

Experimental Case of Using the Exercise Prescription of “Lung Spleen Simultaneous Treatment” Combined with Pediatric Massage to Improve Adenoid Hypertrophy in Children

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ABSTRACT

Adenoid hypertrophy in children is a disease caused by enlarged nasal and pharyngeal glands blocking the upper respiratory tract, leading to mouth breathing, snoring, nasal congestion, sleep disorders, and weakened immunity, which seriously affects children's development. This article studies the relationship between pediatric adenoid hypertrophy and exercise. Based on clinical experience, Professor Jin Yicheng summarizes the “lung spleen simultaneous treatment” exercise prescription combined with pediatric massage, which can help children practice at home, relieve medical pressure, enhance adolescent physical fitness, and improve the connotation of pediatric medical services through the combination of traditional Chinese and Western medicine. It provides new ideas for the clinical treatment of pediatric adenoid hypertrophy and is supported by typical medical cases.

Keywords: Adenoid Hypertrophy; Exercise Prescription; Pediatric Tuina

Introduction

The adenoids are lymphatic rings located on the posterior wall of the nasopharynx, also known as the pharyngeal tonsils. When the local mucosa of the adenoids is repeatedly stimulated by inflammation and infiltrated by inflammatory cells, it triggers adenoid hypertrophy [1-3]. Clinically, adenoid hypertrophy has also become a common disease in pediatrics and ENT, mainly causing mouth breathing, snoring, nasal congestion, and even Eustachian tube dysfunction, recurrent sinusitis, sleep disorders, and decreased immunity [4-6]. For such diseases, surgical removal is a commonly used clinical treatment, but there is a certain risk of complications or recurring symptoms after surgery. Moreover, from clinical observation, the author found that adenoid hypertrophy is related to children's lifestyle habits. Look-

ing at the current adenoid patients in China, their physical activity is clearly lacking, with many remaining at home and outdoor activities quite limited. Current domestic surveys show that while adolescents' height, weight, and chest circumference continue to increase, their physical qualities such as speed, strength, and endurance are also declining [7]. However, the 2020 International WHO guidelines recommend that children aged 5-17 should do at least 60 minutes of moderate-to-high-intensity exercise daily, mainly aerobic and physical exercise, with at least three days per week of vigorous aerobic exercise and muscle-strengthening exercises [8,9]. This article studies the relationship between pediatric adenoid hypertrophy and exercise. Professor Jin Yicheng, drawing on clinical experience, explores the feasibility of combining exercise prescriptions with massage techniques to treat pediatric adenoid hypertrophy based on actual cases.

Etiological Analysis

Children have a body of 'immature yin and young yang,' with delicate organs and a stage of growth and development. As Wan Quan described in 'Family Secrets to Infant Care': "The liver is always in excess, the spleen is often deficient, the heart is always in excess, the lungs are often insufficient, and the kidneys are always deficient.' Children's lungs are delicate and easily affected by external pathogens. After being invaded, symptoms such as nasal congestion, runny nose, coughing, and mouth breathing may occur. In traditional Chinese medicine, the earliest description of adenoid hypertrophy appears in Lingshu-Angry Silence: "The forehead is where qi is distributed..... When a person's nose canal causes mucus that cannot be cleared, the forehead cannot open, indicating a loss of breath separation." At that time, adenoid hypertrophy was described as "the forehead not opening." Discussions on the etiology and pathogenesis are also discussed in the 'Danxi Xinfu Fuyu': 'If a person has tuberculosis on the head, face, neck, cheeks, or body, but there is no pain, no redness, and no pus, it is all phlegm and discharge.' Symptoms of adenoid hypertrophy can also be found in 'Treatise on the Origins and Symptoms of Various Diseases, Volume 30.' Various Signs of Pharyngeal and Cardiothoracic Diseases: "Snoring refers to sounds made between the throat and throat during sleep." The throat and qi rise and fall,..... Whether awake or asleep, it does not hinder expressing oneself; When the qi is disharmonious, it rushes out of the throat and makes sounds."

Anatomically, the adenoids are mainly located in the nasopharynx and are peripheral lymphatic tissue on the pharyngeal lymphatic ring. They serve as the primary immune system for children in the nasopharynx against inhaled microorganisms [10]. During early infant development, the adenoids themselves enlarge with age, reaching their maximum at ages 5 or 6, but as the nasopharynx develops and their function matures, they gradually shrink after age 8 [11]. Currently, the lack of exercise among adolescents and children has changed the process of adenoid deletion, and many adolescents around the age of 13 or 14 still show adenoid hypertrophy and come to our department for treatment. Enlarged adenoids can easily block the posterior wall of the nasopharynx, affecting upper airway ventilation. Severe blockage can cause sleep apnea, leading to hypopnea. Clinically, serum osteocalcin levels in children with adenoid hypertrophy are generally low, and insufficient growth hormone affects the development of their skeletal systems [12]. When development is affected, immune function also declines, making external stimuli prone to enlargement of the adenoids and tonsils. This vicious cycle worsens the harm caused by the disease.

The Impact of Exercise on the Body

Exercise and Metabolism

The effects of exercise on the body and organs are systemic, involving complex endocrine and metabolic mechanisms [13]. Regarding the impact of mechanical stimuli from exercise on organs, Li, et al.

[14] found that various degrees of mechanical stimuli (osmotic pressure, matrix hardness, stretching and compression) during exercise can regulate the morphology, structure, and function of organs near the intestine. Exercise can promote the metabolism of the three major nutrients by promoting catabolism and improving insulin sensitivity, allowing the body to fully absorb nutrients [15]. For teenagers and children today, excessive intake of nutrients that cannot be metabolized and absorbed in time can easily burden the gastrointestinal tract, leading to obesity, premature development, and glandular hypertrophy. Exercise not only promotes metabolism but also enhances nutrient absorption. Among 135 children, those who exercised almost nothing-most were overweight and showed varying degrees of constipation, confirming that exercise can promote metabolism and has a certain improvement in glandular hypertrophy caused by nutrient accumulation.

Movement and Cognition

Exercise can also improve cognitively and emotionally to some extent. Research shows that exercise can promote blood flow in brain functional areas and increase endocrine substances such as brain-derived neurotrophic factor and insulin-like growth factor 1 [16-18], and has certain effects on cognitive emotional functions related to brain structures (hippocampal memory area, striatum, and response inhibition ability) [19-20] Many children with adenoid hypertrophy suffer from severe airway blockage, developing sleep apnea syndrome, which leads to insufficient oxygen supply to the brain, weakened emotional control, and slow intellectual development. Exercise actually promotes oxygen supply and brain development. Among 135 children, those with the same obstruction showed almost no clinical symptoms caused by airway obstruction during exercise, indicating that reasonable exercise also has a certain regulatory effect on the respiratory system.

Exercise and Inflammation

Pathologically enlarged adenoids can easily cause local nasal inflammation. Research shows that aerobic exercise can inhibit the production of inflammatory cytokines by activating the hypothalamic-pituitary-adrenal axis and the sympathetic nervous system, and then secreting substances such as cortisol [21]. Some researchers have also demonstrated through experiments that after exercise, human skeletal muscle secretes interleukin-6 (IL-6), tumor necrosis factor- α (TNF- α), and other pro-inflammatory factors such as IL-1 β . It can inhibit the formation of inflammatory substances [22]. Leicht [23] studied that neutrophils increase after limb movement, which can promote the absorption of inflammatory substances and phagocytosis of dead red blood cells. For conditions like rhinitis caused by increased secretion of inflammatory substances in the nasal cavity caused by adenoid hypertrophy, reasonable exercise is also feasible. Among children with adenoids, many have noticeable nasal congestion and runny nose upon waking. Getting up and running around can

improve these symptoms, while congestion and runny nose persist for a longer time. In this regard, encouraging children to exercise early has a positive effect in promoting symptom improvement.

Traditional Exercise and Adenoids

In traditional medicine, the sages proposed the concept of “flowing water does not rot, door hinge does not foolish.” The earliest to clearly record exercise prescriptions for treating kidney disease was clearly recorded in the “Suwen · Treatise on Needling Methods,” and proposed exercise methods, duration, frequency, direction, and timing. On this basis, the concept of “guiding yin” was proposed, based on the idea of “nurturing health through movement.” Traditional Chinese medical texts such as the Huangdi Neijing, Jin Gui Yaolue, Treatise on the Origins and Symptoms of Various Diseases, Qianjin Fang, and Twenty-Four Qi Sitting Exercises all mention guiding yin for treating diseases, including health exercises like “Five Animal Frolics,” “Six-Character Formula,” and “Mawangdui Daoyin Technique.” The theoretical system of TCM Yundao Yin formulas encompasses health preservation concepts and is precisely the most direct impact of exercise on the body. Research shows that [24-25] Six-Character Breathing Exercises help improve respiratory function, reduce the secretion of inflammatory factors, and also enhance the body’s immune system. It can help improve conditions such as apnea syndrome caused by pediatric adenoids.

Medical Records

Patient Li, male, 3 years old, visited our pediatric outpatient clinic on November 9, 2023, due to recurrent runny nose and nasal congestion, accompanied by mouth breathing and snoring for over half a year. The CT sinus showed 72% blockage, diagnosed with adenoid hypertrophy. Budesonide hormone was used to control inflammation, saline nasal irrigation was manageable, but relapsed after stopping. On December 30, 2023, visited the Adenoid Specialty Clinic with the following inscriptions: morning nasal congestion and runny nose, mainly clear watery mucus, occasionally yellow nasal discharge, heavy nasal sound, no coughing or sputum, mouth breathing and snoring during sleep. Physical examination: throat wall congestion, right tonsil II° enlargement, no purulent secretions on the surface, redness and swelling of both inferior nasal conchas, adenoid facial features. Auxiliary examination: CT film taken by our hospital: adenoidal hypertrophy A/N 72% (detailed report see Figure 1). The child usually likes snacks, is irritable and easily crying, has difficulty concentrating, has difficulty exercising, has average appetite, yellow urine, bowel movements every two days, tongue is pale red with thin greasy coating, and pulse is slippery and rapid. Western medicine diagnosis: adenoid hypertrophy; TCM diagnosis: nasal obstruction (phlegm-heat interlocking).

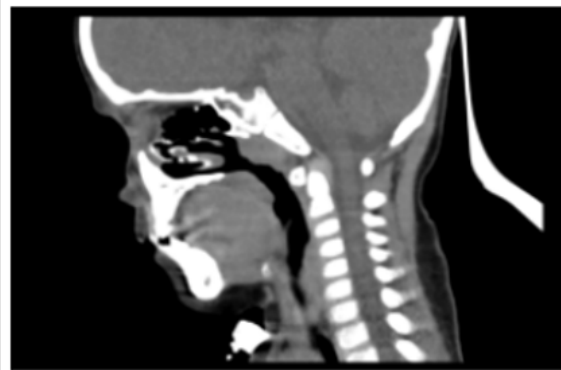


图 (1)

Figure 1.

The syndrome is characterized by the combination of phlegm-heat and improper diet, impaired spleen function, generating phlegm turbidity internally, obstructing qi flow. Over time, this leads to heat, which irrigates the throat and causes the lung to lose its dispersal function, resulting in nasal congestion and runny nose. Treatment focuses on clearing heat and resolving phlegm, opening orifices and benefiting the throat, and transforming spleen soil. Treatment method: First push Tianmen 20 times, then massage Yingxiang 50 times, push Qiaokong (lower jaw lymph node) 20 times each, then massage

Tiantu 20 times, divide viscera yin and yang (from the Danzhong to the nipple, massage the rib edge) 20 times, massage the abdomen 50 times (clockwise) to transform the spleen and stomach, pinch the spine 9 times (3 times, then pinch three times, lift 3 times). After symptoms improved the next day, he was advised to treat three times a week. After two weeks of treatment, symptoms basically disappeared, so exercise prescriptions were given: daily at home with instructions

- Breathing training:** Lips contracted (exhaling when lips half-closed, similar to whistling) twice daily, 30 sets each time.
- Mouth opening exercise:** tilt your head slightly back, open your mouth to its fullest, hold for three breaths, then lift your soft

palate to squeeze the nasal cavity, which helps fluid flow into the throat and promotes discharge. It also exercises the peripheral facial muscles and improves adenoid facial appearance. Two months later, on April 1, 2024, at Shuguang Hospital, a sinus CT showed an adenoid A/N of about 0.62 (see Figure 2 for details).



Figure 2.

Conclusion

Domestically, pediatric adenoid hypertrophy has become an unavoidable major clinical public health issue, seriously affecting the physical condition of adolescents and children. Currently, China has 99 children's hospitals and 35,950 pediatric medical institutions. The number of pediatric practitioners in these institutions is about 118,000, and the number of pediatric physicians per 1,000 children aged 0 to 14 is 0.53, which is lower than in major developed countries worldwide. In developed countries such as the United States, Canada, and Japan, the average number of pediatricians per 1,000 people is between 0.85 and 1.3. On February 24, 2016, Jin Shengguo, Deputy Director of the Science and Education Department of the National Health and Family Planning Commission, stated at a press conference that, in response to the shortage of pediatric physicians, efforts will be made to strengthen pediatric talent training. By 2020, the goal is to increase the number of pediatricians to over 140,000, with more than 0.6 pediatricians per 1,000 children. With the relaxation of the

two-child policy, the demand for pediatric medical care will further intensify, but pediatric medical resources are insufficient. This supply-demand imbalance is the core issue behind the "difficulty children find medical care" in.

On January 10, 2024, the National Health Commission and ten other departments today issued the "Opinions on Promoting High-Quality Development of Children's Medical and Health Services," adhering to the integration of traditional Chinese and Western medicine, accelerating the expansion of high-quality pediatric medical resources and balanced regional layout, supporting high-quality population development and the construction of a Healthy China. Haipai Traditional Chinese Medicine pediatric massage and exercises are a supplementary treatment method for pediatric diseases. They allow children to practice at home, relieve medical pressure, strengthen the physical fitness of adolescents, and integrate Chinese and Western medicine to enhance the connotation of pediatric medical services, greatly promoting the overall strength of Chinese medicine culture in China.

The American College of Sports Medicine (ACSM) has proposed the formulation and application of sports prescriptions, continuously updating guidelines in the international process of sports prescription research and promotion [26]. In the past decade, countries including China, the United States, the United Kingdom, Canada, and Australia have issued physical exercise guidelines that have greatly promoted health and disease prevention and treatment. In particular, Canada recently published several guidelines at the Society of Exercise Physiology [27]. General Secretary Xi Jinping proposed strengthening standardized exercise among youth in the “Healthy China 2030” Planning Outline to improve physical fitness and promote comprehensive physical and mental health development [28]. Reasonable use of exercise prescriptions in treating adolescent diseases is also a research direction currently needed. At the same time, In makeshift hospitals fighting COVID-19, traditional Chinese health preservation and guiding exercises have also played a certain therapeutic role [29]. However, excessive exercise can also harm the body. Some scholars have shown [30-31] that excessive or unsuitable exercise can harm the body.

Professor Jin Yicheng believes that children are often “often deficient in the lungs and spleen” from birth. The lungs govern dispersion and descending energy, and exercise guided exercises can increase lung capacity and also increase oxygen exchange rate, thereby regulating lung qi; The spleen governs the limbs and muscles. By guiding the digestive system, it regulates the spleen and stomach, promotes spleen metabolism, more effectively supports children’s growth and development, and enhances the body’s own immune function. The “Lung and Spleen Joint Treatment” exercise prescription is based on the physiological functions of the spleen and lungs, providing standardized and regular exercise guidance, which can more effectively improve pediatric adenoid hypertrophy. Therefore, for children with adenoid hypertrophy, it is necessary to develop reasonable exercise prescriptions to improve their constitution, fundamentally reducing metabolic accumulation caused by insufficient or unreasonable exercise, resulting in weakened immune function and glandular hyperplasia. It provides new ideas for the clinical treatment of pediatric adenoid hypertrophy through “hybrid therapy,” and exercise prescription therapy for clinical diseases is worth in-depth research.

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