



Correlation and Importance of Site in Mesenchymal Neoplasm-An Institutional Experience

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ABSTRACT

Background: Soft tissue tumors are a complex group of neoplasms with differentiation towards mesenchymal tissue occurring in all age groups. These neoplasms can cause particular problems in their diagnosis. Detailed clinical information and biopsy is an essential component of the pre-operative diagnostic work up. Site of tumor is important in soft tissue tumors as site provides ancillary help in differential diagnosis for example three fourth soft tissue sarcomas are located in the extremities (most common in the thigh) and 10 % each in the trunk wall and retroperitoneum.

Methods: This study comprised 200 cases. Soft tissue tumours were divided into benign and malignant categories, were further divided according to WHO classification and the site of occurrence and results were compared with some studies carried by other authors.

Result: The most common site of soft tissue tumours as a whole is head and neck (n = 58; 29%) followed by upper limb, (n=51; 25.5%). Although benign tumours were seen to be maximum in head & neck, (n = 55; 27.5%) where as intermediate in upper limb (n=5; 2.5%) and malignant tumours showed a predilection for lower limb (n=10 cases; 5.0%)

Conclusion: The current study was done to correlate the nature of lesions in case of soft tissues with respect to site and benign tumors were found to be more common amongst all with head and neck being frequently affected area. Sarcomas were more commonly found in lower limb and the results were compared with the studies done by other authors..

Keywords: Soft Tissue, Sarcoma, Site, Histopathological Type, Malignant

Introduction

Soft tissue tumors are a diverse and fascinating group of lesions that arise from the supporting soft tissue of the body. These tumours are derived from fat, fibrous tissue, smooth muscle, skeletal muscle, blood vessels, lymphatics, all of which are derived from embryonic mesoderm [1]. Benign soft tissue tumours outnumber malignant tumors by a wide margin. Soft tissue sarcomas may occur anywhere but three fourth are located in the extremities (most common in the thigh) and 10 % each in the trunk wall and retroperitoneum.[2] Intramuscular lipoma involves skeletal muscle in a variety of locations including the trunk, head and neck region, upper and lower extremities [3]. Intermuscular lipoma arises between muscles most frequently in the anterior abdominal wall. Giant cell tumor of soft tissue usually occurs in superficial soft tissues of the upper and lower extremities (70% of tumours). Less frequently affected are the trunk (20%) and head and neck region (7%) [4].

In the current study we have assessed the histopathological type of soft tissue lesions and their predilection of site of occurrence.

Materials and Methods

We have analysed 200 cases of soft tissue tumours with age ranging from 4-96 years with predominance of 40 years age group. All the non-mesenchymal tumours and the bone tumours were excluded. The dimensions of the excised tumor tissue and nature of specimen received were noted. The colour, consistency of the tumor and any calcified/ hardened areas/ areas of haemorrhage and necrosis/ cystic change were recorded. At least 3-4 representative sections from the excised tumor tissue were taken. At least one section from the tumour with adjacent area was taken. Representative section from the underlying bone or adjacent organ/ structure was taken to document invasion. Resected margins were taken to document if they were involved or not.

Histological sub typing was done according to W.H.O classification of soft tissue tumours. Other information included in this study (site and a history of recurrence) were retrieved from the medical reports.

Result

In total 200 cases, the most common site of soft tissue tumours as a whole is head and neck (n = 58; 29%)

followed by upper limb, (n=51; 25.5%). Although benign tumours were seen to be maximum in head & neck, (n = 55; 27.5%) where as intermediate in upper limb (n=5; 2.5%) and malignant tumours showed a predilection for lower limb (n=10 cases; 5.0%)

Head and neck was found to be the most common site involved by benign tumours (55) and benign adipose tumours (45%) were seen to be the most common tumors at this site followed by benign vascular tumors(38%).

Upper limb was found to be the most common site affected by benign adipocytic tumours (n=29) in the present study. Lower limb (n=10) was the most common site affected by sarcomas.

Lower limb (n=2) was observed to be the most commonly involved site followed by abdomen (n=1) by liposarcoma. The two cases of fibrosarcomas which we diagnosed in our study were seen in lower limb. Spine (n=10) was found to be the most common site of benign neural tumours.

The most common site of benign adipocytic tumours was upper limb (29 cases) followed by head and neck (25

cases). Out of 3 malignant Adipocytic tumors, 2 were seen in lower limb and 1 in abdomen. Of the 33 benign vascular tumours, 21 cases were seen in head & neck region followed by 3 cases in the upper limb. Out of 3 intermediate vascular tumours, 2 were seen in head and neck and 1 in lower limb.

Among fibroblastic tumors, out of 11 benign cases, maximum numbers of cases were seen in the upper limb (2 cases). Among intermediate cases, mostly cases were seen in upper and lower limb. Both malignant cases were reported in lower limb.

Out of 4, maximum numbers of leiomyosarcomas were noted in abdomen (3 cases) followed by retroperitoneum (1 case). One case of rhabdomyosarcoma was reported in lower limb and one glomus tumor was reported in upper limb.

Out of 200 cases, diagnosis of 13 cases could not be ascertained. Out of these, 3 were benign mesenchymal tumour and 10 were malignant mesenchymal tumour i.e. Sarcoma NOS.

Maximum number of Sarcomas were noted in lower limb (10 cases) followed by abdomen (3 cases)

Table 1: Distribution of Cases According To Site and Category of soft tissue tumour.

Site	Benign n = 169 (%)	Intermediate n = 11 (%)	Malignant n = 20 (%)	P value
Head & Neck	55 (27.5)	3 (1.5)	0 (0.0)	<0.001
Upper Limb	45 (22.5)	5 (2.5)	1 (0.5)	
Chest	9 (4.5)	0 (0.0)	0 (0.0)	
Abdomen	12 (6.0)	0 (0.0)	5 (2.5)	
Back	15 (7.5)	0 (0.0)	1 (0.5)	
Spine	6 (3.0)	0 (0.0)	0 (0.0)	
Lower Limb	19 (9.5)	3 (1.5)	10 (5.0)	
Retroperitoneum	1 (0.5)	0 (0.0)	3 (1.5)	
Pelvis & Gen	6 (3.0)	0 (0.0)	0 (0.0)	
Multiple	1 (0.5)	0 (0.0)	0 (0.0)	

Table2: Distribution Of Non sarcomatous soft tissue tumours according To Site and its differentiation.

Site	Adipocytic	Vascular	Nerve sheath	Fibroblastic	Fibrohistiocytic	Could not be classified
Head & Neck	25	21	2	2	4	1
Upper Limb	29	3	1	5	2	2
Chest	5	2	0	1	1	0
Abdomen	9	2	0	0	1	1
Back	11	1	0	1	1	1
Spine	0	0	6	0	0	0
Lower Limb	7	3	2	5	4	5
Retroperitoneum	1	0	0	0	0	2
Pelvis & Gen	1	1	0	2	1	1
Multiple	1	0	0	0	0	0
Total	89	33	11	11	14	13

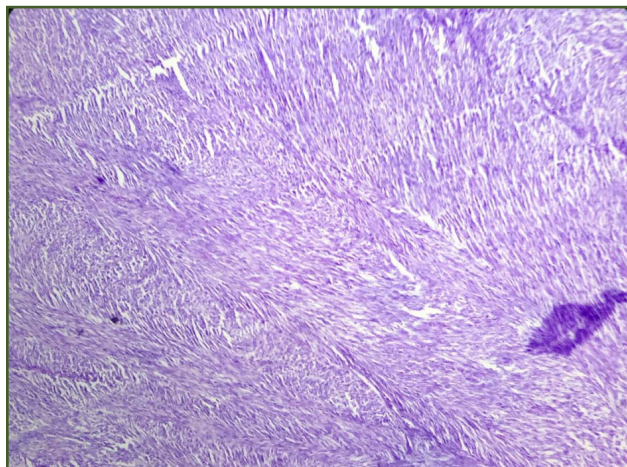


Fig. 1: Photomicrograph of Fibrosarcoma showing malignant cells with scant cytoplasm lying in herringbone pattern. (H&E 100X).

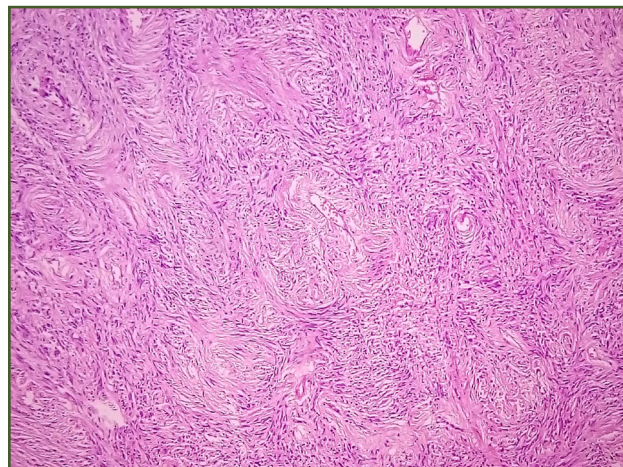


Fig. 2 : Photomicrograph of Benign Fibrous Histiocytoma showing proliferation of fibroblasts and histiocytes arranged in storiform pattern. (H&E 40X).

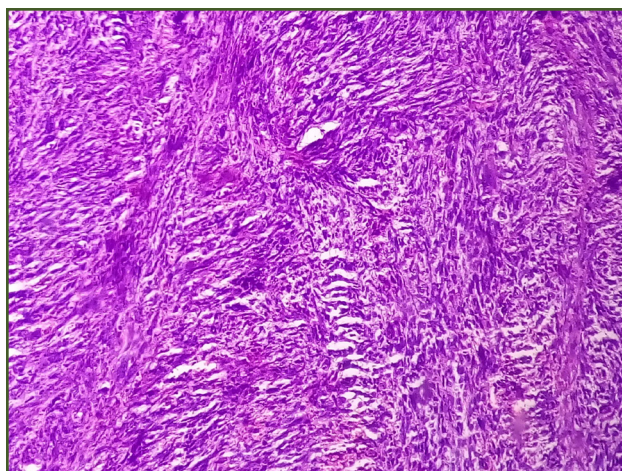


Fig. 3: Photomicrograph of Leiomyosarcoma showing malignant cells lying in fascicles intersecting each other. (H&E 40X).

Discussion

In the present study, out of 200, 169 (84.5%) cases were benign, 11 (5.5%) were intermediate and 20 (10.0%) malignant tumours. This is in concordance with the study conducted by Agravat et al [1] who analyzed 100 cases of soft tissue tumours (n=94) and tumour like lesions(n=6), of which benign tumours formed the bulk. In another large scale study of 8686 cases done by Stout,[4] 84.5% tumours belonged to benign category and 15.5% to malignant category.

Head and neck was found to be the most common site involved by benign tumours (55) and benign adipose tumours (45%) were seen to be the most common tumors at this site followed by benign vascular tumors(38%). These findings are in agreement with the study conducted by Makino[5] who analysed 651 soft tissue tumours arising

in the head & neck region and found that 96% tumours (n=628) were benign while only 4% were malignant. The bulk of benign tumours in his study was formed by haemangiomas (47%) followed by adipocytic tumours (19%). This variation in the morphology may be due to different age group. As seen in the current study in case of patients of <20 years, common benign tumor of head and neck was found to be haemangiomas. This observation is in concordance with studies conducted by Agravat et al,[1] Kransdorf[6] and Makino et al[5] who reported hemangiomas to be the commonest benign vascular tumours and observed head & neck to be the most common site involved.

Upper limb was found to be the most common site affected by benign adipocytic tumours (n=29) in the present study.

However, Kransdorf[6] reported lower limb to be the most common site in his study. Similarly, Shafar et al[7] concluded in their study that lipomas were the commonest soft tissue tumours noted in extremities, frequently seen in the region of the shoulder and upper thigh, although could be observed in any part of body.

In the present study, lower limb (n=10) was the most common site affected by sarcomas. This observation is in agreement with the study of 1660 sarcoma cases done by Mastrangelo et al[8] who observed lower limb (n=329) to be the most common site of sarcoma. This finding is also comparable to studies conducted by Ducimetiere et al,[9] Trojani et al,[10] Coindre et al [11] and Talati et al [12] who also found lower limb (extremities) to be the most common site involved by sarcomas.

Lower limb (n=2) was observed to be the most commonly involved site followed by abdomen (n=1) by liposarcoma. These findings are similar to studies conducted by Enterline et al, [13] Sim et al [14] and Stout [4] who also found the lower limb to be the commonest site followed by retroperitoneum. The two cases of fibrosarcomas which we diagnosed in our study were seen in lower limb. Kransdorf [6] also observed lower limb (n=113) to be the most common site of fibrosarcoma in their study on 553 cases. However Hare et al [15] observed fibrosarcomas to be the commonest soft tissue sarcomas (n=86; 43%) affecting the head & neck region (31.4%) followed by lower limb (22.1%) in their study of 200 cases of soft tissue sarcomas. In the present study one case of rhabdomyosarcoma was seen in lower limb and was diagnosed in the second decade of life. This observation was in near concordance with the studies of Hare et al[15] and Kransdorf[6] who observed head & neck to be the most common site followed by upper and lower extremities and were seen commonly in the first two decades of life.

Lower limb (n=4) followed by upper limb (n=2) were found to be the most commonly affected sites by benign fibrohistiocytic tumours in our study. However Jensen[16] found upper limb to be the most common site involved by benign fibrohistiocytic tumours.

Spine (n=10) was found to be the most common site of benign neural tumours. However, Kim DH[17] found brachial plexus to be the most common site for benign tumours.

The most common site affected by LMS was abdomen (n=3) followed by retroperitoneum (n=1). These results were similar to study conducted by Shah et al (2005)[18] who also observed lower limb (24.4%) to be the most common site followed by pelvis (24.4%) and abdomen (20.6%).

Conclusion

The current study was done to correlate the nature of lesions in case of soft tissues with respect to site and benign tumors were found to be more common amongst all with head and neck being frequently affected area. In addition it was commonly affected site by benign adipocytic lesions followed by upper limb in the covered age group. Lower limb was not analyzed to be the common site for benign lesions. Sarcomas were found to be the common entity for this particular site. It was concluded that site of the swelling while dealing with soft tissue lesions can predict the nature of tumor.

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