

From the Simultaneous Treatment of Lung and Intestines Theory to Treat Constipation

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Abstract: Constipation is a common clinical disease, its pathogenesis is complex, and long-term constipation will cause great harm to the human body and mind. Although Western medicine is effective in treating constipation, the long-term effect is not good, and it cannot solve the long-term symptoms of patients from the source; Chinese medicine treatment pays attention to the overall concept, pays attention to the fundamentals of treatment, in order to seek long-term curative effect. Simultaneous treatment of lungs and intestines is a unique treatment method of traditional Chinese medicine, which embodies the same treatment of viscera and upper and lower, so as to achieve the purpose of treating diseases. This article mainly discusses the theoretical basis of the simultaneous treatment of lungs and intestines from three aspects: the historical origin of traditional Chinese medicine, the theoretical basis of traditional Chinese medicine, and the theoretical basis of Western medicine, as well as the embodiment of simultaneous treatment of lung and intestine in traditional Chinese medicine, prescriptions, acupuncture, enema, etc., to discuss the treatment of constipation, so as to provide more ideas for the treatment of constipation in the future.

Keywords: Constipation, Simultaneous treatment of lung and intestines, From the lung to treat the intestines, Theoretical basis, Traditional Chinese Medicine

1. Introduction

Constipation is defined as difficulty or effort in defecation, poor bowel movements, reduced frequency of bowel movements and low volume of dry stools ^[1]. The incidence of constipation increases with age and is one of the most common clinical disorders. As people's standard of living improves and their diets become more varied, the number of people suffering from constipation increases. The treatment of constipation in Western medicine is mostly effective in the short term, but not in the long term. The treatment of constipation with "lung and intestine treatment" embodies the theoretical idea of the overall dialectical treatment of internal organs, yin and yang, and surface and interior, and provides a new direction and idea for the treatment of constipation.

2. Theoretical basis in Chinese medicine

2.1. Historical Origins

The theory that the lung and large intestine are in harmony with each other was first recorded in the Yellow Emperor's Classic of Internal Medicine: "The lung is in harmony with the large intestine, and the large intestine is the internal organ of conduction ^[2]". The reason why the large intestine conducts is because it is the internal organs of the lung, and the lung qi reaches down, so it can conduct ^[3]", said Tang Rongchuan in "The Essence of the Medical Classic - Officials of the Internal Organs". The Blood Evidence Theory says: "The lung and the large intestine are on the same side, and if the lung remains hot in the large intestine, the stool will be knotted, if the lung fluid is not moistened, the stool will be knotted, and if the lung qi does not descend, the stool will be knotted". In The Essence of the Medical Scriptures, it is said: "To regulate the bowels one must also regulate the lung qi".

2.2. Anatomy

The lungs are located in the middle of the chest, one on each side, and are connected to the throat and

open to the nose. The lungs are the highest of the five viscera and six internal organs, so they are called Huagai in the Hua's Zhongzangjing, and in the Medical Guan - Twelve Officials of the Inner Classic, it is said that "under the throat are the lungs, and the two leaves, one hundred ying, are called Huagai, to cover the organs ^[4]". The large intestine is located in the abdomen, which in modern medicine mainly includes the colon and rectum, the upper end of which is connected to the small intestine and the lower end is the anus ^[5]. The lungs belong to the organs and the large intestine belongs to the internal organs. The lungs and the large intestine are anatomically related to each other in Chinese medicine. The lungs open to the nose, and the large intestine opens to the prana gate. The lungs collect the prana and are responsible for qi, so the nose and prana gate are the anatomical basis for the relationship between the lungs and large intestine ^[6].

2.3. Meridians

In the Ling Shu - Ben Luo, it is said that "the lung is integrated with the large intestine, and the large intestine is the house of conduction". In the Spiritual Pivot, the lung is described as "the lung hand-taiyin pulse, which originates in the middle jiao, goes down to the large intestine, and follows the stomach from the back of the wrist straight out to the end of the second finger. The Spiritual Pivot on the large intestine states: "The pulse of the large intestine hand Yangming, which begins at the end of the second finger of the large finger, follows the upper Lian of the finger its branches the right of the left, the left of the right, and up the nostrils ^[5]". Thus, it can be seen that the lung and the large intestine are interconnected through meridians.

2.4. Physiological functions

2.4.1. The lungs are responsible for propagation and smoothing

The lung is the main propagator, meaning that the Lung Qi moves upwards and outwards to spread, while Lung is the main descender, meaning that the Lung Qi moves downwards and inwards to collect and descend. The large intestine is mainly descending. The large intestine transmits and transforms dregs, which requires the lung qi to descend and purify to promote. After food enters the body, it relies on the lung's cathartic function to reach the whole body. Only when lung function is normal, the large intestine can transfer the dregs normally and the bowels can pass stools smoothly ^[6].

2.4.2. The lungs are the mainstay of qi and respiration

The lung is the master of Qi, which means that it is the master of the breath and the master of the body's Qi. Firstly, the lungs are responsible for breathing Qi, which means that the lungs inhale clear Qi from nature and expel turbid Qi from the body. Secondly, the lung is the master of the Qi of the whole body, which refers to the lung's role in regulating the Qi of the internal organs of the body. Only when the respiratory Qi of the lungs is clear can be the Qi of the internal organs of the body be clear, and thus the Qi of the large intestine can be clear and the bowels can be clear.

2.4.3. Access to watercourses

The function of the lungs in regulating the water channels refers to the function of the lungs in promoting and regulating the metabolism of fluids in the body ^[7,8]. If the lungs are normal in regulating the water channels, the fluid in the body will be transported and distributed normally, and the fluid will be moistened in the large intestine, which will lead to smooth and unhindered bowel movements.

2.4.4. Helping the heart to move blood

The lungs help the heart to move blood means that the lungs have the ability to assist the heart to drive blood through the veins and help the heart to regulate the heart rate and rhythm. Blood and Qi are the material conditions that make up the body, the driving force behind the body's vital activities, and the material that the five viscera and six internal organs use for their activities. When the blood is sufficient, the blood vessels flow smoothly, and the Ying and Wei are in harmony, the body will be "Yin and Yang"^[9], and constipation will not occur.

2.5. Pathology

Pathologically, lung and large intestine interact with each other, with intestinal disease affecting the lung and lung disease affecting the intestine. If the large intestine is hot and the internal Qi does not flow, the lung will lose its suction and lowering power, resulting in chest fullness, cough and asthma.

Conversely, if the lung is not purified and the fluid cannot reach the lung, then there will be difficulties in defecation. When there is heat in the lungs, the heat from the lungs moves down to the large intestine, and the heat depletes the fluids, resulting in dry stools. The large intestine is the main organ of fluid. If the lung is deficient in yin and dry heat, heat burns fluid and fluid are deficient and cannot moisten the intestines, constipation may also result.

2.6. Prevention and treatment

Because of the close relationship between the lungs and the large intestine, lung diseases can affect the intestines, and intestinal diseases can also affect the lungs. Therefore, when treating the lung, you should also treat the intestines, and when treating the intestines, you should also treat the lung^[10]. Even if the lung disease does not affect the intestines, it is important to treat the intestines before the disease in order to open up the internal organs and thus give the evil a way out. Even if the intestinal disease does not affect the lungs, the lungs should be treated to help the intestinal disease recover^[11]. Therefore, the treatment of constipation should not only be based on the treatment of the intestines alone, but also on the treatment of the lungs, even if the symptoms of lung disease have not yet appeared.

3. Theoretical basis in Western medicine

3.1. Histological embryology

Histological and embryological studies have shown the homology between the lungs and the large intestine. The lungs and trachea develop from the foregut of the intestine, and the respiratory epithelium and glands are differentiated from the protointestinal endoderm^[12]. By observing the epithelial morphology of the lung and intestine at different stages of human embryonic development, Liu Sheng et al.^[13] concluded that the epithelial morphology of the lung and intestine is consistent in the early embryonic stage, providing some basis for lung-gut homology. Therefore, the functional correlation between the lung and the large intestine may be related to the homology of the primitive embryonic structures of the lung and the large intestine.

3.2. Biology

Water channel proteins (AQPs) are specific channels that transport water in the cell membranes of various tissues and play an important role in the regulation of water and fluid^[14]. Abnormal expression of AQPs can lead to excessive absorption of water in the intestine or reduced fluid secretion, and constipation can occur when the intestine is dry and the fluid is deficient^[15]. By constructing a rat model of constipation with deficient intestinal fluids and observing the defecation of the rats, Cheng Jing et al.^[16] found that the lung pathology of the rat model of constipation was altered, suggesting that there is a correlation between the physiology and pathology of the lung and the large intestine, and that AQP1 may be one of the biological bases of the relationship between the lung and the large intestine, and that it plays an important role in the metabolism of fluids in the lung and large intestine. Therefore, AQPs are the material basis of "intestinal disease and lung", which also provides a biological basis for the treatment of constipation from "lung and intestine together".

3.3. Immunology

3.3.1. Pulmonary and intestinal microecology

Studies have shown that there is a close relationship between the lung microbiota and the gut microbiota from infancy onwards^[17]. There is a dynamic interaction between the gut and the respiratory tract, with the gut flora playing an important role in both^[18]. The intestinal flora is the largest and most complex micro-ecological system in the human body^[19]. The balance of the micro-ecology is an important foundation for human health, and the health of the body is closely related to the balance of the micro-ecology, which can lead to a series of diseases, including constipation, if the balance is disrupted. By establishing a rat model, Shi Chen et al.^[20] found that the lung and intestine can interact with each other directly through the microflora, that lung and intestinal microorganisms can interact by altering the immune system of the body, that soluble components or metabolites of the intestinal flora can affect the lung through immune regulation, and that the balance of intestinal and lung microecology is regulated by each other. Therefore, there is a link between the microorganisms of the lung and intestine, and intestinal diseases can be treated from the lung.

3.3.2. Lung-intestinal axis

The pulmonary-intestinal axis is the direct or indirect link between the gut and the lungs in terms of physiopathology^[21]. There is growing evidence that the lung-gut axis is a central element linking microbial dysbiosis to many human diseases. The lung-gut axis can influence each other in three ways: the lung and gut can influence each other directly through the microflora, the lung-gut microbes can influence each other by altering the body's immune system, and the gut flora can influence the lung through immune regulation. There is a strong link between the lung and the intestine; lung disease can affect the intestine, intestinal disease can affect the lung, and lung disease can be treated from the intestine as well as intestinal disease from the lung. Therefore, the lung-gut axis provides a theoretical basis for treating intestinal diseases from the lung and constipation from the lung.

3.4. Neurotransmitterology

Vasoactive peptide (VIP) is an intestinal peptide hormone that has important roles in the gastrointestinal, respiratory, cardiovascular, immune, endocrine, central and peripheral nervous systems^[22]. Studies have shown that small intestinal epithelial cell function is regulated by VIP in neurons^[23]. Zhou Yongxue et al.^[24] observed the effect of VIP on intestinal aqueous metabolism in constipated rats and found that intravenous injection of VIP could regulate intestinal aqueous metabolism to alleviate the symptoms of constipation. Zheng Xurui et al.^[25] observed the changes of VIP content in the lung and intestinal tissues of rats by replicating the rat lung disease model. This indicates that VIP may be the material basis for the interconnection between lung and intestine.

4. Chinese medicine treatment

4.1. Representative herbal medicines

The discovery and application of Chinese medicine has a long history in China. Many single herbs have outstanding efficacy in treating diseases, and some herbs can treat not only diseases of this meridian but also diseases of other meridians. Based on the theory that the lung and the large intestine are coterminous, diseases of the large intestine can be treated from the lung. Li Jiacheng et al.^[26] used a descriptive epidemiological method to statistically analyse the meridians used by patients with constipation and found that the top five meridians were the spleen, stomach, lung, large intestine and heart. Lu Jianzhen et al.^[27] found that drugs to promote the lung could regulate SP and NO with the lung-gut axis to improve constipation symptoms.

Representative medicines for treating the lung and intestines together include bitter almonds, mandarin stalks, half summer, Chen Pi, perilla seed and licorice^[28]. Bitter almonds are bitter and descending, good at lowering and draining the rebellious lung qi, and are important in treating cough and asthma. Xu Liyu et al.^[29] found that bitter almond could improve constipation symptoms in rats by up-regulating the expression levels of SCF, c-kit, Cx43 mRNA and protein through the establishment of an elderly slow-transmission constipation model. Perilla seed is representative medicine of the lung meridian, and because it is rich in oil, it can also laxative^[30]. It can also be used to treat constipation and is often combined with other lung laxatives such as Semen and Loquat leaves.

4.2. Representative prescriptions

Some laxatives are combined with drugs that promote the lung, such as almonds in the laxative Ma Zi Ren Wan, which purify the lung qi and moisten the intestines, and Mandarin Stem in Huang Long Tang, which is a combination of attacking and tonifying, to open and promote the lung qi and open the intestines. Many prescriptions for promoting the lung can also be used to treat constipation, such as Radix Platycodon, Radix Xuan Bai Cheng Qi Tang, Radix Di Bai San, Radix Su Zi Descending Qi Tang and some home-made prescriptions for promoting the lung to ease constipation. For example, Ye Tianshi used Radix Platycodon Grandiflorus Tang and Su Zi Descending Qi Tang to treat intestinal paralysis and constipation. Diabai San is mainly used for the treatment of lung heat and asthma, and can also be used to treat lung heat and constipation in children. Wang Haijun et al.^[31] observed the clinical efficacy of Diabaisan Plus in the treatment of paediatric constipation and found that Diabaisan Plus was effective in the treatment of paediatric constipation with lung-heat. Xuan Bai Cheng Qi Tang is one of the representative formulas of "the lung and the large intestine are on the same level"^[32]. This formula can treat constipation by treating the lung and intestine together, clearing the upper and lower parts of the

body^[33].

4.3. Acupuncture

A growing body of research has shown that acupuncture is a very effective way to treat constipation, as it regulates gastrointestinal function to promote bowel movements^[34]. Acupuncture is safe, effective, easy to use and cost-effective^[35]. However, as the lung and the large intestine are in close proximity to each other, acupuncture points of the lung meridian are often used in combination with acupuncture points of the large intestine to treat constipation. Zhang Yan^[36] used acupuncture in asthmatic rats and found that the epigastric meridian acupuncture points had a significant modulating effect on the disorders associated with the lung and large intestine. Wang Baokai et al.^[37] also found that acupuncture points from the lung and acupuncture points from the intestine could treat lung diseases and that the same treatment for the lung and intestine was more effective.

4.4. Chinese medicine enemas

Chinese medicine enema therapy is also one of the common treatment methods for constipation, which is easy to operate and has outstanding efficacy^[38]. The main site of action of enema therapy is the large intestine, which is based on the theory that "the lung and the large intestine are in close proximity to each other". The medicine is absorbed from the large intestine into the body and then transmitted upwards to the lung through the meridians. Lv Jiangxia^[39] uses Xuan Bai Cheng Qi Tang with Da Cheng Qi Tang plus flavor to retain the enema to treat pulmonary heart disease. Therefore, treatment of constipation by enema in Chinese medicine is also a form of the same treatment for the lung and intestines.

4.5. Treatment from the lung

4.5.1. Lung Qi deficiency - deficiency and constipation

Lung Qi deficiency, the inability to push the intestines, resulting in the intestines can not be normal peristalsis, that is, constipation^[40], also accompanied by fatigue, less breath and lazy speech, whispering, asthma and cough, pale face, pale tongue with white fur, weak pulse and other manifestations.

4.5.2. Pulmonary fever - heat constipation

The treatment should be to clear the heat from the lungs and to moisten the bowels, and the bowels will be blocked, resulting in constipation, accompanied by abdominal hardness and pain, refusal to press, thirst, short, red urine, and a sunken, strong pulse^[41].

4.5.3. Lung dryness - dryness and secretion

Dryness injures the lungs, depletes lung fluid, deficient in yin, and is unable to moisten the intestines, resulting in constipation^[42].

4.5.4. Stagnation of lung Qi - Qi constipation

Lung Qi is stagnant, the Qi mechanism is not regulated, the lung is not purified, the Qi cannot be conducted downwards, then the internal Qi is not accessible, thus leading to constipation^[43].

5. Outlook and summary

Constipation is a common clinical condition with a complex and diverse pathogenesis, and long-term constipation can be very harmful to the human body^[44]. Western medicine treats constipation with laxatives and motivational drugs, which can temporarily relieve symptoms but have poor long-term effects. Chinese medicine focuses on a holistic dialectical concept, rather than simply treating the disease from a particular internal organ. Although constipation is mainly located in the large intestine, as the lung and large intestine are coterminous, constipation can be treated from the lung and intestine. Some studies have shown that the treatment of constipation based on the theory that the lung and large intestine are on the same level as each other is more effective than the treatment of internal organs and the treatment of dirty organs^[45]. Therefore, our treatment of constipation should not be confined to the large intestine, but should be based on the same treatment of lung and intestine, which also provide us with new ideas for the future treatment of constipation in Chinese medicine.

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