Resection strategies in tumoral epilepsy: is a lesionectomy enough?

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Abstract
Resection strategies in patients with tumor-related epilepsy vary from lesionectomy to larger epilepsy operations with no consensus on optimal approaches. The objective of this study is to use our prior experience in the management of these patients, to derive optimal strategies for the surgical management of epilepsy related to brain tumors. A prospectively compiled database of epilepsy and tumor patients was used to identify patients who underwent surgical resection of a neoplasm but then developed epilepsy, or who presented with epilepsy and were found to harbor a brain tumor. Seizure frequency, histopathology, type of surgical resection, and outcomes were compiled. Of 235 epilepsy surgery patients and 75 low/intermediate grade glioma surgery patients, 13 (5.5%) and 21 (28%) patients, respectively, had tumoral epilepsy. Twenty-two patients were male and 18 tumors were in the left hemisphere. Tumoral epilepsy occurred predominantly in temporal (50%) and perirolandic (26.5%) locations. The etiology was WHO grade I tumors in 29%, grade II in 35%, and grade III in 33%. In the epilepsy group, following lesionectomy in three and tailored resections in the majority, seizure outcomes were Engel class I in all except one case. In the tumor group, after the initial operation seven additional resections were performed due to seizure recurrence. Outcomes in this group were Engel class 1A in 18 patients and 1B, 1C and IIA in 1 patient each. Drawing upon these data, we propose a classification of the likely reasons of failure in seizure control in patients with tumoral epilepsy. This review reiterates the concept that a complete resection of the lesion is the best approach for dealing with tumors presenting with epilepsy. Overall excellent outcomes can be accomplished following aggressive initial tumor resection, re-resection in the context of recurrence, and epilepsy style operations in selected patients with a longer history of seizures.

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