

## Case report

# Chinese medicine, Gui Lu Er Xian Jiao – related serous retinal detachment 2nd to circumscribed choroidal hemangioma a case report

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## ABSTRACT

**Purpose:** Circumscribed choroidal hemangioma is a rare condition where there is development of benign vascular tumors, and it generally appears in middle-aged adults. Here we report a case of Chinese medicine, Gui Lu Er Xian Jiao – related serous retinal detachment secondary to circumscribed choroidal hemangioma.

**Observations:** A 55-year-old female, who had no remarkable ocular or medical history but has been taking a special Chinese compound medicine, Gui Lu Er Xian Jiao, for the past 2 years, presented with progressive blurred vision in the left eye for weeks. After serial ocular examinations, serous retinal detachment 2nd to circumscribed choroidal hemangioma was disclosed. Owing to the close timing association with medication history of Gui Lu Er Xian Jiao, we advised her to discontinue the Chinese medicine first. The serous retinal detachment resolved completely without any other management.

**Conclusions and Importance:** The content of Gui Lu Er Xian Jiao has been reported to have angiogenesis effect, which possibly change the vascular permeability and induce the serous retinal detachment and therefore blurred vision in our patient. To the best of our knowledge, this is the first report on such relationship between Gui Lu Er Xian Jiao and serous retinal detachment 2nd to circumscribed choroidal hemangioma. The case report highlighted the importance of detailed history taking in the management of ocular diseases.

## 1. Introduction

Circumscribed choroidal hemangioma, presents with progressive blurred vision, metamorphopsia, floaters, and visual field defects, is a rare and benign vascular tumor in middle-aged adults. The visual symptoms are caused by the development of cystoid macular edema, subretinal fluid, and retinal pigment epithelium changes, retinoschisis and subretinal fibrosis in long-standing cases. Treatment is indicated only when visual symptoms develop. Over the years, the management of choroidal hemangioma has evolved beginning with laser photocoagulation to transpupillary thermotherapy, plaque brachytherapy, photodynamic therapy, external beam radiotherapy and intravitreal injection of anti-vascular endothelial growth factor (VEGF) recently.<sup>1</sup> We present the first case of Gui Lu Er Xian Jiao – related serous retinal detachment 2nd to circumscribed choroidal hemangioma. Serous retinal detachment resolved completely after discontinuation of Chinese medicine without any other treatment.

## 2. Case report

A 55-year-old female presented to the clinic with chief complaint of progressive blurred vision in her left eye for a period of time, especially recent weeks. Her medical and ocular history was unremarkable, except for taking a special Chinese compound medicine, Gui Lu Er Xian, Jiao for 2 years. At initial visit, her best-corrected visual acuities (BCVA) were 1.0, OD and 0.5, OS. Pupils were equal sized, round, and normal light reaction in both eyes. Anterior segment was remarkable except mild lens opacity in both eyes. An orange-red elevated mass lesion with overlying pigmentary change and subretinal fluid was noted over the superior arcade of the left eye. Macula was detached too (Fig. 1A).

Ancillary ultrasonography demonstrated a solid choroidal mass with high internal reflectivity on AB scan (Fig. 2). The optical coherent tomography (OCT) revealed subretinal fluid over macula (Fig. 3A). Fluorescein angiography (FA) showed a large hyper-reflective mass, with large amounts of staining and late dye pooling (Fig. 4). The tumor markers including CEA (Carcinoembryonic Antigen), CA 125 (cancer

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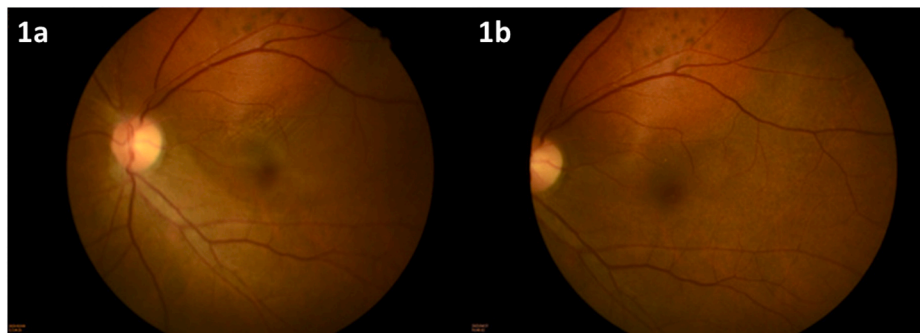
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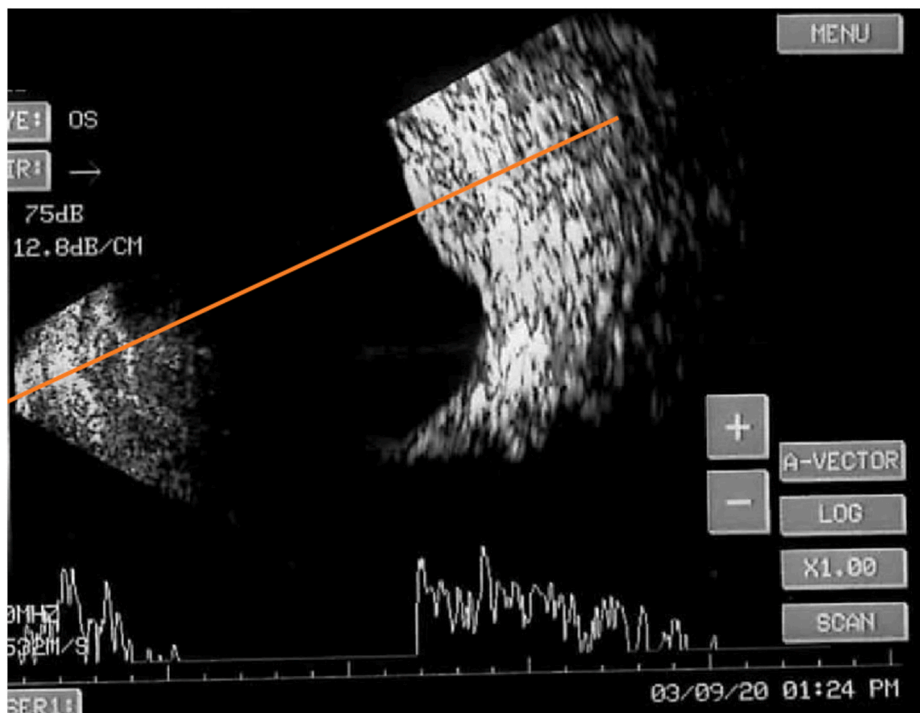
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**Fig. 1.** A: Baseline fundus photo showed an orange-red elevated lesion over the superior arcade with pigmentation and overlying subretinal fluid involving macula. B: Fundus photo at 3.5 months after presentation showed resolved subretinal fluid with mass remained. (For interpretation of the references to colour in this figure legend, the reader is referred to the Web version of this article.)



**Fig. 2.** Baseline ultrasonography demonstrated a solid choroidal mass with high internal reflectivity.

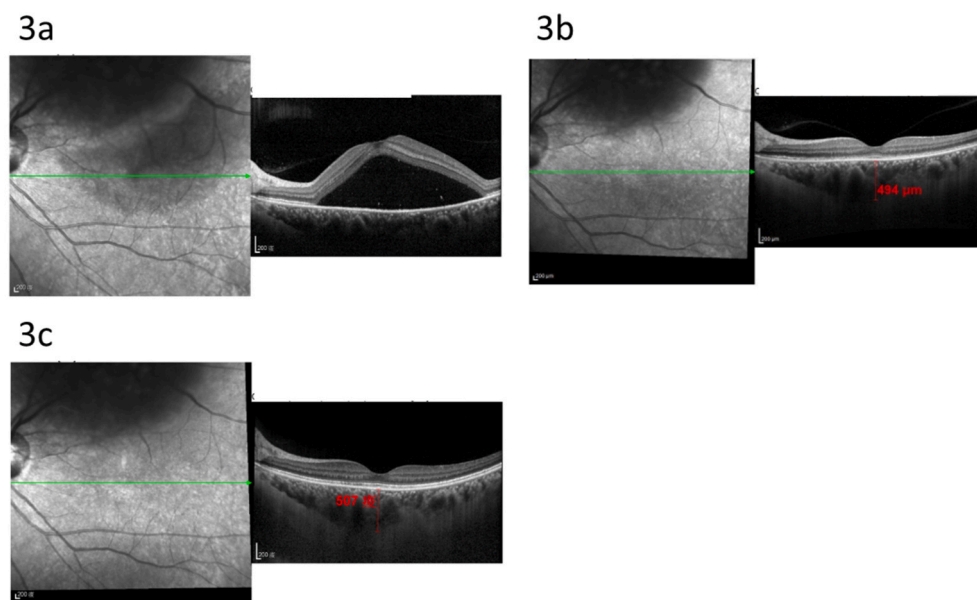
antigen 125), CA153 (cancer antigen 153), and CA199 (cancer antigen 199), were all within normal limits. Brain MRI (Magnetic Resonance Imaging) showed focal thickening with enhancement at the posterior part of the left eye globe without other remarkable findings (Fig. 5).

Based on the above finding, circumscribed choroidal hemangioma complicated with secondary serous retinal detachment was diagnosed. Before any aggressive treatment, we advised her to discontinue Gui Lu Er Xian Jiao owing to the close timing association with medication history of the Chinese medicine. The serous retinal detachment resolved completely without any other management (Fig. 3B and C). Her BCVA improved to 0.9 at the visit 3.5 months later. There was no subretinal fluid, though the choroid tumor persisted (Fig. 1B).

### 3. Discussion and conclusions

We report the first case of Gui Lu Er Xian Jiao – related serous retinal detachment 2nd to circumscribed choroidal hemangioma. The clinical finding and image studies supported the diagnosis of circumscribed choroidal hemangioma with serous retinal detachment. With the alert of medication history, we successfully manage this case without any further costly or invasive therapy.

Circumscribed choroidal hemangioma mimics several ocular conditions, and it requires additional tests for a proper diagnosis.<sup>2</sup> Currently, multimodal imaging, including ultrasonography, FA, MRI, and OCT are helpful in the differential diagnosis to rule out the possibility of malignance like choroidal melanoma and choroidal metastasis. Under



**Fig. 3.** A: Baseline optical coherent tomography (OCT) revealed a subretinal fluid at macula. B: Optical coherent tomography (OCT) 1 months after first visit showed decreased subretinal fluid. C: Optical coherent tomography (OCT) 3.5 months later showed complete resolution of subretinal retinal fluid.

ultrasonography exam, high internal reflectivity is a typical character for circumscribed choroidal hemangioma since blood vessels and components similar to the normal choroidal structure consists of circumscribed choroidal hemangioma. In contrast with circumscribed choroidal hemangioma, choroidal melanomas usually show acoustic hollowness with low to medium internal reflectivity. On the other hand, it could be confusing to distinguish choroidal metastasis from circumscribed choroidal hemangioma since they share similar ultrasonic findings.

In the FA test, circumscribed choroidal hemangioma displays a characteristic pattern with lacy hyperfluorescence increasing through all stages.<sup>3,4</sup> In contrast, choroidal metastasis and choroidal melanoma shows a hypofluorescent pattern in early arterial phases, with hyperfluorescence in venous phases.<sup>5</sup> On the other hand, central serous chorioretinopathy reveals early hypofluorescence succeeded by the ink blot appearance or classic smokestack appearance of fluid leakage.<sup>6</sup>

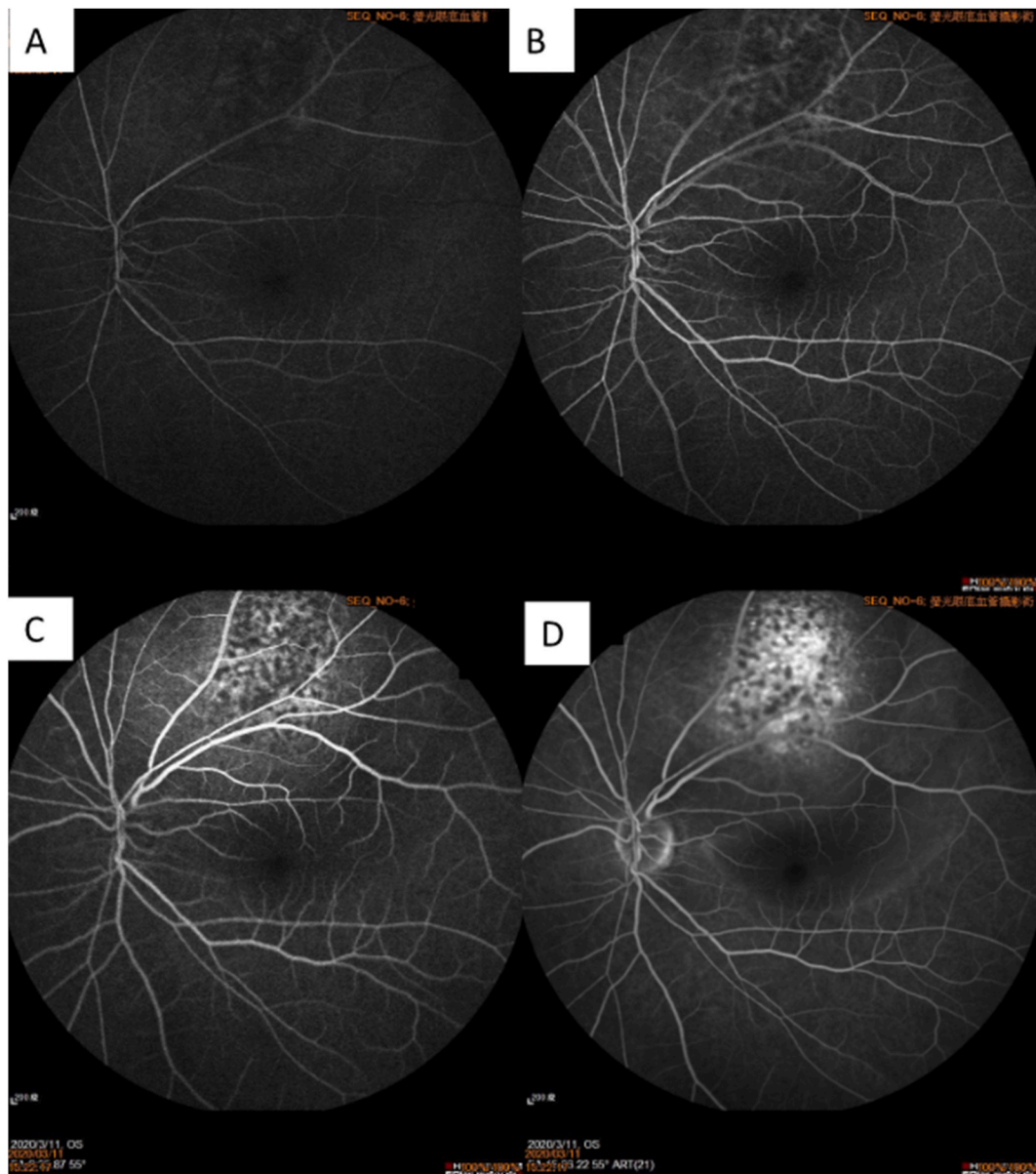
The MRI adds extra helps in differentiating circumscribed choroidal hemangioma from choroidal melanoma and metastasis. All of the three diseases seem to be hyperintense under T1-weighted phase. However, circumscribed choroidal hemangioma is typically hyperintense or isointense while choroidal melanomas and metastasis demonstrated low signal under T2-weighted images.<sup>3</sup>

Circumscribed choroidal hemangioma tends to be benign and asymptomatic, and usually spontaneous subsides under conservative management most of the time. Although it is rare, this disease can lead to a sight-threatening situation by causing serous retinal detachment, macular edema or neovascular glaucoma. There are several treatment options available for serous detachment or macular edema, including photodynamic therapy (PDT), external beam and proton beam radiation, plaque brachytherapy, stereotactic radiosurgery, laser photocoagulation, transpupillary thermotherapy, anti-VEGF injections and oral propranolol.<sup>1</sup> The primary goal is to diminish the macular edema but not

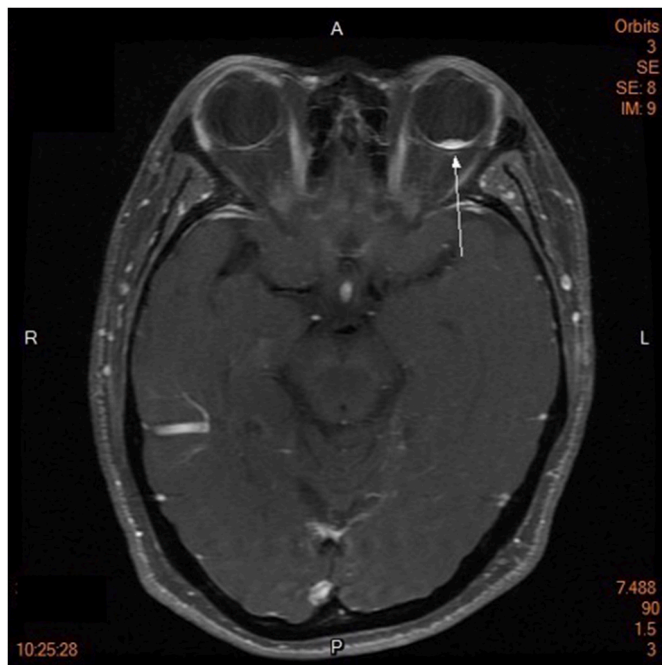
to decrease the tumor size, although it might be beneficial as well.

The content of Gui Lu Er Xian Jiao, a special Chinese compound medicine, includes Tortoise Shell, deer antler, Ginseng, and Lycium chinense. This Chinese medication in complexity has been reported to have an angiogenesis effect. The only known mammalian organ that can completely regenerate is deer antlers. According to previous study, the growing antler tip expresses VEGF and pleiotrophin which promotes angiogenic effect. In the vascular smooth muscle cells of the dermis, Pleiotrophin mRNA was found, then supporting a possible role in vascular growth.<sup>7</sup> In vivo, pleiotrophin is directly initiation an angiogenic effect in different cancer models.<sup>8</sup> Recent research revealed that growth centers of growing antlers expresses thymosin beta 10 (TMSB10) which was identified as a novel stimulating factor for angiogenesis, cartilage formation, and nerve growth.<sup>9</sup> Ginseng contained Ginsenoside Rg1, which can induce angiogenesis, such as wound healing.<sup>10</sup> We speculate that this kind of angiogenesis effect possibly change the vascular permeability and induce the formation of serous retinal detachment in our patient. This hypothesis may be supported by endothelial cells with VEGF overexpression involved in the pathogenesis of cutaneous capillary haemangiomas.<sup>11</sup> By discontinuation of the medication, the angiogenesis effect waned over and the subretinal fluid resolved. However, the remained circumscribed choroidal hemangioma requires vigilant follow-up. It is possible that the resolution could be the result of spontaneous resolution by itself.<sup>3</sup> However, the close timing relationship with the discontinuation of medication warns us the possibility of medication related serous detachment.

In conclusion, we report the first case of Gui Lu Er Xian Jiao – related serous retinal detachment 2nd to circumscribed choroidal hemangioma. With the alert of medication history, we successfully manage this case without any further costly or invasive therapy. The case report highlighted the importance of detailed history taking in the management of ocular diseases.



**Fig. 4.** Baseline fluorescein angiography (FA) showed a large hyper-reflective mass, with large amounts of staining and late dye pooling. (A) Early phase showed a hypofluorescent patch with stippling autohyperfluorescence within over temporal upper near superior arcade. (B) Mid phase showed leakage from the above lesion and relatively subretinal block fluorescence compatible to subretinal fluid shown on OCT. (C, D) Late phase and more leakage from the above and dye pooling surrounding.



**Fig. 5.** Baseline brain MRI T2 showed focal thickening with enhancement at the posterior of the left eye globe without other remarkable findings.

#### Patient consent

The patient's legal guardian consented to publication of the case in Writing.

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#### Authorship

All authors attest that they meet the current ICMJE criteria for Authorship.

#### Declaration of competing interest

None of the authors have any financial disclosures.

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