Abstract

Introduction
There are limited therapeutic choices for good performance status patients with recurrent brain tumors who have received prior full dose radiation therapy (RT). Repeat RT remains the most commonly used option after re-resection, but the therapeutic risk/benefit ratio narrows considerably. In the past, brachytherapy (BT) has been utilized but with a high rate of reported complications.

Methods
Retrospective review of 6 patients and 10 operative beds (Grade 3 meningioma (4), breast metastasis (2), Grade 2 meningioma (2), craniopharyngioma (1), and malignant spindle cell neoplasm (1)) implanted with Cs-131 (Proxcelan, IsoRay Corp). All patients underwent re-resection just prior to implant. Ages 18-73; prior surgeries 0-3 per lesion; prior radiation courses 1-3 per lesion. The seeds were "encased" in a biocompatible carrier material. A gelatin based material was used for the first 3 beds and a collagen based material in the last 7 cases. Given the prior RT, all were prescribed 60 Gy at 5mm.

Results
Follow-up ranges from 1-10.5 months. Number of seeds utilized was 4-47/bed; mCi implanted per bed was 14-169. No postoperative complications or operative bed recurrences have occurred to date. All patients except 1 have had exposure levels low enough at the end of the craniotomy closure to allow nursing care without radiation precautions. Time added to case ranged from 12-20 minutes. Post implant CT and MRI were done on all patients, as was post implant dosimetry. No seed migration was noted. The post implant plans had excellent concordance with the preplans.

Conclusions
We report our initial experience with Cs-131 brain BT as repeat RT utilizing customized biocompatible carriers fabricated intraoperatively that added little time to the cases. Although follow-up is short we are encouraged enough to pursue a prospective in-house trial.

Eligibility
Patients with previously irradiated malignant or aggressive neoplasms scheduled to undergo resection, in settings in which additional radiation was desired but would present a high risk of necrosis or wound breakdown if administered by conventional techniques.

Objectives
To examine the short and intermediate outcomes associated with re-irradiation utilizing a custom biocompatible carrier containing Cs-131 seeds fabricated intraoperatively.

Conclusion
In a limited number of heavily pretreated patients we were able to undertake aggressive re-irradiation (60Gy) utilizing a novel strategy with Cs-131 imbedded in a custom fabricated biocompatible carrier. With follow-up ranging from 1-10.5 months we have had neither wound healing problems, radiation necrosis, or bed recurrence. The treatment strategy was well received by the patients, their caregivers, and the participating neurosurgeons. We are therefore undertaking a prospective trial in a larger cohort of patients.