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Structural Brain Lesions in Functional Psychosis

SIR: Findings pertinent to cerebral and cerebellar pathology and functional psychosis seem to be limited and contradictory (Hamilton *et al*, 1983; Wexler, 1980). It has not yet been proven, however, whether there is a significant aetiological relationship between organic pathology and psychiatric illness in general. We present two case reports of functional psychosis: one patient with bipolar affective disorder who had radiological evidence of cerebral and cerebellar atrophy, and another with a schizophrenia-like disorder who had cerebellar atrophy. They were both illustrated by CT.

Case Reports: (i) A 49-year-old woman without any personal or family history of neuropsychiatric illness became depressed at the age of 38, with symptoms of sadness, hopelessness, psychomotor retardation, decreased appetite and sleep, and a serious suicidal attempt. She was admitted to a psychiatric clinic, but within a few days her depression changed to a manic state with increased psychomotor activity, euphoria, loquacity, and delusions of grandeur. She returned to her normal state in about three weeks, but experienced a similar depressive and a manic episode six years later. We examined the patient during her third depressive episode, at which time she was treated with tricyclic antidepressives and lithium. At six-month follow-up, the patient showed a significant deterioration and was noted to have a cerebellar syndrome with symptoms of dysmetria, dysarthria and cerebellar ataxia. Serum lithium level and blood chemistry were normal. EEG revealed nonspecific dysrhythmia, but CT of the brain revealed diffuse cortical atrophy, ventricular dilatation, and cerebellar vermian atrophy. During the following two months her condition gradually merged into a dementia syndrome which was documented by psychological tests. Later she developed a paranoid-hallucinatory and delusional state. Finally, her schizophreniform manifestations improved, but the dementia remained unchanged.

(ii) A 24-year-old female had symptoms of hearing voices and talking and acting as if they were real. She also had fears of being harmed by others, and gradually became withdrawn. Her initial symptoms had occurred at the age of 15, and she was diagnosed as having an early onset schizophrenic disorder with symptoms of auditory hallucinations, persecutory delusions, delusions of reference, lack of interpersonal relations with flatness of affect, and finally autism. In spite of antipsychotic therapy, the patient's condition worsened and she became severely disabled and dependent on others. Over the past year all psychiatric symptoms disappeared, but she revealed several neurological deficits, including left central facial paresis, left hemiparesis, horizontal nystagmus, ataxia, and dysequilibrium, all of which were preceded by headache, nausea, and vomiting. Currently the patient's neurological findings are the same, and the psychiatric condition is within normal limits. CT was carried out twice, and both times showed cerebellar vermian atrophy.

Heath *et al* (1979) found CT scan abnormalities in 50% of 264 patients with functional psychosis, 42 (32%) of whom had cerebellar vermian atrophy. Nasrallah *et al* (1981) reported 43 schizophrenic and 15 manic patients in whom CT findings were consistent with cerebellar atrophy. The main function of the cerebellum is thought to be largely motor, and especially related to co-ordination, tonus, and balance, but some of the clinical and neurophysiological studies revealed new aspects of the cerebellum in relation to autonomic, limbic, and higher cortical systems (Hamilton *et al*, 1983). Wexler (1980) pointed to right hemispheric dysfunction in manic depressive psychosis and left hemispheric dysfunction in schizophrenic psychosis.

We conclude that there is probably a sub-group of schizophrenic patients in which the symptomatology could be related to structural brain lesions, which is also true for bipolar affective disorder.

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