ORIGINAL ARTICLE

A Study and Evaluation of Soft Tissue Sarcoma Cases in Central India

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ABSTRACT

Background: Soft tissue malignancies constituted a heterogeneous group of rare solid tumors of mesenchymal cell origin with distinct clinical and pathological features. The aim of the study was to know the prevalence of soft tissue sarcoma, sex, age and site distribution, histopathology and various treatment options adopted with follow up.

Methods: A total of 52 cases of soft tissue sarcoma were analyzed for a three-year period.

Results: Out of 52 cases 37% of cases were between 20-40 yearsand 38% of tumors were situated in lower-extremity. The commonest histological type was Ewing's sarcoma and Spindle cell sarcoma. Lymph node metastasis was seen in 4% of cases. Distant metastasis was present in 6-cases, 5 with lung metastasis and 1 with lung and liver metastasis. Surgery was the main modality of the treatment. Only 60% turned for follow up, 3 patients succumbed to death because of multiple pulmonary secondaries and chest infections.

Conclusion: In the present study, all the cases of soft tissue sarcoma presented in late stage of the disease due to illiteracy and lack of health education. Recurrence was seen in 1% of cases. The overall survival rates and quality of life of the patients can be improved by frequent health camps at primary health centers for early detection of the disease, providing adequate health education, diagnostic and management facilities.

Keywords: Histopathology variants, Management, Prevalence, Soft tissue sarcoma

INTRODUCTION

Soft tissue sarcomas (STS) are a rare group of tumors, arising from mesenchymal tissue with heterogeneous differentiation. Soft tissue sarcoma can arise from muscles, fat, fibrous tissue, blood vessels and other supporting tissues of the body. About 1% among adults and 15% among children are affected by soft tissue sarcoma.[1] Little is known about the etiology of STS. Specific risk factors, like radiation, herbicides containing chlorophenol and phenoxy acids have been identified in the causation of soft tissue sarcoma. Increasing incidence rates of STS have been reported by several authors.[2,3]

This trend of increasing rates is probably due to recent shifts in the diagnostic criteria, gender predilection is varying in different nations and studies.[4-6] For stage II and III sarcomas, surgically removing the tumor is still the main treatment modality. Lymph nodes will be removed if they have metastatic carcinoma. If the tumor is large or in a place that would make surgery difficult, the patient may be treated with chemotherapy, radiation, or both before surgery. For large tumors in the arms or legs, giving chemo by isolated limb perfusion is also an option. The goal of treatment is to shrink the tumor, making it easier to remove. These treatments also lower the chance of recurrence of the tumor. Smaller tumors may be treated with surgery first, then radiation to lower the riskof recurrence. Sometimes chemotherapy is given as well. The drug most often used is doxorubicin (Adriamycin). This drug may be combined with Ifosfamide (Ifex) and other drugs.In rare cases, amputation is needed to remove the entire tumor. As with stage I sarcomas, radiation therapy with or without chemotherapy can be used when the tumor's location or size or the patient's health in general makes surgery impossible. There is evidence that chemo after surgery may benefit some people with stage II and III sarcomas.[5]

METHODS

A total of 52 cases of soft tissue sarcoma admitted and operated in the Surgical Oncology Department, SAIMS, Indore were analyzed for a five-year period from May 2014 to May 2019. Clinical presentation, duration of symptoms, site and size of lesion, age

and sex distribution, histological type and treatment modalities adopted were recorded and analyzed.

RESULTS

Out of 52 cases 37% of cases were between 20-40 years, youngest patients are at the age of 13 years and oldest is 80 years (Table 1).

Male:Female ratio is 1.47:1. 80% of the patients presented with painless mass and 20% presented with local pain or ulceration (Table 2).

46% of patients attended the clinics after one year of onset of the swelling and 54% of patients after 2 years of the onset of the swelling (Table 3).

38% of tumors were situated in lower extremity, 19% in upper extremity, 13% in head and neck, 11 % in abdomen,8% in abdominal wall,6% in thorax, and 4% in retroperitoneum (Table 4).

Patients with tumor over extremities presented with edema of limb and weakness. Lymph nodal involvement was present in one case.

Of the 52 cases of soft tissue sarcoma, various histological types observed during study (Table 5).

Lymph node metastasis was seen in 4% of cases. Distant metastasis was present in 6-cases, 5 with lung metastasis and 1 with lung and liver metastasis. Surgery was the main modality of the treatment. In present study in 80% of cases definitive surgical treatment was given in the form of wide local excision followed by radiotherapy to the tumor bed. Palliative surgery in form of Amputation was performed in 10 cases (20%). Among these, 7 cases of lower limbs and 3 cases of upper limb sarcoma.

Limb sparing surgery performed in 8 cases, among which 6 cases of lower limb and 2 cases of upper limb. Recurrence occurs within 5 cases. 4 cases operated previously for wide local excision and 1 case operated for limb sparing surgery. Mortality occur in 3 cases. All cases died because of metastasis.

Table 1: Age distribution in soft tissue sarcomas

Age in years	Case (n=52) (%)
11-20	7 (13)
21-30	11 (22)
31-40	9 (17)
41-50	5 (10)
51-60	7 (13)
61-70	9 (17)
71-80	4 (8)

Table 2: Clinical features in soft tissue sarcomas

Symptoms	Case (n=52) (%)
Painless mass	42 (80)
Local Pain/ ulceration	10 (20)

Table 3: Duration of symptoms

Duration of symptoms	Case (n=52) (%)
<6months	18 (35)
6months-1yr	6 (11)
1-2yr	24 (46)
2-3 yr	4 (8)

Table 4: Anatomical Distribution of soft tissue sarcomas

Site of tumor	Case (n=52) (%)
Lower extremity	20 (38)
Upper extremity	10 (19)
Head and neck	7 (13)
Abdomen	6 (12)
Abdominal wall	4 (8)
Thorax	3 (6)
Retroperitoneum	2 (4)

Table 5: Histopathological types of soft tissue sarcomas

Types	Case (n=52) (%)
Ewing's sarcoma	9 (17)
Spindle cell sarcoma	9 (17)
Pleomorphic sarcoma	8 (15)
Chondrosarcoma	8 (15)
Liposarcoma	5 (10)
Malignant Fibrous Histiocytoma	4 (8)
Dermatofibrosarcoma protuberans	2 (4)
Alveolar soft part sarcoma	2 (4)
Leiomyosarcoma	1 (2)
Alveolar Rhabdomyosarcoma	1 (2)
Renal sarcoma	1 (2)
Rhabdomyosarcoma	1 (2)
Sarcomatoid variant of HCC	1 (2)

DISCUSSION

Gibson TN et al[7] in their study in adults, the lower limb was the commonest location, followed by trunk and/or upper limb for malignant fibrous histiocytoma, fibrosarcoma and liposarcoma, head and neck for malignant peripheral nerve sheath tumor. In children, head and neck was the commonest site for rhabdomyosarcoma, head and neck and upper limb for malignant fibrous histiocytoma, retroperitoneum for neuroblastoma and trunk for fibrosarcoma. Mandong BM et al in their study the commonest sites affected were leg/foot 26.7%, head/neck 25.6% and thigh 19% with male: female ratio of 2:1.[8]

Seleye-Fubara D et al observed that the tumors were more frequent under 20 years of age (22.7%) and least in 70 years and above (7.6%).[9] The lower limb was most affected (36.4%) while the least was the retroperitoneum (6.1%). The commonest predilection sites varied with different classes of malignan-

cies. Adeniji KA et al observed male preponderance of the tumours with a male to female ratio of 1.3: 1.[10]

Abudu EK et al reported with a male to female ratio of 1.9:1 and 72.3% cases occurring in the patients above 20 years.[11] Most cases of soft tissue malignancies were seen in the trunk as well in the lower limbs; constituting 63.0% but rhabdomyosarcoma was most common in the lower limbs (76.9%).[12]

The percentage of tumors in study by Kransdorf MJ et al was malignant fibrous histiocytoma (24%), liposarcoma (14%), leiomyosarcoma (8%), malignant schwannoma (6%), dermatofibrosarcoma protuberans (6%), synovial sarcoma (5%), fibrosarcoma (5%), and sarcoma, not classified further (12%).[13]

In the study by Wibmeret C et al, the most common histotypes were sarcoma not otherwise specified (36%), leiomyosarcoma (24%), liposarcoma (12%), malignant fibrous histiocytoma (9%) and fibrosarcoma (5%). Age-adjusted incidence rate was 2.4 per 100 000 per year.[14]

Table 6: Comparison with other studies

Characteristics	Studies for comparison	Present study
Commonest location	**Gibson TN et al**	
Adult	Lower limb	Lower limb
Children	Head and neck	No data
	Mandong BM et al	
Male:Female Ratio	2:1	1.47:1
	Seleye-Fubara D et al	
Age	<20yrs	20-40 yrs
	Kransdorf MJ et al	
Histopathology (Descending order)	malignant fibrous histiocytoma	Ewing's sarcoma
	liposarcoma	Spindle cell sarcoma
	leiomyosarcoma	Pleomorphic sarcoma
	malignant schwannoma	Chondrosarcoma
	dermatofibrosarcoma protuberans	Liposarcoma
	synovial sarcoma	Malignant Fibrous Histiocytoma
	fibrosarcoma	Dermatofibrosarcoma protuberans
	Sarcoma(NOS)	Alveolar soft part sarcoma

CONCLUSION

In the present study, soft tissue sarcomas accounted for 1.07% of the total cancers during that period with male preponderance and commonly occurring between 20-40 years of age. Fifty percent of tumors occurred in extremities with Ewing's sarcoma and pleomorphic sarcomaand being the commonest histological type.In the present study surgery was the main modality of the treatment followed by radiotherapy to the tumor bed.

There was increased recurrence and incomplete excision of the tumor in the present study as the patients presented in late stages of the disease. Due to illiteracy and lack of health education the radiotherapy sessions taken were highly irregular with irregular follow ups. Early reporting of patients is very important which needs combined effort by health personnel, pathologist, surgeon, radiologist, relatives and social workers.

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