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CASE REPORT

Comorbid Obsessive Compulsive Disorder in a Child with Tuberous Sclerosis Complex

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ABSTRACT
Tuberous sclerosis complex (TSC) is a genetic disease that mostly affects the brain, skin, kidneys, eyes, heart and lungs. Various neuropsychiatric comorbidities such as mental retardation, mood disorders, anxiety disorders, disruptive/ aggressive behavior disorders, autism spectrum disorders have been reported. In this study, we report a 15-year old case of with an obsessive compulsive disorder and TSC who is the youngest case in the literature. His sexual and religious obsessions first started when he was 10 years old. In this paper, his medical and psychiatric history and treatment management are presented.
Keywords: Obsessive-compulsive disorder, tuberous sclerosis, child

INTRODUCTION

Tuberous sclerosis complex (TSC) is a genetic disease that affects approximately 1/12,000-1/14,000 children under 10 years of age (1). Hamartoma growths throughout the body, including the brain, skin, kidneys, eyes, heart, and lungs and these are the main signs of TSC (2). The affected genes are TSC1 and TSC2, encoding hamartin and tuberin, respectively (3,4). Various neuropsychiatric comorbidities such as mental retardation, mood disorders, anxiety disorders, disruptive/ aggressive behavior disorders, autism spectrum disorders have been reported (5,6). However, comorbid obsessive compulsive symptoms are only based on case reports (6-9). Also, there is lack of evidence to assess the relationship between hamartomas in the brain and comorbid obsessive compulsive disorder (OCD) in TSC. Since basal ganglia are an important region in the OCD etiology (10), hamartomas located at this region may be epiphenomenally leading to obsessive-compulsive symptoms. In this study, we report a 15-year old patient with obsessive-compulsive disorder and TSC.

CASE PRESENTATION

A 15-year-old boy, who was the first child of a family with two children, presented to the child and adolescent psychiatry outpatient clinic with complaints of repetitive obsessive thoughts about his parents. In his medical history, there was a natural childbirth at the end of a healthy pregnancy with 3,000 gr weight without any postpartum complications. There was no delay in his developmental stages. When the patient was about 4 years old, he was presented to the doctor with the complaint of puffiness on the right wrist palmar face and this was evaluated as a benign fibrolipomatous lesion on pathological examination. Consequently, a detailed evaluation of the case and accompanying symptoms were diagnosed as TSC. The findings which support the diagnosis of TCS when the child was 4 years of age and

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until the present time are as follows: hemangioma and adenoma sebaceum on his right cheek, multiple hypopigmented lesions with a diameter of 0.5-1 cm on the back and front of the trunk, diffuse hamartomas on left eye papilla base and the retina, rabdomyoma in echocardiography. Angiomyolipoma was detected in renal ultrasound. Subependymal nodules in the lateral ventricles, right and left caudate nucleus, as well lesions compatible with hamartoma in right temporal, frontal, cingulate gyrus, bilateral precuneus, left paracentral lobe, and bilateral occipital lobes were reported according to magnetic resonance imaging (MRI) results. There were stable cranial findings in the MRI follow-up. He was diagnosed with epilepsy for 7 years and medicated with carbamazepine. He has been seizure-free for 3 years and his medication was ended a year ago. His last electroencephalogram (EEG) was normal.

In his family history, his mother was diagnosed with multiple sclerosis. Even though his mother had elaborative and fussy personality traits, she did not meet any psychiatric diagnosis criteria.

The patient was presented to the child and adolescent outpatient clinic for the first time with complaints of unwanted and offensive thoughts at 13. On admission, it was understood that his thoughts like "your mother will die if you do not have sex with men", "ejaculate on sacred books", "make love with girls" started when he was 10. The patient appeared to be overly anxious. He had sexual and religious obsessions in his thought content. His compulsions were seeking assurance and asking repetitive questions. His self-esteem was low and he had insight into his obsessions. His intelligence was clinically within normal range. According to WISC-R, verbal, performance and total IQ scores were respectively 106, 100, and 103. Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version was administered and he was diagnosed with OCD. Child-Yale Brown Obsession Compulsion Scale (C-YBOCS) score was 40 (extreme) while the Child Depression Inventory (CDI) was 31 (above threshold) and Screen for Child Anxiety and Related Disorders (SCARED) was 26 (above threshold). Clinic Global Impression Scale-Severity (CGI-S) was 5 (markedly ill). Fluoxetine 10 mg/d was started and increased gradually to 60 mg/d and continued for 2 years. At the same time, cognitive behavioral therapy (CBT) was administered. Psychological scale scores were C-YBOCS:16 (moderate), CGI-S:3 (mildly ill), CGI-Improvement:2 (much improvement), CDI:27, and SCARED:26 on the 6th month of the follow-up, while C-YBOCS was 11 (mild) on the 12th month of the follow-up. It was determined that his sexual obsessions persisted, but his overall functioning was good, he was successful at school and peer-related problems did not exist during the follow-up. The participation involved informed consent.

DISCUSSION

In the case presented, effective treatment with fluoxetine and cognitive behavioral therapy in a child with OCD and tuberous sclerosis were described. The patient met tuberous sclerosis criteria (2). A definition called "Tuberous Sclerosis Associated Neuropsychiatric Disorders" consists of different levels of psychiatric disorders with different manifestations (11). In a study conducted by MRI, white matter alterations in the brain regions, including internal capsule, superior temporal gyrus, and geniculocalcarine tracts was reported in cases with TSC (12). In OCD, abnormalities of white matter connections between the prefrontal and subcortical regions within the frontal-striatal circuits were shown (13). Imaging studies elucidating the etiopathogenesis of OCD have demonstrated a dysfunctional coupling in frontal–basal ganglia circuits (14,15). In addition, over activation of the right cerebellum and right parietal lobe and reduced activation of the left cingulate gyrus, putamen, and caudate nucleus and volume changes in gray matter were detected in fMRI in OCD patients (16). The results of brain imaging studies in the literature show that some brain regions are affected more commonly in both disorders. In our case, lesions in bilateral hemispheres, peritrigonal white matter and bilateral caudate nucleus can be interpreted as morphological changes that may play a role in the appearance of obsessive-compulsive symptoms. Contamination obsession and washing

compulsion were reported in previous case reports (7,8,17). However, our patient was differently suffering from sexual and religious obsessions.

A dependent relationship with his mother and the negative maternal attitudes were considered as sustaining factors of obsessive-compulsive symptoms during the treatment process of the patient. Another reason for the partial response to treatment may depend on effects we do not know of TSC in the central nervous system. To the best of our knowledge, this is the youngest case with comorbid OCD and TSC in the literature.

Recently, bumetanide, Na–K–2Cl transporter antagonist, was used in a patient with TSC accompanied with a variety of repetitive and compulsive behaviors on the basis of the disrupted chloride homeostasis mechanism (18). In another case with TSC, improvement in the symptoms of OCD after giant cell astrocytoma operation was reported (19). Diversity of the lesion distribution of tuberous sclerosis patients may cause each patient to display a wide variety of psychiatric diseases in the clinic. For this reason, accompanying psychiatric treatments may be given from drug therapy to tumor surgery. Since there is no study involving the coexistence of OCD and tuberous sclerosis, treatment management with n-of-1 trial method seems to be important in tuberous sclerosis patients.

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