

Temporal Lobe Epilepsy and Psychosis: A Case Report

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ABSTRACT

The incidence of schizophrenia like psychosis is found to be increased in temporal lobe epilepsy. The duration of epilepsy and the presence of structural pathology in temporal lobe were reported to increase this risk. Temporal lobectomy is applied as a safe and effective treatment method in treatment refractory TLE patients with epileptic psychosis. Here, we report the symptoms and results of neurological and neuropsychological tests of a case of TLE both before and after surgery. We also suggest the possible mechanisms underlying the symptoms of the patient.

Keywords: temporal lobe epilepsy, temporolimbic epilepsy, psychosis

ÖZET

TEMPORAL LOB EPİLEPSİSİ VE PSİKOZ: BİR VAK'A TAKDİMİ

Temporal lob epilepsisinde (TLE) şizofreni benzeri psikoz insidansının arttığı gösterilmiştir. Epilepsi süresi ile temporal lobda yapısal bir patoloji bulunmasının bu riski artırdığı rapor edilmiştir. İlaça cevap vermeyen ve epileptik psikozu olan TLE hastalarında temporal lobektomi güvenli ve etkili bir tedavi yöntemi olarak uygulanmaktadır. Bu yazıda, cerrahi öncesi ve sonrasında psikiyatrik belirtileri devam eden bir TLE hastasının, cerrahi girişim sonrasındaki belirtileri, nörolojik ve nöropsikolojik testlerin sonuçları bildirilmiştir. Olguda var olan belirtilerin olası mekanizmaları da açıklanmaya çalışılmıştır.

Anahtar Kelimeler: temporal lob epilepsisi, temporolimbik epilepsi, psikoz

INTRODUCTION

The anxiety, psychosis and aggressive behaviors are frequently diagnosed in epileptic patients, and their clinical presentations can vary according to onset of time with convulsions (Kanner 2004). Marsh et al. (2001) reports that incidence of schizophrenia like psychosis increasing in temporal lobe epilepsy (TLE) or temporolimbic epilepsy. The risk increases with the presence of a structural pathology in the temporal lobe and the duration of epilepsy. Temporal lobectomy is a safe and effective procedure in treatment of resistant and psychotic epileptic patients (Marchetti et al. 2001). In this report, the possible mechanisms of the psychiatric symptoms of a TLE patient that persisted after temporal lobectomy with her neurological and neuropsychological test results are explained. To our knowledge, this is the first report about the psychiatric, neurological and neuropsychological evaluation of

a TLE patient before and after the operation in Turkish literature.

Keywords: temporal lobe epilepsy, temporolimbic epilepsy, psychosis

CASE REPORT

A 28-year old, elementary school educated women was admitted to our psychiatry outpatient clinic with the complaints of a burning sensation on left side of scalp, feeling of an earthquake in head, forgetfulness and fatigue since 2004. The burning sensation usually began with a burning abdominal pain. She also suffered from headaches with flashings, accompanying bad smells (like burnt rubber or carcass) which was aggravated by psychological stress. During the burning sensation on her scalp, she also reported to see a bearded hodja (a type of so called faith healer common in Islam countries), a forest with unmeant peop-

le in it and another hodja intending to rape her. She thought that all of these were real. Her vision was getting flue during these times. Another symptom was an interpretative speaking of a man and she also thought it as a real sound. The patient was not able to get out of her house as she believed that everything was harming her by bewitching. She couldn't trust people, especially the religious men. She was seeing the two hodjas in her dreams sometimes and was uneager to fall asleep. She had ambivalence, anhedonia and feelings of guilt, increased appetite and crying spells since the beginning of her complaints. Amnesic periods were reported when she was unhappy or angry. She was pulling her hair to relax during these periods.

She was born 3000 grams with spontaneous vaginal delivery, without any perinatal complications. Her growth was normal until 17th month when she had a febrile convulsion. After that, she began to have complex partial convulsions especially during asleep. She was given different antiepileptics, mostly carbamazepine. However, her convulsions were not controlled with medical therapy. She had a poor sleep, nightmares, long bathing rituals, introversion, absurd laughs, bad smells and hallucinations since she was two years old, and she began to use sulpiride with a diagnosis of schizophrenia in 1994 but didn't get any benefit. She had a right temporal lobectomy and hippocampectomy in 2000. Carbamazepine 400mg/day had been given after the operation and no convulsion was reported. After the operation, she was also given risperidone in 2001 and citalopram in 2003 for psychotic complaints without any benefit.

In her family history, epilepsy was reported in second-degree relatives. Her physiological and neurological examination, fasting glucose level, electrolytes, total blood count, liver, renal and thyroid functions, electroencephalography (EEG) and electrocardiography (ECG) were normal. In her EEG recordings, there were lateralized epileptiform discharges in 1983, and interictal right temporal intermittent, rhythmical _ paroxysms, right T and CT spike and sharp spike and wave discharges, questionable left temporal sharp waves in 2000, and a normal EEG activity in 2004.

In psychiatric examination, her outlook was appropriate with her age; she was awake, intact to person, place and time. Her spontaneous and voluntary attention was intact, her concentration was decreased. As her immediate memory was intact, her recent and remote memories were affected and 'jamais vu' was detected. Her abstract reasoning, insight and judgment

were also affected. Her intelligence was clinically normal. She had mood -congruent auditory, visual (complex and simple), olfactory and somatic delusions, depersonalization (autoscopic delusion), derealization (macropsia and micropsia), hysterical anesthesia, paresthesia and prosopagnosia.

Her affect was blunted, her mood was depressed and alexythymic. She had circumstantialities in the form of her thought and delusions of poverty, persecution, magical thinking, and overvalued somatic and obsessive ideas were detected in the content of her thought. Her speech was slowed and hypophonic. She had trichothillomania, dissociative attacks, increased sleep and appetite, and decreased libido.

Wechsler Memory Scale (WMS), Verbal Fluency Tests, Clock Drawing Test, Line Orientation Test, Boston Naming Test, Face Recognition Test, Verbal Memory Test, Wisconsin Card Sorting Test (WCST), Stroop Test, Kent EGY, S.D. Porteus Labyrinths, Minnesota Multiple Personality Inventory (MMPI) were performed in her neuropsychiatric evaluation (Lezak 1983, Ceyhun & Oral 1988, Öktem 1992; 1994, Öner 1997, Sorias 1998, Karakaş 2000; 2004, Mesulam 2004).

In WMS: her personal and actual knowledge and orientation of time was intact, but a narrowing in spontaneous attention, distractibility, decrease in verbal fluency and difficulty in planning was recorded. In WCST: she had difficulty in category formation, made a lot of perseverative mistakes in constructing, and couldn't continue the set. In Stroop Test: frontal lobe dysfunctions like inability to resist the interference and distraction in response inhibition were recorded which were thought to be due to her limitations in cognitive flexibility and target oriented behavior. In "telling the color of the colored words" step of the Stroop Test: she had mistakes showing that she had difficulties in controlling and resisting the distracting effects. All these findings affected her performance in WCST and she could only form two sets by using all of the 128 cards which shows that she had prominent limitations in executive functions.

She had a frontal type of distortion in verbal memory. Free recalling and abstract thinking was moderately affected, recognition, naming and visiospatial perception was preserved.

S.D. Porteus Labyrinths and Kent EGY were performed for her intellectual functioning. Her IQ was 82 in S.D. Porteus Labyrinths and 78 in Kent EGY with a total score of 80 interpreted as blunted normal.

In MMPI: there was a decrease in her self esteem due her attention deficit and difficulties in emotional

maturation, her defense mechanisms were also weak. It was thought that she was isolated socially and could have paranoid ideations or delusions. Therefore she could have unpredictable inappropriate behaviors and difficulties in social life.

DISCUSSION

Dopaminergic systems get extremely sensitive in the chronic phase of TLE and this may explain the development of psychosis in epilepsy. Ando et al. (2004) reports these changes in detail in rat studies. In our patient, the psychotic symptoms began two years ago, and became more severe after 2004 which can be due to this dopaminergic system hyper-reactivity. Akanuma et al. (2005) reported two TLE patients with long lasting psychosis after normalization of their EEG recordings. In our patient the psychotic symptoms also appeared after her EEG was normalized.

Guarnieri et al. (2005) compared the TLE patients who had hippocampal sclerosis and who did not. They reported an increase in the blood flow of right posterior cingulate gyrus in psychotic patients similar to the cingulate gyrus anomalies found in schizophrenic patients. It's clear that the cingulate gyrus have an inhibitory effect on defective responses (Lezak 2004). Inability to resist the interfered and distorted response inhibition in the Stroop Test, executive function abnormalities in WCST, decrease in attention, distractibility, decrease in verbal fluency and planning difficulties in WMS and MMPI can be due to cingulate function abnormalities in our patient. Öner et al. (2005) reported cortical dysgenesis in left inferior frontal cortex and associated subcortical structures in a TLE patient with psychotic features. Leutmezer et al. (2003) reported that postictal psychosis in TLE patients can be related to hypersensitivity of temporal and frontal lobe structures. They proposed that this hyperreactivity can be related with chronic subcortical discharges, mechanisms that suppress the convulsions or changes in cortical blood flow. Therefore the impaired frontal functions probably play an important role in the development and indurations of the psychotic findings in our patient.

Amygdala and limbic structures play an important role in memory functions. Tebartz van Elst et al. (2004) reported that the volume of amygdala increases in epileptic patients with psychotic features and this can be normalized with anti-psychotics. Murai and Fukao (2003) reported that the increase in paramnesic features in autobiographical memory played a role in the development of psychosis in a TLE patient with inte-

rical psychosis. Since our patient's delusions were related with her past life, presence of autoscopic delusions and "jamais-vu" attacks, she might have epileptiform discharges in her autobiographical memory. Rusch et al. (2004) reported that there are no cortical gray-matter anomalies in their TLE patients with psychosis. On the other hand, Flugel et al. (2005) reported that there might be fine cellular changes without any volumetric change. This may play an important role the formation of delusions related especially with speech in the left temporal lobe. In our patient, although the MRI was normal, there might be distortions in fine cellular structures and intercellular connections of the left temporal lobe. The suspicious left temporal sharp waves reported on EEG in 2000 might be the indicators of this structural distortion and psychosis.

Lipson et al. (2003) reported a TLE patient who has lost his emotional responses to his family but preserved to other people after right temporal lobectomy. The autoscopic delusions and prosopagnosia might have appeared after right temporal lobectomy. Although Marchetti et al. (2003) reported that TLE patients with interictal psychosis benefits from surgical operation, Inoue and Mihara (2001) reported that the young patients with abnormal personality features and with psychopathology before the procedure have worse prognoses. In our patient her depressive and anxious complaints, social isolation and hostility in her social relations can be considered as deviations in her personality. And her young age at the time of operation and the presence of psychopathology for eighteen years before the operation could have worsened the prognosis.

CONCLUSION

The history of this case impresses the importance of neuropsychological evaluation of the patients with temporal lobectomy before and after the operation. We suggested that TLE patients should also be evaluated longitudinally and multidisciplinary for predict the effects of the surgical procedure on their clinic, and it is important to organize their therapeutic procedures in coordination.

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