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Case Report

Extremely Severe Intractable Binge Eating Disorder: A Case Report with Successful Alternative Therapy using Traditional Chinese Medicine

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ABSTRACT

Binge Eating Disorder (BED) is the most common eating disorder. Psychotherapy is the first-line treatment for patients with BED. However, only 50% of these patients usually benefit from psychotherapy, and pharmacotherapy is less effective than psychotherapy. We herein report a 73-year-old patient with extremely severe intractable BED, who ate substantially during every meal, did not stop eating until he felt extreme discomfort due to abdominal distension and ate more than 10 meals every day. Only an enema with 500 mL of soapy water every day could improve his constipation and extreme discomfort. The patient was transferred to dozens of hospitals because of the disease and had tried a variety of treatments, which had no effect on his BED. However, his symptoms almost completely subsided after taking only an herbal formula based on Traditional Chinese Medicine (TCM) principles for 2 months, and the herbal formula had no side effect on him. Herbal formulas based on TCM may be an alternative therapy for those with extremely severe intractable BED.

Keywords: Binge eating disorder; Traditional chinese medicine; Herbal formula; Alternative therapy; Case report

INTRODUCTION

Binge Eating Disorder (BED) is defined as eating an amount of food in a discrete period of time (e.g., two hours) that is definitely larger than what most people would eat in a similar period of time under similar circumstances. Patients also feel that it is difficult to control their eating behavior [1]. BED is the most common eating disorder, mainly affecting young women, often occurring in patients with psychiatric disorders, and related to an impairment in psychosocial functioning (home, work, personal life, and/or social life) [2].

Psychotherapy has been shown to reliably produce roughly 50% of abstinence rates from binge eating and robust improvements in associated eating disorder pathology and psychological functioning [3,4]. However, only 50% of patients with BED usually benefit from psychotherapy, and pharmacotherapy has a worse effect than psychotherapy. The combination of these treatments have been shown to not result in more beneficial effects compared with single-treatment regimens [4,5]. Here, we report a patient with extremely severe intractable BED, whose symptoms almost completely subsided after taking an herbal formula based on Traditional Chinese Medicine (TCM) principles for two months.

CASE REPORT

The patient, a 73-year-old male, was admitted to our department on March 17, 2021 due to an inexplicable acute weakness of his limbs. He had a history of hepatitis B, schistosomiasis, and liver cirrhosis, and had no addiction to tobacco or alcohol. Eventually, we found that his weakness was associated with hypokalemia caused by hyperhidrosis. After he was supplemented with potassium, his motor function returned to normal. He was discharged from our hospital on March 23, 2021. On that day, the patient gave his medical history in detail. He was usually introverted and timid. The Coronavirus Disease (COVID-19) pandemic in early 2020 led to his development of anxiety and insomnia for more than a year. He slept for two to three hours a day. After taking estazolam, he was able to sleep for four to five hours. His appetite increased significantly half a year ago. He ate a lot every meal, ate more than ten meals every day, and did not stop eating until he felt uncomfortably full. He had never felt ashamed or thought of undertaking weight

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control measures. He also simultaneously experienced many other symptoms, including dry mouth, bitter mouth, chest tightness, hyperhidrosis, severe abdominal distension, and constipation. Only enemas with 500 mL of soapy water could improve his defecation and extreme discomfort due to abdominal distension. He was diagnosed with BED and subsequently tried a variety of treatments, including psychotherapy and pharmacotherapy. However, the treatments had no effect; thus, he was transferred to dozens of hospitals because of the aforementioned painful symptoms and he grew desperate to recover. He was 171 cm tall, weighed 80 kg (he weighed 70 kg half a year prior), and had normal nervous system examination results. However, he had a slightly dark tongue, tooth marks on the sides of his tongue, tortuous and inflamed sublingual veins, and a slippery yellow tongue coating. His pulse was deep and weak. On March 18, 2021, he had normal blood routine results, thyroid function, liver and kidney function, fasting blood glucose, and glycosylated hemoglobin. There were some abnormal data, including a low blood potassium value of 2.3 mmol/L, high Triglyceride (TG) level of 3.99 mmol/L, high low-density lipoprotein level of 2.49 mmol/L, high D-2 polymer value of 2.93 mg/L, high fibrin degradation product level of 6.72 mg/L, and low antithrombin 3 activity of 60.6%. He was positive for hepatitis B surface antigens. His head magnetic resonance imaging results were normal. He scored 18 points on the Beck Depression Inventory, 26 points on the Beck A6 points on the anxiety scale of the Neuropsychiatric questionnaire (NPI), 12 points on the sleep scale, and 12 points on the eating disorders scale. Before he was discharged from the hospital, his blood potassium value was 3.87 mmol/L (-). The patient was finally diagnosed with BED according to the Diagnostic and Statistical Manual of Mental Disorders; Fifth Ed. (DSM-5). Because his BED episodes were more than 13 per week, the level of severity was estimated as extremely severe. His TCM diagnosis was frequent eating, and the syndrome type was liver Qi depression and spleen Qi deficiency, both in combination with phlegm, blood stasis, and heat. Based on his TCM syndrome type, the prescribed herbal formula was as follows Table 1: 15 g of *Bupleuri Radix*, 15 g of *Fructus Aurantii*, 15 g of Magnolia Officinalis Cotex, 30 g of *Gypsum*, 15 g of *Anemarrhena*, 30 g of *Chinese Yam*, 10 g of *Roasted Licorice*, 10 g of *Cinnamon Twig*, 10 g of *Leech*, 10 g of *Ground Beetle*, 10 g of *Peach Seed*, 15 g of *Codonopsis*, 15 g of *Poria*, 15 g of *Pinellia Ternata*, 15 g of *Tangerine Peel*, 30 g of *Whole Melon*, 15 g of *Cistanche*, 15 g of *Keel*, 15 g of *Oyster*, and 10 g of *Rhubarb*. The formula was mixed and boiled for 30 minutes, with a 400 mL of liquid concoction as the result. The patient took 200 mL of liquid, twice a day, for 14 days. On April 6, 2021, he returned to the clinic. His constipation ceased; thus, he discontinued undergoing enemas. His other uncomfortable symptoms, including abdominal distension, hyperhidrosis, dry mouth, bitter mouth, and chest tightness, improved significantly. His tongue returned to a rosy color, and the coating returned to normal. His number of meals was reduced to seven to eight meals a day. This time, Raw Rhubarb was removed from his last formula because his bowel movement was smooth, and he continued to take the herbal medication for 30 days. His third visit was on May 6, 2021. At that time, he ate five to six meals a day. His abdominal distension completely disappeared. His symptoms, such as sweating, dry mouth, and bitter mouth, were markedly improved. Therefore, *Fructus Aurantii* and *Magnoliae Officinalis Cortex* were removed from the second recipe. The recipe was prescribed for another 30 days. His fifth visit was on June 5, 2021. At the time, he ate three to four meals a day. Each meal had a normal amount of food. His hyperhidrosis, dry mouth, bitter mouth, and bad breath subsided, and his weight dropped to 75 kg. His tongue almost fully returned to a normal appearance, and the degree of tortuosity of the sublingual veins was improved. His blood coagulation and blood lipid levels returned to normal, and his blood routine results and liver and kidney functions were normal. He scored 8 points on the Beck Depression Inventory, 8 points on the Beck Anxiety Inventory, 2 points on the anxiety scale of the NPI, 3 points on the sleep scale, and 1 point on the eating disorders scale. Therefore, Pinellia Ternata, Tangerine Peel, *Keel*, and *Oyster* were removed. It was recommended for the patient to take the herbal formula for another two months to consolidate the treatment effect. During the whole period of TCM treatment, besides taking Chinese medicine granules and estazolam, he did not receive any other treatment. On August 10, 2021, the patient returned to our clinic and said he could not stop taking the herbal formula, which led to the recurrence of BED and abnormal moods. Therefore, the patient had been taking the herbal formula up until the time of writing and had not reported any discomfort in the last five months. He no longer felt desparation about his condition and was very satisfied with the TCM treatment. As such, he was pleased to continuously taking the TCM herbal formula.

Table 1: The herbal formula of the patient with BED from March 23, 2021 to June 5, 2021.

Herbal formula (dose, g)	3/23/2021	4/6/2021	5/6/2021	6/5/2021
Bupleuri Radix	15	15	15	15
Fructus Aurantii	15	15		
Magnoliae officinalis Cortex	15	15		
Gypsum	30	30	30	30
Anemarrhena	15	15	15	15
Chinese Yam	30	30	30	30
Roasted Licorice	10	10	10	10
Cinnamon Twig	10	10	10	10
leech	10	10	10	10

Ground Beetle	10	10	10	10
Peach Seed	15	15	15	15
Codonopsis	15	15	15	15
Poria	15	15	15	15
Pinellia Ternata	15	15	15	
Tangerine peel	15	15	15	
Whole Melon	30	30	30	30
Cistanche	15	15	15	15
Keel	15	15	15	
Oyster	15	15	15	
Raw rhubarb	10			

DISCUSSION

Diagnosis of BED

According to the DSM-5, which was published in 2013, common eating disorders include bulimia nervosa, anorexia nervosa, BED, pica, rumination disorder, and avoidant/restrictive food intake disorder [1]. BED is the most common type of eating disorder. It is often accompanied by obesity, anxiety, and depression, and inflicts moderate to severe damage to the daily life of patients. The lifetime prevalence of the disease is 2.6% in the United States [1] and 2.2% in China [6]. BED should be differentiated from bulimia nervosa, which manifests as recurrent inappropriate compensatory behaviors (such as vomiting, enema, fasting, or exercise) to prevent weight gain [2]. Patients are often reported to be timid. His anxiety developed one year after the COVID-19 pandemic began. His BED symptoms were rather severe. He ate substantially for more than 10 meals a day and experienced severe constipation and abdominal discomfort, which could be relieved only by enemas. His diagnosis of BED was confirmed by his indifference to his weight and shape and his lack of shame due to eating large amounts at a time.

BED pathogenesis in modern medicine and TCM

Based on modern medicine, most patients with BED are accompanied by an abnormal mental disorder, which is triggered by negative emotions and manifests as a lack of control overeating. Thus, it is regarded as a mental disorder and is listed in the DSM-5 [1]. Neuroimaging studies have shown that in patients with BED, the medial orbitofrontal cortex is overactive and impulse control-related cortical areas are underactive, and the changes are similar to those observed in substance abuse [7]. Human genetics and animal studies have shown that the neurotransmitter network associated with BED changes, including the dopaminergic and opioid systems [8]. Although all kinds of modern scientific and technological methods have been exhausted for comprehensive research on BED, we believe that the aforementioned research focused only on the use of different techniques to describe the abnormal brain change of patients with BED and that there is a consequent lack of a deep understanding of the real cause of BED [9]. Only when we eliminate the cause of BED can we completely cure the disease. We think TCM can be used to achieve this. The patient we reported on herein had extremely severe BED and was usually timid. After being frightened by the COVID-19 pandemic, he experienced negative emotions, such as anxiety and depression, for one year, along with other symptoms, including eating substantially, dry mouth, bad breath, hyperhidrosis, constipation, signs including tooth marks on the sides of his tongue, and a deep and weak pulse, which suggested that the case should be diagnosed using TCM criteria as the syndrome of spleen deficiency, liver stagnation, and stomach heat. The patient's other symptoms, including a dark-colored tongue with a slippery yellow coating, tooth marks on the tongue, and tortuous and inflamed sublingual veins, showed that he was suffering from simultaneous phlegm production and blood stasis. Therefore, we determined that the appropriate treatment was to invigorate the spleen and soothe the liver, clearing away stomach heat and removing blood stasis and phlegm. Thus, we prescribed 2 months of Dachaihu and Didang decoctions Table 1 as a basic recipe to achieve a successful outcome for the patient. Article 257 of the "Treatise on Cold Pathogenic Diseases" has a TCM pathogenic record of abnormally excessive eating [10]. It considers that stomach heat and blood stasis are the pathogenesis of abnormally excessive eating and prescripts the Didang Decoction as a remedy. Fogarty, et al. also found that stomach heat is the main pathogenesis of BED [11]. In general, based on TCM principles, abnormally excessive eating is mainly the manifestation of stomach heat, and eliminating the stomach heat can improve the symptom. We believe that the syndrome of spleen deficiency and liver stagnation as considered in TCM is equivalent to the conditions of depression and anxiety and the syndrome of stomach heat, the hyperactivity of the stomach and the noninfectious febrile inflammatory reaction in modern medicine. We think that phlegm and blood stasis is the pathological products of the syndromes of spleen deficiency, liver stagnation, and stomach heat. These pathological products consequently interfere with normal neural activity and cause abnormal mental behavior (such as BED and other mental disorders). Therefore, TCM principles provide a very clear understanding of the etiology and pathogenesis of BED. With our application of TCM principles in the patient's treatment plan, we predict the patient to have a good prognosis. At the same time, the TCM herbal formula significantly alleviated the emotional disorder. However, in terms of the understanding of BED in modern medicine, it is limited to the description of abnormal brain manifestations using different advanced techniques, and those who adhere to modern medicine cannot recognize that long-term negative emotions can cause abnormal pathological products to accumulate in the brain and interfere with its normal function. The coagulation function of the patient before TCM therapy suggests such

patients' blood tend to coagulate, making the condition equivalent to the blood stasis syndrome of TCM. After the TCM therapy, the patient's clinical performance improved, and the coagulation function returned to normal, further showing that the patient developed blood stasis syndrome. Therefore, we suggest more research in the context of modern medicine on the etiology, pathogenesis, and treatment of BED, including other mental disorders, paying closer attention to the associated inflammation, blood circulation, and abnormal pathological products in the brain.

Modern and TCM treatment of BED

Modern medicine believes principles hold that BED is an abnormal compulsive stereotyped behavior caused by negative emotions; thus, psychotherapy is the mainstream therapy of BED. When patients are not suitable for psychotherapy, drug therapy, such as those for serotonin reuptake inhibition, epilepsy, attention deficit hyperactivity disorder, and shift disorder, can be considered [12]. However, the effect is not purely beneficial; thus, many patients suffer from the disease for life, as in the case we reported [3]. Our patient had undergone all kinds of treatments and was growing more desperate prior to TCM treatment. In China, for the refractory disease, patients usually choose TCM treatment. The symptoms, pathogenesis, and herbal formula for the treatment of abnormally excessive eating had been recorded in books on TCM 2,000 years prior [10]. Based on TCM theory, our patient was considered to have spleen deficiency, liver stagnation, stomach heat and phlegm, and heat and blood stasis congestion in the brain; therefore, we prescribed Dachaihu and Didang decoctions. Two weeks after the TCM treatment, the patient's constipation subsided, and so he no longer required an enema. The composition of the herbal drugs was slightly adjusted based on the patient's condition; however, the prime principles remained unchanged. Two months later, the patient's BED symptoms and abnormal mood mostly disappeared, and his liver and kidney functions were normal. However, his abnormal tongue appearance and pulse rate were still abnormal, which showed that his pathological state was not completely eliminated; therefore, he must continuously take the herbal formula. His pathological state of spleen deficiency, liver stagnation, stomach heat and phlegm, and heat and blood stasis congestion may be related to his liver cirrhosis, which cannot be treated.

CONCLUSION

The strength of our work lay in the detailed description of the condition, diagnosis, and treatment of a patient with extremely severe BED and in the analysis of the possible reasons for the successful TCM treatment of BED. However, major limitations consisted of a lack of ability to generalize and a limited support of the scientific literature.

Because TCM principles dictate that each patient with BED has a unique pathogenesis, each patient's herbal formula is likely to be different. Therefore, our specific therapy plan of TCM is not suitable for all patients with BED. However, our case report shows that TCM herbal formulas can be an alternative treatment to psychotherapy and pharmacotherapy for patients with BED, especially intractable patients.

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Informed consent has been granted from the patients.

CONFLICT OF INTEREST

The authors state that they have no Conflict of Interest (COI).

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