

## Multimodality Management of Recurrent Skull Base Chordomas: Factors Impacting Tumor Control and Disease Specific Survival

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### Introduction

Limited data exists to guide the management of recurrent skull base chordomas. There is a need to determine factors affecting outcomes in this high-risk population.

### Methods

A retrospective review was performed of 29 patients with 55 recurrences treated at our institution. Tumor and treatment factors were assessed for impact on median PFS (primary outcome) and DSS (secondary outcome). Fifty-five percent of the recurrences were after only surgical resection while 45% occurred after resection/adjuvant radiotherapy. Patterns of progression noted were local only (67%), distant only (15%), local + distant (18%).

### Results

Patients were less likely to respond to treatment once they reached their third recurrence ( $p < .05$ ). Recurrence after radiation therapy trended towards worse outcomes in comparison to progression after surgery alone (15.9 vs 41.4 months,  $p = .094$ ). Distant disease spread and, specifically, LMD was associated with poorer DSS ( $p < .05$ ) and PFS ( $p < .05$ ). For local progression after surgery alone, repeat resection ( $p < .05$ ) and radiation ( $p < .05$ ) yielded improved tumor control rates. In the setting of local infield failure, repeat resection did not confer any benefit (13.5 vs 17.6 months,  $p > .05$ ) while a trend towards improved PFS was seen with SRS (28.3 vs 16.2 months,  $p = .233$ ). For distant metastases, site directed therapy (surgery or radiation) allowed for site control ( $p < .05$ ) but did not prevent overall disease progression. Progression within 6 months of primary therapy was also associated with a significant reduction in DSS (19.3 vs 77.6 months,  $p < .05$ ).

### Conclusions

There is a need for treatment of recurrent disease to be tailored to the pattern of recurrence and previously received treatments. The management of post-radiation progression poses particular challenges given the apparent limited role of repeat resection alone. SRS may have a role in this setting. While patients with systemic metastases appear to respond well to site directed therapy, those with LMD have a dismal prognosis. This study highlights areas of clinical management for future investigation.

### Learning Objectives

By the conclusion of this session, participants should be able to:

- 1) Identify factors affecting local and distant tumor control rates in recurrent skull base chordoma.
- 2) Identify factors affecting survival in patients with recurrent skull base chordoma.
- 3) Identify the need for targeted treatment protocols in the management of recurrent skull base chordoma.

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