

Commotio retinae (Berlin's oedema)

Commotio Retinae (also known as Berlin's Oedema) is a condition where the retina suffers from a transient whitening following blunt trauma to the eye. This whitening is due to the opacification of the outer retinal layers, particularly the photoreceptor layer. While the acute phase of commotio retinae often resolves without permanent damage, there can be long-term retinal complications in some cases, which include:

History - Commotio retinae is also known as Berlin's edema due to its historical association with the German ophthalmologist, Dr. Karl Stellwag von Carion. In 1873, Dr. Stellwag von Carion described a characteristic retinal whitening following blunt trauma to the eye. However, the condition was later named after another German ophthalmologist, Dr. Rudolf Berlin, who made significant contributions to the understanding of this condition in the late 19th century.

Dr. Berlin was the first to describe the pathophysiology of this condition in detail. He recognized that the transient whitening of the retina was due to the opacification of the outer retinal layers, particularly the photoreceptor layer, and not due to edema in the traditional sense (fluid accumulation). Despite this, the term "edema" remained part of the nomenclature, as the retinal appearance was akin to swelling or edema seen in other tissues.

- 1. Retinal Pigment Epithelium (RPE) Changes:** Persistent changes in the RPE can occur, leading to atrophy or hypertrophy. These changes may result in permanent alterations in the pigmentation of the retina, which can affect visual acuity.
- 2. Choroidal Neovascularization (CNV):** In more severe cases, the disruption of Bruch's membrane can lead to CNV, where new, abnormal blood vessels grow under the retina. CNV can lead to further vision loss and may require treatment such as anti-VEGF therapy.
- 3. Photoreceptor Damage:** The photoreceptors, primarily rods and cones, can be permanently damaged, especially if the trauma is severe. This can lead to a decrease in visual acuity, contrast sensitivity, and color vision.
- 4. Recurrent Retinal Detachment:** Patients with a history of commotio retinae may be at an increased risk of retinal detachment, particularly if the trauma was significant enough to cause breaks or tears in the retina.
- 5. Macular Hole Formation:** In some cases, the trauma can lead to the formation of a macular hole, a small break in the macula, which can cause significant central vision loss.
- 6. Subretinal Hemorrhage:** Blunt trauma can cause bleeding under the retina, which can lead to scarring and disruption of the normal retinal architecture.
- 7. Full-Thickness Retinal Necrosis:** Very severe trauma can result in necrosis (death) of the full thickness of the retina, which can lead to permanent vision loss in the affected area.
- 8. Epiretinal Membrane Formation:** Following the resolution of commotio retinae, there can be an increased risk of epiretinal membrane formation, which can distort vision.

It's important to note that the extent and severity of long-term complications depend on the severity of the initial injury. Not all patients with commotio retinae will experience these complications. Regular follow-up with an ophthalmologist is crucial for anyone who has experienced a significant eye injury, as early detection and treatment of complications can help preserve vision. Additionally, protective eyewear is recommended in activities with a high risk of eye trauma to prevent such injuries.

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