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Histopathological Spectrum of Soft Tissue Tumours: A Study of 107 Cases In A Teritiry Care Centre

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ABSTRACT:-
AIM: Soft tissue sarcomas (STS) are a heterogeneous group of rare tumours that arise predominantly from the embryonic mesoderm. They present most commonly as an asymptomatic mass originating in an extremity but can occur anywhere in the body, particularly the trunk, retroperitoneum, or the head and neck. They account for about 0.7% of all adult malignancies. A prospective study of the incidence of benign and malignant soft tissue tumors with respect to incidence, age, sex and site distribution and to study the gross and histological features of benign and malignant soft tissue tumours and confirming the morphological diagnosis by immunohistochemical analysis was carried in Siddhartha medical college from June 2016 to July 2018. A Chi-square test was performed, which proved that these results were statistically significant.

KEYWORDS:- soft tissue, tumours, immunohistochemistry, benign and malignant

I. INTRODUCTION

Soft tissue sarcomas (STS) are a heterogeneous group of rare tumours that arise predominantly from the embryonic mesoderm. They present most commonly as an asymptomatic mass originating in an extremity but can occur anywhere in the body, particularly the trunk, retroperitoneum, or the head and neck. They account for about 0.7% of all adult malignancies.There are several studies covering individual tumor types but collective studies covering all tumors are relatively less, but some studies have been conducted in the past so as to know the incidence, age, sex and site distribution of soft tissue tumors.

The presence of great variety of histological types with many structural variations poses a challenge for the pathologists regarding the diagnosis of soft tissue tumors. . An attempt was made in the present study to know the incidence, age, sex and site distributions of soft tissue tumors in Siddhartha medical college.Soft tissue tumors were classified according to WHO classification..A total number of 107 soft tissue tumors were encountered during the period from june 2016tojuly 2018. The clinical and pathological features of benign and malignant soft tissue tumors were studied

II. MATERIALS & METHODS:

Material both as incisional biopsy and excisional biopsy were received from patients attending clinics of surgery, internal medicine, paediatrics and department of gynaecology and obstetrics. and stained routinely with H & E stain and special stains done where ever needed.

IHC is the technique used to detect and localize antigens by means of labeled antibodies through Ag-Ab interaction that are visualized by enzyme sabstrate chromogen reaction.

Principle: In these techniques an enzyme labeled antibody is used to link a cellular antigen specifically to a chromogen that can be more readily visualize under light microscope. to detect & localize CYTOKERATIN on paraffin section by means of super sensitive polymer HRP.To detect & localize DESMIN on paraffin section by means of super sensitive polymer HRP.To detect & localize p 53 on paraffin section by means of super sensitive polymer HRP. Immunohistochemistry of benign tumours:

Tumours	Markers showing positivity
1.lipoma and hibernoma, schwanoma and neurofibroma	**S-100**
2.hemangioma	**Cd-34**
3.malignant melanoma	**Hmb-45**
4.lympangioma	**Cd-34**
5.glomus tumour	**Sma**
6.fibromatosis	**Actin**

Immunohistochemistry of malignanat tumours:

Tumours	Markers showing positivity
1.Fibrosarcoma, Extraskeletal Ewings sarcoma	**Vimentin**
2.Liposarcoma	
3.Synovial Sarcoma	**Cytokeratin, EMA**
4.Malignant Hemangio endotheliomaDermatofibrosarcoma Protruberance	**CD34**
5.Epithelioid sarcoma	**Vimentin, Cytokeratin, CD34**
6.Leiomyosarcoma	**SMA, Desmin**

III. OBSERVATIONS AND DISCUSSION

Soft tissue tumors are defined as nonepithelial extraskeletal tissue of the body exclusive of the reticuloendothelial system, glia, and supporting tissue of various parenchymal organs. Enzinger F.M. & W.W. weiss 1983, Robbins, et al 1994, Myhre Jenson et al 1981 reported an incidence of soft tissue tumors as 0.8-1%, 0.8% and < 2% respectively.[17].The presence of great variety of histological types with many structural variations pose a challenge for the pathologists regarding the diagnosis of soft tissue tumors.

A total number of 107 soft tissue tumor were encountered during the period fromjune 2016to july2018 . the clinical and pathological features of benign and malignant soft tissue tumors were studied and the following observation were made.In the present study, benign soft tissue tumors were found more commonly in males than females (M:F = 1.8:1), similar observations were made Costa j et al 1984 reported an incidence of 55-60% in males[19]. Mythre Jenson O et al 1983, [14], Tsuji Moto M et al 1988,[21] reported an incidence of 55-60% in males which is almost comparable to the present study.

Among 107 soft tissue tumors, 93 (88.1%) were benign and 14(11.9%) were malignant tumors of the 92 benign soft tissue tumors,. According to a study by Batra et al, (5) 89.2% of all soft tissue tumours were benign and 10.8 % were malignant.[1]Enzinger, F. M. S. W. Weiss 1988 reported a benign to malignant ratio as 5:1 and 18.5 to 100:1 respectively[17]. the lipoma and haemangioma were found to be the most common with an incidence of 34 percent and 24.8% respectively which is comparable to Stout's study. L Schwannoma and neurofibroma were next in order, the incidence being 9.7% and 9.1% respectively, the other benign tumors such as lymphangioma, benign fibrous tumors and glomus tumor were common, the incidence varied form 5.4% to 2.7 %.

Table: The incidence of benign tumors.

S.No	Tumors	No of Cases
1.	Lipoma	33
2.	Haemangioma	20
3.	Schwannoma	20
4.	Neurofibroma	14
5.	lymphangioma	02
6.	Glomus tumor	02
7.	Fibromatosis	02

The benign soft tissue tumors were more common in the age group of 21 to 30 years. The most common site was head and neck and trunkand relatively less number of cases were reported in the extremities.According to Costa J et al 1984,[19] W.L. Natrajanm et al 1987, the site distribution of benign soft tissue tumors was 4-9% in head & neck, 32% in trunk and 60-64% in extremities[22]

Table-II : Distribution of benign soft tissue tumors according to age group:

S.No	Tumors	0-10	11-20	21-30	31-40	41-50	51-60	>60
1.	Lipoma	02	05	06	05	05	-	10
2.	Haemangioma	09	04	02	02	-	02	01
3.	Schwannoma	01	01	09	02	04	03	-
4.	Neurofibroma	02	02	07	02	01	-	-
5.	lymphangioma	02	-	-	-	-	-	-
6.	Glomus tumors	-	-	02	-	-	-	-
7.	Fibromatosis	-	-	02	-	-	-	-

Table – III Distribution of benign soft tissue tumors according to site.

S.No	**Tumors**	**Head & Neck**	**Extremities**		**Trunk**
			Upper	**Lower**	
1.	**Lipoma**	**20**	**03**	**03**	**07**
2.	**Haemangioma**	**10**	**02**	**02**	**06**
3.	**Schwannoma**	**11**	**02**	**01**	**06**
4.	**Neurofibroma**	**07**	**-**	**05**	**02**
5.	**lymphangioma**	**-**	**02**	**-**	**-**
6.	**Glomus tumor**	**-**	**02**	**-**	**-**
7.	**Fibromatosis**	**-**	**02**	**-**	**-**

1. **Lipoma**:

Lipoma was found to be the most common benign soft tissue tumorwhich is comparable to Stout's study. L.[15]. There were 33cases of lipomas. The maximum number of cases was in the age group of 60 – 70 years. The youngest patient was 1 year old and the oldest was of 70 years. The male female ratio was 2:1. Majority 20of the lipomas were seen in head and neck region, followed by 7in trunk, 3in lower 3 cases in upper extremities respectively.

Haemangioma:

There were 20 haemangiomas out of 93 benign tumors. The peak incidence of haemangioma was observed in the age group of 0-10 years. The youngest patient was 5 months old and the eldest was 85 years of age. The male to female ratio was 5:3. the various sites of involvement were 11in head and neck, 6in trunk and 4 cases in in extremities respectively.

Schwannoma:

20 (9.7%) cases of schwannoma were reported. Maximum number of cases were observed in the age group of 21 to 30 years. The eldest and youngest age reported was 60 and 10 years respectively. 15 were males and 5 were females. Head and neck was involved in 11cases, upper extremities in 2 cases, trunk and lower extremities in 6 and 1 case respectively.

Neurofibroma:

Out of 93 benign soft tissue tumors, there were 14 cases of neurofibromas. More number of cases were in the age group of 21 to 30 years. The lowest and highest age group incidence reported was 10 and 50 years respectively. Male and female ratio was 3:1. The sites of involvement were 7(in head and neck, followed by 5 in lower extremities and 2cases in trunk. One case of neurofibroma was associated with multiple neurofibromatosis.

Malignant soft tissue tumors.

Of the 107 soft tissue tumors, there were 14(11.9%) malignant soft tissue tumors. Fibrosarcoma and liposarcoma constituted 2cases each. Rhabdomyosarcoma -2cases and extra skeletal ewing's sarcoma comprised

1 case. One case each of malignant haemangioendothelioma, There were 2 cases each of dermatofibrosarcoma protuberans and leiomyosarcoma each

Table: Incidence of sarcomas

	Sarcomas	Number of cases
1.	Fibrosarcoma	02
2.	Liposarcoma	02
3.	Rhabdomyosarcoma	03
4.	Extra-skeletal Ewing's sarcoma	01
5.	Malignant haemangioendothelioma	01
6.	Leiomyosarcoma	02
7.	Dermatofibrosarcoma protuberans	02

Fibrosarcoma: constituted 2(24%) out of 13(11.9%) sarcomas whereas fibrosarcomas comprise 5-10% of sarcomas according to Bizer et al [4]. The lowest and highest age incidence was 30 and 70 yrs of age. Four were males and 2 were females. Two cases were observed in both extremities The clinical duration of fibrosarcomas varied from 2 months to ten years.

Table – III Distribution of benign soft tissue tumors according to site.

S.No	Tumors	Head & Neck	Extremities		Trunk
			Upper	Lower	
1.	FIBROSARCOMA[2]		01	01	
2.	Liposarcoma[2]		01	01	
3.	Rhabdomyosarcoma[3]		02	01	
4.	Ewings sarcoma[3]	01	02		
5.	Malignant heamangioendothelioma[1]	-	01	-	-
6.	Dermatofibrosarcomaprotuberans[2]	-	02	-	-
7.	Leiomyosarcoma[1]	-	02	-	-

Liposarcoma: There were 2(20%) cases of liposarcoma. Three were in the age group of 51-60 yrs. The youngest and eldest patients were 17 and 60 yrs of age respectively.. Lower extremity was involved in 1 case and the upper extremity in one case. The clinical duration of liposarcoma varied from 2 months to 3 yrs.

Rhabdomyosarcoma: There were 3 cases of rhabdomyosarcomas out of 13 sarcomas. The youngest and eldest patients were 20 and 75 yrs of age. Two were males and 1 was female. Two involved the lower extremity and 1 the upper extremity. The clinical duration of these tumors varied from 6 months to 2 yrs.

Extra Skeletal Ewing's Sarcoma: Of the 13 cases of sarcomas, there were 3(12%) extra-skeletal ewings sarcomas. The youngest patient among the three was 8 yrs old and the other two patients were 25 and 27 yrs of age. Two were males and 1 was female. Two cases were seen in upper extremity and 1 in face the clinical duration of these tumors varied from 2 months to 7 months.

Malignant Haemangioendotheliom: There was a single case of malignant haemangioendothelioma. The patient was a male aged 42 yrs, complained of a swelling in the forearm.

Dermatofibrosarcoma Protuberans :There were 2(6%) cases dermatofibrosarcoma protuberans which is comparable to Gutierez G et al 1984 reported incidence of 2.1%[6] of Dermatofibrosarcoma protruberance of all the soft tissue sarcomas and 0.06% of all malignant tumors. One was a 35 year old female with a swelling in the arm and the other was 65 yrs old male had swelling in the anterior chest wall

IV. CONCLUSION

Soft tissue tumors are defined as nonepithelial extraskeletal tissue of the body exclusive of the reticuloendothelial system, glia, and supporting tissue of various parenchymal organs. The histogenesis of these heterogenous tumors remains uncertain. It appears reasonable to speculate that they arise from primitive and

uncommitted mesenchymal cells that have undergone multiple lines of differentiation. Although these methods are more reliable, the non availability due to their high cost it the major drawback, immuncoytochemical methods also has a limitation of significant overlapping in their findings among different soft tissue tumors and no single marker alone can reliably be used to substantiate the presumptive diagnosis.Improved newer techniques such as immunocytochemical and electron microscopic study has now been widely applied in few research centers as useful diagnostic tools to solve the difficult cases of soft tissue tumors.

Majority of the soft tissue tumors can be diagnosed by their individual characteristics on routine haematoxylin and eosin sections under light microscopy. By using certain histological parameters such as tumor differentiation, necrosis and mitotic activity, it also helps in both evaluating the malignancy and predicting the prognosis of the patients. Hence the light microscopy still remains as the basic method of diagnosis of the soft tissue tumors and other disease entities in majority of the institutes.

REFERENCES

[1]. 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.
[2]. Markhede G. et al. A multivariate analysis of Prognosis after surgical Treatment of malignant soft tissue tumour Cancer 1982;
[3]. Iwasaki. H & Enjoji. M. Infantile & adult fibrosarcoma of soft tissues. Acta pathol, Jpn.1979;29:377 20.
[4]. Bizer.LS. Report of 64 cases of Fibrosarcoma - Am. J. Surg. 1971; 121:587
[5]. Hidayat AA. Juvenile Fibrosarcoma 5 cases study - Arch. Of Opth. 1983; 101.
[6]. Gutirez. G et al. Dermatofibrosarcoma Protruberans – review of 30 Cases Int. J.Dermat US 1984
[7]. Anders Rydholm. A review of 278 cases of Malignant Fibrous Histiocytoma- cancer: 1986 ;57:232
[8]. Hashimoto H. et al. Malignant smooth muscle tumours of retroperitoneum and mesentry. A clinicopathological analysis of 44
[9]. Alan G et al. Leiomyosarcoma of soft tissue- A clinic pathologic Study cancer 1981; 48:1022-1032,.
[10]. Mackenizie DH. Monophasic synovial sarcoma a histopathological entity? Histopathology 1997; 1:151.
[11]. Cagle LA et al. Histologic features relating to prognosis in synovial Sarcoma Cancer 1987; 59:1810.
[12]. Leslie A et al. Histologic features relating to prognosis in synovial Sarcoma.Cancer 59: 1810-1814, 1987.
[13]. Pritchard DJ et al. clinicopathological & statistical study of 199 tumours of soft tissues. Cancer 33:888, 1974.
[14]. Myhre, Jenson O et al. Histopathological staging in soft tissue tumours in relation to in 261 surgically treated patients. Acta Pathol,
[15]. Stout AP & Lattes R. Tumours of soft tissues. In atlas of tumour pathology series 2 fascicle 1. Washington DC AFIP 1967.
[16]. Angervall L et al. The diagnosis and prognosis of soft tissue tumours semin diagn. Pathol 3:240.
[17]. Enzinger F.M & Weiss S.W. Soft tissue tumours St. louis. The CV mosby co 1988.
[18]. Hajdu S.I. Benign soft tissue tumours. Classification & Natural history. CA 1987; 37:
[19]. Costa. J. et al. The grading of soft tissue sarcomas. Results of a clinicopathological correlation in a series of 163 cases. Cancer1984; 53:530.
[20]. Trojaini M et al. Soft tissue sarcomas of adults, study of pathological prognostic variables & definition of histopathological gradingsystem. Int. J. Cancer 333:37, 1984.
[21]. Tsujimoto M et al. Multivariate analysis for histological prognostic factors in soft tissue sarcomas. Cancer 62-994, 1988.
[22]. Natrajan. W L et al. Adult soft tissue sarcomas a pattern of case surgery of American college of surgeons. Ann. Sur 1987;205:349.
[23]. Das Gupta TK et al. Jr. Ann Surg 1968; 168 :1011. Rydholm A Berg. No. size, site & Clinical incidence of lipomas. Factors indifferential diagnosis of lipoma and sarcoma. Act Orthop se and 54:929, 1983.

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