

A machete blow injury to the forehead causes a Chorioretinitis Sclopetaria: A case report

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ABSTRACT

Purpose: To report a case of Chorioretinitis Sclopetaria after a forehead machete trauma.

Observations: A 28-year-old male patient was referred to the ophthalmology department in Guatemala City due to a laceration on the forehead caused by a machete. The visual acuity of his right eye (OD) was decreased to 5/200. Examination of the fundus revealed vitreous hemorrhage and commotio retinae. Imaging with computed tomography displayed a fracture on the temporal wall and the roof of the right orbit. The optical coherence tomography of the right eye showed abnormalities in the external layers and subfoveal hemorrhage. Utilizing ultrasound in B-scan, it was noted that the vitreous was not completely attached to the back of the eye, with the retina being displaced and increased echogenicity in the posterior segment. A vitrectomy was performed two weeks after the initial assessment. Following the surgery, the patient's visual acuity in the right eye improved to 20/200 after four months.

Conclusions: Chorioretinitis Sclopetaria Traumatic is rare, but reports have increased over the past two decades. It can happen not only in response to a high-velocity missile striking or passing adjacent to but not penetrating, the globe but also in response to a strong impact in adjacent areas.

1. Introduction

Chorioretinitis sclopetaria is a term referring to a condition linked with indirect trauma to the eyeball, where a shockwave produced by nearby explosive forces results in harm to the choroid and retina¹.

This condition arises when a high-velocity projectile strikes or passes close to the eye, causing a full-thickness break in the choroid and retina. The shock waves generated by the passing projectile lead to hemorrhage in the retinal and/or vitreous regions, as well as a rupture in the choroid that manifests as claw-like white or yellow streaks in the pattern of Bruch membrane.^{2,3} An atypical aspect of the clinical scenario under discussion is the occurrence of chorioretinitis sclopetaria following trauma to the ocular area due to a machete injury, resulting in subsequent damage.

The descriptive term "chorioretinitis" initially referred to white areas seen on fundus examination that were thought to be inflammatory, but are now considered a misnomer. The derivation of sclopetaria may either refer to the Latin "sclopetum," which is a type of 14th-century Italian handgun, or the old English verb "sclow," which means to scratch or tear.⁴

In current times, it is customary to use the term "traumatic chorioretinal rupture," which appears to be preferable to the outdated term. This is because the crucial point is that the rupture is generally a result of trauma, rather than any infectious process.⁵

Given the low prevalence of the diagnosis, there is no specific recommendation as to whether immediate surgical management or observation should be pursued.⁶

2. Case report

A 28-year-old man was referred to the ophthalmology unit, 1 day following injury to OD from a machete injury. He complained of strong pain and loss of vision. His past ocular history and family history of anamnesis were unremarkable (see Fig. 1).

A wound within the forehead measuring approximately 12 cm was observed. The best-corrected visual acuity (BCVA) was 5/200 OD and 20/20 OS. The slit-lamp exam revealed subconjunctival hemorrhage in the temporal quadrants, traumatic iritis, cellularity 3+, angular recession in the lower quadrant, and blood in Schlemm's canal hours 1 to 3. Fundus examination of the right eye revealed vitreous hemorrhage,

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Fig. 1. 12 cm suture in a frontal bone area.

retinal hemorrhage, commotio retinae, and a traumatic chorioretinal rupture (see Fig. 2).

The examination of the OS was unremarkable. The intraocular pressure was 16 mm Hg OU. Computed tomography (CT) revealed a fracture of the temporal wall and the roof of the right orbit. An OCT showed distortion of external layers and subfoveal hemorrhage (Fig. 3).

Treatment was installed at OD prednisolone 1 % one drop every hour for 7 days and tapping every week until omission; atropine drops 1 % every 8h for 2 weeks; sodium hyaluronate 0.4 % every 4h for 1 month; local ice for 3 days, semi-fowler rest and new appointment within a week.

A week later, a B-scan dynamic ultrasonography of the right eye was done and showed that the vitreous was partially detached. The retina was applied and hyperechogenicity in the posterior pole was observed, which could correspond to a partial posterior vitreous detachment, hemorrhagic vitreous detachment, possibility of subretinal hemorrhage (Fig. 4).

Two weeks after the initial examination, a vitrectomy and endolaser

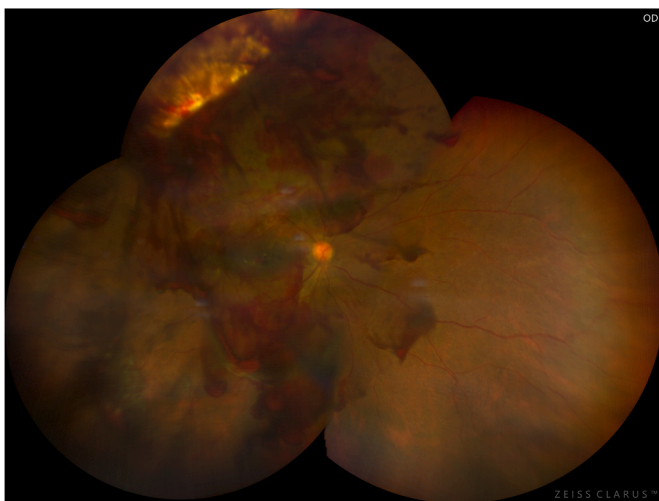


Fig. 2. Color fundus photograph of the right eye showed an abnormal posterior pole: massive edema of the major part of the posterior pole, and hemorrhagic masses.

surgery were performed. During the pre-surgical evaluation, visual acuity was 1/200 (See Fig. 5).

On the day after surgery, a visual acuity examination revealed that the patient could see just hand movements. Fundus examination revealed subfoveal retinal hemorrhage, retina attached.

The prescribed medication post-op was moxifloxacin 0.5 % every 4h, prednisolone 1 % every 3h, and atropine every 8h.

Within a month after surgery, visual acuity was improved in the right eye to 5/200. Four months after injury BCVA was improved to 20/200 OD. On a routine examination, superior laser markings and applied retina were observed. The patient lost his follow-up appointments in the following months.

3. Discussion

Eyes presenting with traumatic chorioretinal rupture are typically managed through observation alone due to the low risk of retinal detachment.^{7,8}

However, in the present case, the dense vitreous hemorrhage significantly obstructed visualization of the posterior segment. Therefore, vitrectomy was performed. During the surgical procedure, after the removal of blood clots, the traumatic chorioretinal rupture (TCR) became distinctly visible and was encircled with endolaser.

Due to the relative scarcity of TCR, a unanimous agreement on the most effective therapeutic strategy has yet to be determined. Individuals presenting with sclopetaria, as evidenced in this instance, encounter a heightened susceptibility to delayed vitreous hemorrhage and retinal detachment, thereby warranting deliberation for timely surgical management.⁶

Throughout history, up until the year 2014, Transscleral cyclophotocoagulation (TCR) was commonly linked with minimal risk of retinal detachment, leading to the adoption of an observational strategy. Nevertheless, a shift in viewpoint has been noted post-2014, as an escalating number of case studies have recommended prioritizing early surgical treatment. Notably, Papakostas et al. presented a series of case studies showcasing three patients diagnosed with TCR who subsequently experienced retinal detachment within a brief timeframe.

It is important to highlight that all these patients had undergone surgical procedures prior to the onset of detachment.⁹

Ludwig et al. recommended an individualized approach. Namely, close observation and, if necessary, surgical intervention.¹⁰

The visual acuity is often significantly impaired, and the visual prognosis is contingent upon the condition of the macula and the location of sclopetaria. A comprehensive literature review revealed that most patients achieved a visual acuity of 20/200 or worse. Notably, the most unfavorable locations are typically superior and temporal, as observed in the presented case^{10,11}

4. Conclusion

Traumatic chorioretinal rupture is a rare condition, but reports have increased over the past two decades.¹⁰ It can happen not only in response to a high-velocity penetrating object that doesn't cause a rupture of the globe but also in response to a strong impact in adjacent areas.

Patient consent

Consent to publish this case report has been obtained from the patient in writing.

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Fig. 3. OCT of the right eye shows distortion of external layers and subfoveal hemorrhage.

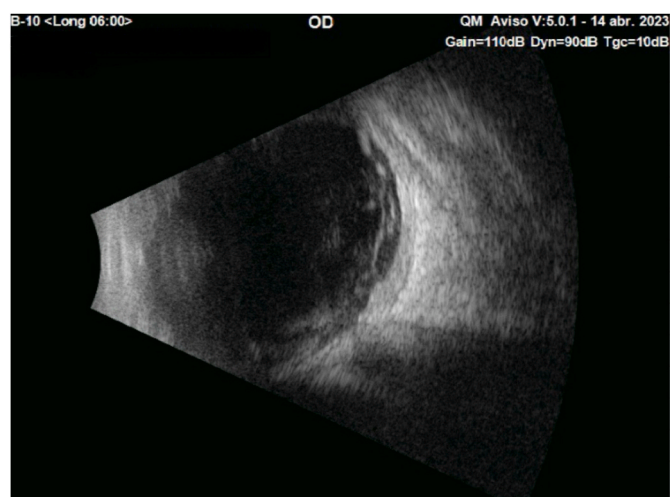


Fig. 4. Ultrasound in B-scan.

Authorship

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

CRediT authorship contribution statement

Hanna Plotnitskaya: Writing – review & editing, Writing – original draft. **José Santos Romero Estrada:** Writing – review & editing, Supervision.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence

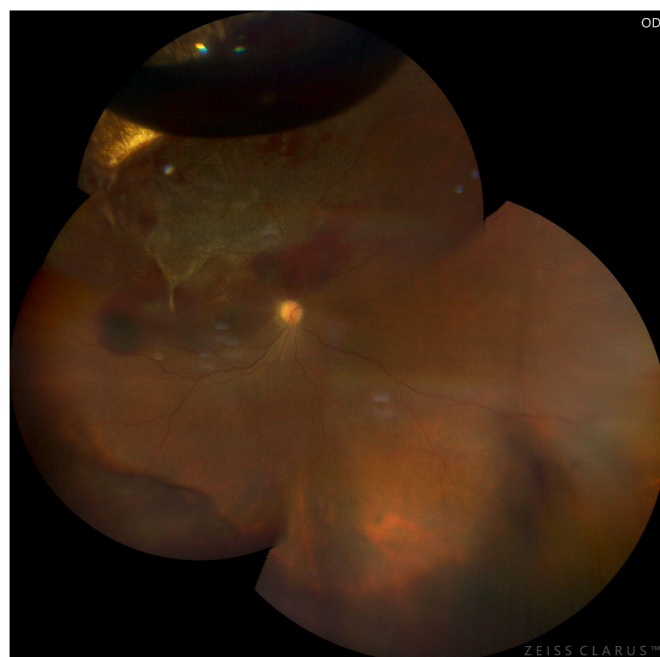


Fig. 5. The day after surgery. Subfoveal retinal hemorrhage, retina attached.

the work reported in this paper.

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