Research Journal of Medical Science

Histomorphological Study of Soft Tissue Tumors

Mrs. Sushama Desai, Mrs. Upadhey and S.J. Pawar
Department of Pathology, Krishna Institute of Medical Sciences, 415110 Karad, Maharashtra, India

Key words: Histomorphological, immunohistochemistry, mesothelium, mesenchyme, dermatofibrosarcoma

Corresponding Author:
Mrs. Upadhey
Department of Pathology, Krishna Institute of Medical Sciences, 415110 Karad, Maharashtra, India

Page No.: 335-338
Volume: 9, Issue 6, 2015
ISSN: 1815-9346
Research Journal of Medical Sciences

Abstract: Soft tumors establish an enormous and heterogeneous gathering of neoplasms. Clinically soft tumors run from benign, self-restricted sores to middle evaluation to profoundly Aggressive. The majority of soft tumors are benign while not many of them are malignant in nature. It ranges from most normal kind tumors to a portion of the uncommon threatening delicate tissue tumors. Newer techniques such as cytogenetic, immunocytochemistry and electron microscopic study being widely used diagnostic tools to solve the difficult cases of soft tissue tumors. Although, these methods are more reliable, their high cost is the major drawback. Immunocytochemical methods also have 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. Histological most basic benign tumor among females was leiomyoma trailed by haemangioma and lipoma and normal dangerous were rhabdomyosarcoma and synovial sarcoma. While in male common benign was Haemangioma trailed by lipoma and normal harmful was fibro-sarcoma trailed by rhabdomyosarcoma.

INTRODUCTION

It won't be an exaggeration in the event that, we call most recent two decades as revolution in comprehension of soft tissue, for example, clinical, investigative, molecular and therapeutic. Tumors emerging from non-epithelial extra skeletal tissue of the body barring the reticuloendothelial framework. There is by all accounts an upward pattern in the frequency of soft tumors, yet, it isn't evident whether this speaks to a genuine increment or reflects better demonstrative abilities and more prominent enthusiasm for this sort of tumors and the more up to date progresses occurring in the field of soft tumors. Very few studies in India have been done of this type taking into consideration IHC markers in many of the malignant but also in few benign and intermediate tumors. We selected the markers and got the photographs. The study gave a lot of practical insight into choosing positive and negative markers as well as reading them effectively for diagnosis. Secondly the older studies have not taken into account the "intermediate" category. We have included it and also classified the tumors into "locally invasive" and "rarely metastasizing".Cytogenetic studies have revealed several changes, the most important being translocations and fusion proteins which are specific for individual tumors and so help in definite diagnosis. It also helps in the targeted therapy. With the help of radioimaging techniques like CT, MRI, PET scan, contributions in diagnosis and treatments have increased. All this has proved beneficial in the patient care and our

understanding of these tumors. Hence, soft tissue tumors are a diagnostic challenge to the histopathologists. They constitute a huge and heterogenous group of neoplasms comprising of more noteworthy than 200 generous kinds of neoplasms and 90 harmful conditions. Though favorabletumors like lipomas and hemangiomas are normal, dangerous tumors are uncommon. So, the time of study undertaken is 5 years.

Aim: To examine the histomorphological designs and diagnose delicate tissue tumors using H and E stain with Immunohistochemistry (IHC) any place important over a time of 5 years.

Objective: To classify soft tissue tumors as indicated by WHO classification-Feb. 2013.

Literature review: Russell *et al*. (1977) introduced the clinical staging arrangement of soft tissue tumors in the huge number of cases of their study. Certain viruses are known to play a role in pathogenesis of soft tissue sarcomas. Eg. HHV8 in Kaposi's sarcoma and EBV in smooth muscle tumors andpericytomas (Ayala *et al*., 1995). Enzinger in 1979 initially explained the 'angiomatoid malignant fibrous histocytoma' as an uncommon variation of MFH. He depicted it as an unmistakable substance regularly found in children and youthful adult (Pai *et al*., 1995). Malignant soft tissue tumors, on the other hand, eventually come to medical consideration. Soft tissue sarcomas, contrasted and carcinomas and different neoplasms are relatively uncommon and constitute <1% of all cancers (Parker *et al*., 1996). Fine needle aspiration cytology has a role to play in the diagnosis of soft tissue lesions and when guided by CT examines in intra-abdominal and retroperitoneal sores. FNAC is atraumatic and is exceptionally valuable to report neighborhood recurrences or metastasis in a formerly analyzed soft tissue sarcoma (Kulkarni *et al*., 2002). The appearance of multimodal treatment has made it possible to stay away from radical surgery and reduction the morbidity while generously improving the 5 year endurance rates in harmful soft tissue tumors (Billingsley *et al*., 1999). It is supposed that the procedure begins with tissue necrosis following trauma followed by reparative fibroblastic and vascular expansion in the end prompting dynamic ossification (Singh *et al*., 1995). A favorable proliferation of fibroblastic and myofibroblastic cells that regularly happens on the digits of little children. It is named for the intracytoplasmic incorporations that are identified in a minority of the lesional cells (Christopher *et al*., 2002).

MATERIALS AND METHODS

In current investigation incorporates all the soft tissue tumors generous, intermediate and malignant (301) from the branch of pathology, during the time of May, 2008 to April, 2013. This is an observational investigation of soft tissue tumors. In this format contains basic informations. It is name, age, gender, date of specimen collected, location of tumor and clinical introduction and different examinations discoveries.

Inclusion and exclusion criteria: Inclusion criteria: Specimens of incisional and excisional biopsies and radical specimens of all soft tissue tumors arising from extremities, retroperitoneum, trunk, head and neck and Gastrointestinal Stromal Tumors (GIST).

Exclusion criteria: All soft tissue tumors arising from parenchymal organs, reticuloendothelial systemand bones.

Grossing: CAP guidelines were followed for grossing of the specimens. Detailed description was written considering following points:

- Type of specimen
- Size of the tumor (three dimension)
- Primary location of tumor
- Shape of the specimen
- Colour of the specimen

RESULTS AND DISCUSSION

In present time study includes a total of 301 soft tumors during 5 years (3 years retrospective and 2 years prospective) period of May, 2008 to April, 2013.

Table 1, here, represents the distribution of soft tumors as per the time period. Here, it is represents the 168 numbers of retrospective in the percentage of 55.81 and 133 numbers of prospective in the percentage of 44.18.

Table 2, here, represents the distribution of benign and malignant soft tumors. Here, it is represents the 272 numbers of benign in the percentage of 90.36, 12 numbers of the intermediate in the percentage of 3.98 and 17 numbers of malignant in the percentage of 5.64. The benign tumors outnumber the malignant by a considerable difference and ratio of benign to malignant being 16:1.

Table 1: Distribution of soft tissue tumors as per the time period

Parameters	Number	Percentage
Retrospective	168	55.81
Prospective	133	44.18
Total	301	100.00

Table 2: Relative distribution of benign and malignant soft tissue tumors

Parameters	Number	Percentage
Benign	272	90.36
Intermediate	12	3.98
Malignant	17	5.64
Total	301	100.00

Table 3: Distribution of adipocytic tumors

Parameters	Number	Percentage
Benign (160)		
Lipoma	154	93.33
Angiolipoma	03	1.80
Myolipoma	01	0.60
Spindle cell lipoma	02	1.21
Intermediate (01)		
Well differentiated LPS	01	0.60
Malignant (04)		
Myxoid LPS	03	1.80
Dedifferentiated LPS	01	0.60
Total	165	100.00

Table 4: Details of all intermediate tumors

Age (Years)	Sex	Site	Clinical diagnosis	Gross	Diagnosis
40	F	RIF	STT	Firm	Desmoid fibromatosis
8 month	F	chest	STT	Firm	Infantile fibromatosis
40	F	Abd wall	STT	Firm	Desmoid fibromatosis
55	M	RP	STT	Soft	Well diff LS
50	M	Nose	Hemangioma	Soft	Hemangioendothelioma
7	M	LA	STT	Firm	DFSP
44	M	LA	STT	Firm	DFSP
65	M	Abd wall	Fibroma	Firm	DFSP
37	M	RF	STT	Soft	DFSP
51	M	LL	STT	Firm	DFSP
35	M	RFA	Fibroma	Firm	DFSP
51	F	SC	STT	Firm	DFSP

Table 5: Average age of all soft tissue tumors

Researchers	Benign	Intermediate	Malignant
Kransdorf (1995)	44.5	-	49.5
B.Hassawi (2010)	27.6	-	39.1
Present study (2013)	39.4	43.2	50.6

Table 6: Sex distribution of all soft tissue tumors

Researchers	Male	Percentage	Female	Percentage	M:F
Kransdorf (1995)	16727	55.1	13611	44.9	1.2:1
Present study (2013)	167	55.16	134	44.83	1.2:1

Table 3, here, it is represents the distribution of adipocytictumors. The commonest adipocytic tumor was lipoma forming 93.33% of all adipocytic tumors.

Table 4, here, it is represents the details of intermediate tumors. Here, it contains age, sex, site clinical diagnosis, gross and diagnosis. Twelve intermediate grade soft tissue tumors were noted.

However, though benign soft tumors are common such as lipoma, the malignant ones are rare and therefore, a 5 years study period (3 years retrospective and 2 years prospective) was taken in the Department of Pathology. During the study period of 5 years (May, 2008 to April, 2013), 301 soft tumors were received. Benign soft tumors were 272 (90.36%), intermediate 12 (3.98%) and malignant were 17 (5.64%). The ratio being 16:1. This is because all benign tumors are neither surgically removed nor biopsied.

We have followed the latest classification by WHO. Table 5, here, it is represents the average age of all soft tissue tumors. In the present study youth ranged from 4 days to 81 years. The average age was 39.4 years in case of benign tumors, 43.2 years in intermediate and 50.6 years in case of malignant tumors which is similar to study of Kransdorf.

Table 6, here, it is represents the sex distribution of all soft tumors. In the present study, slight male preponderance was noted. This is comparable with the study of Kransdorf.

A 60 years old male with long standing mass on right shoulder with past h/o of similar mass excised 6 years back from the same site (details of which were not available). On light microscopy few mixed areas were seen admixed with long sweeping bundles of spindle cells. Hence, diagnosis of 'High grade myxofibrosarcoma' was given. However, IHC was performed for confirmation. The nonlipogenic area showed long sweeping bundles of uniform, monotonous spindle cells arranged in 'Herring bone pattern'. Thus, on light microscopy, diagnosis was given as 'Dedifferentiated liposarcoma with fibroblastic dedifferentiation' as it is the commonest dedifferentiation component to occur. However, to confirm the

dedifferentiated component IHC was performed. On IHC diffuse cytoplasmic positivity was seen with vimentin and nuclear positivity was seen with MDM2. Negativity was seen with pancytokeratins, myogenin and desmin, hence, Rhabdomyoblastic differentiation was ruled out. Caldesmon and SMA negativity ruled out smooth muscle differentiation and S100 negativity ruled out neural differentiation. A 40 years old female had a mass over right thumb. On light microscopy, high grade malignant tumor with conspicuous hemangiopericytomatousvascularity was seen. Tumor cells had an epithelioid look and eosinophilic cytoplasm. IHC was done for further typing. Positivity was noted for BCL2, calponin and EMA. SMA, CD138, CD31, CD34 and cytokeratins were negative.

CONCLUSION

This study has used WHO classification. This study has included intermediate category with its two subcategories and used IHC markers in all malignant tumors as well as graded the tumors as per FNCLCC. IHC is also used in some benign and intermediate tumors. These features are unlike the older studies and so may prove useful for future studies.IHC markers were extremely helpful for finding of STTs particularly in round cell, monomorphic and pleomorphic spindle framed and pleomorphic epithelioidtumors. Choice of barely any particular positive and negative markers is significant for determination and their cost viability. Confinements of IHC markers should be known.It is good to send the slab at such a middle where the IHC slides can be gotten back so that reading them is feasible, particularly in educating institutes. It is important to take the photos before as the slides get faded. Last two decades there have been enormous changes in nomenclatures, classification, clinical, investigative (imaging), diagnostic, molecular and therapeutic aspects of STTs which may be called “The Revolution of Soft Tissue Tumors.”

REFERENCES

Ayala, A.G., Y.J. Ro and A.K. Raymond, 1995. Anderson’s Pathology. 10th Edn., Mosby, Philadelphia, Page: 3014.

Billingsley, K.G., J.J. Lewis, D.H. Leung, E.S. Casper, J.M. Woodruff and M.F. Brennan, 1999. Multifactorial analysis of the survival of patients with distant metastasis arising from primary extremity sarcoma. Can. Interdiscip. Int. J. Am. Can. Soc., 85: 389-395.

Christopher, D.M.F., K.K. Unni and F. Mertens, 2002. Pathology and Genetics of Tumours of Soft Tissue and Bone. IARC Press, Lyon,.

Kulkarni, D.R., H.R. Kokandakar, N.R. Kumbhakarna and K.S. Bhople, 2002. Fine needle aspiration cytology of soft tissue tumours in correlation with histopathology. Indian J. Patholo. Microbiol., 45: 45-48.

Pai, M.R., R. Naik and M. Kini, 1995. Angiomatoid malignant fibrous histiocytoma. Indian J. Pathol. Microbiol., 38: 323-325.

Parker, S.L., T. Tong, S. Bolden and P.A. Wingo, 1996. Cancer statistics, 1996. CA Cancer J. Clin., 46: 5-27.

Russell, W.O., J. Cohen, F. Enzinger, S.I. Hajdu and H. Heise *et al*., 1977. A clinical and pathological staging system for soft tissue sarcomas. Cancer, 4: 1562-1570.

Singh, V.P., N. Komnon, G. Rajgopal, H.G Mukhopadhyay and R. Lakhtakia, 1995. Congenital fibrosarcoma-report of 3 cases. Indian J. Cancer, 32: 179-182.