

Structural Brain Lesions in Functional Psychosis: An OVERVIEW

Sunar BİRSÖZ

FONKSİYONEL PSİKOZLARDA YAPISAL BEYİN
LEZYONLARI: GÖZDEN GEÇİRME

University of Akdeniz, School of Medicine ANTALYA

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SUMMARY

The Importance of considering organic disease in the evaluation of psychotic patients is illustrated by a case of bipolar disorder and another one with schizophrenia. Both of the patients developed a cerebellar and cerebral organic brain syndrome in the latter phase of their illnesses. Many affective and schizophrenic disorders may show evidence of cerebral atrophy, ventricular dilatation and cerebellar vermian atrophy. Patients with these types of functional psychoses can present with clearly defined neurological symptomatology an addition to their psychiatric manifestations, as in the cases presented here.

Key Words

Functional Psychosis CT, Cerebellar Syndrome

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During the past decade, there has been an increase in the number of reports on functional psychosis with evidence of cerebral and cerebellar pathology. This fact can be attributed to the widespread use of computerized tomography in general medicine and psychiatry (1). It has not yet been proven, however, whether there is a significant etiological relationship between organic pathology and psychiatric illness in general. Research on this subject is very limited and the problem is usually approached by means of special case histories, retrospective investigations and post-mortem studies. The following case reports document two patients, one with bipolar disorder who had radiological evidence of cerebral and cerebellar atrophy as illustrated by computerized tomography and another one with schizophrenia

ÖZET

Psihotik Hastaların değerlendirilmesinde organik bir bozukluğun göz önünde bulundurulmasının önemi bir şizofrenik ve bir bipolar affektif hastalık örneği ile gösterilmeye çalışıldı. Bu hastaların her ikisi de hastalıklarının ileriki fazlarında Serebellar ve Serebral tipte organik beyin bozukluğu gösterdiler. Pek çok affektif ve şizofrenik psikozda serebral atrofi, ventriküler dilatasyon ve serebellar vermian atrofisine ilişkin kanıtlar bulunabilir.

Bu grup fonksiyonel psikozlarda bizim tanımladığımız hastalardakine benzeyen, psikiyatrik bulgulara ek olarak, açıkça gözlenen nörolojik belirtilere rastlanmaktadır.

Kı.sımler: Fonksiyonel psikoz, Bt, Serebellar Sendroma.

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who had cerebellar atrophy. This paper emphasizes the need to rule out the possibility of an organic brain pathology in patients with functional psychosis.

CASE REPORTS

Case No. 1

A 49 year-old woman, without any personal or family history of neuropsychiatric illness, became depressed at age 38 with symptoms of sadness, hopelessness, psychomotor retardation, decreased appetite and sleep and a serious suicidal attempt. She was admitted to the hospital for treatment. Several days later, her depression changed to a manic state with increased psychomotor activity, euphoria, loquacity

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and delusions of grandiosity. She was treated with appropriate medications and returned to normal in about 3 weeks although she experienced a similar depressive and manic episode with another suicidal attempt six years later. It is interesting to note that soon after the patient's initial illness, her eldest daughter had to be treated with medication and psychotherapy for severe psychotic depression.

We first examined the patient during her third depressive episode. She was back in her normal state after treatment with lithium and antidepressive medication. At six-month follow-up, the patient showed significant deterioration and was noted to have dysmetria, dysarthria, cerebellar ataxia, confusion, dysmnnesia, difficulty with simple calculation and depression with anxiety. This new state was evaluated as a cerebellar and an acute organic brain syndrome. Serum lithium level and other blood chemistry were all within normal limits. EEG revealed non-specific dysrhythmia. All her medications were stopped and the patient was hospitalized. The cerebellar syndrome gradually improved, but her organic brain syndrome remained unchanged. During the following two months her condition gradually merged into a demential syndrome which was documented by psychological tests. At that time a computerized tomography of the brain revealed diffuse cortical atrophy, ventricular dilatation and cerebellar vermian atrophy.

Three months later the patient developed a paranoid-hallucinatory and delusional state for which she was given thioridazine 300 mg per day. She then became mute and depressed with catatonic symptoms followed by another unsuccessful suicidal attempt. Finally her schizophreniform manifestations improved, but the demential state was essentially unchanged. A second computerized tomography confirmed the pathological changes originally seen in the cerebral and cerebellar structures.

Case No. 2

A 24 year-old female patient was seen in psychiatry outpatient department with the symptoms of hearing voices and talking or acting as if they were real. She also had fears of being harmed by others and gradually became withdrawn. These symptoms apparently had first occurred at age 15 and her illness resulted in the discontinuation of her education. The initial symptoms were characterized by a progressive decline in speech and bodily movements with depressive mood and catatonia-like behavior. In about two months, several other symptoms were added to the clinical picture, namely auditory hallucinations, persecutive and referential delusions, lack of interpersonal relations and superficiality with flatness of affect and finally autism. She was diagnosed as an early-onset schizophrenic disorder at that time and was treated with phenothiazin and butyrophenon derivatives. In spite of the antipsychotic therapy, the patient's condition did not improve

and even worsened in the ensuing years which finally led to a state of severe disability and dependence on others.

Her birth and childhood were reportedly normal and there was no history of psychiatric illness in the family. During the past four months, the psychiatric condition changed completely. In her most recent examination, all the psychiatric manifestations had disappeared, but she apparently had several neurological deficits including left central facial paresis, left hemiparesis, horizontal nystagmus, ataxia and dys-equilibrium, all of which were preceded by headache, nausea and vomiting. Mentation remained intact during the neurological disorder.

Currently, the patient's neurological findings are the same as described above. Antipsychotic medication is discontinued because of the resolution of her psychiatric symptoms.

CT was done twice both of which revealed cerebellar atrophy.

DISCUSSION

Literature findings pertinent to cerebral and cerebellar pathology and functional psychosis seemed to be limited and contradictory (1,2,6,10,13). The main function of the cerebellum is thought to be largely motor and especially related to coordination, tonus and balance. Some of the clinical and neurophysiological studies shed light on new functions of the cerebellum in relation to autonomic, limbic and higher cortical systems.

CEREBELLAR PATHOLOGY AND PSYCHIATRIC DISORDERS

Weinberger et al, demonstrated cerebellar vermian atrophy in 9 of 60 (17%) schizophrenic patients (3,4). They also found vermian atrophy in 5 of 12 (42 %) schizophrenics at post-mortem studies and emphasized that some psychotic disorders may be correlated with such pathologic changes. Heath et al found CT abnormalities in 50 % of 264 patients with functional psychosis, 42 (32 %) of whom had cerebellar vermian atrophy (5). Vermian tumors were diagnosed in 7 cases. Nasrallah et al investigated 43 schizophrenic and 15 manic patients in whom CT findings were consisted the high incidence of cerebellar vermian atrophy in manic-depressive and schizophrenic patients (6). Kutty and Prendes reported a single case of psychosis associated with cerebellar degeneration (8). Hamilton et al, published reports of two cases of bipolar disorder and one case of a schizophrenic patient with cerebellar pathology (2).

CEREBRAL PATHOLOGY AND PSYCHIATRIC DISORDERS

It has been suggested that there is a strong correlation between cortical atrophy with ventricular

dilatation and chronic psychiatric illness, which is said to be higher between schizophrenia and organic brain syndrome (1). Wexler pointed to right hemispheric dysfunction in manic depressive psychosis and left hemispheric dysfunction in schizophrenic psychosis (13), whereas Pearlson and Veroff found cerebral atrophy in 4 of 16 (25 %) patients with bipolar disorder and in 11 of 22 (50 %) patients with schizophrenic psychosis (9). Standish-Barry et al, demonstrated ventricular enlargement and cerebellar atrophy in 50 patients with affective psychosis (mostly endogenous depression) who were treated with psychosurgery (10). Carr et al, reported a 11 year-old manic patient who had lateral ventricular enlargement (11). Roberts et al, summarized 5 case histories of schizophrenic psychosis associated with aqueductal stenosis or hydrocephalus and suggested that such findings indicate a high risk factor for schizophrenia (12).

CONCLUSION

We have presented two patients, one with bipolar disorder who eventually developed an acute cere-

bellar and organic brain syndrome (dementia) several years following her original psychiatric disorder and the other one with schizophrenic illness who showed a clinical picture of cerebellar and brainstem symptomatology. These were demonstrated by CT twice in the course of their illnesses. According to traditional concepts, the cerebellum is the site of proprioceptive impulses and motor output and is mainly responsible for coordination, tonus and balance. However, there is now evidence in the literature of autonomic, limbic and higher cortical dysfunction in patients with cerebellar and cerebral pathology. Many psychiatric manifestations may not alone be enough to make a definite diagnosis. This fact necessitates the undertaking of additional studies in those patients with overlapping neurological symptoms and findings.

In this paper we want to emphasize the probable existence of a subgroup of schizophrenic and manic-depressive patients in which the symptomatology could be related to structural brain lesions.

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