ORIGINAL ARTICLE

SOFT TISSUE SARCOMAS – A CROSS SECTIONAL STUDY AT MNJIO

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ABSTRACT: BACKGROUND: Sarcomas are an uncommon group of cancers with a wide distribution in the various anatomical regions of the body and even wider and confusing range of histopathological diagnosis. **AIMS:** To study the mode of presentation, histology, treatment modalities used and outcomes both in terms of function and disease free survivals of all patients treated in the Department of surgical oncology in our Institute. **MATERIALS & METHODS:** All patients of soft tissue sarcoma presenting to out department were studied and data collected in a proforma. Histology was established by Trucut/open biopsy. Patients after clinical examination were evaluated for distant disease in lungs by x-ray chest followed by CT scan. **RESULTS:** Symptomatology and anatomical location in our study was similar to world literature but stage of presentation and tumour size is advanced in our study. **CONCLUSIONS:** Patients in our study presented late, probably due to lack of access to medical care, delay in diagnosis and delay in referral. Hence higher incidence of amputations and also higher incidence of need for reconstruction. Successful utilization of multi-modality treatment and availability of good reconstruction ensured good functional outcome.

KEYWORDS: STS, Soft tissue sarcoma, Cancers.
MESHTERMS: Sarcoma.

INTRODUCTION: It was not until after the development of cellular pathology during the middle of the 19th century that sarcoma were separated from carcinomas on the basis of their tissues of origin.[1]

Soft-tissue sarcomas arise from the supporting extra skeletal tissues (i.e., muscle, fascia, nerve, connective, fibrous, and fatty tissues). Although they share biological characteristics, and are treated in a similar fashion, each of the various soft-tissue sarcomas has a unique morphology, biological behavior, and prognosis.[2]

Although soft tissues and bone comprise 75% of the average body weight, these neoplasms represent less than 1% of all adult and 15% of pediatric malignancies. The annual incidence in the United States, which remains relatively constant, is approximately 6000–7000 soft-tissue and 2500 bone sarcomas. Because these lesions are so rare, few pathologists have sufficient experience to deal comfortably with their diagnosis. This is further compounded by the steady evolution in the classification of soft tissue and bone tumors, which is based on their biological behaviour, ultrastructure, and results of immune histochemical and cytogenetic studies.

This study was done at MNJ Institute of Oncology during the period August 2010 and December 2013. The study was done prospectively where all patients of soft tissue sarcoma who were treated surgically were taken up in the study.

We studied all patients presenting to the Dept. Of Surgical Oncology as an attempt at auditing our work and understanding the presentation of disease and treatment modalities being executed in our institution.

AIM OF STUDY:

- To study the mode of presentation of Soft tissue sarcoma
- To study the histological types
- To study the stage of presentation
- To study the surgical modalities used to treat these patients and methods of reconstruction used.

All cases were assessed clinically and histology confirmed by biopsy. MRI or CECT scan were used to assess local extent of tumor. For evaluation of metastasis an X-ray chest was done which if found normal, a subsequent CT chest was done.

Patients were followed prospectively and the data and observation were collected on a proforma and analyzed.

ANALYSIS & DISCUSSION: 40 patients who were admitted in this study showed a male preponderance 1.35: 1 which is slightly higher than the study done by Henrik et al[3]. But the study by Ansari et al[4] showed a higher female incidence. Peak incidence of disease was seen in 3rd to 5th decade. The high incidence seen above 70 years age in Henrik et al, is probably due to longer life span seen in Sweden.

As far as presenting complaint, a painless swelling is the most often noted symptom in concurrence with world literature.

Again site of presentation is lower limb, like in the rest of the world. Our data is comparable (Table 1) with both Henrik et al[3] and Lawrence et al.[5] Both had lower limb as the site of maximum incidence.

Site	Lawrence Et al[5]	Henrik et al[3]	Our Study
Head & Neck	10.31	0	10
Upper limb	15.17	30	30
Lower limb	53.77	66	57.5
Other	20.3	14	2.5

Table 1: Site of Soft tissue sarcoma

In Our study, Size of the tumor at presentation, 70% were in the 5-10cm size while 20% were more than 10cm size. Less than 10% tumours were less than 5cm indicating a significant delay in presentation.[6,7]

A varied histology is seen among the 40 patients of this study and MFH is the most common histology seen. This is similar to other major studies across the world. (Table 2)

Histology	Lawrence Et al[5]	Coindre JM et al	Henrik et al[3]	Our Study
Malignant Fibrous Histiocytoma	25.9	28.2	45	32.5
Synovial Sarcoma	3.6	10.1	7	12.5
FibroSarcoma	6.6	-	4	12.5
Pleomorphic Sarcoma	-	-	-	12.5
Spindle Cell Sarcoma	-	-	-	10
Rhabdomyosarcoma	3.6	4.8	2	5
Liposarcoma	17.7	15.2	14	5
Neurofibrosarcoma	-	-	-	2.5
Neurosarcoma	-	-	-	2.5
Neurofibroliposarcoma	-	-		2.5
Malignant Hemangiopericytoma	-	-	1	2.5
others	42.6	41.7	27	-

Table 2: Comparing Histologies of Soft tissue sarcoma

The similarity with the world literature was not seen in the stage of presentation, with most of our patients presenting in stage III (Chart1). Stage IIA and Stage IIB were common in the Henrik et al[3] study unlike our series. The difference in presentation could be due to the lower economic strata of our patients and hence lower awareness and limited access to medical care and hence delayed referral to the tertiary centre. Also the smaller sample size could also be a reason to be considered.

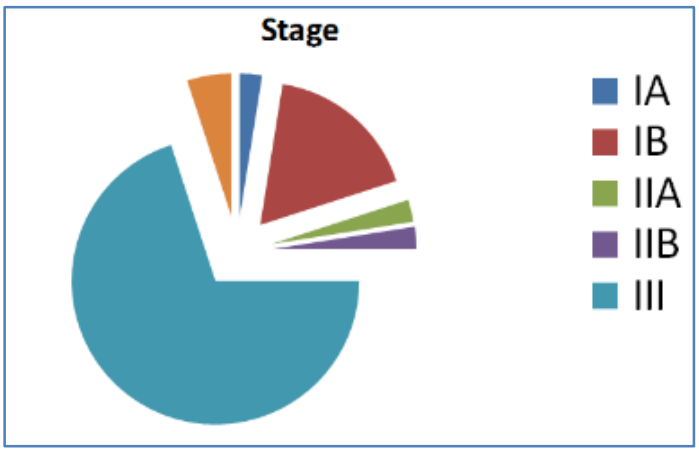

Chart 1

31 patients accounting for 77.5% presented in Grade 3. Regional lymph nodes were seen in a patient of Synovial Sarcoma while lung metastasis was seen at presentation in two patients. Metastasis disappeared after pre op chemotherapy in a patient (who underwent resection of the primary), while the other had upfront surgery and refused post op chemotherapy.

TREATMENT: Surgery was the mainline treatment with wide excision (Table 3) as the most common form of surgical treatment. 13 of our 40 patients had amptutation. Our amputation rate of 32.5% is very high in comparison to 6% of Alamanda et al[8] and 14% of WC Williard et al[9] series and could be explained by late presentation and locally advanced nature of disease. (Stage III is the common presentation in our series - 28 of 40 patients).

Radiotherapy was added as adjuvant treatment in 30% of patients while chemotherapy and radiotherapy was given in 10% of patients only. Chemotherapy was used in adjuvant setting in 22.5%.

Procedure	Number	Percentage
Wide Excision	14	35
Wide Excision Split Skin Grafting	3	7.5
Wide Excision Flap Cover	5	12.5
Wide Excision, Vascular Reconstruction, Flap Cover	1	2.5
Wide Excision, Segmental Mandibulectomy Flap Cover	4	10
Fore Quarter Amputation	2	5
Above Elbow Amputation	2	5
Thumb Disarticulation	1	2.5
Hemipelvectomy	1	2.5
Hip Disarticulation	1	2.5
Above Knee Amputation	3	7.5
Below Knee Amputation	3	7.5

Table 3: Surgical Procedure

Reconstruction was utilized in our series ranging from simple skin grafting to pedicled flaps done, with standard work horses like PMMC, LD and TFL flaps (60% of our patients reconstructed). (Table 4)

9 patients (22.5%) of our series required reconstruction of skin defect post resection. In the series of AStotte et al 18% of the patient's required Flap coverage of the skin defect and 0.55% of patient required a vascular reconstruction.[10]The high requirement of reconstruction in our present series can be attributed to the delayed and locally advanced presentation of our patients.

RECONSTRUCTION	Number
Latissimus Dorsi Flap	1
Pectoralis Major Myocutaneous Flap	2
Tensor fasia Lata Flap	3
Delayed Tensor Fasia Lata Flap and vascular reconstruction with Saphenous Graft	1
Anterior Thigh Flap	1
Sternocleidomastoid Flap	1
The posterior calf fasciocutaneous Flap	1

Table 4: Reconstructive options used

One patient (2.5%) required vascular reconstruction in our series. One patient had complete flap loss requiring a recovery with a new flap. Three patients in our study had wound infections. This data is comparable to study by Ansari et al[4] who also reported few complications in this study.

Functional Outcome: All patients who underwent limb conservation surgery had good post-operative function except two patients. One was post-operative and post radiotherapy mid-thigh recurrence for whom we did a vascular resection/reconstruction and flap cover. Flap failed thrice and the functional outcome was suboptimal and is under active physiotherapy. The other patient had disease which necessitated peroneal nerve excision resulting in foot drop cast to walk postoperatively.

Follow Up: Out 40, 35 patients are on follow up, ranging from 1- 26 months and average follow up period is 12 months. 3 patients were lost for follow up while two patients were on adjuvant chemotherapy.

2 patients recurred within 3 months. A total of 3 cases of local recurrence and 2 cases of distant metastasis were reported in this series. Of these only one patient had received adjuvant therapy and patient recurred locally, 17 months after wide excision.

If we review patients who survived longer than 12 months, 18 patients did more than 12 months and MFH is the most common HPE. 17 of these patients were in Stage 3. Two thirds (12 patients) of these had some form of adjuvant / or Neo adjuvant therapy indicating benefits in terms of survivals and local recurrences.

CONCLUSIONS: Mode of presentation as a painless swelling and lower extremity as the common site of presentation is similar to world literature. A delay in presentation is common in our series leading to a larger size at presentation, and an increased need for reconstruction in limb saving procedures. Incidence of amputations is also higher in our series.

Utilization of multi-modality treatment and good reconstruction facilities ensured better functional outcome and longer survivals (>12 months) were seen in those who did receive either adjuvant or neo adjuvant therapy.

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