Original article

Spectrum of soft tissue tumours at a tertiary care centre in North East India

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Abstract:

Introduction: Soft tissue tumors are a highly heterogeneous group of tumours that are classified on histogenetic basis according to adult tissue they resemble.

Materials and methods: A retrospective study was carried out in the department of Pathology in a tertiary care teaching institute in North east India. A total of 50 cases were included in the study. Gross findings were taken from Histopathology record section. The sections were stained with H & E and examined under the microscope. **Conclusion:** Incidence of benign to malignant soft tissue tumors in our study was 88% benign, 10% malignant and 2 % intermediate. Male female ratio was 1.3: 1; however for malignant tumors, a high incidence was seen in females. Head and neck was the most common site overall as well as for benign tumors. Extremeties were the commonest site for malignant soft tissue tumors. Vascular tumors were the largest group histopathologically, followed by adipose tissue tumors.

Keywords: soft tissue tumor, histopathology

Introduction:

Soft tissue tumors are defined as mesenchymal proliferation, that occur in extraskeletal nonepithelial tissue of the body, excluding the viscera, covering of brain and lymphoreticular system. (1) These can occur at any age. Soft tissue tumours are a highly heterogeneous group of tumours that are classified on histogenetic basis accor-ding to adult tissue they resemble. The large majority of soft tissue tumours are benign, with a very high cure ra-te after surgical excision. Malignant mesenchymal neoplasms amount to less than 1% of the overall human bur-den of malignant tumours. (2) The most common locations of soft tissue tumors the extremities, trunk, abdomen-al cavity and head and neck region. (3) Fine needle aspiration cytology has some role in diagnosing soft tissue le-sions. A core biopsy, an excisional biopsy and an incisional biopsy are used for diagnosing most soft tissue mas-ses. Soft tissue tumours are pose great diagnostic challenges, with constantly evolving histopathological criteria, particularly concerning ancillary investigations such as immunohistochemistry and molecular genetics.

Aims and objectives:

The study was conducted with the following aims and objectives:

1. To study the spectrum of soft tissue tumors in a tertiary care centre in the north east of India
2. To study the male female preponderance of benign and malignant soft tissue tumors

Materials and methods:

A retrospective study was carried out in the department of Pathology in a tertiary care teaching institute in North east India, All cases of soft tissue

specimen sent for histopathology examination over a period of 1 year were studied. A total of 50 cases were included in the study. Detailed clinical data including history, clinical features, ultrasonography and radiological findings, and gross findings were taken from Histopathology record section. The sections were stained with H & E and examined under the microscope. Ancillary stains were done wherever feasible.

Results:

Out of a total of 50 cases studied, 44 (88%) were benign , 5 (10%) were malignant and 1 was of intermediate category(2%) [Table1] . The most common benign tumor in our study was hemangioma (19 cases) followed closely by lipoma (18 cases). The remaining were dermatofibroma (3 cases), schwannoma (2 cases) and glomus tumor (1 case) . On classifying the hemangiomas into histopathological categories, it was seen that 5 of the cases were cavernous hemangiomas and the remaining were capillary hemangiomas. Among the lipomas, there was one case of myolipoma and a case of angiolipoma. There was a single case of hemangioe-ndothelioma , which is a tumor of intermediate category (except epithelioid hemangioendothelioma which is considered to be a malignant tumor).Among malignant tumors, there was 1 case each of leiomyosarcoma, pleomorphic sarcoma, low grade fibromyxoid sarcoma, alveolar rhabdomyosarcoma and low grade spindle cell sarcoma(could not be categorised).[Table 2]Age of the patients ranged from 2 months to 70 years for benign tumors and 31 years to 55 years in case of the malignant tumors. Male female ratio for all cases was 1.3:1 (28 male, 22 female). However, 4 out of the 5 cases of malignancy were females.[Table 3]Head and neck was the most common location of soft tissue tumors in our study (16 cases), followed by upper limb(15 cases), trunk (12 cases) and lower limb (7 cases).While head and neck appeared to be the most common site for benign tumors followed by upper limb and trunk,all the malignant soft tissue tumors were reported in the extremities. [Table 4]

Table 1: Relative incidence of benign and malignant soft tissue tumors

Type	No. of cases	Percentage
Benign	44	88%
Malignant	5	10%
Intermediate	1	2%
Total	50	100%

Table 2. Distribution of soft tissue tumors

	Benign	Malignant	Intermediate
Vascular tumors	19	0	1
Adipose tissue tumors	18	0	0
Fibrohistiocytic tumors	3	1	0
Nerve cell tumors	2	0	0
Fibroblastic tumors	0	1	0
Smooth muscle tumors	0	1	0
Skeletal muscle tumors	0	1	0
Pericytic tumor	1	0	0

Table 3 : Sex incidence of all soft tissue tumors

Type	Male (no.of cases)	Female (no. of cases)
Benign	26	17
Malignant	1	4
Intermediate	1	1

Table 4. Site-wise occurrence of soft tissue tumors

Site	Benign	Malignant	Intermediate
Head & neck	16 no.s (32%)	0	0

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Trunk	12 no.s (24%)	0	1 no.s (2%)
Upper limb	13 no.s (26%)	2 no.s (4%)	0
Lower limb	4 no.s (8%)	3 no.s (6%)	0

Discussion:

Soft tissue tumors are a heterogeneous group of tumors which are classified on histogenetic basis. Soft tissue tumor & tumor like lesions have fascinated pathologist for many years because of their remarkably wide variety and the close histopathologic similarities between certain tumors with only subtle difference detectable on careful microscopic examination, thus posing a diagnostic challenge to histopathologist.

Benign soft tissue tumors outnumber malignant tumors by a margin of about 100: 1 in hospital population. [4] In our study, we found the ratio of benign to malignant to be somewhat lower (44 benign, 5 malignant). This could be due to the fact that ours is a tertiary care centre dealing with referred cases. The largest group of tumors was found to be of vascular origin, followed by adipocytic tumors. According to a study by Batra et al, [5] 89.2% of all soft tissue tumours were benign and 10.8 % were malignant. Lipoma was the most common soft tissue tumour and accounted for 65.7% of all the benign tumours. Jain et al found the percentage of benign and malignant tumors to be 90.6% and 9.4% respectively. Lipoma was again the most common tumor (50.27%) followed by vascular tumors (20%). Umarani M.K et al [6] found 92.2% of benign cases and 5 % malignant. Rest were of intermediate category. The largest histological group was adipocytic followed by nerve sheath tumors. Overall adipose tissue tumors appear to be the most common category of tumors in all these studies. However, in our study adipose tissue tumors were the second most common group after vascular tumors. This may be due to higher incidence of hemangiomas in our population (North east India). Male preponderance was observed in almost all soft tissue tumours in the studies available. Jain et al [1] found a male to female ratio of 1.2:1, while those reported by Mynes Jensen [7] and Beg [8] were 1:1 and 1.8:1 respectively. Batra et al reported a ratio of 2.1:1(M:F) but in case of malignant tumors, the ratio was 1.8:1. Studies by Weiss and Goldblum [4]and Russel et al. [9] showed that in case of malignant soft tissue tumors, males and females were equally affected with only marginal difference in male: female ratio (1.1:1). In our study, though male preponderance was seen for all soft tissue tumors, females were predominantly affected in case of malignant tumors (Male: Female 1:4).

The most common location of soft tissue tumors as observed in our study was head and neck (16 cases), followed by upper limb(15 cases), trunk (12 cases) and lower limb (7 cases). For benign tumors, head and neck appeared to be the most common site followed by upper limb and trunk. However, in case of malignant soft tissue tumors, the extremities were the most common site. Jain et al [1] reported 33.13% benign soft tissue tumours in extremities followed by head and neck (32.23%). The malignant soft tissue tumours were observed to have a strong predilection for extremities (57.14%), followed by trunk and abdomen (22.85%). The studies by Lazim, Beg and Zhi *et al*. [10] [8] [11] also state commonest site to be extremities for the malignant soft tissue tumours mainly lower extremities followed by trunk and abdomen. The study by Batra et al [5] showed that most of the soft tissue tumours were present in the upper limb, followed by back, head neck face, chest and abdominal wall, lower limb and intra abdominal site. The benign tumours were most common at upper limb (26.4%) followed by head neck face region and back (21.4% each) and malignant tumours were most commonly seen at back and

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lower limb (29.4% each) followed by chest and abdominal wall (17.6%). In a study done by Bezabih [12] it was shown that benign tumours were roughly distributed equally throughout the body with a slight predilection for upper parts; head & neck (26.2%), trunk (26.4%).In all benign tumors, routine histopathological examination was able to diagnose the cases. In malignant tumors, it was seen that ancillary studies including immunohistochemistry were important in some cases to correctly classify the tumor. Accurate histologic classification contributes significantly to establishing the prognosis of sarcoma. Important diagnostic features are cell morphology and architectural arrangement; often these features are not sufficient to distinguish one sarcoma from another, particularly with poorly differentiated aggressive tumors and immunohistochemistry becomes imperative in such cases.

Conclusion :

Incidence of benign to malignant soft tissue tumors in our study was 88% benign, 10% malignant and 2 % intermediate. Male female ratio was 1.3: 1; however for malignant tumors, a high incidence was seen in females. Head and neck was the most common site overall as well as for benign tumors. Extremeties were the commonest site for malignant soft tissue tumors. Vascular tumors were the largest group histopathologically, followed by adipose tissue tumors.

References:

1. Jain P, Shrivastava A, Mallik R..Clinicomorphological Assessment of Soft Tissue Tumors. Sch J App Med Sci. 2014; 2 (2D): p. 886-90.
2. Fletcher C.D.M.,Rydholm A,Singer S,Sundaram M,Coindre J.M. Soft tissue tumours: Epidemiology,clinical features, histopathological typing and grading. In Fletcher C.D.M. UKK,MF(). World Health Organization Classification of T umours. Pathology and Genetics of Tumours of Soft Tissue and Bone. Lyon; 2002.
3. Hassawi BA, Suliman AY, Hasan IS. Soft tissue tumours – Histopathological study of 93 cases. Ann Coll Med Mo sul. 2-010; 36(1&2) : p. 92-8.
4. Weiss SW, Goldblum JR. General Considerations. In Enzinger & Weiss's Soft Tissue Tumours, 4th edition.: Mosby Publication 2001; 20011-19.
5. Batra P, Gupta DO, Batra R, Kothari R, Bokariya P.Pattern of Soft Tissue Tumours In A Rural Population Of Central India. Innovative Journal of Medical and Health Science. 2013 May – June; 3(3): p. 124-6.
6. Umarani M.K, Prima Shuchita Lakra, Bharathi M. Histopathological Spectrum of Soft Tissue Tumors in a Teaching Hospital. IOSR Journal of Dental and Medical Sciences. 2015 April; 14(4): p. 74-80.
7. Myhre-Jensen O. A consecutive 7-year series of 1331 benign soft tissue tumours. Clinicopathologic data.Comparison with sarcomas. Acta Orthop Scand. 1981 Jun; 52(3): p. 287-293.
8. Beg S, Vasenwala SM, Haider N, Ahmad SS,Maheshwari V, Khan MA. A comparison of cytological ad histopathological findings and role of immunostains in the diagnosis of soft tissue. J Cytol. 2012; 29(2): p. 125-130.
9. WO Russell, J Cohen, F Enzinger, SI Hajdu, H Heise, Martin RG et al. A Clinical and Pathological Staging System for Soft Tissue Sarcomas. Cancer. 1977 Oct; 40(4): p. 1562-70.
10. Lazim AF, Bedoor AK, Al-Irhayim. Soft tissue sarcomas in Mosul: a pathologic evaluation. Ann Coll Med Mosul. 2008;34(2): p. 152-160.
11. 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): p. 51-53.
12. Bezabih M. Cytological diagnosis of soft tissue tumours. Cytopathology. 2001 Jun; 12(3): p. 177-183.