

How should orthopaedic oncologists prevent unplanned resections of soft tissue sarcomas by general practitioners?

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Published online: 19 June 2012
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Unlike other orthopaedic fields, the disease encountered in the field of musculoskeletal oncology can be life-threatening. It is therefore necessary for orthopaedic oncologists to have a sound grasp of their discipline, and to have skill and expertise when managing their patients. In recent years, there has been a tendency for patients with musculoskeletal sarcomas to be treated at specialist clinics, and therefore orthopaedic general practitioners have fewer opportunities to gain experience in musculoskeletal oncology. However, it is extremely likely that patients with a serious sarcoma will first visit a local clinic and consult a general practitioner. Therefore it is obvious that the prognosis of such patients would be significantly affected by the initial responses of the general practitioner they consult. Against this background, the main theme for the 45th Annual Musculoskeletal Tumor Meeting of the Japanese Orthopaedic Association in 2012 is “Reconfirmation of basic knowledge of orthopaedic oncology – The importance of a good working relationship between general practitioners and specialists”.

In the last 40 years, the clinical outcomes for musculoskeletal sarcoma have markedly improved due to the establishment of neoadjuvant chemotherapy and the development of surgical techniques based on imaging modalities such as CT and MRI. For example, the current 5-year survival rate for patients with osteosarcoma is 60–80% in comparison with 10–15% in 1970. Furthermore, in the light of studies focusing on the surgical margin, a concept that has undergone remarkable development in

Japan, orthopaedic oncology specialists now recommended that musculoskeletal sarcomas should be excised with an adequate safety margin. Currently, Limb salvage procedures are indicated for more than 80% of patients undergoing surgery for musculoskeletal sarcomas. However, over the last 20 years, the potentially favorable outcome in the majority of such patients has not been realized. In my view, clinical outcomes for patients with musculoskeletal sarcomas in the extremities are still less than satisfactory.

Strict assessment of the acquired surgical margin of excised tumors is undoubtedly an innovation that originated in Japan. According to the new guideline for safety margins based on difference in tumor malignancy stipulated by the Surgical Society for the Musculoskeletal Sarcoma in 2010, the current safety margins are 2 cm or more for high-grade sarcoma and 1 cm or more for low-grade sarcoma. Moreover, those based on the response to preoperative chemotherapy are classified as marginal or more for marked responders, 2 cm or more for partial responders, and 5 cm or more for poor responders. Although the safety margins for lesions with skip and lymph node metastasis are still unresolved, a serial trial to minimize the safety margin seems to have nearly achieved its goal.

Prosthetic replacement for reconstruction after resection of musculoskeletal sarcomas has shown marked progress with the modular type of prosthesis. Use of a metal prosthesis is undoubtedly one of the main methods for reconstruction of massive bone and joint defects. Further minor changes in model or better new materials for prosthesis manufacture, such as the Howmedica Modular Resection System (HMRS) and the Global Modular Resection System (GMRS), are expected in the future. However, it is recognized that biological reconstruction achieves better long-term function than a prosthesis. As well as the surgical margin, prosthetic replacement also seems to have nearly

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achieved its goal. Therefore, new innovative treatments might be necessary to achieve improvements in outcome.

Carbon ion radiotherapy is a specialized radiation technique for patients with unresectable bone and soft tissue sarcomas located in the spine or pelvis. Due to equipment limitations, it has been indicated strictly for tumors not exceeding 15 cm in diameter. However, in contrast to data obtained initially, local recurrence in the area neighboring the irradiated field has often been observed recently. Therefore, I think there is a need to re-examine the current data for carbon ion radiotherapy.

Finally, I would like to deal with the issue of clinical problems that can occur after an initial unplanned resection of a soft tissue sarcoma. If this problem can be resolved, further improvements in the outcome of patients with soft tissue sarcomas might be expected. Initial unplanned resections of soft tissue sarcomas have not decreased in number, despite a campaign aimed at general practitioners and, also surgeons working in other fields. An unplanned resection procedure is classified as a simple marginal or intralesional resection of a soft tissue sarcoma without consideration of the tumor's malignancy or the need for subsequent radical resection. After an initial unplanned resection, the operative field shows wider tumor contamination than before. Therefore, ablative surgery such as amputation or disarticulation of the affected limb is often necessary instead of limb salvage. Alternatively, wider massive reconstruction involving vessel transplantation or microsurgical reconstruction may be needed. Oncology specialists are sufficiently aware that immediate additional wide resection yields better results than simple observation until postoperative local recurrence. Numerous reports have already addressed the clinical problems that can occur after such unplanned resection [1–3], and patients in this unfortunate position are often referred to our clinic. Although, for a long time, oncologists have strenuously advised against unplanned resections as well as calling for general practitioners to be better educated or trained, there are still many patients presenting with soft tissue sarcomas after initial unplanned resection.

Giving due considerations to the current situations, 20 educational lectures covering basic knowledge of orthopaedic oncology for non-specialists are planned for the 45th Annual Musculoskeletal Tumor Meeting in 2012. I also intend to cover this theme, i.e., the dangers of unplanned resection, in the lecture I will present as

Congress President. Based on the clinical data collected during a 5-year period between April 2007 and March 2012 in our clinic, I will present a statistical analysis of oncological outcomes, operative damage and limb function in patients who have undergone unplanned resection in comparison with untreated patients. Several problem cases will be introduced, including a patient with leiomyosarcoma in the abdominal wall, who was referred to us more than 6 months after unplanned resection, and developed local recurrence in the neighboring area one year after additional wide resection due to the fact that imaging of postoperative tumor contamination was indistinct. Fortunately, the patient remains free of any evident disease after postoperative chemotherapy 3 years after an additional resection procedure. In another patient with pleomorphic liposarcoma in the thigh, reconstruction of the femoral artery and vein was necessary. Another patient with malignant fibrous histiocytoma in the subcutis of the lower leg underwent an unavoidable above / knee amputation due to widely spread post-biopsy hematoma. Moreover, a patient with a malignant peripheral nerve sheath tumor in the chest wall showed multiple extra-pulmonary metastases despite excellent local control after additional resection. Obviously, therefore, any unplanned resection for soft tissue sarcoma is extremely inadvisable as a means of tumor control, especially for high-grade sarcomas.

Although this problem may remain with us for a long time, oncology specialists must make every practical effort to prevent any inadvised unplanned resections by general practitioners. I sincerely hope that our discussions at the Meeting will bear fruit, and serve to discourage unplanned resection for soft tissue sarcomas.

References

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