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## Local recurrence in Ewing's sarcoma after good response to chemotherapy: disease or treatment?

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### Introduction

Whilst Ewing's sarcoma is a rare malignancy it has attracted significant scientific attention due to its tumour specific translocations. Despite this flurry of research, survival curves for patients have plateaued over the last 10 years. In some cases, in spite of successful chemotherapy responses and aggressive surgical resection there are still local recurrences (LR). Local recurrence has a poor prognostic indication often leading to subsequent surgery and in many cases death from metastases. Recent data has highlighted a surprising high rate of LR even in good responding tumours.

### Methods

We conducted a retrospective review of patients seen in our tertiary referral centre since 1971. 770 patients were identified with Ewing's sarcoma. 213 patients had necrosis greater than 90% who underwent surgery. 73 patients (9.4%) were identified with local recurrence of Ewing's sarcoma. In this sub-group 13 patients (17%) had isolated locally recurrent disease and at a mean of 34.2 months from diagnosis.

### Results

There were 11 males and 2 females. The site of Ewing's sarcoma varied greatly but most were limb, (n=11) the most common site being the femur (n=3) followed by the fibula (n=2). All patients had neo-adjuvant chemotherapy and achieved greater than >90% necrosis. 9 achieved a 100% response. Only one patient diagnosed in 1986 received pre-operative radiotherapy (pelvis) and none underwent post-operative radiotherapy. Two patients had intralesional margins (one patient with Ewing's sarcoma of the pelvis and pre-op radiotherapy, one patient with an endoprosthesis replacement but >95% necrosis). Mean time to local recurrence was 34.2 months (11-150, n=13). One patient developed local recurrence after 12yrs. 6 patients subsequently developed metastases. 7 patients died, 5 with metastases, 1 of septicaemia and 1 cause of death was unknown. The mean radiographic volume at diagnosis was 240.92mls (range= 44.93-609.76) compared to a mean resection volume of 87.04ml (range=14.7-286.03).

### Conclusion

Despite a good chemotherapy response, local recurrence is still occurring. We believe that residual microscopic disease is being left behind following conservative surgery and there is a role for either radical excision of pre-chemotherapy volume or adjuvant radiotherapy despite good surgical margins and 100% necrosis.

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