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The use of neo-adjuvant radiotherapy in the management of peri-articular soft tissue sarcoma

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Background: Optimising post-operative joint function is challenging when treating peri-articular soft tissue sarcoma. Radiotherapy minimises local recurrence rates in management of soft tissue sarcoma. Differences in risks and benefits depend on adjuvant or neo-adjuvant use. The lower doses and smaller treatment volumes achieved with pre-operative radiotherapy have potential benefits for the management of peri-articular sarcomas. This study therefore aims to assess short-term outcome measures and complications after treatment with neo-adjuvant radiotherapy and surgery for patients with soft tissue sarcoma

Patients and Methods: 17 patients with soft tissue sarcoma were identified as being treated with pre-operative radiotherapy. 3D conformal radiotherapy was delivered at a single centre with a dose of 50Gy in 25 fractions over 5 weeks. Patients were assessed weekly for adverse effects. Resection was planned 4-6 weeks after radiotherapy.

Results: Medial follow-up was 13 months (range 5-44 months). No patients had significant adverse effects during radiotherapy. One patient had surgery delayed due to local reaction. Histology demonstrated 50-100% tumour necrosis in all tumours except one patient with pleomorphic liposarcoma, showing no detectable necrosis. Major complications occurred in one patient (persistant foot drop) and six patients had minor complications (three superficial infections, two seromas, one transient neuropraxia). One patient required further surgery due to incomplete margins. TESS scores for upper and lower limb patients were 86.1 and 78.1 respectively. No local recurrences to date have been recorded. One patient developed metastatic lymphadenopathy and another has developed lung metastases.

Conclusions: This work has demonstrated that major complications are minimal and early function and local control rates are excellent. Long term follow-up is required to demonstrate final functional outcome and local control rates.

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