

PP-050

Operative treatment of soft tissue sarcomas in upper extremities

P. Suomalainen, T.-K. Pakarinen, J. Havulinna, M. Laitinen

Tampere University Hospital, Tampere, Finland

Purpose: Approximately 20% of all extremity sarcomas occur in the upper extremity. When operating soft tissue sarcomas (STS), the vicinity of functionally important structures in the upper extremity may result in smaller margins, if function is tried to preserve to the last point.

Methods: We conducted a retrospective review of 54 consecutive patients with STS in the upper extremity (2006-2015) managed with the same treatment strategy (Figure 1. Resection line (red) and postoperative x-ray of an intramuscular high grade sarcoma of the extensor carpi ulnaris muscle). Our strategy with low grade tumors: we aim at negative margins, but accept <10mm of healthy tissue around the tumor especially if there's a natural barrier present. If the margins are compromised, we refer the patients to radiation therapy or to close follow-up depending the tumor histology. Reoperation is performed always in intralesional cases. With high grade tumors the strategy is as follows: we aim at >10mm margins, but accept a fascia as a natural barrier. If there is no fascia present, we are ready to sacrifice nerves, vessels and bone to accomplish 10mm of healthy tissue around the tumor. All patients with deep high grade tumors will go through radiation therapy.

Results: There were 25 females (46%) and mean age of all patients was 63 years (range 9-88 yrs) (Table 1). Follow-up time was average 47months (range 1-108mo). 33 tumors were deep seated and 21 superficial (subcutaneous). There were 17 low-grade and 37 high-grade tumors (Figure 2). Four patients had metastatic disease at the time of diagnosis and three of them were operated. We conducted eight amputation, but the rest of the resections were done with limb salvage maneuver. The final margins concurred the margins preoperatively planned in 52/53 cases (wide 32, marginal 20 and intralesional in one patient) and a patient was treated conservatively because of metastatic disease at the time of diagnose. There were only two recidives (4%) and six metastases (11%) during the follow-up period.

Six patients (11%) died during the follow-up, three because of disease and three of other cause.

Conclusion: With pedantic preoperative determination of possible natural barriers around the primary tumor, it is possible to minimize unnecessary soft tissue resections and possibly maintain functionality of the upper extremity without jeopardizing oncologic outcome.

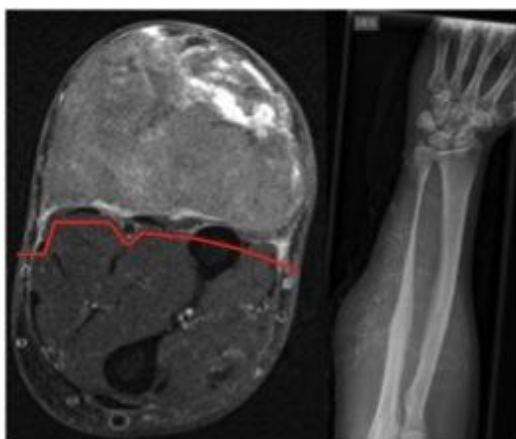


Figure 1.

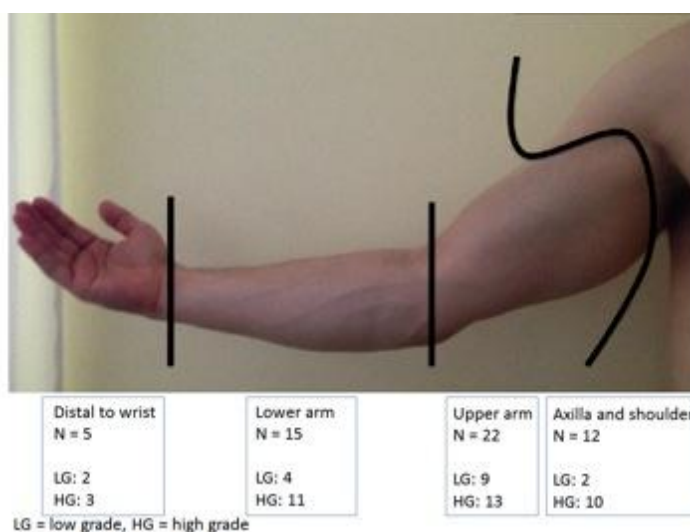


Figure 2.



	N
Age	
0-20	2
21-60	18
61-100	34
Gender	
Female	25
Male	29
Localization	
Distal to wrist	5
Lower arm	15
Upper arm	22
Shoulder	6
Axilla	6
Histology	
Liposarcoma	11
Pleomorphic STS	8
Leiomyosarcoma	8
Myxofibrosarcoma	7
Epitheloid sarcoma	4
MFH	3
MPNST	3
SFT	3
Fibrosarcoma	1
Rhabdomyosarcoma	1
Alveolar soft part sarcoma	1
Angiosarcoma	1
Triton tumor	1
Synovial sarcoma	1
Malignant epitheloid hemangioendothelioma	1
Depth	
Deep	33
Subcutaneous	21
Grade	
Low grade	17
High grade	37
Margins	
Intralesional	1
Marginal	20
Wide	32
Radioation therapy	20
Chemotherapy	13

STS = soft tissue sarkooma

SFT = solitary fibrous tumor

MPNST = malignant peripheral nerve sheet tumor

MFH = malignant fibrous histiosytooma

Table 1. Demographic data of patients