Spontaneous suprachoroidal and orbital hemorrhage in an older woman associated with prophylactic antiplatelet therapy: A case report and literature review

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ABSTRACT
An 80-year-old woman presented to our Ophthalmology Clinic for sudden pain and loss of vision in her right eye for seven days. She had a medical history of atrial fibrillation and cardiac valvular disease and received prophylactic antiplatelet therapy for more than ten years. Spontaneous suprachoroidal and orbital hemorrhage and secondary angle-closure glaucoma was diagnosed according to clinical manifestation and confirmed with B-scan ultrasound and Magnetic Resonance Imaging. The patient was given transscleral cyclophotocoagulation (TSCPC) combined with medical therapy to lower intraocular pressure (IOP). At a follow-up visit of 4 weeks after treatment, the patient's IOP was normal and symptoms such as eye pain and headache disappeared completely. In this case, we found that TSCPC was beneficial for lowering IOP and relieving pain.

1. Introduction
Spontaneous suprachoroidal hemorrhage (SESCH) is suprachoroidal hemorrhage occurring without surgical and trauma causes [1]. The most common risk factor for SESCH is age-related macular degeneration (AMD) [2], especially treated with anticoagulants [3]. Previous case reports and reviews revealed that SESCH also relates to hypertension, diabetic mellitus, and high myopia [2, 4]. SESCH is rare in clinical practice and the literature on SESCH has been limited so far.

Cyclophotocoagulation (CPC) is known as cyclodestructive laser procedures, which is usually indicated for refractory glaucoma unresponsive to first-line surgical options and maximal medical therapy [5]. CPC mainly includes transscleral cyclophotocoagulation (TSCPC) and endoscopic cyclophotocoagulation. TSCPC is a laser treatment for glaucoma that lowers IOP by decreasing the aqueous production [6]. In recent years, micropulse transscleral cyclophotocoagulation is another promising approach, by which laser energy can be delivered to a localized area with minimal collateral tissue damage [7]. TSCPC has been confirmed to be of value in lowering the IOP and reducing the number of glaucoma medications in adult patients with refractory glaucoma [6]. However, it has not been reported that TSCPC is used to treat secondary glaucoma caused by SESCH in the literature we reviewed.

2. Case report
An 80-year-old woman was admitted to our hospital for sudden pain and loss of vision in the right eye for seven days. Seven days ago, the patient developed sudden vision loss in the right eye without any inducement, accompanied by ecchymosis of her right eyelid and severe pain in her right eye. The patient had a history of diabetes mellitus for 14 years and received insulin therapy for 3 years with fasting blood glucose controlled at normal level. She also had a history of atrial fibrillation and cardiac valvular diseases for about 11 years and took aspirin orally (100 mg per day) for 10 years.

On examination, the patient had no light perception in her right eye and a best-corrected visual acuity of 20/60 in her left eye. The right eyelid was severely swollen with subcutaneous ecchymosis. Extensive subconjunctival hematoma was visible in the inferior, temporal, and supratemporal conjunctiva (Figure 1A). The cornea was cloudy with a dilated and fixed pupil, and the anterior chamber nearly disappeared. Red bloody coagulation was observed through the moderately cloudy lens. The retina could not be examined due to the cloudy cornea and vitreous body. Her IOP was 53 mmHg in the right eye and 12 mmHg in the left eye. B-scan ultrasound revealed a bilobed suprachoroidal hemorrhage (Figure 1B). Magnetic resonance imaging (MRI) of the brain and

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The IOP decreased to 37 mmHg on the follow-up. Subconjunctival and suprachoroidal hemorrhage were (Figure 1D). There was no pain or swelling in her right eye at 4-week her right eyelids and most of subconjunctival hemorrhage was absorbed to stop using IOP-lowering medicine. Total subcutaneous ecchymosis of mmHg on the seventh day. At 2-week follow-up, the patient was advised with routine topical and oral IOP-lowering medicine [8]. Up to date, vicious cycle causes an extremely high IOP which is quite hard to control anterior chamber and further pushes the lens-iris diaphragm forward. The septum. Therefore, the blocked aqueous humor accumulates in the pos- hemorrhage leads to an abrupt forward displacement of the lens-iris rhage might be associated with prophylactic antiplatelet therapy.

3. Discussion

Suprachoroidal hemorrhage is usually caused by ocular surgery or trauma. In this rare case, spontaneous suprachoroid and orbital hemorrhage might be associated with prophylactic antiplatelet therapy. Massive separation of choroid and retina resulted from suprachoroidal hemorrhage leads to an abrupt forward displacement of the lens-iris septum. Therefore, the blocked aqueous humor accumulates in the posterior chamber and further pushes the lens-iris diaphragm forward. The vicious cycle causes an extremely high IOP which is quite hard to control with routine topical and oral IOP-lowering medicine [8]. Up to date, literature on SESCH treatment with TSCPC has not been reported. In this case, we found that TSCPC was beneficial for lowering IOP by reducing the production of aqueous humor and relieving the blockage of ciliary ring. To some extent, TSCPC is an optional treatment for glaucoma secondary to SESCH, especially for massive suprachoroidal hemorrhage.

It is reported that active drainage of choroidal blood was able to preserve some vision in several cases. Meier et al. [9] suggested that drainage by surgical treatment of sclerotomy or vitrectomy should be performed to minimize SCH-induced damage. However, Scott et al. [10] conducted a study, which enrolled 51 patients of massive SCH, and demonstrated no significant differences in visual outcome between observational management and surgical intervention. In this case, surgical intervention was not chosen for the following three reasons. First, the patient is elderly and has many systemic diseases, including diabetes, valvular heart disease, and atrial fibrillation, which indicated a high risk of surgery. Second, blood tests indicated an abnormal coagulation function, which poses a great possibility of further hemorrhage if we attempt to surgically remove the subchoroidal hematoma. Third, several studies demonstrated that not all massive suprachoroidal hemorrhage must be drained surgically [11, 12].

4. Conclusion

In conclusion, SESCH is a very rare disease. Physicians are supposed to be alerted by the eye pain or visual changes following systemic thrombolytic or anticoagulation therapy for the possibility of SESCH. After the occurrence of SESCH, hemostatic agents, topical and systemic IOP-lowering therapy are the routine treatment regimen. The final visual outcomes are generally poor, especially extensive bleeding, which is likely to result in permanent vision loss. Prompt diagnosis as well as treatment may improve the likelihood of a favorable visual outcome. TSCPC seems to be an alternative treatment for glaucoma secondary to SESCH to lower IOP and relieve pain, which needs further evaluation in large-scale studies.

Declarations

Author contribution statement

All authors listed have significantly contributed to the investigation, development and writing of this article.

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The authors declare no conflict of interest.

Additional information

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