

DOES DUAL PATHOLOGY ALWAYS REQUIRE DUAL RESECTION?

Temporal Lobectomy in Congenital Porencephaly Associated with Hippocampal Sclerosis

Burneo JG, Faught E, Knowlton RC, Martin RC, Bebin M, Morawetz R, Kuzniecky R

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BACKGROUND: Clinical and neuroimaging features of patients with epilepsy and coexisting extratemporal porencephaly and hippocampal sclerosis have been previously described.

OBJECTIVE: To present the clinical characteristics and surgical outcome of six patients with intractable epilepsy and coexisting extratemporal porencephaly and hippocampal sclerosis.

METHODS: Twenty-four patients with porencephaly and epilepsy were studied. Of these, six had an epileptogenic focus in the temporal region. All patients underwent video-EEG monitoring, magnetic resonance imaging studies, and neuropsychological evaluation. Of the subset of patients with temporal lobe epilepsy, one patient underwent intracranial EEG monitoring. Temporal lobe resection was performed in five patients. Outcomes were evaluated by using the Engel classification.

RESULTS: Freedom from seizures was achieved in all patients. Pathologic analysis of the resected tissue confirmed the presurgical diagnosis of mesial temporal sclerosis.

CONCLUSIONS: Patients with extratemporal porencephaly and intractable seizures should be evaluated early and be considered for temporal lobectomy if clinical, magnetic resonance imaging, and EEG findings support the diagnosis of temporal lobe-onset seizures.

ond, hemispherectomy. In brief, dual pathology refers to the observation that many patients not only have hippocampal sclerosis but also have extrahippocampal areas of epileptogenic cortex. The presence of dual pathology can be important because the extrahippocampal regions may need to be resected along with the hippocampus, if the patient is to become seizure free. Patients with widespread areas of cortical damage in one hemisphere have a problem that is in many ways similar to dual pathology. Many of these patients require a hemispherectomy, that is, removal of the entire cortex or at least most of it, if seizure control is to be achieved. Because clinical experience has shown that subtotal resections often lead to suboptimal seizure control, increasing emphasis among clinicians has been placed on the need to remove a sufficient amount of tissue.

The present article demonstrates that, in other circumstances, less may be more. The researchers report nine patients with porencephaly who had medically refractory seizures. In six of these nine patients, seizures originated in the temporal lobe, notwithstanding the presence of porencephaly. In three other subjects, seizures originated outside of the temporal lobe. The clinical features of all six of the patients with seizures originating in the temporal lobe were consistent with temporal lobe epilepsy. Five of the patients underwent temporal lobe resections, and all five became seizure free, with a follow-up ranging from 22 to 67 months. All subjects were found to have hippocampal sclerosis and had shown evidence of hippocampal atrophy on magnetic resonance imaging in the course of their preresection evaluation.

Epileptologists are painfully aware of the fact that not all of the patients who undergo surgery subsequently achieve seizure control. It has not always been clear why seizure control has been difficult. The concept of dual pathology has been an important advance in explaining this problem. Research on dual pathology has demonstrated that more than one area can cause seizures in a patient, and when more than one area causes seizures, both areas must be removed. The idea that more than one area might need removal is not new, but the finding that sophisticated imaging provides new ways of locating areas of possible epileptogenesis *is* new. This article emphasizes another concept of equal importance: the goal of resection is not to take out whatever appears abnormal on imaging. The goal is to remove the areas

COMMENTARY

The article by Burneo et al. considers an issue that conceptually lies at the intersection of two more widely discussed problems: first, so-called dual pathology (1) and sec-



that are causing seizures. The two objectives are not necessarily the same. Hemispherectomies are required in a subset of patients because the entire hemisphere is potentially epileptogenic. The reason for not doing hemispherectomies in another subset of patients is that only a portion of the hemisphere is epileptogenic.

As the authors nicely demonstrate, the clinical and EEG characteristics of each individual patient must be carefully evaluated to determine what the best resection for that patient might be and whether this best resection should be larger or smaller

than might otherwise be expected, if seizure control is to be optimized.

by Ronald P. Lesser, M.D.

Reference

1. Li LM, Cendes F, Andermann F, Watson C, Fish DR, Cook MJ, Dubeau F, Durcan JS, Shorvon SD, Berkovic SF, Free S, Olivier A, Harkness W, Arnold DL. Surgical outcome in patients with epilepsy and dual pathology. *Brain* 1999;122:799–805.