

COMMENT The Geschwind-Galaburda theory of cerebral dominance invokes in utero testosterone-induced-immune disorders and left-handedness by effects on the thymus and the brain. Their clinical observations showed a higher frequency of immune diseases, migraine, and developmental learning disorders in left-handed individuals and their families.

ALEXIA, AGRAPHIA, AND FRONTAL LOBE DAMAGE

The case history of a right-handed woman who developed severe and stable alexia and agraphia following a circumscribed surgical lesion in the premotor cortex is reported from the Department of Neurology, Division of Behavioral Neurology and Cognitive Neuroscience, University of Iowa College of Medicine, Iowa City, Iowa. The lesion was above Broca's area in Exner's area. Her visual perception, intellect, memory, oral spelling, and drawing were normal and she was not aphasic or hemiparetic. She was unable to read sentences and her reading of single words and letters was severely impaired. She could not write recognizable letters or words. By contrast she was able to write numbers and perform written calculations without difficulty. These dissociations of function provide evidence of specificity of cognitive and neural representation. (Anderson SW, Demasio AR, Demasio H. Troubled letters but not numbers. Domain specific cognitive impairments following focal damage in frontal cortex. Brain June 1990; 113: 749-766).

COMMENT The isolated simultaneous occurrence of alexia and agraphia is rare. In this case the anatomical lesion within the left frontal lobe was unusually circumscribed. The sector of association cortex in the frontal lobe, known as Exner's area, appears to be related to the ability to read and write. The pathology of the small lesion removed surgically was a single metastasis from an adenocarcinoma of the lung. Neurological evaluation was normal except for the cognitive defect described.

The neuroanatomical basis of developmental dyslexia has been debated since this hypothesis was proposed by Orton in 1937. Patterns of task related slow-brain potentials have been investigated in six dyslexic youths by Landwehmeyer B et al (Arch Neurol July 1990; 47:791-797). Whereas control subjects revealed greater left hemisphere negativity during linguistic tasks, the reverse was found with dyslexics. The authors, working at the Neurologische Universitätsklinik, Freiburg, West Germany, concluded that dyslexia is associated with changes in the lateral distribution of cortical activity during certain types of language processing.

FRONTAL LOBE FUNCTION AND ATTENTION DEFICITS

The results of a psychological test battery administered to 54 clinic referred children aged 8 to 12 years with attention deficit disorders are reported from the Georgia Children's Center and the Department of Psychology, University of Oregon, Eugene, Oregon.

The patients were divided into three groups: 1) Those with attention deficit disorder with hyperactivity; 2) Attention deficit disorder without hyperactivity; and 3) Control group with internalizing disorders. The verbal and full scale IQ scores on the WISC-R were lower for both attention deficit disorder groups when compared with the control group. The groups did not differ significantly on any of the Nebraska clinical scales which include motor skills, tactile, visual, speech, language, writing, reading, arithmetic, memory and intelligence. Attention deficit disorder either with or without hyperactivity was not associated with neuropsychological dysfunction as measured by the Luria-Nebraska battery. (Schaughency EA et al, Neuropsychological test performance and the attention deficit disorders: Clinical utility of the Luria-Nebraska Neuropsychological Battery - Children's Revision. J Consult Clin Psychol 1989; 57:112-116).

COMMENT: The authors admit that although these results failed to support the association of neuropsychological dysfunction with attention deficit disorders, a more focused assessment of frontal lobe development by alternative methods may have yielded different results. A neurological examination with attention to the occurrence of soft or subtle signs may have demonstrated differences in the groups tested and evidence of neurological dysfunction in the attention deficit hyperactivity disorder patients. (See Ped Neur Briefs May 1990; 4:40)

NEONATAL NEUROLOGY

WHITE MATTER NECROSIS IN NEONATES

The neuropathologic and ultrasonographic findings in 22 very low birth weight infants surviving at least 6 days are described from Michigan State University, East Lansing, MI., St. Luke's Roosevelt Medical Center and New York Hospital Cornell Medical Center, NY. White matter necrosis was found in 15 of the 22 subjects and affected hemispheric white matter in ten. The classic features of periventricular leukomalacia were absent from 7 of the 15 infants with necrosis. Intraventricular hemorrhage had occurred in 17. Increased parenchymal echogenicity and ventricular enlargement were present in 67% of infants with white matter necrosis. (Paneth N et al. White matter necrosis in very low birth weight infants; neuropathologic and ultrasonographic findings in infants surviving six days or longer. J Pediatr June 1990; 116:975-984).

COMMENT White matter necrosis need not be restricted to the periventricular regions and ultrasonographic scanning should include more peripheral areas of the brain.