Caff, J Clin Case Rep 2014, 4:11
DOI: 10.4172/2165-7920.100e138

Journal of Clinical Case Reports

Editorial Open Access

Analysis of Risk Factors of Local Recurrence in Soft Tissue Sarcomas of the Limbs: Review of the Literature

Giuseppe Caff*

Orthopedic Oncology Department, CTO Florence, Italy

Soft tissue sarcomas (STS) are rare neoplasms (1% of all cancers in US with a prevalence of 10520 new cases/year) [1,2], although there are more than 50 different histological types [3,4]. The current management of STS is addressed to excision of the tumor and to preserve limb function as better as possible; respecting this balance has been always a challenge for the orthopedic oncology and the importance of treating patients with such sarcomas with wide radical resections obtaining negative pathological margins has been underlined in many studies [5-14]. Amputation represented gold standard for many years; but in the last 20 years, obviously thanks to new diagnostic technique and to new adjuvant radio and chemo-therapy, limb salvage became first choice.

It's widely acknowledged that local treatment of primary soft-tissue sarcoma of the limbs influences the likelihood of local recurrence, limb salvage, and functional outcome, while the metastatic potential is mainly determined by the grade and size of the primary tumor [4]. It's absolutely established that Local Recurrences (LR) in STS represents a failure of tumor local treatment because often are related to tumor progression (many authors support the idea that local recurrence increases the likelihood of metastatic spread, although debate on this point continues [5-8] and because LR leads to a necessary secondary surgery with high risk of amputations.

While the grade, the depth, the size and the local recurrence of the tumors are well accepted like predictor factors for the development of distant metastasis [5,15-20], it was always harder to finds a relationship between LR and precise predicting factors. In the last thirty years many papers tried to focus risk factors of LR and many factors are nowadays accepted but there is no general agreement on different variability and prevalence of these.

More important risk factors of local recurrences in soft tissue sarcomas considered by authors in literature*:*

Resection margins: Positive or not adequate surgical margins were demonstrated to be adverse prognostic factors for the local recurrences by multivariate analysis in different studies [15-17]; adequate surgical margin are the strongest predictor for local recurrence.

Histologic grade: High-grade sarcomas had a 4.8 fold increase in the risk of death and local recurrences compared with low-grade sarcomas and that mitotic activity (as determined by the mean number of mitoses per 10 high power fields) could be used as an additional prognostic factor [21].

Histological subtypes: In addition to the assessment of grade and mitotic activity, the histologic subtype of sarcoma was found to be an important prognostic factor. The histologic diagnosis of angiosarcoma, synovial sarcoma, or Ewing's sarcoma carried with it a 13-fold increased risk of death compared with liposarcoma, fibrosarcoma, and malignant peripheral nerve sheath histologic types [21].

Recurrence at presentation: Locally recurrent sarcomas were found to have a 7.4-fold greater risk of local recurrence compared with primary sarcomas on presentation. The local recurrence-free rate was reported to be 89 ± 5% for patients presenting with primary disease only compared with 53 ± 15% if patients presented with local recurrence only. Patients with microscopically positive margins on definitive surgical resection had a 2.4- fold greater risk of local recurrence than did those who had clean margins on surgical resection [5,18,21-23].

Microscopic tumor necrosis, mitotic rate, DNA ploidy [24], peri-operative blood transfusions [25] and unplanned initial excision [26] were also considered prognostic factors of local recurrence by some authors, but big controversial are still present.

What is clear is how surgery plays the main role in the local control and disease control of soft tissue sarcoma of the limbs and that new study with huge series for each different histological subtype would be very helpful to define the best protocols of treatment.

References

1. Jemal A, Tiwari RC, Murray T, Ghafoor A, Samuels A, et al. (2004) Cancer statistics, 2004. CA Cancer J Clin 54: 8-29.
2. Gilbert NF, Cannon CP, Lin PP, Lewis VO (2009) Soft-tissue sarcoma. J Am Acad Orthop Surg 17: 40-47.
3. Fletcher , Unni KK, Mertens F (2002) Pathology and genetics of tumours of soft tissue and bone. World Health Organization classification of tumours. Lyon, France: IARC Press.
4. Clark MA, Fisher C, Judson I, Thomas JM (2005) Soft-tissue sarcomas in adults. N Engl J Med 353: 701-711.
5. Pisters PW, Leung DH, Woodruff J, Shi W, Brennan MF (1996) Analysis of prognostic factors in ,041 patients with localized soft tissue sarcomas of the extremities. J Clin Oncol 14: 1679-1689.
6. Stojadinovic A, Leung DH, Allen P, cLewis JJ, Jaques DP (2002) Primary adult soft tissue sarcoma: time-dependent influence of prognostic variables. J Clin Oncol 20: 4344-4352.
7. Segal NH, Pavlidis NA, Antonescu CR (2003) Classification and subtype prediction of adult soft tissue sarcoma by functional genomics. Am J Pathol 2003;163: 691-700.
8. Mccarter MD, Jaques DP, Brennan MF (2002) Randomized clinical trials in soft tissue sarcoma. Surg Oncol Clin N Am 11: 11-22.
9. Alho A, Alvegard TA, Berlin O, Ranstam J, Rydholm A, et al. (1989) Surgical margin in soft tissue sarcoma. The Scandinavian Sarcoma Group experience. Acta Orthop Scand 60: 687-692.
10. Rosenberg SA (1981) Treatment of soft tissue and bone sarcomas: review of studies at the National Cancer Institute. Natl Cancer Inst Monogr : 241-244.
11. Rydholm A, Gustafson P, Rööser B, Willén H, Akerman M, et al. (1991) Limb-sparing surgery without radiotherapy based on anatomic location of soft tissue sarcoma. J Clin Oncol 9: 1757-1765.

***Corresponding author:** Giuseppe Caff, Orthopedic Oncology Department, CTO Florence, Italy, Tel: +393294198163; E-mail: giuseppe.caff@gmail.com

Received October 30, 2014; **Accepted** November 01, 2014; **Published** November 03, 2014

Citation: Caff G (2014) Analysis of Risk Factors of Local Recurrence in Soft Tissue Sarcomas of the Limbs: Review of the Literature. J Clin Case Rep 4: e138. doi:10.4172/2165-7920.1000e138

12. Rosenberg SA, Tepper J, Glatstein E, Costa J, Baker A, et al. (1982) The treatment of soft-tissue sarcomas of the extremities: prospective randomized evaluations of (1) limb-sparing surgery plus radiation therapy compared with amputation and (2) the role of adjuvant chemotherapy. Ann Surg 196: 305-315.

13. Zagars GK, Ballo MT, Pisters PW, Pollock RE, Patel SR, et al. (2003) Prognostic factors for patients with localized soft-tissue sarcoma treated with conservation surgery and radiation therapy: an analysis of 1225 patients. Cancer 97: 2530-2543.

14. Sadoski C, Suit HD, Rosenberg A, Mankin H, Efird J (1993) Preoperative radiation, surgical margins, and local control of extremity sarcomas of soft tissues. J Surg Oncol 52: 223-230.

15. Stefanovski PD, Bidoli E, De Paoli A, Buonadonna A, Boz G, et al. (2002) Prognostic factors in soft tissue sarcomas: a study of 395 patients. Eur J Surg Oncol 28: 153-164.

16. Coindre JM, Terrier P, Bui NB, Bonichon F, Collin F, et al. (1996) Prognostic factors in adult patients with locally controlled soft tissue sarcoma. A study of 546 patients from the French Federation of Cancer Centers Sarcoma Group. J Clin Oncol 14: 869-877.

17. Gaynor JJ, Tan CC, Casper ES, Collin CF, Friedrich C, et al. (1992) Refinement of clinicopathologic staging for localized soft tissue sarcoma of the extremity: a study of 423 adults. J Clin Oncol 10: 1317-1329.

18. LeVay J, O'Sullivan B, Catton C, Bell R, Fornasier V, et al. (1993) Outcome and prognostic factors in soft tissue sarcoma in the adult. Int J Radiat Oncol Biol Phys 27: 1091-1099.

19. Bell RS, O'Sullivan B, Liu FF, Powell J, Langer F, et al. (1989) The surgical margin in soft-tissue sarcoma. J Bone Joint Surg Am 71: 370-375.

20. Karakousis CP, Proimakis C, Rao U, Velez AF, Driscoll DL (1996) Local recurrence and survival in soft-tissue sarcomas. Ann Surg Oncol 3: 255-260.

21. Singer S, Corson JM, Gonin R, Labow B, Eberlein TJ (1994) Prognostic factors predictive of survival and local recurrence for extremity soft tissue sarcoma. Ann Surg 219: 165-173.

22. Collin C, Godbold J, Hajdu S, Brennan M (1987) Localized extremity soft tissue sarcoma: an analysis of factors affecting survival. J Clin Oncol 5: 601-612.

23. Donohue JH, Collin C, Friedrich C, Godbold J, Hajdu SI, et al. (1988) Low-grade soft tissue sarcomas of the extremities. Analysis of risk factors for metastasis. Cancer 62: 184-193.

24. Engellau J, Anderson H, Rydholm A, Bauer H CF, Sundby Hall K (2004) Time Dependence of Prognostic Factors for Patients with Soft Tissue Sarcoma A Scandinavian Sarcoma Group Study of 338 Malignant Fibrous Histiocytoma. 100.

25. Rosenberg SA, Seipp CA, White DE, Wesley R (1985) Perioperative blood transfusions are associated with increased rates of recurrence and decreased survival in patients with high-grade soft-tissue sarcomas of the extremities. J Clin Oncol 3: 698-709.

26. Qureshi YA, Huddy JR, Miller JD, Strauss DC, Thomas JM, et al. (2012) Unplanned Excision of Soft Tissue Sarcoma Results in Increased Rates of Local Recurrence Despite Full Further Oncological Treatment. Ann Surg Oncol 19: 871-877.