PEDIATRIC NEUROLOGY BRIEFS
A MONTHLY JOURNAL REVIEW

J. GORDON MILLICHAP, M.D., F.R.C.P., EDITOR

Vol. 12, No. 4 April 1998

PAROXYSMAL DISORDERS

FEBRILE SEIZURES AND MESIAL TEMPORAL SCLEROSIS

Magnetic resonance fast spin-echo imaging (MRI) was performed after complex febrile convulsions (CFCs) in 27 infants treated at Duke University Medical Center, Durham, NC. Of 15 with focal CFCs 6 had abnormal MRIs, and of 12 infants with generalized CFCs all had normal MRIs. Of the 6 infants with focal CFCs and abnormal MRIs, 2 showed perinatal preexisting bilateral hippocampal atrophy, and 4 had acute edema and T2-weighted increased hippocampal signal intensity in the focus of seizure origin. The 4 with acute edema had suffered longer duration seizures than the other infants, and their follow-up MRIs showed hippocampal atrophy. (VanLandingham KE, Heinz ER, Cavazos JE, Lewis DV. Magnetic resonance imaging evidence of hippocampal injury after prolonged focal febrile convulsions. Ann Neurol April 1998;43:413-426). (Respond: Dr Darrell V Lewis, Box 3430, Duke University Medical Center, Durham, NC 27710).

COMMENT. The findings confirm previous reports that complex febrile convulsions may sometimes be related to preexisting perinatal brain lesions, and in some cases the prolonged focal seizure can result in acute injury followed by atrophy or sclerosis of the hippocampus. The acute hippocampal changes on MRI followed by evidence of chronic mesial temporal sclerosis suggest a causal connection in a minority of cases of focal prolonged complex febrile seizures. Shinnar S, in his editorial, stresses the unusually long duration of the seizure in these patients (100 minutes) (Ann Neurol April 1998;43:411-412). Only long-term follow-up will determine whether or not these patients will develop temporal lobe, complex partial epilepsy.

Temporal lobe lesions missed by MRIs. The failure of conventional MRI in diagnosing hippocampal sclerosis in adults with refractory temporal lobe seizures is reported from the University of Rochester School of Medicine and Strong Memorial Hospital (McBride MC et al. Arch Neurol Mar 1998;55:346-348). Of 34 patients with normal reports on MRIs performed outside an epilepsy center, 32 were abnormal when repeated by special protocol (no gaps) imaging. This report points to probable MRI misdiagnosis and a further potential error in research

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concerning hippocampal injury with febrile seizures.

Interictal EEG spikes for seizure lateralization in mesial temporal lobe epilepsy. In a study of 21 patients at the Universitatsklinik fur Neurologie, Vienna, Austria, lateralization of clinical seizures was correct (ipsilateral to side of hippocampal sclerosis) in almost 100% of cases with unitemporal spikes and in only 50% of those showing bitemporal spikes (Serles W et al. Clinical seizure lateralization in mesial temporal lobe epilepsy. Differences between patients with unitemporal and bitemporal interictal spikes. Neurology March 1998;50:742-747).

TEMPORAL LOBE MALFORMATIONS AND EPILEPSY

Temporal lobe developmental malformations (TLDM) (focal cortical dysplasia and balloon cells) occurred with mesial temporal sclerosis as dual pathologies in 87% of 30 patients with unilateral TLDM and intractable partial epilepsy treated at the UAB Epilepsy Center, University of Alabama at Birmingham, AL. A quantitative MRI analysis with the inclusion of a normalization process was used for the detection of bilateral hippocampal formation atrophy when visual analysis, using optimal protocol including IR and FLAIR sequences, failed. The dual pathologies might be developmental or the hippocampi could be damaged secondarily by a kindling effect of repeated seizures from the TLDM. The surgical implications of the dual pathology are discussed. (Ho SS, Kuzniecky RI, Gilliam F, Faught E, Morawetz R. Temporal lobe developmental malformations and epilepsy. Dual pathology and bilateral hippocampal abnormalities. Neurology March 1998;50:748-754). (Reprints: Dr Ruben I Kuzniecky, Department of Neurology, UAB Station, Birmingham, AL 35294).

COMMENT. Mesial temporal sclerosis can occur in association with temporal lobe focal dysplasia in patients with refractory temporal lobe epilepsy. These authors have previously demonstrated that the MRI will identify lesions with moderate to severe histologic abnormalities, but may not detect mild neuronal and cortical dysplasias. Dual pathology in patients with mesial sclerosis may be underdiagnosed by MRI and may explain the occurrence of temporal lobe epilepsy as a sequel to complex febrile seizures in some cases.

Of 67 patients with medial temporal lobe seizures controlled by temporal lobectomy at Yale University and Epilepsy Center, 45 (67%) had histories of febrile seizures before 5 years of age, and of these, 33 had complex febrile seizures lasting longer than 30 minutes. The duration of the febrile convulsion was the most important predictor of temporal lobe epilepsy (TLE) in a study at the University of Western Ontario, London, Ontario. The mean duration of the FC was 100 min in patients with TLE, and 9 min in those without TLE. (See Progress in Pediatric Neurology III, PNB Publishers, 1997;pp19 and 32)).

DUAL ETIOLOGY OF RASMUSSEN'S SYNDROME

Five patients with Rasmussen's syndrome reported from the Montreal Neurological Institute had the typical findings of chronic encephalitis together with tuberous sclerosis, tumor, or vascular abnormality discovered on pathological examination of tissue removed at operation. Dual pathologies were found in 10% of the patients in the authors' series. (Hart YM, Andermann F, Robitaille Y et al. Double pathology in Rasmussen's syndrome. A window on the etiology? Neurology March 1998;50:731-735). (Reprints: Dr F Andermann, Montreal Neurological Institute, 3801 University Street, Montreal, Quebec H3A 2B4).