

EPILEPSY SURGERY IN ASIA

Lesional epilepsies

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Primary intracranial neoplasms and other foreign-tissue structural lesions of the brain are important etiological factors in patients with partial seizure disorders.^{1,2} Detailed presurgical evaluations can identify the epileptogenic foci, the structural lesions and their correlation.^{3,4} However, the temporal lobe lesions and extratemporal lesions require different presurgical evaluations and therapeutic approaches.

The preoperative investigations for the intractable TLE consisted of serial electroencephalogram (EEG) recordings, long-term EEG/video monitoring with sphenoidal electrodes, magnetic resonance imaging (MRI), magnetic resonance spectroscopy (MRS), positron emission tomography with fluorodeoxyglucose (FDG-PET) and neuropsychological assessment.^{5,6} At Taipei Veterans General Hospital, 47 patients who presented with temporal lobe epilepsies and received lesionectomy with/without hippocampectomy had structural lesions in the temporal lobe. The patients were divided into neoplastic (n = 35) and vascular (n = 12) groups, based on the pathological findings. In the neoplastic group, the interictal scalp-sphenoidal EEG recordings were abnormal in all 35 cases and lateralizing in 30 (85.7%). MRI revealed tumor growth within the temporal lobe in 26 patients (74.3%). FDG-PET was performed on 17 patients. Fifteen (88.2%) of them revealed unilateral mesial temporal lobe hypometabolism. In the vascular group, the interictal EEG tracings revealed unilateral mesial temporal lobe spikes in 11 patients (91.6%). MRI revealed abnormal enhanced lesions within the temporal lobes in all 12 patients. FDG-PET was available for 7 patients, 6 (86%) of whom had unilateral mesial temporal lobe hypometabolism. At the last follow-up (range 2-10 years, with a mean period of 4.2 years), 25 patients (73%) in the neoplastic group became and remained seizure-free postoperatively, 3 (9%) had fewer than three attacks per year. Among the vascular group, all 12 patients and remained seizure-free after surgery.

Intraoperative cortical somatosensory evoked potentials (SEPs) were recorded in 19 intractable epileptic patients with extratemporal structural lesions.⁷ This technique successfully localized the sensorimotor cortex. Intraoperative electrocorticogram (ECoG) clearly defined the epileptogenic areas in 4 patients. Subdural grid electrodes were implanted in the other 15 patients. After monitoring in the telemetry unit, the epileptogenic zones were clearly defined in all the 15 patients. The sensorimotor cortex and the speech cortex (for dominant hemisphere) were well localized after extraoperative cortical stimulation in 5 patients. All the 15 patients were operated again for taking out the grids and removal of the epileptogenic foci. Eleven patients became, and remained, seizure-free after the operation. Three patients had a more than 50% reduction of seizure frequency. One patient had no clinical improvement because seizures originated from the unresectable speech-related cortex. After the operation, these patients showed no evidence of sensorimotor nor speech dysfunction.

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