

# Lei Xiaoqin's Experience in Treating Retinal Vein Occlusion and Macular Edema from the Blood Heat Stasis Theory

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**Abstract:** Macular edema is one of the common complications of retinal vein occlusion and the main reason for vision loss in patients. Professor Lei Xiaoqin focused on blood heat stasis, who believed that the main pathogenesis of RVO-ME is blood-heat bleeding and vein stasis. Treatment should follow the methods of cooling blood and hemostasis, activating blood and diuretic water, clearing the collaterals and eyes, and the clinical effect is significant.

**Keywords:** Retinal vein occlusion; Macular edema; Danqi hemostatic pill; Chen's raw cattail pollen soup

## 1. Introduction

Retinal vein occlusion(RVO) is a common ophthalmology disease characterized by fundus hemorrhage and vision loss that seriously threatens the vision and life of patients. Its incidence is 1% to 2% in people over 40 [1]. Macular edema (ME) is the most common complication of RVO. It is also the main cause of vision loss in patients and even vision loss in severe cases [2].

Although the pathogenesis of RVO-ME has not been fully elucidated, it is generally believed that it is nothing more than retinal artery compression of the retinal vein, vascular endothelial injury, and hemorheological changes. Under these factors, retinal vein thrombosis occurs, retinal vein return is blocked, blood-retinal barrier function is disrupted, vascular permeability increases, fluid leakage accumulates, and finally, RVO-ME occurs. Chinese medicine has long known about RVO, but there are few explanations. According to the clinical characteristics of different stages of the disease, it can roughly match the category of traditional Chinese medicine. For example, it mainly manifests as blurred vision. Glass volume blood can belong to the category of " sudden blindness due to choroidal damage. " and "blood disease". Most physicians believe that the basic pathogenesis of RVO is blood stasis.

Professor Lei Xiaoqin has been engaged in clinical, teaching, and scientific research of Chinese and Western medicine ophthalmology for more than 30 years. She has professional attainments in the clinical diagnosis and treatment of fundus diseases. The professor was taught by Professor Wang Mingfang, a national-level famous Chinese medicine doctor, and Professor Wang Mingfang was taught by Chen Dafu, a famous Chinese ophthalmologist in China, and has been deeply passed down. Based on the academic foundation of Chen Dafu and Wang Mingfang, the professor is based on the theory of traditional Chinese medicine, combined with the pathological basis of RVO-ME, dialectical treatment of RVO-ME from blood heat and stasis [3]. Fortunate to learn from the senior teachers and share.

## 2. Blood Heat Intertwines and Vein Blood Stasis Resistance

Examining the book of Letter of Yao says: "Some of them were out of treatment due to eye diseases, including excessive cold and heat injuries. This is because the Qi in the body is stagnant, the liver fire is obstructed, and the liver fire is unknown. Because of emotional desire and crying, or thinking hard about the taste of labor, month after month and year after year." It believed that the cause of the disease was nothing more than "other disease lasts for a long time", "qi stagnation and blood stasis", "qi and blood consumption injury", "qi stagnation and liver fire stagnation", "emotional depression", "fatigue and exhaustion of thought", "old age and infirmity", etc. The book of Yin Hai Jingwei believes that the reason why a patient can't see things is mainly due to "blood is exhaustion and qi is prosperity" [4]. It

believed that blood was protected by nourishing qi, defending qi was positive, and glory qi was negative, and the book of Su Wen says: positive is like the sky, and negative is like the earth. The five internal circles in the eyes are opposite to the five internal organs, the kidney is the core of the eye, and its properties are similar to water. If the kidney water fails, it cannot help the liver. The properties of the liver are similar to wood, liver wood blood gas is a failure, so it's not good for the eyes. If the kidney water fails, the heart fire cannot be relieved. The fire and water are weak, so the heart is burning. If the heart is hot, the eyes are hot, so can't see clearly [5]. The pathogeny was believed to be "liver wood failure and heart fire failure caused by renal water failure". The book of Mingmu Zhibao Mingmu Fu (I) believes that blurred vision is related to the four qi and emotions of wind, rain, thunder, and lightning. In the Six Classics of Ophthalmology of Traditional Chinese Medicine, it is considered that the disease is caused by blood heat and blood stasis.

Based on ancient theories, contemporary medical scientists [10], according to the clinical manifestations and theoretical characteristics of RVO, it is believed that the basic pathogenesis of RVO is nothing more than "blood stasis". Tang Youzhi [6] believes that the basic pathogenesis of RVO is qi stagnation and blood stasis. For ischemic RVO, the treatment should be based on "activating blood circulation and removing blood stasis" as the basic rule and implemented consistently. Tang believes that when fundus hemorrhage is stable, there is hemorrhage with a large amount of exudation and macular edema, it is necessary to promote blood circulation to remove blood stasis, activate qi to excrete water, and promote the absorption of fundus bleeding exudation and macular edema by strengthening the spleen and moistening. "[13]

Selike [7] believes RVO and "Accumulation", and "Collateral Diseases" are the same, and it was believed that the local manifestations of the fundus of RVO were bleeding, edema, exudation, neovascularization, etc. It refers to the accumulation of visible evils in the retina. Its essence is similar to the "accumulation" of traditional Chinese medicine. Therefore, "accumulating" is the main pathological state of the disease. Including qi stagnation, blood stasis, spittoon coagulation, and water dampness, and summed up the pathogenesis of this disease as "meridian damage accumulation resistance", "The twelve meridians, three hundred sixty-five collaterals, all their blood, and qi are on the face and go through the empty orifices, and spirit yang qi goes through on eyes and as the essence." The collaterals are the blood collaterals of the fundus, and in the treatment, it is advocated to remove the accumulation and dredge the collaterals, including regulating qi, resolving phlegm, removing blood stasis, promoting blood circulation, and dredging collaterals [14]. Wu Lie[8] believed that the imbalance of fire and water, Yin and Yang qi, and blood is the core etiology and pathogenesis of fundus hyperemia. It draws on the theory of yin, yang, water, fire, qi, and blood in the Blood Syndrome, flexible application of "hemostasis, blood stasis elimination, blood calming and deficiency tonifying" to treat fundus ophthalmia based on syndrome differentiation, and Treatise on Febrile and Miscellaneous Diseases summarizes the six meridians, the three energizers, and the zang-fu syndrome differentiation thought to pay attention to the combination of regulating qi and blood in the treatment. In the early stage of treating eyeground hemorrhage, it is often used to purge bitter cold and ignite the fire to cool blood and stop bleeding [9]. In treating repeated bleeding, drugs for regulating qi, reducing adverse reactions, and removing blood stasis are commonly used to calm and stop bleeding.

According to famous professor LeiXiaoqin, most of the final results of RVO caused by various pathological factors are "blood stasis". Blood heat is one of the common pathological factors. It forces blood to move blindly, damages the vein, and becomes blood stasis for a long time. Therefore, RVO patients generally have the basic pathogenesis of blood heat and stasis, and it is consistent with the theory of Western medical belief that the disease has a hemodynamic disorder, blood flow stagnation, and circulatory disorders.

### **3. Stop Bleeding without Leaving Blood Stasis, and Remove Blood Stasis without Damaging the Health**

The symptoms of RVO are mixed, and the disease course is long. When most patients come to the hospital for diagnosis and treatment, clinical treatment is urgent because the condition is more acute and will lead to its key target. On this basis, the professor made a theory based on blood heat and stasis, combined with clinical experience, and created the "Danqi Hemostasis Pill" according to Chen Dafu's prescription, Chen's raw pollen typhae soup, to add and subtract the cutting, and finally created "Danqi Hemostasis Pill" Its formula includes Raw pollen typhae, Eclipta alba, Dan-Shen, Moutan bark, Charred schizonepeta, Radix curcumae, Dried rehmannia root, Ligusticum wallichii, Pseudo-ginseng, Plantain seed, Cassia seed, Cogon rhizome, Boswellia carterii, Earthworm. The function is cooling

blood to stop bleeding, promoting blood circulation and diuresis, dredging collaterals, and improving eyesight. The name of Chen's Raw Cattail Pollen Soup was first found in Chen Dafu's *The Six Meridians of Traditional Chinese Medicine Ophthalmology · Summary of Shao yin Eye Diseases*. "Feeling red in front, and vision is blurred, even blind. The formula is mainly from Chen's Cattail Pollen Soup, those who have been ill for a long time... sometimes help them to be healthy". Composition of the original pharmacy: "Raw cattail pollen 40g, Eclipta 40g, Salvia miltiorrhiza 25g, Moutan bark 20g, Schizonepeta charcoal 20g, Radix curcumae 25g, Dried rehmania root 20g, Ligusticum wallichii 10g."

"Indications: fundus hemorrhage, blurred vision, and even blindness [10]." Professor Chen identified this disease as the syndrome of the internal heat of Shaoyin disease. He believed that the origin of this disease was that the Shaoyin meridians were overheated, the veins were injured by heat, and the blood heat was congealed, so that the circulation of the veins was blocked, the eyes could not see clearly, and even the eyes could not see. The professor applied Danqi Hemostasis Pill to the clinical treatment, and in the process of clinical diagnosis and treatment, it is necessary to treat different patients at different stages of the disease.

### ***3.1 The Purpose of Colding Blood and Hemostasis and Removing Stasis***

In the early stage of RVO, the main pathogenesis is bleeding due to blood heat damaging blood vessels. Because the veins are blocked, the blood runs away from the channels. Therefore, during the treatment, the clinical characteristics of this period should be aimed at cooling blood and removing blood stasis to achieve the effects of smoothing and dredging meridians. Cattail pollen, Pseudo-ginseng, Fructus amomi, Orange peel, and Earthworm are mostly clinically used.

### ***3.2 Analysis of Prescription Meaning***

The Chen's Raw Cattail Pollen Soup decoction mainly uses raw cattail pollen. It can astringe and stop bleeding, disperse blood stasis, and cure all blood diseases, whether cold or hot, with or without blood stasis [11]; Eclipta is sweet and sour cold moisturizing. It can cool blood and stop bleeding and can also nourish the yin of the liver and kidney, be good at treating all kinds of bleeding due to yin deficiency and fire hyperactivity [12]; Virgin soil clears heat, cools blood, nourishes yin, and promotes fluid production. Charred schizonepeta is warm but not dry and has the effect of astringent and hemostasis; Salvia miltiorrhiza can eliminate blood stasis and promote freshness without damaging integrity; Moutan bark is bitter cold and heat-clearing, hot and bitter, and can clear heat, cool blood, and stop bleeding; Radix curcumae tastes spicy and can dispel stagnation and dredge meridians, Entering blood can cool blood, and entering qi can relieve depression.[13], because of its cold nature, it is especially suitable for those with the stagnation of qi and blood and heat stagnation; Cape jasmine can enter into a triple energizer acupoint, treat both qi and blood, cool the blood and stop bleeding; Ligusticum wallich is the Qi medicine in the blood and warms the blood, can activate blood and qi [14]. The combination of all the drugs in the prescription nourishes yin and cools blood, promotes blood circulation, and removes blood stasis. Raw typha pollen soup prescription is commonly used for treating fundus hemorrhage in ophthalmology clinics, it has the characteristics of stopping bleeding without leaving blood stasis and removing blood stasis without damaging the health.

Based on Chen's raw cattail pollen Soup, Danqi Hemostasis Pill added pseudo-ginseng, Plantain seed, cassia seed, cogon rhizome, frankincense, earthworm Liuwei, pseudo-ginseng, boswellia carterii, and Earthworm Sanwei together, which can bleeding and disperse blood stasis. The effect of removing blood stasis is better; Cassia seed is good at clearing away the liver fire regardless of the deficiency and excess in treating eye diseases; Plantain seed is cold in nature, mainly enters the liver meridian, and is good at clearing the liver, relieving heat, and brighten eye; Cogon rhizome has a peaceful effect, tends to subside, cools the blood and stops bleeding without causing blood stasis [15].

## **4. Typical Clinical Medical Case**

First diagnosis: Patient Gong, male, 63 years old, the main complaint was "left eye vision been blurred for two weeks", On February 22, 2021, he was visited at Xi'an People's Hospital (Xi'an Fourth Hospital). Two palms, two feet, and chest are hot, average diet, normal bowel defecation, the tongue is red, thin and white fur on the tongue, pulse like a piano string. The patient had a history of hypertension for 7 years. He usually took valsartan hydrochlorothiazide tablets to control his blood pressure. He did not take the drugs regularly, so his blood pressure control was poor. Deepen the

history of other family genetics. Ophthalmology test: 0.3 right eyes of the vision and 0.06 left eye do not improve after correction. Right eye pressure: 13.4 mmHg, left eye 14.4 mmHg. In front of the eyes (-), the crystal is mild and turbid, Videline flocculent turbidity, right eye bottom (-), A/V=1: 2. The border of the left eye vision is slightly blurred, the vision plate is mild edema, the arteries of the fundus are thin, the intravenous pedantic expansion, A/V = 1: 2, a large number of flames and dot -shaped bleeding can be seen after the retinal pole. The mild white line changes can be seen at the remote end of the temporal vein. The FFA examination shows that the left eye retina blocks the remote vein and the capillaries. The fluorescein perfusion is delayed, and there is no irrigation area. The small arterial end branch is closed, accompanied by fluorescence leakage, venous tube wall staining, and the side branch circulation is formed. Optical coherent fault scanning (OCT) shows that the thickness of the retinopasus area of the left-eye macular area is 527  $\mu\text{m}$ , accompanied by multiple low reflex cysts (see Figure 1). Diagnosis: The center vein obstruction of the left eye retina; The left eye is ME; Both eyes are cataracts. The patient's general symptoms include a red tongue, thin white fur, and a stringy pulse. In combination with the fundus manifestations of the patients, the traditional Chinese medicine dialectics is yin deficiency and blood heat, blood stasis obstructs the collaterals, and the treatment should nourish yin and cool blood, and clear the collaterals and eyes. On the basis of control of blood pressure, the left eye was treated with intravitreal injection of Leizhu Monoclonal antibody combined with oral Dan Qi Hemostatic pill, the administration method of Dan Qi Hemostatic pill: Take orally, one bag/time, three times/day. One month is a course of treatment.

Second diagnosis: The patient will return to the hospital on March 18, 2021, and he is in good spirits, the symptoms of palmar, plantar and chest upset heat improved slightly, and the defecation was normal. Ophthalmic examination: the visual acuity of the right eye was 0.3 and the left eye was 0.1. IOP 13.6 mmHg in the right eye and 14.2 mmHg in the left eye. Anterior segment of both eyes (-), eye crystals appear mild turbidity, eye vitreous vitrea is fluffy and turbid, right eye fundus (-); The boundary of the left eye's vision disk is not clear, without edema, the bottom of the bottom of the eyes is slightly thinner, the veins are pedantic expansion, A/V = 1:2, Patchy hemorrhage can be seen in the supratemporal retina. FFA showed that the circulation of the retina and optic disc of the left eye was slightly delayed, and a small amount of scattered shielding low fluorescence could be seen in the retina. OCT: The retinal thickness in the macular region of the left eye was 415 $\mu\text{m}$  (see Figure 2), with multiple hyporeflexes. The treatment was continued with Danqi Hemostasis Pill, reduced to 2 times/day, and the patient was instructed to continue taking it for 1 month. The patient was injected with LeiZhu Monoclonal Antibody in combination with the left vitreous body, and returned to the doctor regularly.

Three diagnosis: The patient's complaints have improved significantly, and the symptoms of the whole body have improved. Vision: 0.3 right eye, 0.3 left eye, 14.2 mmHg right eye pressure, 14.3 mmHg left eye. Anterior segment of the eyes (-), eye crystals appear mild turbidity, eye vitreous vitrea is fluffy and turbid, right eye fundus (-); The boundary of the perspective of the left eye is clear, the bottom of the eye is slightly thinner, and the veins are tortuous, A/V = 2: 3. A small amount of patchy hemorrhage can be seen in the omentum. OCT: the retinal thickness of the macular area of the left eye is 315  $\mu\text{m}$ . There are a few low reflex capsules (see Figure 3). The left eye was instructed to continue to be treated with an intravitreal injection of LeiZhu Monoclonal Antibody combined with an oral Danqi Hemostasis Pill. Instructed the patient to return to the clinic after January, pay attention to eye rest and eye hygiene, a reasonable and regular diet, and uncomfortable clinic. Patients have now followed in August, and ME has no obvious repeated and stable vision.

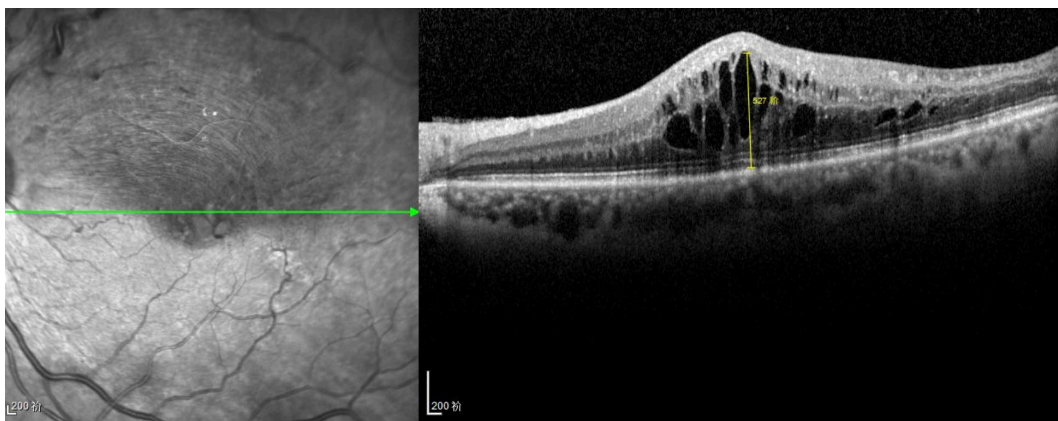


Figure 1: OCT of the patient's left eye with RVO when diagnosed.

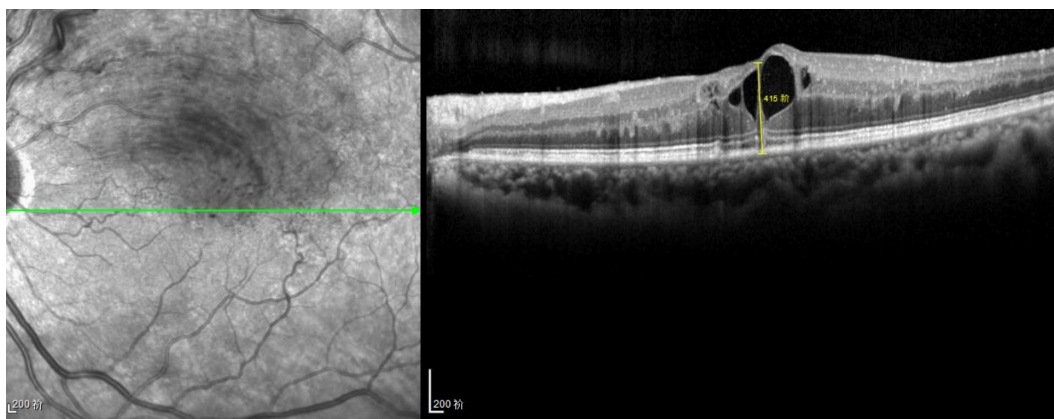


Figure 2: OCT of the patient's left eye with RVO one month after treatment.

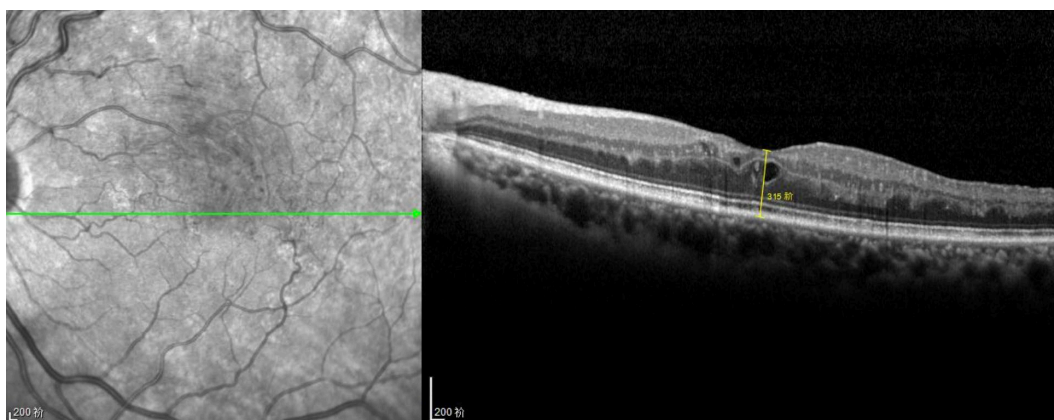


Figure 3: OCT of the patient's left eye with RVO two months after treatment.

## 5. Conclusion

Su Wen ·Essence and Depth of Context Theory believes that the eyes are organs formed from the essence. The essence of the five internal organs goes through the eyes, and as the essence, while the kidney hides the essence, the formation of the essence in the kidney and the formation of the eyes are closely related to visual development [16]. The author believes that the retina's function is inseparable from the kidneys. Dan Qi Hemostatic pill nourishes the kidney yin, cools, and circulates the blood, which is crucial in treating yin deficiency and internal heat type of retinal vein occlusion. Compared with real problems such as anti -VEGF drug costs and time-consuming and labor-intensive treatment, treating it takes time and effort. Chinese medicine has made up for this defect to a certain extent. Oral drugs have the advantages of convenient treatment and preferential prices. In addition to improving the patient's eye symptoms, the overall theory of Chinese medicine also has a certain improvement effect on other primary diseases, such as hypertension, hyperlipidemia, and blood hypertrophy.

Dan Shen Hemostatic pill comes from Chen's Raw Cattail Soup, and not stick to it, treatment based on clinical syndrome differentiation, flexible adjustment, the curative effect is definite and worthy of further promotion in clinical practice.

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