

## **Marginal Excision of Extremity Dedifferentiated Liposarcoma without radiation may be safe in select patients**

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### **INTRODUCTION:**

Dedifferentiated liposarcoma (DDLPS) is a heterogeneous type of tumor histologically that features both low grade liposarcoma (atypical lipomatous tumor, ALT) components and higher-grade spindle cell components. This study retrospectively reviewed the local recurrence and distant metastasis rate in patients with DDLPS who underwent surgical excision. Specifically, we wished to assess whether the grade of tumor at the margin, whether ALT or high grade, had differential influences on recurrence risk. And how the radiation affects this results.

### **METHODS:**

A total of 164 patients diagnosed with pathologically confirmed DDLPS between July 1995 and September 2024 were identified from our institution's prospectively collected database. All patients underwent surgical resection at our institution. 6 patients were excluded for incomplete margin information leaving 158 patients for assessment.

Patient demographics, tumor characteristics, treatment variables including use of radiation therapy, margin status including presence of either well-differentiated or dedifferentiated tumor at the margin were assessed. Outcomes of interest included local recurrence-free, metastasis-free and overall survival. Categorical variables were compared using Chi-square test and continuous variables compared using t-tests. Survival was estimated using Kaplan-Meier statistics.

### **RESULTS:**

There were 93 males and 65 females. Mean age was 67 years (range 28-96 years). Mean tumor size was 16 cm (range 2.4-39 cm) There were 15 "low grade dedifferentiated" (grade 1) tumors and 130 "intermediate-high grade dedifferentiated" (grade 2-3 tumors). For 13 patients the grade was not available. There were 81 patients with negative surgical margins and 77 with microscopically positive margins. Of these 77 patients, 46 had positive margins adjacent to an area of ALT and 6 had positive margins adjacent to an area of high grade DDLPS. In 25 patients it was unclear the nature of the tumor adjacent to the margin.

Of the 15 patients with "low grade dedifferentiated" (grade 1) tumors, there were no local recurrences or metastases. All local recurrences (12%) and metastases (16%) occurred in patients with grade 2-3 tumors.

Of the 16 local recurrences of previous grade 2-3 tumors, 12 recurred as a low-grade tumor in the setting of a positive margin on the ALT component of the original tumor. 2 local recurrences occurred in the setting of a positive margin on the grade 2-3 component, and 2 local recurrences occurred in the setting of a negative margin.

Radiotherapy was used in equivalent frequencies in patients with positive (70%) and negative (73%) margins.

### **DISCUSSION AND CONCLUSION:**

"Low grade dedifferentiated" liposarcoma has an excellent prognosis, with local recurrence and metastatic rate of 0% in our study. Marginal excision of DDLPS, utilizing the ALT area as the margin and showing a positive ALT (low grade portion of differentiated liposarcoma) margin in pathology reports, appears to be sufficient to prevent recurrence of the tumor as a high grade DDLPS, although recurrence as a low grade DDLPS may occur. The role of radiotherapy in this situation remains inconclusive. This suggests that careful planning around ALT margins, if needed and possible, may offer a viable alternative to wider excisions, thereby retaining more functional tissue and possibly improving functional outcomes.