 55.

[20]. Gebhard S, Coindre JM, Michels JJ, Terrier P, Bertrand G, Trassard M *et al*.; Pleomorphic liposarcoma: clinicopathologic, immunohistochemical, and follow-up analysis of 63 cases: a study from the French Federation of Cancer Centres Sarcoma Group. Am J Surg Pathol., 2002; 26(5): 601-616.

[21]. Oliveira AM, Sebo TJ, McGrory JE, Gaffey TA, Rock MG, Nascimento AG; Extraskeletal Myxoid Chondrosarcoma: A

[22]. Clinicopathologic, Immunohistochemical, and Ploidy Analysis of 23 Cases. Mod Pathol., 2000; 13(8): 900-908.

[23]. Weiss SW, Enzinger FM; Malignant fibrous histiocytoma: An Analysis of 200 Cases. Cancer, 1978; 41(6): 2250-2266.

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