Criminal Responsibility of the Frontal Lobe Syndrome: Case Report

Frontal Lob Sendromunda Ceza Sorumluluğu: Olgu Sunumu

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Abstract

Neurological and/or psychiatric symptoms might be detected due to damage of frontal lobes as detected in damages of many brain regions. Frontal lobe syndrome (FLS) occurs as a result of damage in prefrontal region due to various causes. Symptoms due to prefrontal region damage, varies according to the size and location of the lesion. In most of the cases; executive dysfunctions, attention deficits, inconsistencies in social life, impulse control problems, obsessive behaviors and violence behaviors are common clinical signs. Behavioral symptoms seen in FLS can be confused with personality disorders and negative symptoms of schizophrenia. FLS is a neuropsychiatric disorder rarely assessed in forensic psychiatry and in terms of detection of criminal responsibility. In this case report, criminal responsibility in FLS was assessed through a FLS case in which an offense of “threat” was committed and investigated in terms of criminal responsibility.

Keywords: Frontal lobe syndrome, criminal responsibility, violence behaviour

Özet


Anahtar Kelimeler: Frontal lob sendromu, ceza sorumluluğu, şiddet davranışı

Introduction

Frontal lobe syndrome (FLS) occurs as a result of the damage in prefrontal area due to various reasons. Symptoms seen in the prefrontal cortex damages vary depending on the lesion size and location. Prefrontal cortex is divided into dorsolateral prefrontal cortex (DLPFC) and ventromedial prefrontal cortex (VMPFC). Dorsolateral prefrontal cortex is associated with planning, forming strategy and executive functions. Personality changes, abulia, apathy, dysfunction in planning and sequencing functions can be seen in the lesions of this area. However, due to the ventromedial prefrontal cortex lesions, disinhibition, aggression, social dissonance, sexually inappropriate behaviours can be seen [1, 2]. In most of the FLS cases, executive dysfunctions such as loss of ability in using initiative, setting an objective, planning, selecting the appropriate response, following the ongoing behaviour might be deteriorated. Attention deficits, inconsistencies in social life, impulse control problems, and obsessive and violence behaviours are common clinical signs [3].

FLS is a rarely encountered clinical disorder, in which the forensic psychiatric evaluation is not done frequently, showing behavioural symptoms similar to negative schizophrenic symptoms and can be confused with personality disorders [3]. In spite of the fact that forensic psychiatric evaluation is mostly done in terms of assessing the criminal liability in patients with FLS having apathy, attention deficits and executive dysfunctions may arise as mainly negative symptoms, in other words in patients with losses in normal functions. Criminal responsibility evaluation may come into question in cases where positive symptoms are present such as aggres-
sion and obsessive behaviours, in other words symptoms arose after the disease. There are a limited number of studies about criminal responsibility due to FLS in the literature. In this case report, it is intended to discuss the criminal responsibility in FLS cases by evaluating a FLS case in terms of criminal responsibility arising from the offense of threat.

**Case Report**

A 34 years old single man was delivered by the law court in order to evaluate the criminal responsibility because of the offense of “threat” within the scope of the article 32 of Turkish Criminal Code (TCC). When the statements of the individual about the event and forensic investigation file are analysed, it was found out that he could not have taken his money for the exchange of his sanitary plumbing work and threatened the person to death who had hired him. After anamnesis was taken from the patient and information was obtained from his mother and his father, it was found out that he has not had any problem and showed normal development until 7 years old, and was operated due to head trauma when 7 years old due to falling from a high place and was retained in the intensive care unit for three days. It has been specified that patient’s academic success has been near-normal and he studied till class 5; later on his family did not send him to school, because he did not want to go. Patient who has worked for a short term in several different working places stated that he is very successful, but people are jealous of him and he sees himself hexed by other workers, thus he quitted these jobs and began to work as a plumber, and again discontinued the job because he could not get the money he deserved over the last few years. He did his military service as disarmed private soldier for 18 months and given courage and self-sacrifice medal for helping to rescue his friends who had been trapped in the wreckage after the earthquake, also it was found out that he had been frequently fighting with his friends since childhood and he had several forensic records due to these fights. It was specified by his parents that he had no close friend, spent most of his time in his bedroom, and had frosty relationship with family members. He was depicted by his family as having difficulty with anger management, sudden anger attacks and decreased anger threshold. Considering the vegetative functions, it has been found out that he sleeps and wakes up late, has a normal eating order, but generally prefers sweet foods. Considering the habits, it was specified that he has been smoking more than a pack of cigarettes a day for 17 years.

In the physical examination, general condition of the individual was good, his conscience was clear; he was oriented and cooperative. An operation scar at the right frontal area and surface level differences compatible with the bone defect at the same area were observed with palpation. At the neurologic examination, no pathology was determined. At the psychiatric evaluation, conscience was clear, oriented, cooperative, self-care was compatible with his socio-economic status, he was eager to interview and his eye contact was normal during the interview. Patient’s behaviour and mood were depicted as inconvenient and irritable respectively. Grandiose thoughts about himself, obscene language which can be evaluated as coprolalia were observed, and no perception of deviation and/or delusion was depicted. When his thoughts about the claim of the offense of threat and therefore, his possible responsibilities were asked to him, also specifying that the current examination has been being performed due to forensic expertise, he stated that he threatened the complainant to scare him, was not expecting to be sued. Obscene language about the complainant was observed. Patient’s insight and judgment was partially disordered. Cognitive tests evaluating the overall intelligence and frontal lobe functions were applied. As a result of Porteus Labyrinths and Kent E-G-Y tests, general ability and intelligence score was observed as 93 (at the normal limits). The results of the Stroop Test measuring the ability to prevent the inconvenient reaction and selective attention functions were determined within the normal range considering the age and educational status of the individual. Wisconsin Card Sorting test (WCST) which evaluates the executive functions, attention and abstract assessment resulted lower than the expected average values when the scores, educational status and age of the individual are taken into account. Total blood count, routine biochemistry and thyroid function test results were normal. Electroencephalography and electrocardiography scans were also normal. In the Magnetic Resonance imaging (MRI) (3-T; Magnetom Skyra; Siemens Healthcare, Erlangen, Germany) of the brain; bone defect in the right frontal area, encephalomalacia and parenchymal volume loss compatible with gliosis, increase in intensity at the area adjacent to the bone defect in FLAIR based axial image (Figure 1a) and focal sulcus enlargement secondary to parenchymal volume loss were observed in the T2 weighted sagittal image (Figure 1b). In the MR tractography, axonal loss was observed at the encephalomalacia level in the anterior of right frontal lobe (Figure 2a). Activity loss was observed at the right side compared to the left side in the evaluation of motor function through finger movement in functional MRI mapping obtained from lesion level (Figure 2b). Following the evaluations, he was diagnosed as having ‘behavioural disorders due to brain disease damage and dysfunction (frontal lobe syndrome) and a forensic report as ‘partial responsibility’ was given.
Prefrontal cortex, constituting an important part of frontal lobe, is responsible for planning of behaviours, controlling of the emotions, goal-oriented classification of the mental activities, forecasting the consequences, ability to solve the complex abstract problems and controlling the functions according to the social rules [4, 5]. Prefrontal cortex has intensive connections with limbic and subcortical areas. It is believed that any functional disorder developed in any region of these connections leads to executive dysfunction and personality changes in case of FLS [6]. In order to understand several psychiatric disorders including FLS and evaluate the forensic psychiatric cases, use of functional brain MRI increases gradually [7]. Moreover, if the cause of FLS is reversible, for instance due to a brain tumour, early intervention may reverse the

**Discussion**

Prefrontal cortex, constituting an important part of frontal lobe, is responsible for planning of behaviours, controlling of the emotions, goal-oriented classification of the mental activities, forecasting the consequences, ability to solve the complex abstract problems and controlling the functions according to the social rules [4, 5]. Prefrontal cortex has intensive connections with limbic and subcortical areas. It is believed that any functional disorder developed in any region of these connections leads to executive dysfunction and personality changes in case of FLS [6]. In order to understand several psychiatric disorders including FLS and evaluate the forensic psychiatric cases, use of functional brain MRI increases gradually [7]. Moreover, if the cause of FLS is reversible, for instance due to a brain tumour, early intervention may reverse the

**Figure 1. a, b.** (a) Encephalomalacia, parenchymal volume loss compatible with gliosis and increase in intensity are observed in the FLAIR based axial MR. (b) Focal sulcus enlargement secondary to parenchymal loss was observed in the area with encephalomalacia in T2 weighted sagittal MR.

**Figure 2. a, b.** (a) Axonal loss is present in MR Tractography at the level of encephalomalacia in the right frontal lobe. (b) Activity loss can be seen clearly at the right side compared to the left side in the evaluation of motor function through finger movement in functional MR mapping obtained from lesion level.
clinical symptoms and functional restoration may occur via brain plasticity [8].

In this case; symptoms related with behavioural changes such as impaired social functioning, attention deficit, difficulty in communication, unconscionable and extreme attitudes in behaviours, disinhibition, aggression, combativeness and coprolalia were observed. The imaging and clinical findings in the case were evaluated in line with ventromedial prefrontal cortex damage and a comment notified in the way that the behaviour does not match with the goal; executive dysfunction and impulse-control disorder on deciding affect the criminal responsibility in the offense of “threat” in a decreasing way. In the mental examination, no finding arose from any other psychiatric disorder was determined and since the impulse-control disorders that should be taken in account in differential diagnosis did not course in attacks in this case, pre-traumatic psychosocial development was normal and differential diagnosis has been made by determining organic reason [9].

In the judicial systems almost in all countries around the world, criminal acts committed because of the mental disease are excluded from criminal responsibility [10]. Moreover, in our country, criminal responsibility of adults is regulated by the article 32 of TCC. In the first clause of 32nd article of TCC, it is specified that the individual who cannot perceive the judicial significance and consequences of his/her act and who has significantly diminished goal directed behaviour related to this act will not be penalized; and in the second clause it is specified that penalty abatement will be applied to the individual who has significantly diminished ability in directing behaviours related to his/her act [10]. Deciding, making a choice between different behaviours and the volition described as knowing the targets of these behaviours are important in terms of criminal law. Moreover, in the forensic evaluation course, criminal act is investigated in terms of being committed with absolute volition and in the freedom of consciousness.

Mental disease and weakness is one of the forensic medical condition in which the criminal responsibility is lacking. Under the influence of mental disease, the individual is in such a condition that he/she cannot understand the nature, impropriety and the consequences of his/her act. In the forensic evaluation, it is investigated that whether the crime act is committed under the influence of a mental disease. Symptoms in FLS, such as planning function, inhibition loss, hyponamic attacks, impulsiveness, antisocial behaviours, depression, apathy and perseveration are the conditions that restrict the voluntary act [2]. Studies indicate that individuals diagnosed with FLS are aware of the impropriety of their choices, but they cannot forbear to do [11].

In general, criminal responsibility in FLS should be evaluated according to psychopathologies occurred due to the lesion. Forensic psychiatric evaluations frequently involve the investigation of an event happened in the past. Therefore, it is important to retrospectively investigate the medical records before the event, the documents related to the manner of occurrence and the declaration of the individual in forensic investigations. Executive dysfunctions and impaired judgment occurring by the influence of the disease can affect the criminal responsibility in a decreasing or completely removing way in case of a criminal act. We assert that cases considered as FLS should be evaluated according to these criteria.

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References