

CASE REPORT

Integrative Medicine Approach to Pediatric Obsessive-Compulsive Disorder and Anxiety: A Case Report

儿科强迫症和焦虑的综合医学方法：一份病例报告

Aproximación de la medicina integral al trastorno obsesivo compulsivo y a la ansiedad en niños: informe de un caso

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ABSTRACT

Pediatric obsessive-compulsive disorder (OCD) is prevalent in 1% to 2% of the population. Emerging studies have correlated non-celiac gluten sensitivity with psychiatric conditions such as schizophrenia, depression, mania, and anxiety. This case study is the first reported case of OCD associated with non-celiac gluten sensitivity. The objectives of this case report are to (1) identify gluten sensitivity as a possible contributing factor to OCD in some patients; and (2) point out the possible benefit of an integrative medicine approach to the management of OCD in a patient with suboptimal benefit from a standard treatment regime. A 7-year-old male treated at a multi-physician integrative medicine practice in the United States had marked reduction of OCD symptoms and anxiety along with marked improvement of social behavior and school work after treatment consisting of gluten avoidance and other integrative medicine modalities. The patient's rapid response without side effects behooves the medical research community to further investigate the association of non-celiac gluten sensitivity and pediatric OCD.

摘要

儿科强迫症 (Obsessive-compulsive Disorder, OCD) 在该人群中的发生率为 1% 到 2%。新兴研究将非腹腔麸质敏感性与精神分裂症、抑郁、躁狂症和焦虑等精神疾病联系在一起。本病例研究是首次报告的 OCD 与非腹腔麸质敏感性相关联的病例。本病例报告的目的在于：(1) 确定麸质敏感性是有些患者中可能的 OCD 促成因素；(2) 指出在标准治疗方案效果欠佳的患者中，综合医学方法对 OCD 管理的可能好处。一名 7 岁男孩在美国接受了多医师综合医学实践治疗，在接受包括避免麸质及其他综合医学方式在内的治疗后，OCD 症状和焦虑明显减轻，社会行为和学业成绩显著改善。患者反应迅速且没有副作用，医学研究界因此需要进一步研究非腹腔麸质敏感性与儿科 OCD 之间的关系。

SINOPSIS

El trastorno obsesivo compulsivo (TOC) en niños es prevalente entre un 1% y un 2% de la población. Los estudios emergentes han relacionado la sensibilidad al gluten no celíaca con trastornos psiquiátricos

como la esquizofrenia, la depresión, la manía y la ansiedad. Este estudio de un caso es el primer caso comunicado de TOC asociado a la sensibilidad al gluten no celíaca. Los objetivos de este informe de caso son (1) identificar la sensibilidad al gluten como un posible factor que contribuye al TOC en algunos pacientes; y (2) apuntar el posible beneficio de una aproximación de la medicina integral al tratamiento del TOC en un paciente con un beneficio subóptimo a partir de una pauta posológica del tratamiento de referencia. Un niño de 7 años al que se trató en una policlínica de medicina integral de los Estados Unidos tuvo una reducción marcada de los síntomas del TOC y de la ansiedad junto con una mejora del comportamiento social y del trabajo escolar tras el tratamiento que consistía en evitar el gluten y otras modalidades de medicina integral. La rápida respuesta del paciente sin efectos secundarios conmina a la comunidad de investigación médica a indagar exhaustivamente en la asociación de la sensibilidad al gluten no celíaca y el TOC en niños.

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Key Words

Anxiety, obsessive-compulsive disorder, gluten, heavy metal body burden, mercury, lead chelation, DMPS

Disclosures

The authors completed the ICMJE Form for Disclosure of Potential Conflicts of Interest and had no conflicts to disclose.

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INTRODUCTION

Obsessive-compulsive disorder (OCD) has a prevalence of 1% to 2% in the pediatric population. The standard treatment approaches are cognitive behavioral therapy, selective serotonin reuptake inhibitors

(SSRIs), or both.¹ In a systematic review, Bloch et al reported that as many as 50% of patients treated with SSRIs alone do not achieve a satisfactory response.² In clinical trials SSRIs have an associated suicidal adverse event rate (suicidal ideation or suicide attempts) of 1% vs 0.3% in placebo groups.¹

In recent years, gluten sensitivity (GS) has emerged as a distinct disorder from celiac disease (CD). While CD occurs in about 1% of the general population, GS has an estimated prevalence 6-fold greater than that of CD.³ CD is a well-described disease involving an immune-mediated reaction to gluten, a protein present in wheat, barley, and rye. It is characterized by an inflammatory reaction in the small bowel to protein fractions of gluten: gliadin, a monomeric protein, and glutenins, aggregated proteins.⁴ Symptoms of patients with CD include postprandial bloating, steatorrhea, and weight loss.⁵ The diagnosis of CD is suggested by the presence of serum anti-gluten antibodies such as anti-tissue transglutaminase immunoglobulin A (IgA).⁶ Confirmation of the diagnosis classically requires a histological finding on duodenal biopsy of crypt hyperplasia, villous atrophy, and increased intraepithelial lymphocytes. Furthermore, the genetic basis of CD is well described and includes haplotypes HLA-DQ2 and HLA-DQ8.

While GS involves symptoms that are also triggered by ingestion of gluten, both the presentation of the illness and the diagnostic findings can be different from CD. In GS, there is usually an absence of celiac-specific antibodies, intestinal villous atrophy, variable human leukocyte antigen expression, and variable presence of anti-gliadin antibodies. This subset of GS is now referred to as non-celiac GS.⁷ While patients with CD and non-celiac GS typically report intestinal symptoms correlated with the illness, there is increasing public interest as well as growing medical evidence which suggests extra-intestinal manifestations that may include psychiatric illness and neurological disease.^{3,4,8}

We present here the case of a 7-year-old male with severe OCD successfully treated at a multi-physician integrative medicine practice in the United States using gluten avoidance and other integrative medicine modalities.

CASE PRESENTATION

History of Present Illness

A 7-year-old white male with a 3-year history of anxiety and obsessive-compulsive behavior presented to a multi-physician suburban integrative medicine practice. The patient's mother reported that when the boy was 2 years old, she started receiving daily incident reports from his daycare of his pushing other children and violent outbursts. A child psychologist evaluated his behavior as normal. At age 3.5 years, the child began to be fearful and dependent. He started expressing severe separation anxiety, refusing to enter any room alone, including the bathroom. He was increasingly irritable and had trouble interacting with other children. When the patient was 5 years of age, his teacher noted that he had obsessive thoughts about "germs"

and developed compulsive hand-washing. He avoided going near trash cans because he was afraid of "germs." He expressed fear of his feces and would only go to the bathroom if he were completely undressed. He expressed irrational fears of getting "lead poisoning" and developed a related phobia toward pencils, to the extent that he was unable to sit at a table where a pencil was present. He did not want to play with other children because he was scared that he would hurt them. Whenever he coughed from a mild upper respiratory infection, he feared that he was going to stop breathing and became preoccupied with death. The patient was taken to a child psychologist and diagnosed with OCD and anxiety disorder. He was started on cognitive behavioral therapy, which included play therapy, exposure therapy, and other goal-directed therapy that resulted in mild improvement of his condition.

Review of Systems: Positive for nervousness, sadness, depression, irritability, anxiety, and difficulty concentrating. The patient had also been diagnosed with spatial apraxia, which resulted in the patient bumping into other children that precipitated conflicts. Finally, the patient had a pruritic rash which started at age 1 shortly after he started to eat solid foods. The rash was worse in the summer and located behind both elbows and both knees. It was persistent despite various lotions, topical steroid creams, and special baths.

Past Medical History: Prolonged labor (>36 hours); chronic ear infections starting at age 3 months; *Clostridium difficile* colitis related to amoxicillin treatment; serum sickness after a course of antibiotics.

Medications: None. Patient's mother did not wish to do a trial of medication in light of the patient's episodes of rash, *Clostridium difficile* colitis, and serum sickness.

Other Therapies: Patient was receiving occupational therapy for his spatial apraxia.

Supplements: Multivitamin, docosahexanoic acid, fish oil supplements

Allergies: Penicillin (rash), cephalosporin (rash).

Family History: Melanoma (mother), anxiety disorder (paternal aunt).

Physical Examination: Anxious-appearing boy who appeared his stated age sitting next to his mother. Patient had a restricted affect and displayed little eye contact with the examiner. He displayed no psychotic symptoms. There were no unusual thought processes observed. There was an erythematous rash on the popliteal fossa, elbows, and chest.

Testing: Autonomic response testing (ART)⁹⁻¹¹ was performed to determine the targets of therapy and

Table 1 Treatment Timeline

Visit no.	Positive Findings From ART	Treatment Given During Visit	Treatment Prescribed	% Improvement Overall According to Patient's Mother
1: initial visit	Lead 5 mg, mercury, Entamoeba, gluten, rye	<ul style="list-style-type: none"> • LLLT to back of head with adjacent DMPS • Ionic footbath 	<ul style="list-style-type: none"> • Gluten-free diet • DMPS, take two 100 mg pills every wk for 1 mo • Microcurrent device for 5 h daily (or overnight) for 1 mo 	Not applicable
2: 1 mo after initial visit	Lead 0.5 mg, gluten, rye, Entamoeba	<ul style="list-style-type: none"> • LLLT with adjacent EDTA to the hairy portion of the head • Laser Ear Acupuncture: Nogier laser frequency B to gluten reversal point on both ears • Nogier laser frequency D to Nogier corpus collosum point on both ears • Ionic footbath 	<ul style="list-style-type: none"> • Gluten-free diet • DMPS, take one 100 mg pill every wk for 6 wk • Microcurrent device for 5 h daily (or overnight) for 1 mo 	<ul style="list-style-type: none"> • OCD 40% improved • Anxiety 40% improved • Eczema 90% improved
3: 2 mo after initial visit	No positive findings (negative Entamoeba, lead)	<ul style="list-style-type: none"> • Laser ear acupuncture: Nogier laser frequency B to ART-indicated gluten reversal point on both ears • Nogier laser frequency D to corpus collosum point on both ears • Nogier laser frequency F to Nogier liver point on both ears • LLLT with gluten to hairy sides of head 	<ul style="list-style-type: none"> • Gluten-free diet/regimen 	<ul style="list-style-type: none"> • OCD 80% improved • Anxiety 90% improved • Eczema 100% improved
4: 3 mo after initial visit	Trace lead (<0.5 mg)	<ul style="list-style-type: none"> • Laser ear acupuncture: Nogier laser frequency D to Nogier corpus collosum point on both ears • Nogier laser frequency B to Nogier liver point on both ears 	<ul style="list-style-type: none"> • Gluten-free diet/regimen • DMPS, take one 100 mg pill every wk for 1 mo 	<ul style="list-style-type: none"> • OCD 75% improved • Anxiety 85% improved • Eczema 100% improved
5: 4.5 mo after initial visit	Trace gluten (negative heavy metals)	<ul style="list-style-type: none"> • Laser ear acupuncture: Nogier laser frequency D to Nogier corpus collosum point on both ears • Nogier laser frequency F to parietal lobe point on both ears 	<ul style="list-style-type: none"> • Gluten-free diet/regimen 	<ul style="list-style-type: none"> • OCD 99% improved • Anxiety 99% improved • Eczema 100% improved

Abbreviations: ART, autonomic response testing; DMPS, dimercaptopropanesulfonic acid; LLLT, low level laser treatment.

guide which areas of the body and ear acupuncture points should be treated with low-level laser therapy (LLLT). ART was positive for wheat, barley, and rye (gluten sensitivity), lead, mercury, and Entamoeba.

Interventions: Table 1 provides an overview and timeline of the patient's treatment course. Over the course of 5 visits in a 5-month period, the patient was treated with the following: (1) a gluten-free diet and avoidance of gluten-containing personal care products such as soaps, shampoos, toothpaste, and hair products; (2) low-level laser ear acupuncture¹²⁻¹⁴ using a 904 nm laser RJ Olympic Physiolaser (RJ Laser, New Brunswick, Canada) set at 150mW for 15-second pulses using various Nogier frequencies; (3) LLLT^{15,16} using a 532 nm 5 milliwatt green pen laser pointer to reduce sensitivity to or amount of heavy metals—per ART indication, treatment was applied to hairy portions of the head for 3 minutes with either EDTA, dimercaptopropanesulfonic acid (DMPS), or wheat adjacent to the laser beam; (4)

ionic foot baths^{17,18} during the office visit to reduce the total body burden of heavy metals; (5) low-dose chelation therapy^{19,20} using DMPS 100 mg twice per week; and (6) microcurrent therapy²¹⁻²³ to address a subclinical Entamoeba infection.²⁴⁻²⁷

Visit #2 (1 mo from initial visit): The patient's mother reported that the patient's OCD symptoms and anxiety improved 40% since the previous visit. She noticed that her child was less anxious and more at ease in social situations and did not bring up his fear of his stool. She also reported that his eczema improved 90%, which was a greater improvement than with any other treatment previously tried. She admitted that while the majority of her son's diet was gluten free, there were a few occasions where her son had gluten intake. She also reported that the patient had not started to use gluten-free personal care products. The mother was unable to determine any differences in OCD and anxiety symptoms the day of or after gluten intake.

Visit #3 (2 mo from initial visit): The patient's mother reported that her son's OCD symptoms had improved 80% and his anxiety had improved 90% since the last visit. She stated that he generally had more energy during the day. His eczema was 100% improved. The patient ate only gluten-free food and used gluten-free personal care products.

Visit #4: (3 mo from initial visit): The patient's mother reported that her son's OCD improved 75% and his anxiety had improved 85% overall. He had more energy. However, he still had trouble reading and focusing on words.

Visit #5: (4.5 mo from initial visit): The patient's mother reported that her son's OCD and anxiety symptoms were 99% better. He no longer had trouble staying in a room by himself. Repetitive behavior, such as hand washing and hand sanitation, had resolved. He no longer showed any fear of his feces, and was able to go to the bathroom without taking off all his clothes. The patient was 100% free of eczema.

Telephone interview with patient's mother (6.5 mo from initial visit): The patient's mother reported her son was doing significantly better since the start of the integrative medicine therapies. She reported 1 instance of a relapse in symptoms of irritation and anxiety the day after the child had eaten food that had been cross-contaminated with food containing gluten from another family member. In general, she reported that he was less anxious, did not worry about his health or dwell on death, did not express concern about the trash can or germs, could go to the bathroom without completely undressing, had friends, and was less socially fearful. However, she did report that in the past month, he had begun to echo his words by mouthing them to himself and continually inquires about the time and the exact length of activities. While the patient had drastic improvements with the treatments, the patient still needed ongoing treatment.

Telephone interview with patient's mother (9.5 mo from initial visit): Patient's mother was very satisfied with patient's improvement symptom-wise, socially, and academically. The palilalia resolved. Whereas the patient had failed his kindergarten entrance test, now in second grade he scored higher than his grade level on standardized testing. The patient continued to follow a strict gluten-free diet and to avoid gluten-containing personal care products.

Telephone interview with patient's mother (1 y from initial visit): Patient's mother reported that her son had not had any recurrent or new symptoms. She reported compliance with the gluten-free regime. When inadvertent gluten exposure from family members occurred, the patient did demonstrate some symptomatology, which rapidly resolved. The mother reported that she occasionally used the laser pointer pen for home LLLT. She did this at times of inadvertent gluten exposure. Her son was no longer in individual or group therapy and was on no medications. His psychologist confirmed his improvement. Mother reported also that the patient's spatial apraxia resolved and he no longer needed occupational therapy. She stated the apraxia markedly improved concurrently with the OCD improvement.

Treatment Costs

The patient's mother paid for all treatment costs as none of the treatments was covered under her insurance. Total treatment costs were less than \$1000 (Table 2).

DISCUSSION

We describe a case of a 7-year-old boy with severe OCD who responded remarkably well to a multi-pronged, relatively inexpensive integrative approach including a gluten-free diet. Reports have correlated non-celiac gluten sensitivity with psychiatric conditions such as schizophrenia, depression, mania, and anxiety.^{3,5} A literature review of PubMed, Web of Science, and PsychINFO revealed 1 reported case of an

Table 2 Cost Analysis

Visit no.	Evaluation in Office	Treatment and Medications Given	Total Cost of Treatments and Medications
1	Initial evaluation with ART (\$350)	DMPS, 8 pills Ionic foot bath LLLT to back of head with DMPS (\$0, all covered under cost of the initial visit)	\$350.00
2	ART (\$100)	DMPS, 6 pills (\$36) Nogier laser (\$25), Ionic foot bath (\$40)	\$201.00
3	ART (\$100)	Nogier laser (\$25) LLLT with gluten (\$0)	\$125.00
4	ART (\$100)	Nogier laser (\$50) DMPS, 4 pills (\$24)	\$174.00
5	ART (\$100)	Nogier laser (\$25)	\$125.00
Total Cost to Patient:			\$975

Abbreviations: ART, autonomic response testing; DMPS, dimercaptopropanesulfonic acid; LLLT, low level laser therapy.

association of OCD with celiac disease (CD).²⁸ The presented case study is the first to the best of our knowledge to report a therapeutic response from a gluten-free diet in a non-celiac gluten sensitive patient with OCD.

The patient presented in this report was typical for this integrative medicine physician group practice in that a long period of standard treatment did not result in a satisfactory outcome. The aim of the practitioners is to get patients well expeditiously in a manner that the practitioner would choose for self or family. Thus multiple treatment methods are used simultaneously within the integrative medicine tenet that multiple factors may be involved in the maintenance of disease chronicity. As a number of therapies were applied simultaneously, it is uncertain which one(s) was/were most important. Based on our clinical expertise, we feel that treating the gluten issue was a dominant factor in the successful outcome. The observation that inadvertent gluten re-exposure was associated with an increase in symptoms supports this. One could also hypothesize that the resolution of symptoms was a placebo effect or spontaneous remission. However, the child had received multiple treatments over a 2-year period from the primary care physician, psychologists, and occupational therapists that could have shown a placebo effect but there was no improvement.

The other salient observation in this case report was the utility of ART pointing to the gluten problem. Non-celiac gluten sensitivity can be problematic to detect. The positive ART finding helped motivate the family to adopt the gluten-free prescription for diet and personal care products. ART⁹⁻¹¹ was developed by Dietrich Klinghardt and Louisa Williams,²⁹ who built upon different forms of applied kinesiology described by Goodheart,³⁰ Omura^{16,31} and others.

Applied kinesiology is a form of manual muscle testing in which an interpretation is made regarding the response (weakness, no change, or strengthening) of a muscle to manual testing. The interpretation informs the assessment of the patient and the prediction of positive, negative, or neutral responses to therapies. Different forms of applied kinesiology can give different results. There are no published studies that have evaluated ART's reliability and validity.

The main limitation is that this is a single case report. However, given the remarkable improvement in this usually recalcitrant condition, we believe our findings justify further investigation of integrative medicine treatment approaches, particularly the role of a gluten-free diet, in the treatment of pediatric OCD.

Patient Consent

The patient's mother gave written consent regarding the publication of this case report.

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