

Treatment of Enuresis in Children with Xuantong Kaiqiao Method

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Abstract: *Infantile enuresis refers to the disease of children over 5 years old who cannot control urination autonomously and often urinate in sleep. Long-term enuresis will affect a child's physical and mental health development. Western medicine is limited in the treatment of enuresis in children, and the advantages of Chinese medicine are obvious. In the process of learning from teachers, I have a deep understanding of the treatment of enuresis in children. This article will discuss the treatment of enuresis in children in two parts based on the method of Xuantong Kaiqiao, and attach a typical medical case to verify.*

Keywords: Xuantong Kaiqiao method, Enuresis in children, Traditional Chinese medicine treatment, Tri-jiao gasification, Governor vessel.

1. Introduction

Enuresis in children is one of the common diseases in pediatrics, characterized by repeated unconscious urination during sleep. The patient is over 5 years old and has at least 2 bedwetting episodes per week, with symptoms lasting for 3 months [1,2], Equivalent to Western medicine "children monosymptomatic nocturnal enuresis". The prevalence rate of this disease in foreign countries is 1.7%~33.0% [3], and the overall prevalence rate in China is 4.8% [4]. About 15% of children's enuresis symptoms may be relieved by themselves every year, and there are still 1%~2% of children's enuresis symptoms lasting into adulthood [5]. Western medicine treatment of this disease, mainly symptomatic treatment, oral desmopressin, antidiuretic hormone preparations or alarm therapy, but there are still children with enuresis symptoms did not see significant improvement [6]. With the development of traditional Chinese medicine, the advantages of traditional Chinese medicine in treating this disease have gradually been accepted and recognized by children and parents [7].

The discussion of enuresis in Chinese medicine was first recorded in the "Neijing" [8], such as "Lingshu · Nine Needle Treatise": "Urinary enuresis due to abnormal bladder function," It is pointed out that the disease is located in the bladder, and Urinary enuresis due to abnormal bladder restraint function. In the understanding of this disease by later medical experts, some believe that urinating during sleep is an abnormal function of the kidneys and bladder, while others believe that enuresis can also occur when the lungs and spleen function is abnormal. It can be inferred that abnormal bladder function is closely related to the lungs, kidneys, and spleen. Abnormal bladder function due to insufficient lung, spleen, and kidney organs [9]. Throughout history, medical practitioners have often started with the treatment of this disease from the three organs of the lungs, spleen, and kidneys. Based on these three organs, this article believes that the abnormal bladder function is due to the unfavorable gasification of the Tri-jiao, which is also related to the heart and brain. Therefore, this article will take Xuantong and Kaiqiao as the starting points to explain the treatment of this disease. The specific discussion is as follows:

2. Promote the Qi Throughout the Body and Promote the Tri-jiao Gasification

"Su Wen · Xuanming Five Qi Chapter": "Excessive bladder restraint leads to urinary obstruction, while insufficient restraint leads to enuresis." It is pointed out that bladder restraint disorder is the direct cause of enuresis. "Bladder is an official in a state capital, where bodily fluids are stored, and gasification can be released." is said in the "Su Wen · Ling Lan Mi Dian Lun", pointed out that the bladder has the role of storing urine and excreting urine, and the play of this role depends on the gasification of the Tri-jiao, which needs to rely on the close cooperation of the lung, spleen, kidney. The lungs are responsible for "Xuanfa" and "Sujiang", and the "Sujiang" function of the lungs can help to expel cloudy fluids, excrete urine. The lung regulates the water channel, regulates the distribution and excretion of water in the whole body, and transports the turbidized fluid from the viscera metabolism to the kidney and bladder. The normal function of the lungs in promoting water circulation relies on the promotion and downregulation of lung qi, that is, the lungs use their qi to complete the function of "Xuanfa" and "Sujiang" and distribute water. If the function of the lungs regulating qi is impaired, the excretion of urine is impaired. One of the four ways of the spleen is to transfer part of the water from the small intestine and large intestine to the bladder through the Tri-jiao, which becomes the source of urine production; If the spleen function is impaired, it is not possible to infuse water into the bladder through the Tri-jiao. According to the "Suwen · Ni Diao Lun", "The kidney is the water organ that governs body fluids.", pointing out that the kidneys are responsible for body fluid metabolism, and the transpiration and gasification of essence and qi in the kidneys are the masters of the metabolic process. One of the functions of the kidney in regulating water is to regulate body fluid metabolism, and the other is to regulate the opening and closing of the bladder, regulating urine production and excretion. The degree of bladder opening and closing must depend on the transpiration and gasification of kidney qi. If the transpiration and gasification process are abnormal, it can cause metabolic disorders in urine, leading to abnormal gasification and resulting in excessive urine volume and clear color; If the kidney qi is insufficient, it will lead to weak

retention and cause polyuria and enuresis. The kidney dominates urination and defecation, however, the liver and kidney are homologous, so the energy required for urination is inevitably related to the liver. And the liver is responsible for regulating the flow of qi throughout the body, maintaining the orderly functioning of organs, meridians, and other functions throughout the body. The metabolism of body fluids is achieved through the combined action of the stomach's absorption and maturation, the spleen's transportation and transportation, the lungs' dispersing and descending, and the kidneys' transpiration and gasification. It is transported throughout the body through the Tri-jiao channels. The Tri-jiao is a channel for the distribution and movement of body fluids and water throughout the body, promoting gasification through the pushing effect of Qi. The kidneys are the root of Qi, the spleen and stomach are the source of Qi, and the lungs are the main body of Qi. The driving force of qi relies on the Yuanyang qi of the aforementioned organs. Therefore, the distribution and excretion of body fluids are completed through the joint coordination of organs such as the lungs, spleen, and kidneys. Qi can promote the flow of fluids, while Qi promotes the flow of water. If the function of Qi in the lungs, spleen, kidneys, and liver is disrupted, it can cause obstacles in the distribution and excretion of water and liquid, leading to poor operation of the Tri-jiao channels and abnormal gasification.

3. Open the Heart and Brain to Open the orifices and Arouse the Brain

3.1 The Spirit of the Heart is Nurtured, Naturally Opening the Orifices and Arousing the Brain

"Key to Therapeutics of Children's Diseases": "The viscera, Complete but Not Full... Complete but Not Strong." points out the physiological characteristics of incomplete heart qi in children," The heart is the Lord of the viscera, commanding the physiological activities of the whole body, such as life activities, consciousness, thinking, sleep, etc. In the previous text, we mentioned the "Sujiang" function of the lungs to transport water and excrete urine, while the "Xuanfa" function of the lungs can transport the spleen qi to the clearer part of the lung's water and grain essence, and distribute it upwards to the head and face. If the "Xuanfa" function of the lungs is disrupted, phlegm and drink are prone to occur, which can deceive the mind; Lung auxiliary heart blood, if lung qi is insufficient, auxiliary heart blood function decline, can cause blood insufficiency or blood blood stasis, heart qi can not be full, it affects the mind, if the mind lost its master can not control the normal physiological activities of the human body, can not restrict the bladder, so enuresis. The spleen and stomach are the acquired foundation and the origin of qi. The spleen qi lifts the clear qi up to the head and can transport the refined substances formed by water and grains to the heart and lungs. If the qi of the spleen cannot transport the clear qi upwards to the head and face, the clear qi moves downwards and the turbid qi invades upwards, it will cause dizziness, palpitations, and shortness of breath, affecting the function of the heart; And the spleen rules the blood, the blood of the viscera depends on the qi of the spleen, so the function of the heart depends on the spleen is no exception. The spleen can transport and transform water and liquid, and it is the source of phlegm. If the spleen is insufficient, spleen deficiency

generates phlegm, and phlegm dampness is abundant inside, coupled with the inability to clear, phlegm dampness can mask the mind and affect the opening and closing of the bladder. Kidney qi rise, heart qi down. Heart fire can support kidney Yang, restrict kidney Yin, kidney water can support heart Yin, restrict heart Yang, that is, "heart and kidney intersect". And the spirit of both, kidney master essence, essence can be the whole God, and heart master God, God can benefit essence. Kidney and bladder interact on the surface and inside each other, kidney master bladder opening and closing, and kidney and heart mutual use, either of the two appear abnormal function, the two can not coordinate, bladder urination will be affected, enuresis can occur.

3.2 Open the Governor Vessel to Open the Orifices and Arouse the Brain

The Governor vessel belongs to the Eight Extraordinary Meridians, originating from the uterus and ascending along the spine. It enters the skull at the Fengfu acupoint behind the neck, and governs the entire body of the Yang meridian, known as the "Sea of Yang Meridians". The organs connected with it are mainly related to kidney, bladder and brain [10]. The brain is the sea of marrow and the house of intelligence. Firstly, it governs our life activities. Secondly, factors such as thinking, consciousness, memory, and sensation are closely related to the brain. The filling of the brain marrow is not only closely related to the kidney essence, but also to the essence of the viscera such as the lungs, spleen, and liver. When the essence is filled in the brain and the brain function is normal, the regulatory function of the viscera is normal, and the opening and closing of the bladder is moderate and the restraint function is normal. The Governor vessel and the Bladder Meridian of Foot-taiyang run parallel and pass through the Baihui and Naohu acupoint, connecting the brain. If the Governor vessel is obstructed, the essence cannot flow up to the brain, and the lower part is not sufficient to reach the upper part. If the brain function is abnormal, the upper part cannot reach the lower part, and the bladder is not contracted, it can cause enuresis. Therefore, the method of opening the Governor vessel and opening the orifices and arousing the brain is of great use.

4. Examples of Cases

Ma Mou, female, 9 years old, involuntary urination at night for more than 1 year, the first diagnosis on 2024.03.17, the child's grandfather expressed it on behalf of her: children with night enuresis, not easy to wake up, 4-5 times a week, nap without enuresis, god fatigue, urine clear and long, loose stool thin, pale tongue, white fur, tongue tip red, deep pulse. Fang Xuan Sang Piao Xiao San combined with Ma Huang Tang with modifications. Prescription: ephedra 5g, bitter almond 6g, mantis egg-case 6g, fructus psoraleae 6g, fructus alpiniae oxyphyllae 10g, acorus tatarinowii 10g, schisandra sphenanthera 6g, myrobalan 6g, polygala 6g, lophatherum gracile 6g, glycyrrhiza 5g, 7 dose, one dose per day, decocted 150ml warm in the morning and evening, Parents are also told to encourage children to exhaust urine after 1-10 seconds of interruption in the urination process, train the bladder sphincter function, wake children up at midnight to urinate, and encourage children to urinate autonomously after waking up. After taking the medication for one week, the child's

frequency of enuresis decreased, and the stool characteristics improved compared to before. Pale tongue, greasy fur. Glycyrrhiza was removed and Eupatorium 6g were added. 7 dose. Third visit, the parents reported that the child did not experience enuresis again, poor appetite, excessive sweating, and sometimes the stool was loose. Removed ephedra 5g and bitter almond 6g, added membranes of chicken gizzards 6g, semen coicis 10g, and fructus tritici levis 10g. 14dose. The appetite improved, and the stool was normal. No further enuresis has occurred, and there has been no recurrence since follow-up.

5. Discussion

The Xuantong Kaiqiao method, with the two characters Xuantong, not only needs to promote the functions of the lungs, spleen, kidneys and other organs, but also to make the Tri-jiao qi normal and the water channels unobstructed; It is also necessary to open the two orifices of the heart and brain, so that the heart and brain are agile, the bladder is restrained normally, and urination is autonomous. The patient with nocturnal enuresis in the previous example is not easily awakened, with fatigue and weakness in the mind, clear and long urine, and loose and thin stools. The diagnosis belongs to spleen and kidney deficiency. The treatment is to warm and tonify the spleen and kidney, awaken the mind and open the orifices, and use the formula to tonify the kidney, invigorate the spleen, astringent essence, and open the orifices together, playing a role in stopping enuresis. Mantis egg-case reinforces the kidney and supporting yang, solidifies essence and reduces urination; Fructus psoraleae and fructus alpiniae oxyphyllae warm kidney, invigorate spleen and stop diarrhea; Schisandra sphenanthera and myrobalan have astringent properties, and can solidify and stop diarrhea; Acorus tatarinowii belongs to the Heart and Stomach Meridian, polygala belongs to the Heart, Kidney, and Lung Meridian, both of which awaken the mind, open the mind, and enhance intelligence; The combination of ephedra and bitter almond promotes the circulation of qi between the upper and lower levels, and ephedra also has an opening effect on the body, Modern pharmacology believes that ephedra can stimulate nerves, stimulate the brain, and make the brain perceive urine intention. It can also increase the tension of the bladder sphincter and deltoid muscles [11] believe that ephedra and acorus tatarinowii are a medicinal pair, and ephedra promotes yang and qi transformation, assisting in the gasification of the Tri-jiao; Acorus tatarinowii wakes up the mind and opens the orifices. The combination of two medicines, combined with warming and tonifying kidney yang, can enhance the power of qi transformation. This formula can be said to restore the spleen and kidney, promote ventilation, and awaken the mind. During the third diagnosis, the patient inquired about their medical history and showed symptoms of excessive sweating. Therefore, the medication for sweating and relieving the exterior was removed, and fructus tritici levis was added to strengthen the exterior, nourish qi, and stop sweating. Chicken internal gold can be used for digestion and stomach strengthening, as well as for the treatment of nocturnal enuresis. It was told that the use of modified drugs in clinical practice should be flexible and varied. When treating enuresis, the pathogenesis should be identified, and opening the orifices should be the normal method. Based on specific syndrome differentiation, flexible methods such as promoting lungs and

tonifying the lungs, tonifying the kidneys and astringent essence and strengthening the spleen and removing dampness should be used to treat enuresis.

References

- [1] Sun Xiangjuan, Xiao Xiang, Wu Xuanyu, et al. Evaluation of the Guidelines and Consensuses on Enuresis in Children Using the AGREE II and RIGHT Checklists [J]. Chinese General Practice, 2023, 26 (02): 134-141.
- [2] Gomez Rincon M, Leslie SW, Lotfollahzadeh S. Nocturnal Enuresis. 2023 Jun 26. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan-. PMID: 31424765.
- [3] Karamaria S, Rangelov N, Hansen P, De Boe V, Verleyen P, Segers N, Walle JV, Dossche L, Bael A. Impact of New vs. Old International Children's Continenence Society Standardization on the Classification of Treatment Naïve Enuresis Children at Screening: The Value of Voiding Diaries and Questionnaires. Front Pediatr. 2022 Mar 28;10:862248. doi: 10.3389/fped.2022.862248. PMID: 35419322; PMCID: PMC8995850.
- [4] Miao Qianfan, Li Yanjun, Xu Hong, et al. Prevalence of nocturnal enuresis in children and adolescents aged 5 to 18 years in China [J]. Chinese Journal of Evidence Based Pediatrics, 2020, 15 (02): 81-86.
- [5] Wang Zhongyi, Du Ke, Li Chen, et al. Guideline for TCM pediatrics clinical diagnosis and treatment •infantile enuresis (amendment) [J]. Journal of Pediatrics of Traditional Chinese Medicine, 2018, 14 (01): 4-8.
- [6] Tsuji S, Kaneko K. Management of treatment-resistant nocturnal enuresis. Pediatr Int. 2023 Jan-Dec; 65(1):e15573. doi: 10.1111/ped.15573. PMID: 37428825.
- [7] Wang Yate, Hao Ruifang. Clinical research progress of treating infantile enuresis with traditional Chinese medicine [J]. Xinjiang Journal of Traditional Chinese Medicine, 2023, 41 (04): 95-98.
- [8] Han Qiuyue, Li Xujie, Cui Wencheng. On the Origin and Development of Enuresis [J]. Guiding Journal of Traditional Chinese Medicine and Pharmacy, 2023, 29 (09): 224-228.
- [9] Bai Wenjun, Wang Jiazhen, He Shaotian. Treatment of enuresis from lung, spleen and kidney [J]. Chinese Journal of Rural Medicine and Pharmacy, 2023, 30 (09): 36-37.
- [10] Ruan Xiaolin, Lei Genping, Yang Guang, et al. Clinical observation on 28 cases of children with enuresis treated by opening orifice and smoothing governor vessel method combined with behavior therapy [J]. Journal of Pediatrics of Traditional Chinese Medicine, 2021, 17 (02): 62-65.
- [11] Yu Guangqing, Leng Wei. Application of Herba Ephedrae in Infantile Enuresis [J]. Modern Chinese Medicine, 2018, 38 (05): 109-111.
- [12] Niu Mingyue, Xie Wangchu, Wang Xiaokai, et al. Discussion on the treatment of infantile enuresis with ephedra based on "invigorating yang and transforming qi" [J]. Global Traditional Chinese Medicine, 2020, 13 (04): 688-691.