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TRADITIONAL CHINESE MEDICINE FOR CENTRAL SEROUS CHORIORETINOPATHY: A CASE SERIES WITH OPTIC COHERENCE TOMOGRAPHY SCANS

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Abstract

Background: The aim of this study was to investigate a potential therapy for central serous chorioretinopathy (CSC) using Traditional Chinese Medicine (TCM).

Materials and Methods: Six males aged 28-45 with CSC were treated with a TCM formula called Bupleurum and Poria Variant Decoction (Jia Jian Chai Ling Tang), in the form of concentrated powder herbs (4.0 g) taken before meals, three times daily. They were monitored clinically with optic coherence tomography (OCT) scans every one or two weeks until CSC symptoms completely resolved.

Results: All six cases showed clinical improvement after receiving the prescribed treatment, with subretinal serous fluid progressively decreasing within 3 weeks to 3 months based on follow-up OCT scans.

Conclusions: The patients with CSC responded positively to the Jia Jian Chai Ling Tang prescription, indicating a potential new approach for treating CSC. This study suggests a promising avenue for further exploration in CSC treatment options.

Keywords: Central serous chorioretinopathy (CSC), Traditional Chinese medicine (TCM), Jia Jian Chai Ling Tang ; Optic coherence tomography (OCT)

List of Abbreviations: CSC: Central Serous Chorioretinopathy; CLT: Chai Ling Tang; CNV: Choroidal neovascularization; FAG: Fluorescein angiography; OCT: optic coherence tomography; OD: oculus dexter; OS: oculus sinistro; OU: oculos; PDT: photodynamic therapy; RPE: retinal pigment epithelium; SRS: sub-retinal serous;

TCM: Traditional Chinese Medicine; VA: visual acuity; VEGF: vascular endothelial growth factor; WLS: Wu Ling San; XCHT: Xiao Chai Hu Tang.

Introduction

Central serous chorioretinopathy (CSC) ranks as the fourth most common retinopathy following age-related macular degeneration, diabetic retinopathy, and branch retinal vein occlusion. Before 2008, no comprehensive epidemiological survey of CSC was conducted [Wang *et al*., 2008]. A nationwide population-based cohort study in Japan from 2011 to 2018 identified 247,930 cases of CSC over an 8-year span, with 75.9% occurring in males. The crude incidence rate (per 100,000 person-years) among the general population aged 30 years or older was 34.0, with rates of 54.2 in men and 15.7 in women. Men experienced an earlier onset compared to women (50.5±12.5 years vs. 54.7±13.5 years) [Kido *et al*., 2022].

CSC typically manifests in males aged 20s to 50s, presenting with acute or sub-acute central vision loss or distortion. Common symptoms include micropsia, metamorphopsia, hyperopic (most common) or myopic shift, central scotoma, reduced contrast sensitivity, and color saturation [Liew *et al*., 2012]. While the exact pathophysiological mechanisms remain unclear, CSC is believed to stem from hyper-permeable choroidal capillaries leading to serous detachment of the neurosensory retina, often associated with retinal pigment dysfunction.

Recurrence affects about 31% of CSC patients [Kitzmann *et al*., 2008], with some sources citing rates as high as 50%. Acute CSC typically resolves within three months, with restored visual acuity (VA) [Kido *et al*., 2022], though recurrences can occur in up to half of patients within a year [Aggio *et al*., 2010]. Chronic CSC, diagnosed when sub-retinal serous (SRS) persists for more than 6 months, affects about 15% of patients [Gilbert *et al*., 1984]. As CSC often resolves spontaneously within 2 to 3 months, the majority of patients (86.8%) do not undergo major treatment [Kido *et al*., 2022], and observation remains the standard for newly diagnosed cases [Yannuzzi, 1986]. Treatment discussions arise for chronic, recurrent, or acute CSC in functionally monocular patients [Abouammoh, 2015].

Efforts globally have focused on finding effective CSC treatments. Current options include anti-corticosteroid therapy [Bousquet *et al*., 2013; Chin *et al*., 2015], addressing *Helicobacter pylori* [Casella *et al*., 2012; Dang *et al*., 2013], anti-adrenergic agents [Chrapek *et al*., 2015], intravitreal anti-vascular endothelial growth factor (VEGF) therapy [Shin *et al*., 2011], and various surgical approaches such as laser photocoagulation [Quin *et al*., 2013; Iacono *et al*., 2015], photodynamic therapy [Bae *et al*., 2014], subthreshold micropulse laser photocoagulation [Yadav *et al*., 2015; Scholz *et al*., 2016], and scleral resection [Venkatesh *et al*., 2016]. This study explores traditional Chinese medicine (TCM) in treating CSC, reporting outcomes in 6 cases monitored with optic coherence tomography (OCT) scans (Figure 1).

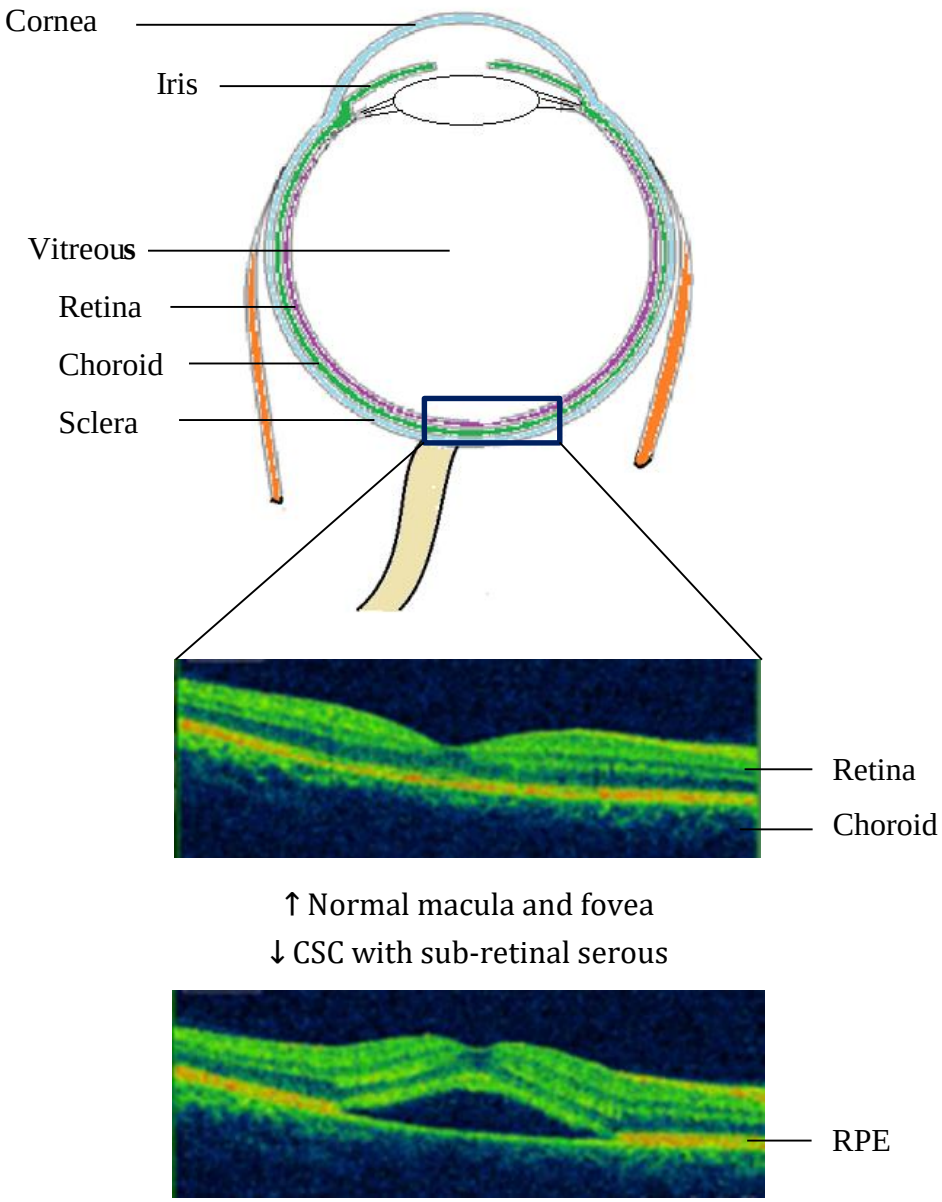


Figure 1: The schematic diagram of the CSC.

Materials and Methods

Participants and Materials

In this study, we gathered six cases of CSC from the Universal Eye Center in Tainan, Taiwan, spanning from June 1, 2018, to February 28, 2023. These cases comprised outpatients and were not specifically selected; they represent all CSC diagnoses at our clinic during this time frame and may not be representative of the broader population. Typically, individuals with CSC are referred to medical centers for treatment recommendations following modern Western medicine practices. However, among these six patients, four had previously received treatments at other hospitals and sought additional opinions from TCM or alternative therapies at our clinic.

Cases presentation and Treatment Regimen

The six cases, all males aged between 28 and 45, were diagnosed with CSC through fundus examination and OCT scans. Their bilateral intraocular pressure was normal, cornea fluorescein staining was negative, and slit-lamp biomicroscopy examination showed clear anterior chamber and lens. Table 1 provides a brief overview of their baseline demographics and clinical characteristics.

Table 1: Baseline demographics and clinical characteristics of patients.

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
Age	36	32	28	41	36	45
Gender	male	male	male	male	male	male
Site	OD	OD	OS	OD	OD	OD
Pre Tx VA	20/40	20/40	20/20	20/22	20/22	20/22
Pre medical symptoms	image distortion & blurred vision	micropsia & blurred vision	decreased color vision & paracentral scotoma	central scotoma & blurred vision	central black shadow & image distortion	blurred vision & paracentral scotoma
Course of treatment	less than 1 month	less than 2 months	less than 1 months	less than 3 weeks	less than 3 weeks	less than 3 months
Post medical condition	SRS subsided, image distortion decreased	symptoms decreased but lost the follow-up	SRS subsided, paracentral scotoma disappeared	SRS subsided, central scotoma disappeared	SRS subsided, no shadow & image distortion	SRS subsided, paracentral scotoma disappeared
Post Tx VA	improved to 20/20	20/30	still 20/20	improved to 20/20	improved to 20/20	improved to 20/20

These patients were treated with the Chinese medicine formula Bupleurum and Poria Variant Decoction, also known as Jia Jian Chai Ling Tang. This formula consisted of concentrated powder herbs, with 90% Chai Ling Tang (CLT) and 10% bletillastriata, taken orally at a dosage of 4.0 g before meals, three times daily. They were monitored clinically with OCT scans (Topcon, 3D OCT-1) every 1 or 2 weeks until their CSC symptoms completely subsided. The dosage was based on the manufacturer's recommendations provided in the package insert. The CLT formula comprises 12 herbs, detailed in Table 2. No adverse drug effects were reported during the treatment course.

Table 2: The basic components of Jia Jian Chai Ling Tang Formula

Chinese Pinyin name	English name (Binomial name)	Part used	Contents (g) per 4.0 grams of concentrated herbal powder
Chaihu	*Radix bupleuri*	Rhizome	0.38
Huangqin	*Radix scutellariae*	Rhizome	0.16
Renshen	*Radix ginseng*	Rhizome	0.16
Banxia	*Rhizoma pinelliae*	Rhizome	0.27
Gancao	*Radix glycyrrhizae*	Rhizome	0.16
Fuling	Poria	Sclerotia	0.24
Zhuling	Polyporus	Sclerotia	0.24
Zexie	*Rhizoma alismatis*	Rhizome	0.33
Baizhu	*Rhizoma atractylodis* Macrocephalae	Rhizome	0.24
Guizhi	*Ramulus cinnamomi*	Twigs	0.16
Shengjiang	*Rhizoma zingiberis* Recens	Rhizome	0.16
Dazao	*Fructus jujubae*	Mature fruit	0.16
starch			1.33

Ethical Considerations

This study is a case-series analysis, and neither patients nor the public were involved in the research's design, implementation, reporting, or dissemination plans. This research was reviewed and approved by the institutional review board of Antai-Tian-Sheng Memorial Hospital at Taiwan (registration number: IRB-23-034-C), and in accordance with the Declaration of Helsinki. Informed consent was obtained from all participants.

Patients Consents

All patients in this study agreed to be treated with TCM after the clinic physician explained and analyzed their conditions, and agreed to be published the results of this research.

Data availability

The data that support the findings of this study are available within this manuscript or from the corresponding author on reasonable request.

Results

Outcomes of OCT scan

Case I

This patient was initially diagnosed with CSC in the right eye at another hospital on September 15, 2018. He presented at our ophthalmic clinic three days later following a referral from a friend, and the diagnosis of CSC in the right eye was confirmed (Figure 2: 1.1). After starting the TCM prescription, the patient's vision showed improvement.

A follow-up examination was conducted two weeks later, revealing a reduction in image distortion and an improvement in VA in the right eye. Additionally, OCT scans indicated a slight reduction in SRS detachment of the retinal pigment epithelium (RPE) from the choroid (Figure 2: 1.2).

One month later, the patient reported feeling reassured, and the SRS was no longer visible (Figure 2: 1.3). His VA was optically corrected to 20/20 in both eyes. The patient continued the prescribed Chinese herb treatment for a total of two months without any additional interventions.

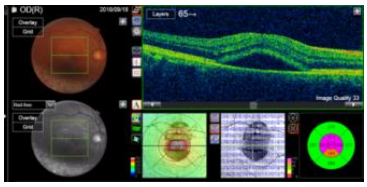
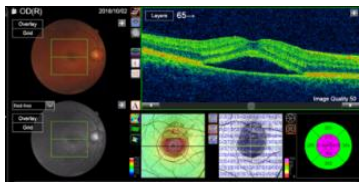
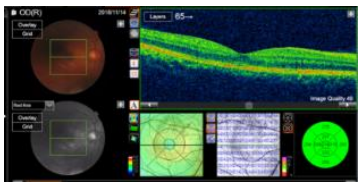




Figure 2: 1.1-2018/09/18; **Figure 2:** 1.2-2018/10/02; **Figure 2:** 1.3-2018/11/14

Case II

This patient initially experienced micropsia and gradually worsening blurred vision in the right eye for more than ten days. On June 25, 2018, he visited our ophthalmic clinic following a referral from a friend seeking treatment advice. The diagnosis of CSC in the right eye was confirmed (Figure 2: 2.1). He was treated with the same Chinese medicine prescription and subsequent follow-up examinations were conducted on July 6 and August 17, 2018, revealing a gradual improvement in CSC symptoms evident in OCT scans (Figure 2: 2.2 & 2.3).

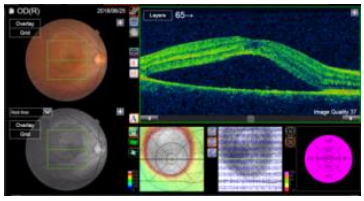
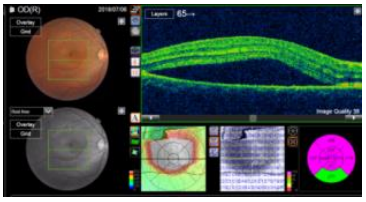
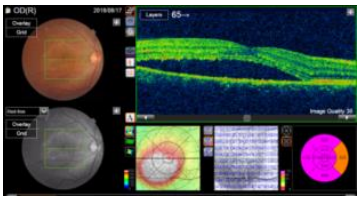




Figure 2: 2.1-2018/06/25; **Figure 2:** 2.2-2018/07/06; **Figure 2:** 2.3-2018/08/17

Case III

The patient experienced decreased color vision and paracentral scotoma in the left eye for several days. He visited our ophthalmic clinic on June 17, 2019, where the diagnosis of CSC in the left eye was confirmed (Figure 2:3.1). He was treated with the same Chinese medicine prescription and 11 days later a slight reduction in the serous detachment of the RPE from the choroid was observed in OCT scans (Figure 2:3.2). The patient continued taking the prescribed TCM herb until the image distortion symptom subsided. The third follow-up appointment on July 13, 2019, revealed no evidence of SRS detachment (Figure 2:3.3).

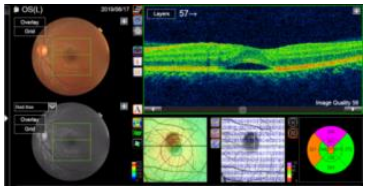
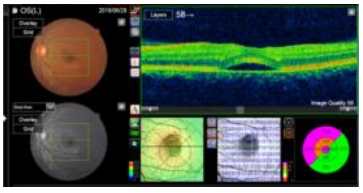
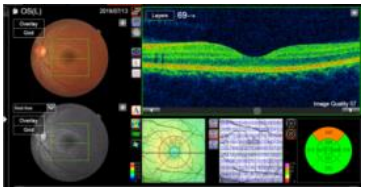




Figure 2: 3.1-2019/06/17; **Figure 2:** 3.2-2019/06/28; **Figure 2:** 3.3-2019/07/13

Case IV

This patient initially experienced central scotoma and progressive blurred vision in the right eye for three days. He visited our ophthalmic clinic on March 5, 2019, where CSC in the right eye was diagnosed (Figure 2: 4.1). Initially, bed rest with observation was recommended, but the symptoms worsened over time. Follow-up appointments at 1 and 2 weeks revealed worsening CSC in OCT scans (see Figure 2: 4.2 & 4.3). The patient then opted to start the prescribed Chinese herbal medicine and maintained regular follow-ups.

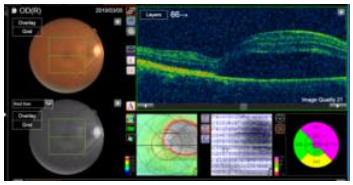


Figure 2: 4.1-2019/03/05;

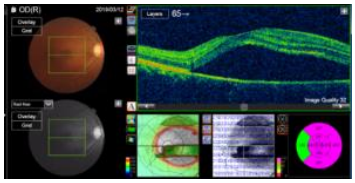


Figure 2: 4.2-2019/03/12;

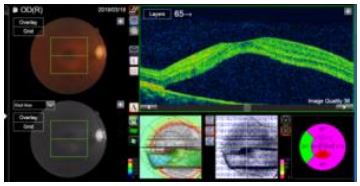


Figure 2: 4.3-2019/03/19

After six days of taking the herbal medicine, an OCT scan on March 25, 2019, showed a decrease in CSC (Figure 2: 4.4), with further improvement after 13 days (Figure 2: 4.5). The SRS detachment was no longer visible after three weeks of treatment (Figure 2: 4.6) and remained absent in the subsequent six-week follow-up (Figure 2: 4.7).

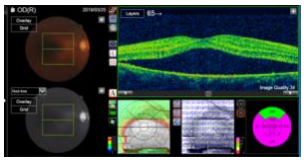


Figure 2: 4.4-2019/03/25

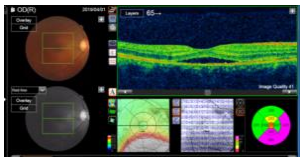


Figure 2: 4.5-2019/04/01;

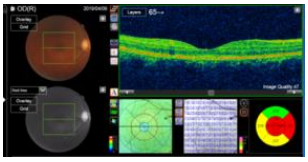


Figure 2: 4.6-2019/04/09;

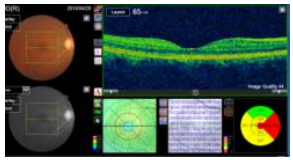


Figure 2: 4.7-2019/04/29

However, the patient experienced a recurrence of symptoms three months later, confirmed by OCT revealing SRS recurrence (see Figure 2: 4.8). He resumed the same TCM prescription, resulting in significant improvement evidenced by OCT scans at 2 and 6 weeks post-treatment (Figure 2: 4.9 & 4.10).

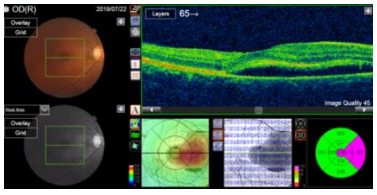


Figure 2: 4.8-2019/07/22;

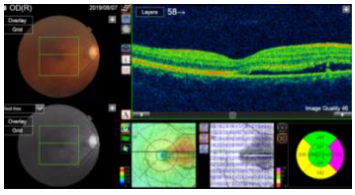


Figure 2: 4.9-2019/08/07;

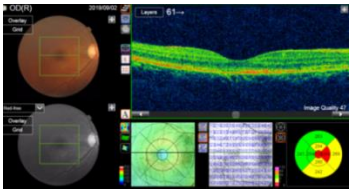


Figure 2: 4.10-2019/09/02

Unfortunately, the symptoms recurred again on January 7, 2023, after one month, with OCT confirming SRS recurrence (Figure 2: 4.11). This time, the TCM prescription was supplemented with Baidoukou 1.0 g for enhanced effectiveness. Subsequent visits at 3 and 7 weeks showed a notable decrease in SRS, as seen in OCT scans (Figure 2: 4.12 & 4.13).

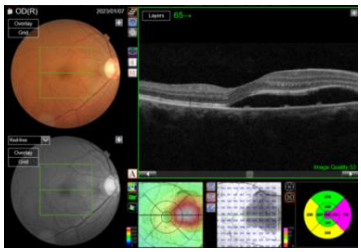
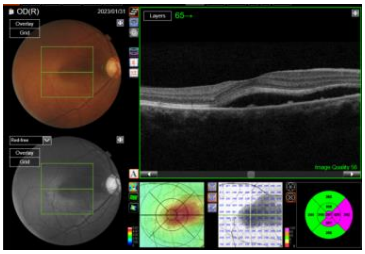
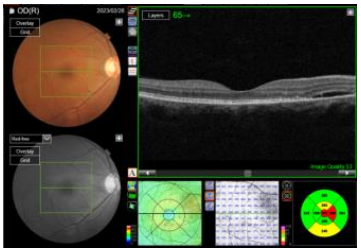




Figure 2: 4.11-2023/01/07; **Figure 2:** 4.12-20230131; **Figure 2:** 4.13-20230228

Case V

This 36-year-old male had undergone successful LASIK surgery at our clinic on November 17, 2020, and had been regularly monitored with maintained 20/20 VA in both eyes for years. However, in early April 2019, he suddenly experienced a black shadow in the center of his right eye and image distortion. On April 3, 2021, he visited our ophthalmic clinic, where his right eye VA slightly declined to 20/22, and CSC was diagnosed in the right eye (Figure2: 5.1).

Immediately, he commenced treatment with the prescribed Chinese herbal medicine, and an OCT scan on April 10, 2021, showed a decrease in CSC after seven days of herbal treatment (Figure 2: 5.2). He reported a return to normal vision in the right eye after three weeks of taking the Chinese herb medicine, and follow-up OCT scans on May 8, 2021, confirmed the absence of SRS detachment (Figure 2: 5.3).

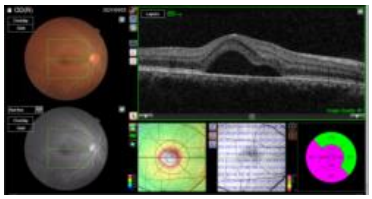
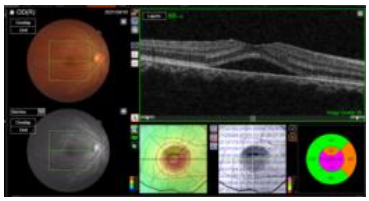
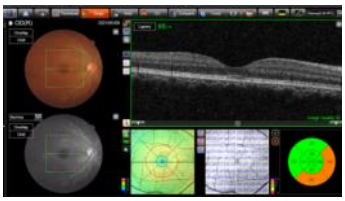




Figure 2: 5.1-2021/04/03; **Figure 2:** 5.2-2021/04/10; **Figure 2:** 5.3-2021/05/08

Case VI

This patient experienced blurred vision and paracentral scotoma in the right eye for three months. Despite visiting multiple ophthalmic clinics and hospitals where CSC in the right eye was diagnosed, he was initially advised to undergo complete bed rest for three months and take Vitamin B complex tablets twice daily without additional treatment. However, due to work commitments that required him to stay up late and work shifts, he was unable to comply with the recommended rest.

Eventually, he visited our ophthalmic clinic on May 26, 2018, upon a friend's recommendation for alternative treatment options. OCT scans revealed serous detachment of the RPE from the choroid in the right eye (Figure 2: 6.1). He commenced treatment with the prescribed Chinese herbal medicine, and an OCT scan on June 16, 2018, showed improvement in CSC after three weeks of herbal treatment (Figure 2: 6.2). The patient adhered to regular outpatient follow-ups and medication, with the exception of a four-day period due to stomach upset. Subsequent OCT scans demonstrated gradual improvement in CSC until complete recovery (Figure 2: 6.3 & 6.4).

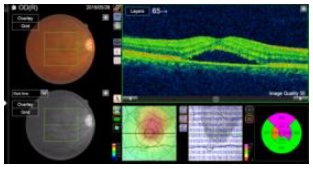
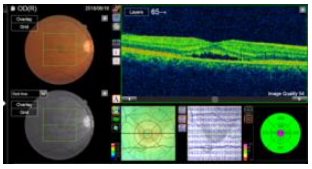
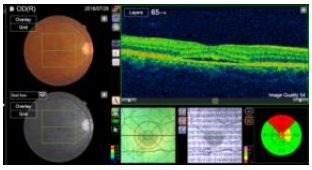
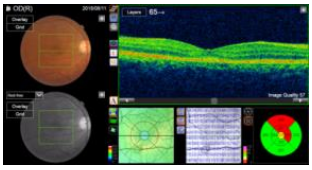





Figure 2: 6.1-2018/05/26; **Figure 2:** 6.2-2018/06/16; **Figure 2:** 6.3-2018/07/28; **Figure 2:** 6.4-2018/08/11

Outcomes measurement

For ease of comparison, we designated the height of the SRS detachment in each OCT pattern as "d" and the thickness of the retina around the macula as "D" (Figure3).

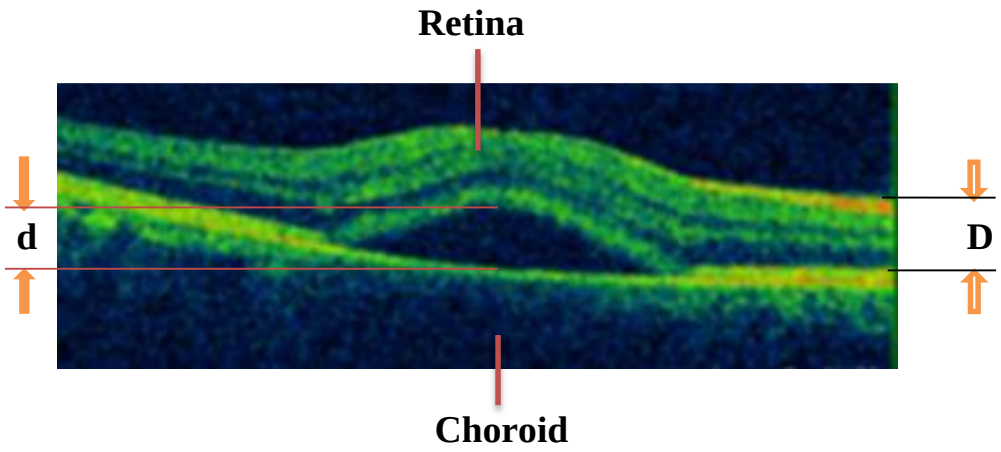


Figure 3: The extent of CSC subsidence, which is prominently observable through the ratio of SRS (d) to the retinal thickness around the macula (D) in OCT patterns.

This approach allows us to assess the severity of CSC stagnation using the ratio of d/D, demonstrating a decrease in SRS over time with treatment (Table 3).

Table 3: The d/D value obtained by the OCT patterns according to the course of treatment.

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
Pre medicine *				**1.27**		
Pre medicine**				**2.0**		
Pre medicine	**0.75**	**1.56**	**0.29**	**2.55**	**1.0**	**0.57**
1st week	**-**	**-**	**-**	**1.55**	**0.63**	**-**
2nd week	**0.65**	**1.19**	**0.28**	**0.36**	**-**	**-**
3rd week		**-**	**-**	**0**	**-**	**0.29**
4th week	**-**	**-**	**0**	**-**	**-**	**-**
5th week	**-**	**-**		**-**	**0**	**-**
6th week	**-**	**-**		**0**		**-**
7th week	**-**	**-**				**-**
8th week	**0**	**0.81**				**-**
9th week						**0.14**
10th week						**-**
11th week						**0**
Rrecovery time	**< 8w**	*******	**< 4w**	**< 3w**	**< 5w**	**< 11w**

* & ** At first case 4 was suggested to take a total bed rest with observation and followed up 1 and 2 weeks later.

*** Recovery time of case 2 couldn't estimate for losing follow up.

Discussion

Advantages of OCT

CSC is a complex disease with an unclear mechanism of action. It is strongly associated with hypercortisolism and is thought to result from choroidal hyperpermeability and subsequent dysfunction of the RPE, leading to serous retinal detachment [Cindy *et al*., 2022-2023]. Symptoms of CSC include relative scotoma (loss of contact between photoreceptors and RPE) and metamorphopsia and micropsia (bullous distension of the foveal retina). Fluorescein angiography and auto-fluorescence fundus photography play critical roles in differential diagnosis, especially in distinguishing subretinal neovascularization, and are essential for treatment planning [Framme *et al*., 2005; Eandi *et al*., 2005]. However, OCT stands out as the most valuable and accurate diagnostic tool for CSC. OCT can detect shallow serous detachments that are challenging to identify with slit-lamp biomicroscopy [Wang *et al*., 1999]. It is also instrumental in assessing reattachment post-treatment. In chronic cases, OCT is particularly valuable as morphological and functional recovery may be incomplete, providing crucial insights for clinical management [Hee *et al*., 1995].

Current methods in treating CSC

Current methods for treating CSC emphasize conservative management, lifestyle counseling, and discontinuation of glucocorticoid medication as initial therapeutic options due to the condition's high spontaneous remission rate. Despite ongoing efforts in the medical community, there is no universally effective treatment for CSC. Achieving reattachment within four months of onset is a significant treatment goal, as prolonged detachment can lead to photoreceptor atrophy. Therefore, proper case selection for therapy is crucial [Wang *et al*., 2008]. Laser photocoagulation, although once considered a treatment option, has not shown a reduced recurrence rate and can lead to secondary choroidal neovascularization in up to 2% of treated eyes immediately postoperatively. Verteporfin photodynamic therapy has been effective in reducing or eliminating subretinal fluid with few complications, the most common being atrophy in approximately 4% of treated eyes [Cindy *et al*., 2022-2023]. However, there is a growing recognition of the need to move away from traditional thinking and explore new approaches.

Chinese herbal medicine selection for the CSC

The five wheels theory of TCM

The choice of the Jia Jian Chai Ling Tang prescription in treating CSC is rooted in understanding the five wheels theory of TCM. Unlike the focused approach of modern medicine, TCM considers the body holistically through the concept of the five wheels, which correspond to the five viscera: liver, heart, spleen, lung, and kidney (Figure 4) [Su *et al*., 2022a].

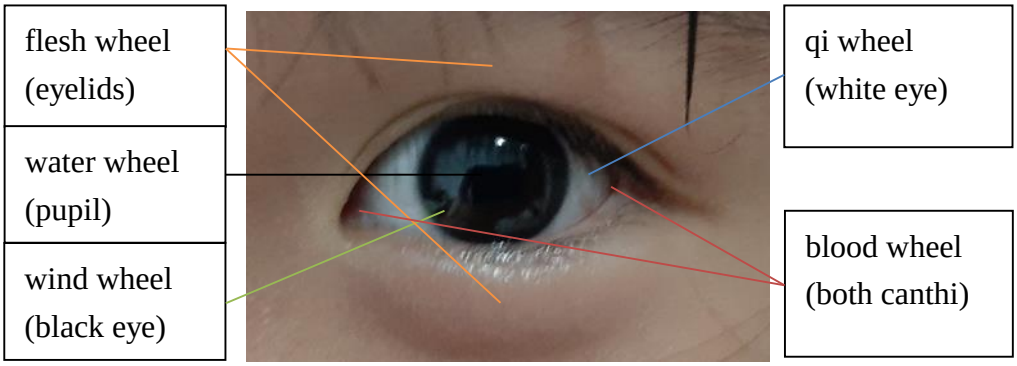


Figure 4: An illustration depicting the five wheels along with their corresponding eye components.

In applying this ancient theory to modern ophthalmic anatomy, we can relate the outer, middle, and inner tunic layers of the eye to the qi wheel, wind wheel, and water wheel, respectively. Specifically, the outer tunic layer (including the sclera and cornea) corresponds to the qi wheel, the middle tunic layer (uvea including the iris, ciliary body, and choroid) corresponds to the wind wheel, and the inner tunic layer (pupil including the lens and retina) corresponds to the water wheel [Su *et al.*, 2022b].

CSC, characterized by serous detachment between the middle and inner tunic layers of the eye (middle layer being the wind wheel and inner layer being the water wheel), is linked to the liver and kidney of the eye (Figure 5). Considering the symptoms associated with CSC, such as fluid accumulation and dysfunction related to the liver and kidney, the Jia Jian Chai Ling Tang prescription, which addresses liver and kidney functions and promotes fluid elimination, is a suitable choice based on TCM principles.

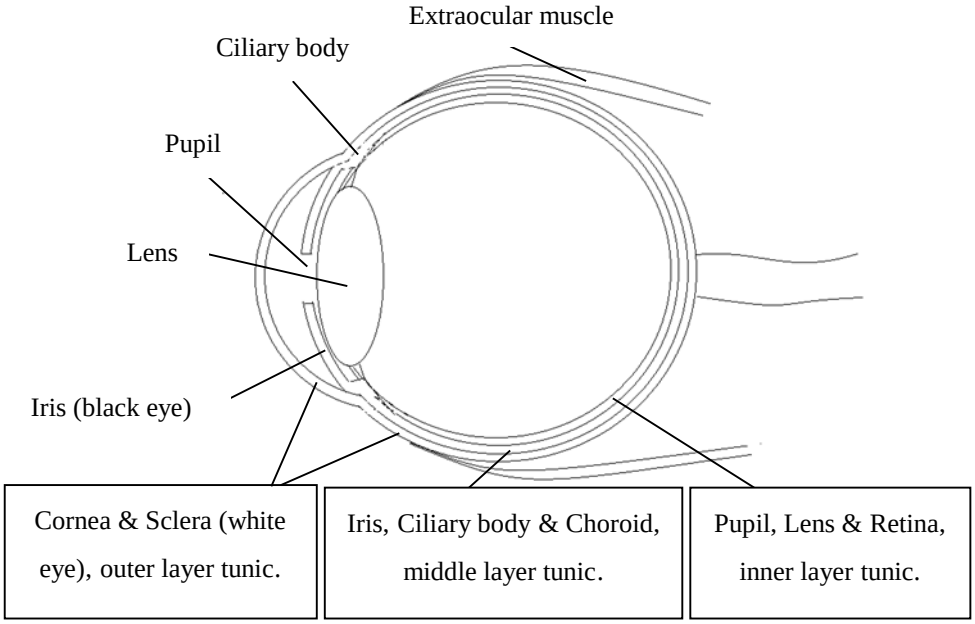


Figure 5: A sagittal view that illustrates the relationship between the eye components and the five wheels.

The reasons for considering the choice of Chai Ling Tang (CLT)

It's fascinating how the theory of TCM offers specific herbal prescriptions based on pulse diagnosis. According to this theory, if the left guan pulse is stronger than the right one, Minor Bupleurum Decoction (Xiao Chai Hu Tang)

might be considered, while if the right guan pulse is stronger, the Five-Herb Powder with Poria (Wu Ling San) could be a consideration [Chen, 2020]. However, due to the specialized training required for TCM pulse diagnosis, many ophthalmologists may not be familiar with this method.

In this study, we opted to use the Chinese medicine formula of CLT as the primary therapeutic prescription. CLT combines elements from both Xiao Chai Hu Tang (XCHT) and Wu Ling San (WLS) to address the coexistence of multiple syndromes. XCHT contains herbs like Bupleurum, Scutellaria, Pinellia, Ginger, Jujube, Ginseng, and Licorice, known for their anti-inflammatory and anti-allergy effects, particularly beneficial for liver and gallbladder health. On the other hand, WLS, a time-tested TCM prescription for edema [Zhu *et al*., 2016], includes Poria, Polyporus, Alisma, Atractylodes, and Cinnamon Bark, known for their diuretic and dampness-clearing properties.

This combination aims to promote diuresis, prevent water retention, maintain healthy water metabolism, and support kidney function (Figure 6). Animal studies have shown that WLS can induce diuresis and natriuresis by modulating the renin-angiotensin-aldosterone system [Ahn *et al*., 2012]. This dual-action approach in CLT makes it a promising candidate for treating conditions like CSC, where fluid balance and kidney function play crucial roles.

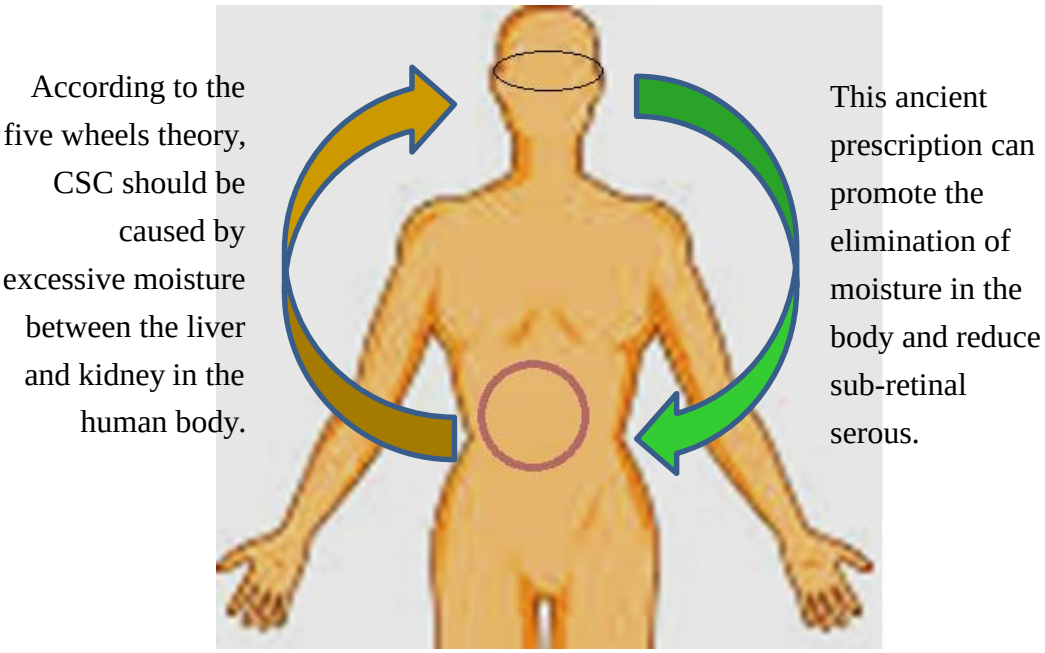


Figure 6: The relationship between CSC and the excess fluid in the human body.

The mechanism of CLT

It's impressive to see the diverse range of studies investigating the mechanism of action and effects of CLT in both animal and human subjects across different regions over the past decade. One study highlighted CLT as a potential alternative for patients with steroid-dependent nephrotic syndrome who do not respond well to or experience severe side effects from cytotoxic agents [Liu, 1995]. In rat models, CLT exhibited diuretic effects attributed to saikosaponin H, a key component of CLT, which acts as an antagonist to the mineralocorticoid receptor [Hattori *et al*., 2006]. Additionally, CLT was found to significantly suppress proteinuria in passive Heymann nephritis [Li *et al*., 1995]. Saikosaponin, derived from Bupleurum root, a component of CLT, has shown various pharmacological and immune-modulatory activities, including anti-inflammatory responses [Leung *et al*., 2005]. Furthermore, a study investigated CLT's impact on lymphedema induced by radiotherapy [Nagai *et al*., 2013].

These findings collectively suggest the potential of CLT in treating conditions related to fluid balance, inflammation, immune modulation, and lymphatic disorders. The broad spectrum of effects demonstrated by CLT in different studies underscores its versatility and therapeutic potential in various clinical scenarios.

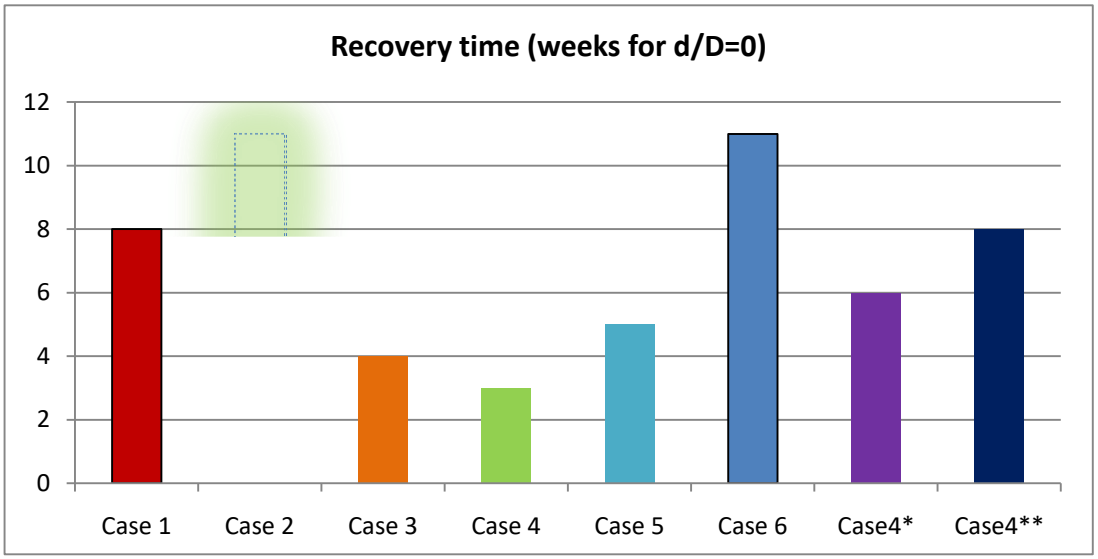
Beneficial effects of Bletilla striata

It's interesting to note the use of FAG in patients with CSC, which revealed a leakage at the level of the RPE rather than from retinal vessels. In this study, CLT was utilized to swiftly eliminate excess serous fluid near the liver and kidney, in line with TCM principles of addressing fluid balance and organ function. Additionally, Bletilla striata (Bai Ji) was added to the treatment regimen to aid in repairing the RPE and Bruch membrane of the choroid. Bletilla striata, a herb used in TCM for millennia, is characterized as bitter, astringent, neutral, and warm, and has been traditionally used for conditions like alimentary canal mucosal damage, ulcers, bleeding, bruises, and burns [Zhang *et al*., 2019; Chen *et al*., 2019]. Modern chemical and pharmacological studies have shed light on the beneficial effects of Bletilla striata, including its healing, hemostatic, antioxidative, anti-inflammatory, antifibrotic, and immunomodulatory properties in vitro [Kong, 2015; Liao *et al*., 2019; Zhang *et al*., 2019]. Polysaccharides found in Bletilla striata have particularly garnered attention as the main active substances responsible for these beneficial effects [Wang *et al*., 2019; Li *et al*., 2019].

By combining CLT for fluid management and *Bletilla striata* for tissue repair and antioxidative support, this treatment approach addresses multiple aspects of CSC pathogenesis and may contribute to improved clinical outcomes.

Prognosis of these CSC cases

Our study faced challenges in collecting sufficient number of cases for a randomized trial, mainly due to patients with CSC preferring to visit medical centers rather than clinics. Despite this limitation, our study included complete treatment follow-up records for all six patients except for case 2. The recovery time for SRS in the five tracked cases ranged from as fast as 3 weeks to a maximum of 3 months, with an average recovery time of less than 6.2 weeks (Figure 7), significantly quicker than the expected spontaneous recovery period of 2 to 3 months [Abouammoh, 2015]. Moreover, what's noteworthy is that patients only needed to take their medications as prescribed without requiring special leave or bed rest, allowing them to continue their usual activities.



Case4* & Case4**--- 1st & 2nd time recurrent of case 4.

Figure 7: The recovery time for all cases except case 2.

Although case 2 did not complete the follow-up for full recovery, the trend observed in their OCT scans suggested a high likelihood of recovery. In case 4, symptoms worsened when the patient initially did not take the medication but promptly improved upon starting the prescription, ultimately achieving full recovery. Even in cases of recurrence after many years, symptoms subsided upon reinitiating the same therapy.

Compared to other treatment options, patients treated with this Chinese herbal prescription experienced a significant reduction in SRS, improved VA, and a safe, rapid, and effective recovery process. These findings suggest promising benefits and increased recovery estimates for CSC patients undergoing this treatment approach.

Conclusions

In summary, the study demonstrated a highly positive response among CSC patients to the Chinese herbal formula Jia Jian Chai Ling Tang. These initial findings suggest the potential effectiveness of this herbal prescription in treating CSC. However, further comprehensive and extensive studies are necessary to thoroughly evaluate its efficacy and safety on a larger scale.

If these findings are substantiated through larger-scale studies, it could open up an additional therapeutic avenue for managing CSC. This would be significant in expanding the range of available treatment modalities, providing patients with more options for effectively addressing their condition.

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Conflicts of interest

The authors declare that there is no conflict of interest associated with this study.

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