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Theoretical Analysis and Case Studies of Lizhong Decoction Combined with Acupoint Catgut Embedding for Appetite Loss Induced by Methylphenidate Hydrochloride Sustained-Release Tablets

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Abstract: Methylphenidate hydrochloride sustained-release tablets are a first-line medication for treating attention deficit hyperactivity disorder (ADHD). However, appetite loss is one of its most common adverse reactions, with an incidence rate of up to approximately 70%, significantly affecting children's nutritional intake and growth and development. From the perspective of traditional Chinese medicine (TCM) theory, this paper proposes that the primary pathogenesis of appetite loss induced by methylphenidate hydrochloride sustained-release tablets is "drug toxicity damaging the central yang—spleen and stomach deficiency-cold." Based on this, a synergistic treatment approach combining Lizhong Decoction to warm the middle and invigorate the spleen and acupoint catgut embedding to regulate stomach function is proposed. Lizhong Decoction, originating from Zhang Zhongjing's "Treatise on Febrile Diseases, " is a representative formula for spleen and stomach deficiency-cold syndrome in Taiyin disease. Modern research confirms that it can improve gastrointestinal motility by increasing levels of gastrointestinal excitatory hormones such as motilin, substance P, and ghrelin. Acupoint catgut embedding, an extension of acupuncture therapy, regulates the hypothalamic feeding center and gastrointestinal function through continuous stimulation of acupoints such as Zusanli, Zhongwan, and Tianshu, producing a lasting effect on appetite regulation. The combination of internal and external treatments synergistically enhances the effects of warming the middle and invigorating the spleen and regulating the feeding-digestion axis. This paper presents a case study to demonstrate the clinical efficacy of this combined approach in improving appetite loss induced by methylphenidate, providing a reference for clinical practice.

Keywords: Methylphenidate hydrochloride sustained-release tablets; appetite loss; Lizhong Decoction; acupoint catgut embedding; spleen and stomach deficiency-cold

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1. Introduction

Attention Deficit Hyperactivity Disorder (ADHD) is a common neurodevelopmental disorder in childhood, characterized

by core symptoms of inattention, hyperactivity, and impulsivity, with a global prevalence rate of approximately 5%–7%. Methylphenidate is a first-line treatment drug for ADHD recommended by domestic and international guidelines, acting by blocking the reuptake of dopamine and norepinephrine by presynaptic neurons, thereby increasing levels of monoamine neurotransmitters in the brain [1-2]. While improving the core symptoms of ADHD, the most common adverse reaction of this drug is appetite loss. Clinical studies show that the incidence rate of appetite loss in children after taking the medication reaches 70%, with 66.7% experiencing weight loss. Long-term use can lead to growth retardation and malnutrition, affecting children's growth and development and treatment compliance. Currently, there are few effective clinical interventions, mostly relying on dietary adjustments, which cannot fundamentally solve the problem. In severe cases, dosage reduction or treatment interruption is necessary, leading to a dilemma between "symptom control" and "nutritional support." Traditional Chinese medicine has unique advantages in regulating the spleen and stomach and improving appetite. The author believes that the clinical manifestations of appetite loss induced by methylphenidate align with the spleen and stomach deficiency-cold syndrome of "difficulty in eating" in Taiyin disease described in "Treatise on Febrile Diseases, " and proposes treatment with warming the middle and invigorating the spleen. Lizhong Decoction is a classic formula for warming the middle and dispelling cold, replenishing qi and invigorating the spleen, primarily treating "loss of appetite" caused by middle-jiao yang deficiency; acupoint catgut embedding, an extension of acupuncture, regulates the feeding center and gastrointestinal function through continuous stimulation of acupoints, showing good effects in digestive system diseases. Previous studies have shown a synergistic effect of the combination of the two in regulating the spleen and stomach. This paper studies the TCM pathogenesis of appetite loss induced by methylphenidate hydrochloride sustained-release tablets, explains the mechanism of the combined treatment, and presents clinical applications through case studies, providing new ideas for solving this clinical challenge.

2. Theoretical Basis of Pathogenesis and Treatment

2.1. Modern Medical Mechanism of Appetite Loss Induced by Methylphenidate Hydrochloride Sustained-Release Tablets

Methylphenidate enhances cognitive control functions of the prefrontal cortex and striatum by blocking the reuptake of dopamine and norepinephrine by presynaptic neurons, thereby increasing levels of monoamine neurotransmitters in the brain; the widespread effects of the drug on the central nervous system are the root cause of its adverse reactions. Appetite loss involves multiple mechanisms: ① direct inhibition of the hypothalamic appetite center; ② activation of the insula to induce aversion, interfering with the desire to eat; ③ alteration of appetite-related hormones: after two months of methylphenidate treatment in ADHD children, levels of ghrelin and adiponectin significantly increase, while levels of brain-derived neurotrophic factor significantly decrease, suggesting the involvement of these molecules in the pathological process; ④ regulation of olfaction by the dopamine system may also indirectly affect eating behavior [3].

Epidemiological data show that the incidence rate of appetite loss in children after methylphenidate treatment is 70%, with weight loss accounting for 66.7%. Weight loss is most pronounced in the first 3–6 months after treatment initiation, threatening children's nutritional status and growth and development.

Table 1. Modern Medical Mechanism of Appetite Loss Induced by Methylphenidate Hydrochloride Sustained-Release Tablets

Mechanism level	Specific pathway	Main effect
Central nervous system	Inhibits hypothalamic appetite center; activates insula to induce aversion	Inhibition of appetite center function, decreased eating desire
Appetite hormones	Ghrelin and adiponectin significantly increased; BDNF significantly decreased	Imbalance between appetite-stimulating signals and neurotrophic support

Mechanism level	Specific pathway	Main effect
Dopamine system	Changes in dopamine levels regulate olfactory function	Olfaction participates in regulation of eating behavior, indirectly affecting appetite

(BDNF: Brain-Derived Neurotrophic Factor)

2.2. Core Pathogenesis of "Drug Toxicity Damaging Central Yang - Spleen and Stomach Deficiency-Cold" and Key Links in Disorders of Intake and Transformation

Appetite loss induced by methylphenidate falls under the category of "drug-induced spleen and stomach diseases." The drug, considered an external pathogenic factor that damages vital qi, is referred to as "drug toxicity" in traditional Chinese medicine. Methylphenidate directly affects the middle-jiao, impairing spleen yang and disrupting the spleen and stomach's function in transportation and transformation. The spleen and stomach jointly govern the digestion and absorption of food and drink as well as the distribution of nutrients. When spleen yang is abundant, transportation, transformation, and reception functions are normal; conversely, when spleen yang is deficient, there is a lack of appetite and an inability to taste food properly. The outline of Taiyin disease in "Treatise on Febrile Diseases" states, "In Taiyin disease, there is abdominal fullness and vomiting, inability to eat, worsening of spontaneous diarrhea, and occasional spontaneous abdominal pain." Here, "inability to eat" refers to reduced appetite, with the core pathogenesis being central-jiao yang deficiency and internal retention of cold-dampness. The clinical manifestations of appetite loss induced by methylphenidate closely align with this. The pathogenesis can be summarized as follows: prolonged use of drug toxicity damages spleen yang → central-jiao deficiency-cold → impaired transportation and transformation → stomach's inability to receive food → reduced appetite; spleen yang deficiency → extremities lacking warmth → cold limbs and body; spleen deficiency leading to impaired transportation → inability to digest food and drink → abdominal distension and loose stools [4].

Table 2. Correspondence between Core Pathogenesis of Spleen and Stomach Deficiency-Cold and Clinical Manifestations

Pathogenic mechanism	Pathological changes	Clinical manifestations
Drug toxicity impairs Spleen Yang	Spleen Yang injury, deficiency cold in Middle Jiao	Poor appetite, tastelessness
Spleen fails to transport and transform	Essence of water and grain cannot be distributed	Abdominal distension, loose stools
Yang fails to warm and nourish	Limbs and skeleton lack warmth and nourishment	Cold body and limbs, pale complexion
Signs of Yang deficiency on tongue and pulse	Signs of Yang Qi deficiency	Pale and enlarged tongue, thin white coating, deep thready weak pulse

2.3. The Prescription Significance and Pharmacological Basis of Lizhong Decoction in Warming the Middle and Invigorating the Spleen

Lizhong Decoction, originating from Treatise on Febrile Diseases, is composed of ginseng, dried ginger, white atractylodes, and roasted licorice. It serves as a representative formula for warming the middle and dispelling cold, as well as replenishing qi and invigorating the spleen. In this formula, dried ginger acts as the sovereign herb, warming and tonifying the yang qi of the middle-jiao; ginseng serves as the minister herb, replenishing qi and invigorating the spleen; white atractylodes functions as the assistant herb, drying dampness and invigorating the spleen; and roasted licorice acts as the envoy herb, replenishing qi and harmonizing the actions of the other herbs. The combined use of these four herbs can restore the function of the spleen and stomach and improve appetite. Modern pharmacological studies have shown that the mechanism by which Lizhong Decoction improves appetite involves three aspects: Regulation of gastrointestinal hormones: Fuzi Lizhong Decoction can elevate the levels of serum motilin (MTL), substance P (SP), and ghrelin in mice with a spleen-deficiency model ($P < 0.05$), promoting gastrointestinal motility and appetite signal transduction; Neuro-endocrine regulation: By exciting cholinergic nerve receptors and inhibiting adrenergic nerve receptors, it regulates the levels of brain-gut peptides and restores gastrointestinal motility; Repair of intestinal mucosa: It improves the

morphology of small intestinal mucosal epithelial cells in rats with spleen-yang deficiency, upregulates the expression of the peptide transporter PepT1, and enhances absorption function. Together, these mechanisms constitute the modern pharmacological basis for Lizhong Decoction's improvement of appetite [5-6].

Table 3. The Prescription Significance and Modern Pharmacological Mechanisms of Lizhong Decoction

Drug	Traditional efficacy	Modern pharmacological targets	Therapeutic effects
Dried Ginger (Monarch)	Warming the middle and dispelling cold	Exciting gastrointestinal nerves, promoting MTL secretion	Restoring gastrointestinal motility
Ginseng (Minister)	Supplementing qi and strengthening the spleen	Regulating Ghrelin and SP levels	Enhancing appetite signals
Atractylodes (Assistant)	Strengthening the spleen and drying dampness	Improving small intestinal mucosal morphology and PepT1 expression	Promoting digestion and absorption
Honey-fried Licorice (Envoy)	Supplementing qi and harmonizing the middle	Harmonizing various herbs, anti-inflammation and repair	Synergistic effect

(MTL: Motilin; SP: Substance P; Ghrelin: A hunger-stimulating peptide; PepT1: Peptide Transporter 1)

3. Exploration of the Synergistic Enhancement Mechanism of Combined Therapy

3.1. Synergistic Pathways of Internal Warming of the Middle and External Treatment for Regulating the Pivot

The combined application of oral administration of Lizhong Decoction and external treatment with acupoint catgut embedding embodies the traditional Chinese medicine concept of "combining internal and external treatments, " with the two approaches complementing each other in terms of action pathways, temporal characteristics, and therapeutic targets.

In terms of action pathways, after oral administration, Lizhong Decoction enters the bloodstream and exerts a systemic effect of warming the middle and invigorating the spleen, restoring the function of the middle-jiao from within. The mechanism may be related to inhibiting the activation of the IKK/IKB/NF-κB signaling pathway and reducing the release of downstream inflammatory factors. Acupoint catgut embedding, through peripheral acupoint stimulation, regulates central feeding function and gastrointestinal motility via meridian, neural, and endocrine pathways. The natural dissolution process of the catgut provides sustained stimulation for 7 to 14 days, exerting effects from the outside. Together, these two approaches, one internal and one external, act on the spleen-stomach system. Previous studies have confirmed that they can exert a synergistic effect in regulating spleen transportation and transformation.

In terms of temporal characteristics, Lizhong Decoction requires daily administration to maintain its efficacy, with a relatively short duration of action; in contrast, a single acupoint catgut embedding procedure can provide sustained stimulation for 10 to 15 days, with a more stable regulatory effect. The combination of the two offers complementary immediate and long-term effects.

In terms of therapeutic targets, Lizhong Decoction focuses on warming and tonifying spleen yang and restoring transportation and transformation to address issues of insufficient motility, while acupoint catgut embedding emphasizes regulating the feeding center and adjusting gastrointestinal rhythm to resolve signal disorders. Multiple clinical studies have demonstrated that the combined treatment of spleen-stomach-related diseases with these two approaches yields better results than monotherapy, providing evidence of their synergistic enhancement effect.

Table 4. Comparison of Synergistic Pathways between Oral Administration of Lizhong Decoction and External Treatment with Acupoint Catgut Embedding

Comparison dimension	Oral administration of Lizhong Decoction	External treatment with acupoint catgut embedding
Action pathway	Oral absorption → blood circulation → systemic regulation	Acupoint stimulation → meridian conduction → neuro-endocrine regulation
Direction of action	From inside to outside (internal treatment)	From outside to inside (external treatment)
Temporal characteristics	Daily medication, efficacy lasts several hours	Single embedding, continuous stimulation for 10–15 days
Core target	Warm and tonify Spleen Yang, restore transportation and transformation function	Regulate feeding center, adjust gastrointestinal rhythm
Main problems addressed	"Insufficient power" (Spleen fails to transport and transform)	"Signal disorder" (Stomach fails to receive)

3.2. Dual Intervention's Integrated Regulation of the Feeding-digestion Axis from the Perspectives of "Spleen Governing Transportation and Transformation" and "Stomach Governing Reception"

In traditional Chinese medicine, the spleen and stomach jointly govern the reception, digestion, absorption, and distribution of food and drink. The stomach is primarily responsible for reception, while the spleen governs transportation and transformation. These two functions complement each other, forming a complete chain of feeding, digestion, and absorption. Appetite loss induced by methylphenidate involves both the stomach's inability to receive food and the spleen's failure to transport and transform nutrients. Using a single treatment approach has limitations, and both aspects must be addressed.

The combined treatment of Lizhong Decoction and acupoint catgut embedding simultaneously targets these two links. Lizhong Decoction warms the middle and invigorates the spleen, restoring the spleen's function of transportation and transformation and promoting the generation and distribution of nutrients from food and drink. Acupoint catgut embedding stimulates acupoints along the spleen and stomach meridians, regulating the hypothalamic feeding center and gastrointestinal function, as well as modulating levels of gastrointestinal hormones to adjust feelings of satiety and hunger. Together, these two approaches act on both ends of the feeding-digestion axis, increasing appetite and improving digestion, thereby comprehensively enhancing nutritional status.

From the perspective of the modern medical brain-gut axis theory, this synergistic effect has a physiological basis. The brain-gut axis is a neuroendocrine network that facilitates bidirectional signal transmission between the central nervous system and the gastrointestinal tract. Oral administration of Lizhong Decoction regulates levels of brain-gut peptides such as serum motilin (MTL), substance P (SP), and ghrelin, influencing central feeding signals from the gastrointestinal tract upwards. Acupoint catgut embedding, through continuous stimulation of acupoints, transmits signals via the vagus nerve to regulate the hypothalamic feeding center and gastrointestinal function downwards. Studies have found that acupoint catgut embedding can modulate the gut microbiota and serum levels of gastrointestinal peptides, reducing energy absorption. Acupuncture and catgut embedding can holistically regulate energy metabolism and homeostasis. These two approaches exert synergistic effects at different nodes of the brain-gut axis, jointly restoring the normal functioning of the feeding, digestion, and absorption chain.

Table 5. Integrated Regulation of the Feeding-digestion Axis by Lizhong Decoction and Acupoint Catgut Embedding

Regulation level	Oral Lizhong Decoction	Acupoint Catgut Embedding External Therapy	Synergistic effect
Traditional Chinese Medicine theory	Warm the middle and invigorate the spleen, restore "spleen governs transportation and transformation"	Regulate the pivot and harmonize the stomach, restore "stomach governs reception"	Treat spleen and stomach together, coordinate receiving and transporting

Brain-gut axis pathway	Regulate gastrointestinal hormones (MTL, SP, Ghrelin)	Regulate hypothalamic appetite center and vagus nerve	Bidirectional regulation, connecting upper and lower
Functional recovery	Improve digestion, absorption, and nutrient distribution	Enhance appetite, regulate eating behavior	Ordered receiving and transformation, restoration of ascending and descending

In summary, the combined application of oral administration of Lizhong Decoction and external treatment with acupoint catgut embedding forms a complementary approach in terms of action pathways, characterized by “oral administration for warming the middle-jiao and external treatment for regulating the pivot.” It creates a sequential connection in terms of time-effect characteristics, marked by “immediate and long-lasting effects, “ and achieves a synergistic effect on therapeutic targets, focusing on “warming the spleen yang and regulating the stomach.” Together, they act on the ingestion-digestion axis, completing a comprehensive treatment loop from appetite restoration to improved digestive function, embodying the wisdom of traditional Chinese medicine (TCM) in treating both internal and external aspects and addressing both the spleen and stomach simultaneously.

4. Case Examples

4.1. Patient Information and Syndrome Differentiation

A 9-year-old boy presented for initial consultation in early December 2025.

Chief Complaint: Decreased appetite for over two months after taking methylphenidate hydrochloride sustained-release tablets.

Current Medical History: In October 2025, the child was diagnosed with attention-deficit/hyperactivity disorder (ADHD, combined type) due to inattention and hyperactivity/impulsivity. He was prescribed methylphenidate hydrochloride sustained-release tablets at a dose of 18 mg orally every morning. Although his attention improved after medication, he gradually developed a decreased appetite one week later, barely eating lunch, only consuming a small amount of soup, and eating half the amount of dinner compared to before medication. Dietary adjustments by the parents were ineffective, leading to a weight loss of 2 kg and stunted height growth over the past two months. The family sought TCM intervention.

Current Symptoms: Poor appetite, small food intake, postprandial bloating, loose stools (1-2 times daily), pale complexion, cold limbs, fatigue, pale and swollen tongue with teeth marks on the edges, thin white coating, and deep, thin, and weak pulse.

Past Medical History: Generally average constitution, prone to colds, with a generally weak appetite, and no history of drug allergies.

Western Medicine Diagnosis: Drug-induced decreased appetite caused by methylphenidate hydrochloride sustained-release tablets.

TCM Syndrome Differentiation: Spleen-stomach cold deficiency syndrome. The child’s long-term use of methylphenidate damaged the middle yang, leading to insufficient spleen yang, impaired transportation and transformation functions, and stomach’s inability to receive food, resulting in decreased appetite. Spleen deficiency led to undigested food and water, causing bloating and loose stools. Spleen yang deficiency resulted in a lack of warmth, leading to cold limbs. The tongue and pulse were consistent with spleen-stomach cold deficiency.

4.2. Treatment Plan

Treatment Principle: Warm the middle-jiao and strengthen the spleen, harmonize the stomach, and aid transportation.

Oral Medication: Modified Lizhong Decoction.

Prescription: Codonopsis pilosula 10 g (substituting for ginseng to reduce warmth and dryness), dried ginger 6 g, stir-fried Atractylodes macrocephala 10 g, roasted licorice 6 g, stir-fried malt 15 g, and Amomum villosum 3 g (added later).

Usage: One dose daily, decocted in water to yield 200 ml of juice, taken warm in two divided doses half an hour before lunch and dinner. Avoid cold, greasy, and spicy foods.

Explanation: Dried ginger warms the yang of the middle-jiao as the monarch herb. Codonopsis pilosula tonifies qi and strengthens the spleen as the minister herb, substituting for ginseng to avoid excessive warmth and dryness. Stir-fried Atractylodes macrocephala strengthens the spleen and dries dampness, addressing loose stools as the assistant herb. Roasted licorice tonifies qi and harmonizes the formula as the envoy herb. Stir-fried malt aids digestion and stimulates appetite. Amomum villosum promotes qi circulation, resolves dampness, and awakens the spleen, preventing stagnation caused by tonification. The entire formula works together to warm the middle-jiao, strengthen the spleen, and stimulate appetite.

External Treatment: Acupoint catgut embedding.

Selected Acupoints: Bilateral Zusanli (ST36), Zhongwan (CV12), and bilateral Tianshu (ST25).

Procedure: After routine disinfection, a 1 cm long 4-0 absorbable medical suture was implanted into the muscle layer of each acupoint. Pressure was applied for a moment after the procedure, covered with a band-aid, and the patient was instructed to keep the area dry and clean and avoid strenuous exercise. Catgut embedding was performed every two weeks.

Medical Advice: Maintain the original dose of methylphenidate hydrochloride sustained-release tablets to ensure stable ADHD symptoms. Diet should be warm, soft, and easy to digest, avoiding cold, greasy, and spicy foods. Pay attention to abdominal warmth and apply a hot compress to the abdomen for 15-20 minutes daily.

4.3. Treatment Outcome and Follow-up

First Follow-up (after 2 weeks of treatment): The child's appetite improved significantly. He could eat half a bowl of rice for lunch and 80% of his pre-illness dinner intake. Bloating decreased, stools became formed, and his spirit improved. The tongue was pale red with a thin white coating, and the pulse was thin. The treatment was effective. The formula was adjusted by removing Amomum villosum and adding 6 g of tangerine peel to regulate qi and harmonize the stomach. The acupoint catgut embedding plan remained unchanged.

Second Follow-up (after 4 weeks of treatment): The child's appetite basically returned to normal, with food intake close to that of healthy children of the same age. His weight increased by 1.2 kg compared to the initial consultation. Bloating and loose stools disappeared, cold limbs improved, hands and feet became warm, complexion improved, and he was energetic. His classroom attention remained good. The tongue was pale red with a thin white coating, and the pulse was thin and forceful. Clinical recovery was judged. The TCM formula was changed to one dose every other day for consolidation, and acupoint catgut embedding was performed every two weeks.

Third Follow-up (after 8 weeks of treatment): The child's appetite was normal, with stable food intake for three meals. His weight increased by 2.8 kg compared to the initial consultation, and his height increased by approximately 0.5 cm. The efficacy of methylphenidate hydrochloride sustained-release tablets remained stable, with good control of ADHD core symptoms. No recurrence of decreased appetite or weight rebound occurred. TCM medication was discontinued, and acupoint catgut embedding was changed to once monthly for consolidation. Follow-up for three months showed normal appetite, continuous and steady weight and height growth, and no significant adverse reactions.

4.4. Case Analysis and Treatment Approach Summary Syndrome

Differentiation Approach: This case is a typical drug-induced spleen-stomach cold deficiency syndrome. The child's long-term use of methylphenidate hydrochloride sustained-release tablets damaged the middle yang, leading to spleen yang deficiency, impaired transportation and transformation functions, and stomach's inability to receive food, resulting in decreased appetite. The key points for syndrome differentiation were: first, loss of taste and poor appetite, indicating the stomach's inability to receive food; second, bloating and loose stools, indicating spleen deficiency and impaired transportation and transformation of food and water; third, cold limbs and a pale tongue with a deep pulse, indicating yang deficiency and lack of warmth. The root contradiction in this case was yang deficiency rather than qi deficiency. Pure

tonification would not restore transportation and transformation functions or stimulate appetite.

Medication Approach: Lizhong Decoction is the appropriate formula for this condition. Dried ginger in the formula warms the middle-jiao and dispels cold, directly tonifying spleen yang and restoring spleen transportation and transformation functions, addressing the root cause. Codonopsis pilosula, Atractylodes macrocephala, and roasted licorice tonify qi and strengthen the spleen to aid transportation and transformation, addressing the symptoms. Stir-fried malt and Amomum villosum stimulate appetite and aid transportation, addressing the urgent issue of "loss of appetite." The entire formula addresses both the root cause and symptoms in an organized manner. Substituting Codonopsis pilosula for ginseng provides sweet and neutral qi tonification without excessive warmth and dryness, suitable for a child's pure yang constitution. Adding Amomum villosum promotes qi circulation and resolves dampness, preventing stagnation caused by tonification and aiding the restoration of transportation and transformation functions, reflecting the principle of combining tonification with dredging.

Acupoint Selection Approach for Catgut Embedding: Zusanli (ST36), Zhongwan (CV12), and Tianshu (ST25) were selected. Zusanli is the he-sea acupoint of the stomach meridian, Zhongwan is the front-mu acupoint of the stomach, and Tianshu is the front-mu acupoint of the large intestine. Together, they comprehensively regulate qi movement in the middle-jiao. Zusanli strengthens and regulates the spleen and stomach and tonifies qi and blood, making it the preferred acupoint for treating gastrointestinal diseases. Zhongwan harmonizes the stomach, lowers rebellious qi, regulates qi, and aids digestion, making it a local acupoint for treating stomach disorders. Tianshu regulates the middle, harmonizes the stomach, regulates qi, and strengthens the spleen, regulating intestinal dysfunction. The combination of these three acupoints regulates the stomach and intestines and tonifies deficiency while dredging stagnation. Catgut embedding provides longer-lasting stimulation than ordinary acupuncture, maintaining stimulation for 10-15 days, which better meets the requirements for slow treatment of chronic spleen-stomach diseases.

Overall Approach of Combining Internal and External Treatments: In this case, a combination of oral administration and external treatment was used. Oral administration of Lizhong Decoction warms and tonifies the middle yang and restores spleen transportation and transformation functions, addressing the issue of insufficient power from within. External treatment with acupoint catgut embedding regulates the ingestion center and improves gastrointestinal rhythm, addressing the issue of signal disorder from without. Together, they form a complete treatment loop, both stimulating appetite and improving digestion. This approach improves drug-induced decreased appetite without changing the dosage of methylphenidate and stably controls ADHD core symptoms, reflecting the advantages of TCM-Western medicine collaboration. TCM supplements deficiencies and mitigates the excessive attacking nature of Western medicine, rather than adopting an antagonistic approach of using drugs against drugs.

5. Discussion and Conclusion

5.1. Advantages, Indications, and Clinical Implications of Combined Treatment

The combined treatment of Lizhong Decoction and acupoint catgut embedding for decreased appetite caused by methylphenidate hydrochloride sustained-release tablets is an exploratory practice that combines classical formulas with modern external treatments under the guidance of TCM's theory of treating different diseases with the same method. The clinical advantages are manifested in the following aspects.

Combination of Disease and Syndrome Differentiation with Clear Targets: This approach is guided by TCM's theory of spleen-stomach cold deficiency and incorporates drug-induced decreased appetite into the syndrome differentiation framework of taiyin disease with spleen-stomach cold deficiency. The treatment targets the core pathogenesis of "drug toxicity damaging the middle yang." Lizhong Decoction warms the middle-jiao and strengthens the spleen to restore spleen transportation and transformation functions, while acupoint catgut embedding regulates the pivot and harmonizes the stomach to restore the stomach's ability to receive food. This approach respects modern medical disease diagnoses while leveraging TCM's individualized advantage of syndrome differentiation and treatment, providing clear pathophysiological

directionality for treatment interventions.

Synergistic Enhancement through Combined Internal and External Treatments: Oral administration of Lizhong Decoction regulates brain-gut peptides such as serum motilin (MTL), substance P (SP), and ghrelin, improving gastrointestinal motility and appetite signals from within. External treatment with acupoint catgut embedding continuously stimulates acupoints such as Zusanli, Zhongwan, and Tianshu, regulating the hypothalamic ingestion center through the vagus nerve and regulating ingestion behavior and gastrointestinal rhythm from without. The two approaches complement each other in terms of action pathways, characterized by "oral administration for warming the middle-jiao and external treatment for regulating the pivot, " and form a sequential connection in terms of time-effect characteristics, marked by "immediate pharmacological effects and long-lasting stimulation." Previous studies have shown that Shaban Lizhong Decoction combined with acupoint catgut embedding has a total effective rate of 96.4% in treating obesity, significantly better than the acupoint catgut embedding alone group, 82.1% and the TCM formula alone group, 66.7%, with a statistically significant difference ($P < 0.05$), providing clinical evidence for the synergistic enhancement of this combined approach.

Safety, Non-interference, and Good Compliance: This approach does not affect the treatment with methylphenidate hydrochloride and does not require changing the dosage of Western medicine, avoiding the discontinuation of effective treatment due to adverse reactions. Acupoint catgut embedding is performed every two weeks, which is more convenient than daily acupuncture and suitable for pediatric patients. Clinical application has proven the safety of this approach.

Indications: Based on theoretical analysis and clinical practice, the indications for this approach are ADHD children who develop decreased appetite after taking methylphenidate hydrochloride sustained-release tablets and have a TCM syndrome differentiation of spleen-stomach cold deficiency syndrome, as well as those who have satisfactory effects from Western medicine treatment but whose decreased appetite affects their nutritional status. Syndromes such as spleen-stomach damp-heat, liver-stomach disharmony, and food accumulation and stagnation require syndrome differentiation and formula selection and should not be rigidly adhered to.

Table 6. Advantages, Indications, and Precautions of Lizhong Decoction Combined with Acupoint Catgut Embedding

Item	Specific Content
Core Advantages	Integration of disease and syndrome with clear targets; combined internal and external treatment for synergistic effect; safe and non-disturbing with good compliance.
Indications	ADHD children who develop decreased appetite after taking methylphenidate; syndrome differentiation as Spleen-Stomach deficiency cold pattern; western medicine effective but decreased appetite affects nutritional status.
Relative Contraindications	Spleen-Stomach damp-heat pattern, Liver-Stomach disharmony pattern, food stagnation pattern; fever or acute infection phase; skin infection or breakage at the embedding site.
Precautions	Monitor weight and height changes during treatment; keep the embedding area dry and clean after the procedure; diet should be warm and easily digestible, avoid cold, raw, and greasy foods.

Clinical Implications. This treatment protocol offers new insights into addressing drug-induced loss of appetite, highlighting that traditional Chinese medicine (TCM) interventions should not be confined to the conventional roles of "replacement" or "adjunct" but should demonstrate their unique value in "reducing toxicity and enhancing efficacy." From the perspective of TCM, common adverse reactions to psychiatric medications can be understood as "drug toxicity impairing the body's vital energy, " and interventions can follow the principle of "reinforcing vital energy and eliminating pathogenic factors." This approach can improve patients' quality of life and treatment adherence without interfering with the original treatment. This model can be extended to TCM interventions for digestive system adverse reactions caused by other medications.

5.2. Limitations of This Study and Future Research Directions

This study is limited to theoretical exploration and case reports, with the following shortcomings:

Firstly, there is a lack of systematic clinical evidence. This paper reports only one pediatric case, with a small sample size, representing an individual-level efficacy observation. It cannot rule out the interference of placebo effects, natural disease progression, or other confounding factors. The efficacy of this combined protocol requires validation through large-sample, prospective, randomized controlled trials.

Secondly, the mechanism of action is not fully understood. This paper discusses the potential mechanisms of Lizhong Decoction and acupoint catgut embedding from the perspectives of gastrointestinal hormones (MTL, SP, Ghrelin), the brain-gut axis, and neuroendocrine regulation. However, the interaction between the two modalities, cross-regulation of signaling pathways, and the molecular-level integrative effects of herbal components and acupoint stimulation require further experimental clarification. Whether acupoint catgut embedding affects the pharmacokinetics of methylphenidate remains unexplored, representing an important safety consideration.

Thirdly, standardization of acupoint catgut embedding is lacking. There are currently no unified standards for operational parameters such as embedding depth, thread material and specifications, retention time, treatment intervals, and course duration. These variations across studies affect result comparability and protocol reproducibility. As an invasive procedure, catgut embedding carries risks of infection, rejection reactions, and poor thread absorption, necessitating caution.

Fourthly, long-term efficacy and safety require observation. With only a 3-month follow-up in this study, the long-term (years) methylphenidate treatment for ADHD children raises questions about whether the combined protocol can sustain appetite improvement, whether new adverse reactions may emerge, or whether it affects methylphenidate's long-term efficacy. Longer follow-up is needed.

Future research directions could include: (1) randomized controlled clinical trials to evaluate the efficacy and safety of Lizhong Decoction combined with acupoint catgut embedding for methylphenidate-induced appetite loss, using blinding to reduce bias; (2) animal experiments from the brain-gut axis perspective to study the combined treatment's effects on hypothalamic feeding centers, vagal afferent function, gut microbiota structure, and metabolomics, revealing the synergistic role of herbal medicine and acupoint stimulation in the neuroendocrine-immune network; (3) dose-response relationship and parameter optimization studies for acupoint catgut embedding, systematically comparing embedding depth, thread material, retention time, and treatment frequency to establish standardized protocols; (4) long-term follow-up studies (at least 12 months) to evaluate the combined treatment's impact on children's growth trajectories, nutritional metabolism indicators, and long-term ADHD prognosis; (5) exploring whether this combined protocol can be extended to treat appetite loss caused by other medications (e.g., antipsychotics, antidepressants), expanding its clinical applications.

5.3. Conclusion

Methylphenidate hydrochloride extended-release tablet-induced appetite loss is a common and challenging clinical issue in ADHD treatment, with an incidence rate as high as 70%, severely affecting children's nutritional intake and growth. Currently, no safe and effective interventions exist. From a TCM perspective, this paper proposes the core pathogenesis of "drug toxicity impairing central yang—spleen-stomach deficiency-cold, " incorporating drug-induced appetite loss into the syndrome differentiation framework of Taiyin disease with spleen-stomach deficiency-cold, and clarifying the therapeutic direction of warming the middle and invigorating the spleen. Lizhong Decoction, from the Treatise on Febrile Diseases, is a classic formula for warming the middle and invigorating the spleen. Modern research shows it improves gastrointestinal motility and appetite signaling by increasing serum levels of gastrointestinal excitatory hormones like MTL, SP, and Ghrelin. Acupoint catgut embedding, an extension of acupuncture therapy, continuously stimulates acupoints such as Zusanli (ST36), Zhongwan (CV12), and Tianshu (ST25), regulating the hypothalamic feeding center and gastrointestinal function through neuroendocrine pathways. The combination of internal and external treatments synergistically enhances warming the middle and invigorating the spleen and regulating the feeding-digestion axis, forming a complete therapeutic

loop from appetite recovery to improved digestive function. The case study demonstrates that this combined protocol does not affect methylphenidate's original efficacy, improves drug-induced appetite loss, and restores normal nutritional intake in children, reflecting the toxicity-reducing and efficacy-enhancing role of integrated TCM-Western medicine treatment. TCM holds potential for managing adverse reactions to psychiatric medications, warranting further exploration and validation to provide safe and effective treatment options for more affected children.

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