

Discussion on Prevention and Treatment of Lower Extremity Deep Venous Thrombosis in Orthopedic Perioperative Period from Spleen and Stomach Meridians

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Abstract: Deep venous thrombosis of lower extremity is one of the common complications in orthopedic perioperative period. It is caused by many factors, such as peripheral vein dilation, slow blood flow, long-term immobilization, bed rest and so on. On the one hand, it affects the early postoperative functional exercise and functional recovery, on the other hand, it increases the length of hospital stay and economic burden, increases the pain of patients and even endangers their lives. Effective treatment of traditional Chinese medicine combined with western medicine can play a better role in the prevention and treatment of lower extremity deep venous thrombosis. This study expounds the concept of spleen and stomach meridians in the prevention and treatment of lower extremity deep venous thrombosis, and puts forward some opinions on the dialectical treatment and daily conditioning of lower extremity deep venous thrombosis, hoping to provide ideas for the clinical prevention and treatment of lower extremity deep venous thrombosis in traditional Chinese medicine.

Key words: Lower extremity deep venous thrombosis; Stomach meridian; Spleen meridian

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1 Introduction

Deep venous thrombosis (DVT) is a common complication in orthopedic surgery. Hypercoagulable

state of blood, vascular wall loss and slow blood flow are the three elements of thrombosis. The clinical manifestations are local swelling, pain, erythema and skin pigmentation. In severe cases, it can cause pulmonary embolism^[1]. With the increasing attention of clinicians and the improvement of diagnostic techniques, the incidence rate of DVT is increasing, and the rate of missed diagnosis is becoming less and less. The treatment of deep venous thrombosis of lower extremity includes anticoagulation, thrombolysis, surgery, interventional radiology and Chinese medicine treatment. The treatment of Western medicine for more than 3 months and even anticoagulation therapy in the end, the adverse reactions and financial burden caused by long-term medication are greatly affecting patients. Quality of life. Therefore, the effective treatment of traditional Chinese medicine is particularly important. Since ancient times, traditional Chinese medicine, especially acupuncture and moxibustion, plays an important role in the prevention and treatment of DVT.

The incidence rate of DVT is mainly postoperative, long-term bed rest, long-term use of contraceptives and pregnancy. But only 20-30% patients have standard symptoms and signs. Over 50% of patients lack clinical symptoms and signs. 50%-60% patients may have pulmonary embolism^[2]. Therefore, clinicians should pay high attention to these diseases, which are high incidence, high missed diagnosis rate and high mortality. Accurate diagnosis and treatment, on the basis of venography and other diagnosis, can be combined with the physiological

and pathological characteristics of patients with syndrome differentiation. After clinical observation and analysis, the author found that the incidence of DVT is closely related to the two meridians of spleen and stomach from the perspective of traditional Chinese medicine, and the clinical effect of treating the disease from the two meridians of spleen and stomach is obvious. By expounding the theory of the relationship between spleen and stomach meridians and DVT, this paper proves the important role of spleen and stomach meridians in the prevention and treatment of DVT, and provides theoretical basis and practical guidance for clinical treatment of DVT based on spleen and stomach meridians.

2 TCM understanding of deep venous thrombosis of lower limbs

In traditional Chinese medicine, DVT belongs to the category of "swelling", "edema", "blood stasis flowing", "blood stasis syndrome" and "pulse Bi". According to the records of "Bi lies in the pulse, blood coagulation does not flow". According to Tang Rongchuan's "blood syndrome theory", the following is true "Blood stasis retention is also swelling, which is the syndrome of blood changing into water", which was clearly named as "Guzhong" according to the diagnostic and curative effect standard of traditional Chinese medicine disease issued by the State Administration of traditional Chinese medicine in 1994. It is precisely because ancient doctors have no exact records on the etiology and pathogenesis of DVT, so the understanding of modern Chinese medicine on the etiology and pathogenesis of DVT is also different. Most doctors believe that DVT is caused by the interaction of "blood stasis", "deficiency", "dampness" and "heat", in which "blood stasis" is an important factor throughout the disease^[4]. As for the etiology of DVT, some doctors put forward that the disease should be first asked about "Qi". Neijing says that "Qi is the commander of blood, and blood is the mother of Qi". Yilin Gaicuo also points out that "since the vitality is deficient, it must not reach the blood vessels. If the blood vessels have no Qi, they must stay and stasis". According to the theory of blood evidence, it is said that "smoothing the blood of human beings, smoothing the veins, filling the skin, and flowing without stagnation" is

the way of following the meridians and its regular way. They think that postoperative patients often due to body deficiency and lead to disharmony of Qi and blood, Qi deficiency is blood stasis, so blood stasis block, vein obstruction. In addition, if you can't move or move too little for a long time after operation, it is easy to hurt Qi. "Nine needles of Lingshu" thinks that "lying for a long time can hurt Qi". If you keep lying for a long time, it can hurt Qi, Qi deficiency and blood stasis, and blood stasis can block the vein of lower limbs, which can also lead to DVT^[5]. On the basis of deficiency of Qi and blood, some doctors put forward the important pathogenic factors of Ying Wei disharmony, such as Ying Wei imbalance, Ying Wei disharmony, Ying Wei disharmony, Ying Wei disharmony, Wei Wei disharmony, Xie Qi deficiency attack, so as to stay evil in the deficiency, blood stasis blocking the channels and become the disease^[6]. It is considered that the disease is often characterized by deficiency of vital energy and excess of pathogenic factors, or a mixture of deficiency and excess. Some doctors put forward the theory of "spleen" for treatment. They think that how long does the patient stay in bed or think about injuring the spleen, the spleen loses its healthy transport, and the water and dampness transport is abnormal, and the dampness pathogen is injected into the vein of blood stasis^[7]. It is pointed out in "Yizong Jinjian: key points of surgical mental method" that "excessive consumption of five spices will damage Qi and blood. If you hurt hunger and lose satiety, you will hurt the spleen and stomach. All these are the diseases caused by diet Improper diet and vegetarian pastry will damage the spleen and stomach, resulting in endogenous damp heat, flowing in the blood and causing the disease. Some scholars start from "Damp heat" and think that the obstruction of vein caused by damp heat accumulation and vein stasis is also one of the causes of the disease. In the early stage of the disease, the blood stasis is caused by excessive heat obstructing the blood vessels, because it is heat evil, the result is blood stasis; in the later stage of the disease development, although the heat evil is gradually disappearing, the syndrome of damp heat is still seen, and blood stasis becomes the main contradiction^[8]. In a word, most doctors think that dampness, heat, blood stasis and deficiency are the main pathological basis of the disease, dampness heat and blood stasis are the main pathogenic factors, and blood coagulation vein

is the main pathogenesis of the disease.

3 Theoretical basis of spleen and stomach meridians in the treatment of lower extremity deep venous thrombosis

"On the origin of various diseases" pointed out: "blood and water phase, body fluid choking astringent, spleen and stomach weakness, water flow, become edema." It can be seen that weakness of spleen and stomach and exogenous pathogenic Qi will damage Yang Qi, and weak Qi will lead to weak blood promotion and fixation, resulting in abnormal blood operation. Therefore, swelling and edema can be seen, and blood stasis and water stagnation will also affect qi movement, resulting in obstruction of Yang Qi and unfavorable gasification. They interact with each other. "Qi and blood" in Medical Biography points out that Yang Qi is the guide of Yin blood and Yin blood is the return of Yang Qi. Therefore, traditional Chinese medicine treatment of DVT should be based on the relationship between Qi, blood and water ^[9], and achieve the effect of "qi circulation leads to blood circulation and blood circulation leads to water circulation" through the methods of Tonifying Qi, activating blood and promoting dampness.

"Lingshu • meridians" records that "the Yellow Emperor said: meridians, therefore, can determine life and death, deal with all kinds of diseases, adjust the deficiency and excess, and can not be blocked." It shows that meridians play a very important role in the diagnosis and treatment of diseases. The stomach meridian of Foot Yangming is the meridian of multi Qi and multi blood, which has the functions of Tonifying Qi and blood, regulating spleen and stomach, clearing heat and removing dampness. The spleen meridian of foot Taiyin is the meridian of more blood and less Qi, which has the functions of transforming water and dampness, regulating qi and detumescence, tonifying deficiency, dispersing cold and clearing heat. They are closely related and inseparable ^[10]. The spleen and stomach meridians can prevent and treat DVT through the following ways

3.1 Invigorating qi and activating blood circulation to dredge collaterals

"Qi is the commander of blood". Qi can produce blood, but also can do it. On the one hand, the

material basis of blood is essence, and the promotion of essence to blood depends on the biochemical function of Qi; on the other hand, the promotion of Qi can make blood circulate in the pulse again and again. ^[11] "On blood syndrome" says: "the person who transports blood is Qi." Through the gasification and promotion of Qi, the nutrition in the diet is transformed into fine substances, and the generation and operation of blood are promoted. "Blood is the mother of Qi" clarifies that blood is the carrier of Qi. Without blood as the carrier, Qi can not run, and blood can also be angry. The stomach meridian and the spleen meridian are both the foundation of postnatal development. They are the main source of nutrients needed for postnatal development, and also the main material basis for generating Qi and blood. They all depend on the transportation function of the spleen and stomach. Therefore, the acupoints of the spleen and stomach meridian can supplement the deficiency of Qi and blood. When the acupoints of Qi and blood are selected, the purpose of Invigorating Qi and promoting blood circulation is achieved.

3.2 Clearing away heat and dampness to remove blood stasis

"Yilin Shengmo • Volume I • dampness" says: "the treatment of dampness ignores the spleen and stomach, not its treatment." The spleen likes dryness but abhors dampness. If the dampness is blocked for a long time and damages the spleen yang, the Qi will not turn into water, and the dampness pathogen will be more abundant. After fracture surgery, the patient will stay in bed for a long time, think about it, damage the spleen and stomach, and the spleen will lose its healthy circulation. If the movement and transformation are abnormal, the dampness pathogen will flow into the blood and develop the disease; or the healthy qi will be damaged, and the dampness and heat pathogen will take the opportunity to invade the blood and torment the blood to form congestion ^[13]. Stimulating stomach meridian can stimulate Yangming Meridian Qi, conduct directly to spleen and stomach, regulate spleen and stomach transportation, so as to achieve the effect of diuresis and dampness. Stimulating the spleen meridian can replenish deficiency and Yin to clear away heat. For excess heat, cathartic method can be used to stimulate the acupoints of the two meridians to expel the evil heat. Based on promoting blood circulation

and removing blood stasis, acupoints are selected according to the syndrome differentiation of the two meridians to regulate the spleen and stomach, help healthy qi, clear away heat and dampness. In other words, deficiency can replenish qi and Xing, but in fact, it can unblock Qi and Shu, so as to make blood stasis and collaterals smooth and smooth, and Qi and blood flow smoothly.

3.3 Yangming is the only treatment for impotence

It is pointed out in *Su Wen Wei Lun* that "deficiency leads to flaccidity of the pulse, pivot folding and pulling out, tibia longitudinal but not to any place." That is, in clinical practice, lower limb muscle atrophy and weakness, tibia weakness, inability to stand, knee and ankle joint flexion and other symptoms, due to lower limb blood deficiency; or because too much blood loss leads to vein deficiency, unable to nourish muscles and joints, DVT belongs to the category of pulse flaccidity^[14]. The word "Duqu" in "treating flaccidity by taking Yangming alone" emphasizes the unique role of stomach meridian in flaccidity, and using "Qu" does not need "bu", which indicates that the stomach meridian of Foot Yangming has the function of "regulating its deficiency and excess, and reversing its smoothness", including both deficiency and supplement, and eliminating evil. If the spleen and stomach are deficient and the Qi and blood are insufficient, it is necessary to strengthen the spleen, replenish qi and replenish the middle; if Yangming passes through excess and dampness and heat accumulate in the spleen, it is necessary to clear away heat, remove dampness and strengthen the spleen. If the stomach meridian is full, the Qi and blood are sufficient, so the meridians can be nurtured, the muscles and veins are soft, and the veins run smoothly. The effect of preventing and treating DVT can be achieved by nourishing the stomach meridian and filling the blood vessels^[15].

4 TCM diagnosis and treatment ideas

(1) Diagnosis: limb swelling, pain and superficial varicose veins are the three major symptoms of DVT. However, because many patients are asymptomatic or atypical in clinic, it is easy to miss diagnosis and misdiagnosis. Therefore, we should make a comprehensive judgment according to the DVT diagnosis and treatment guidelines. Whether the clinical manifestations are typical or

not, we need further laboratory examination and imaging examination to make a definite diagnosis. Ultrasound is the first choice for patients with obvious thrombogenic factors and typical symptoms and signs. When the patient had no obvious cause of thrombosis, atypical symptoms and signs, and Wells score was low-grade possibility, blood D-dimer test was performed. If the patient was negative, thrombosis was excluded. If the patient was positive, further ultrasound examination was performed. In addition, the patient's past medication history and history of DVT were also asked, because 10% of the patients relapsed within one year after the first onset^[16]. (2) Treatment principle: it is said in *Suwen Tiaojing Lun* that "all diseases have deficiency and excess". The differentiation of symptoms and signs of DVT should also be based on the principle of deficiency and excess, treating the symptoms in case of emergency and treating the root cause in case of delay. (3) Treatment by stages: in the early stage, it is mainly based on excess, and it is urgent to eliminate pathogenic factors, focusing on clearing away heat and dampness, promoting blood circulation and removing blood stasis; in the remission stage, it is mainly based on deficiency, and it is mainly based on tonifying qi and blood and nourishing venation. Acupoints: futu, Liangqiu, Xuehai, Zusanli, yinlingquan, Shangjuxu, Fenglong, xiajuxu, Sanyinjiao, JieXi^[17]. Prescription: Zusanli can regulate the spleen and stomach. It is mainly used for the treatment of spleen and stomach dysfunction, deficiency of biochemical source of Qi and blood, resulting in blood stasis caused by empty blood sea. Clinically, according to the specific situation, it can be reduced or supplemented to make the stomach smooth, so that the spleen and stomach can be transported normally, and the blood stasis can be cured if the Qi and blood are exuberant. And modern research shows that Zusanli can reduce fibrinogen and fibrinogen degradation products and prevent blood coagulation^[18]. Blood Sea treatment of blood syndrome in the "acupuncture A and B classics" records: "if the blood is blocked, inverse Qi inflation, blood sea master." Modern studies have proved that acupuncture at Xuehai can significantly improve the hemorheology, coagulation and other indicators of patients with blood stasis syndrome, indicating that Xuehai can promote blood circulation, improve microcirculation, regulate metabolism and improve

the body function^[19]. Yin Ling spring is selected to clear away dampness and heat, dredge channels and activate collaterals, and Sanyinjiao is used to ventilate and guide stagnation, so as to eliminate rheumatism in channels and collaterals. JieXi is the meridian fire point of the Foot Yangming Meridian, and it is also the mother point of the stomach meridian. According to the method of Tonifying the mother point when deficiency occurs, JieXi has the function of Tonifying the stomach deficiency, and can also be used to clear and reduce stomach fire and dredge Yangming Meridian Qi^[20]. Futu acupoint can remove dampness and arthralgia, relieve pain and activate blood circulation. Liangqiu acupoint has the effect of activating yang and arthralgia, activating blood circulation and activating collaterals, which can promote lower limb blood circulation and reduce edema. Fenglong, Shangjuxu and xiajuxu have the effects of regulating qi and relieving pain, resolving phlegm and removing dampness, relaxing muscles and activating collaterals. (4) Daily care: for the prevention of DVT, it should be required to raise the affected limb, forbid the separate pillow under the popliteal fossa and lower leg; quit smoking and drinking; do more deep breathing and coughing; encourage the patient to take the initiative to get out of bed as soon as possible; keep the stool unobstructed, eat more cellulose rich food; pay attention to the patient's chief complaint, if the patient has a feeling of heavy and swelling pain after standing, it should be warned of deep venous blood The possibility of thrombus formation. For patients with DVT, we require them to rest in bed for 10 ~ 14 days, raise the affected limb for 20 ~ 30 degrees, brake, prohibit massage, hot compress, physical therapy and do strenuous exercise, avoid forced defecation, so as to avoid embolus falling off and pulmonary embolism. The swelling degree of lower limbs, skin temperature, color and pulse of dorsalis pedis artery were observed daily, and the circumference of different planes of affected limbs were measured and recorded daily to judge the curative effect^[21].

5 Typical cases

In the treatment of DVT, we should take dredging collaterals as the basic principle, focus on "blood stasis", and take invigorating qi and activating blood circulation as the main method^[22]. However,

we should carefully figure out the etiology and pathogenesis, carry out detailed syndrome differentiation and treatment for the patients, and achieve the effect of dredging collaterals in combination with Supplementing Qi, invigorating blood, strengthening spleen to strengthen the body, or clearing away heat and dampness to remove pathogenic factors. DVT usually occurs first in the deep gastrocnemius vein, and extends upward to the femoral vein and iliac vein. The route of foot Taiyin spleen meridian in the lower limbs is roughly the same as that of DVT prone vein, and the route of Foot Yangming stomach meridian is also close to DVT prone vein. Clinically, on the one hand, acupoints can be selected dialectically, on the other hand, acupoints play a role in the near treatment. Therefore, for the prevention and treatment of DVT, the selection of spleen and stomach meridians can achieve better curative effect.

A 86 year old male patient complained of "falling to the left hip swelling and pain for one day". He went to the outpatient department of our hospital on September 3, 2019. After the outpatient doctor inquired about the medical history, physical examination and film reading, he was admitted to the hospital with the diagnosis of "left intertrochanteric fracture". After actively improving the preoperative examination and eliminating the surgical contraindications, he underwent "PFNA for closed reduction of left intertrochanteric fracture" on September 6, 2019 After the operation, the patients continued to receive rehabilitation treatment in our hospital. Symptoms: moderate shape, left hip sterile dressing in good condition, mild swelling of the left lower limb, slightly dark skin color of the left lower limb, slightly high skin temperature, tenderness (+), limited activity, abdominal distension, abdominal pain, acceptable, general sleep, normal urination, unexplained stool. The tongue is dull, the fur is white and greasy, and the veins under the tongue are tortuous and smooth. Laboratory examination: blood cell analysis: lymphocyte ratio 6.40%, neutrophil ratio 83.20%, lymphocyte number $0.51 \times 10^9 / L$, monocyte number $0.73 \times 10^9 / L$, red blood cell $2.69 \times 10^{12} / L$, neutrophil number $6.65 \times 10^9 / 50$. The results showed that the erythrocyte sedimentation rate (ESR) was more than 4.9 UG / L, and the fibrinogen degradation rate was more than 4.9 UG / L. Auxiliary examination: ultrasound (left lower

extremity artery and vein) showed that the internal diameter of the intramuscular vein of the small leg of the left lower extremity widened, tortuous widened, the wider part was about 7.6 mm, and flocculent echo could be seen in the lumen. CDFI: a small amount of blood flow signal can be seen. Diagnosis: femoral swelling (blood stasis and dampness syndrome). Acupoints: Fu Tu, Liang Qiu, Xue Hai, Zusanli, yinlingquan, Shangjuxu, Fenglong, xiajuxu, Sanyinjiao, Ashi, etc. Treatment: after needling Deqi, the needle handle was applied with 2 cm moxa stick for warm acupuncture, once 30 minutes, once a day. 10 days is a course of treatment. Low molecular weight heparin calcium injection, twice a day, and other conventional treatment. Ask patients to raise the affected limb, avoid knee pillow, avoid local massage, massage, light diet. In the second diagnosis (September 18, 2019), the patient's lower limb swelling and pain were alleviated, the left dorsalis pedis artery was palpable, the movement of each toe was normal, the peripheral blood supply was good, and the skin feeling was normal. NACO, normal urination, fair stool, once a day, pale tongue and white pulse. The patients were asked to take proper functional exercise, light diet and smooth emotions, and the rest of the treatment remained unchanged.

According to: the patient's spleen and stomach were injured after operation, the spleen and stomach were not healthy, and the water was wet downward. In addition, the patient had to stay in bed for a long time to brake, and the Qi was injured for a long time. The Qi deficiency resulted in blood stasis, which combined with the dampness and invaded the lower extremities, resulting in swelling and pain of the lower extremities. Patients with abdominal distension, abdominal pain, stool is not solved, easy to lead to increased intra-abdominal pressure, affect the lower extremity venous blood flow. "Lingshu Ben Shu" records: "all intestines belong to the stomach." It shows that the stomach and intestines and intestines interact with each other in physiology and pathology. Adjusting the Foot Yangming Meridian can also treat the diseases of intestines and intestines. Therefore, selecting the acupoints of the two meridians, one can promote hydration and dampness, invigorate Qi and activate blood circulation, the other can regulate the Qi in the large intestine, and the conduction function of the large intestine will return to normal. In the treatment, electroacupuncture, warm acupuncture,

directional penetration of medicine and acupoint application can be used to improve the curative effect and relieve the symptoms as soon as possible. In the process of treatment, the patient's cooperation and compliance with the doctor's advice are also required to achieve good results.

6 Conclusion

On the one hand, long-term bed rest after fracture surgery, long-term supine, excessive rotation, traction of lower limbs and anesthesia make the peripheral vein dilate, which cause venous blood flow stagnation, especially in deep femoral vein and iliac vein, resulting in blood stasis and thrombosis. On the other hand, it leads to qi stagnation or dampness stagnation in the spleen, which leads to blood stasis and qi stagnation. Most doctors' understanding of the etiology and pathogenesis of DVT can be summarized as Qi deficiency and blood stasis. It is believed that qi deficiency leads to blood deficiency, Qi deficiency leads to blood stasis, Qi's gasification and promotion can't play a normal role, and blood can't run smoothly in the vein. Therefore, the main purpose of the treatment of this disease is to invigorate Qi and activate blood circulation, remove blood stasis and dredge channels^[23]. In the clinical practice of prevention and treatment of DVT, the use of spleen and stomach meridian dialectical acupoint treatment has been widely recognized. Based on the ancient literature review and teaching experience, the author draws a conclusion that the prevention and treatment of DVT is not only the effect of acupoints, but also the effect of clearing away heat and dampness, tonifying qi and promoting blood circulation of spleen and stomach meridians through dialectical treatment. The stomach meridian of Foot Yangming and spleen meridian of foot Taiyin are the meridians with more Qi and more blood and less Qi, while the cause of DVT is deficiency, blood stasis and the interaction of dampness heat and stasis. Acupuncture and massage of spleen and stomach meridian points can regulate qi and blood, clear dampness and heat, and play an important role in the prevention and treatment of DVT. At the same time, we also need to understand that it is difficult to achieve good curative effect by taking a single therapy in clinic, so we can not ignore the important role of internal treatment of traditional Chinese medicine. We should uphold

the concept of internal and external treatment, and combine traditional Chinese and Western medicine to provide better and safer treatment methods for patients. With the development of modern medicine, we should have the spirit of inclusiveness, absorb foreign excellent ideas and advanced technology, and "use the West for the middle", so as to continuously improve the clinical curative effect, reduce the suffering of patients, and reduce social medical costs.

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