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Post traumatic hypotony maculopathy

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Abstract :
A 21-year-old man had abrupt visual loss in the right eye after ocular traumatism.
He had been taking prednisolone every 2 hours atropine three times a day for 1 month without improvement.
Visual acuity was 20/20 in the left eye and counting fingers in the right eye.
Intraocular pressure was 15 mm Hg in the left eye and 8 mmHg in the right eye by applanation tonometry.
Gonioscopy revealed a cyclodialysis, and funduscopic examination revealed hypotony maculopathy
Argon laser photocoagulation was applied to the cyclodialysis cleft
(spot size = 150 µm, duration = 0.2 second, power = 200 to 350 mW) and again 4 days later (spot size = 100 µm, duration = 0.1 second, power = 200 mW)
Three weeks following the second laser treatment, his best-corrected visual acuity in the right eye had improved to 6/10
Keywords : *Post traumatic, Hypotony, Maculopathy*

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I. Introduction :

Hypotonic maculopathy is characterized by hypotonia associated with reduced visual acuity, papillary edema, vascular tortuosity, and chorioretinal folds. It usually occurs after filtration surgery, but also following uveitis or ocular trauma

Once the diagnosis is made, the management must be early and urgent, a prolonged ocular hypotonia, would lead to permanent macular alterations and a permanent loss of vision.

II. Case Report :

21-year-old man victim of contusive ocular trauma by stone-throw on his right eye
Visual acuity with correction was counting fingers on the right and maintained at 10/10 in the left eye
Examination of the appendages found edema and palpebral ecchymosis on the right
The IOP was 10 mmHg
Examination of the anterior segment found slight corneal edema, stage 2 hyphema, iris sphincter tear at 4h and an early post-traumatic cataract
The fundus examination, performed 5 days after the trauma, after absorption of the hyphema, revealed chorioretinal folds in the region of the macula

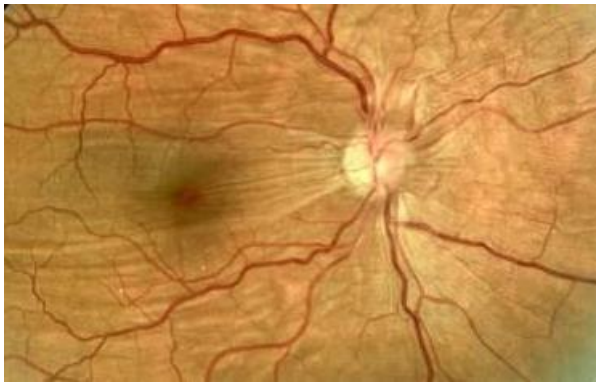

Figure 1 : Chorioretinal folds

Gonioscopy showed a cyclodialysis slit at 5-7 h

The patient underwent a macular OCT objectifying significant chorioretinal folds confirmed by angiographic sequences

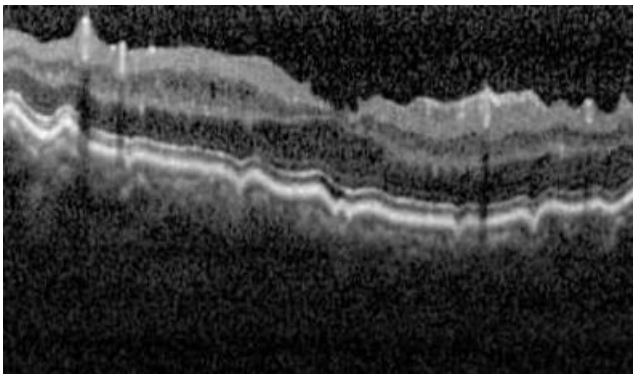

Figure 2 : Macular OCT

Figure 3 : Fluorescein angiography also highlights chorioretinal folds

The patient was put on topical corticosteroid therapy, then on atropine eye drops, but the IOP in the right eye remained low

Two sessions of argon laser photocoagulation to the ciliary body were performed, and the IOP normalized after the second laser treatment.

(spot size = 150 µm, duration = 0.2 second, power = 200 to 350 mW) and renewed 4 days later (spot size = 100 µm, duration = 0.1 second, power = 200 mW).

Three weeks after the second laser treatment, right visual acuity improved to 6/10

At the last follow-up examination 2 years after the eye trauma, visual acuity was 8/10 and IOP was 14 mmHg, and the retinal and choroidal folds were completely resolved

III. Discussion :

The most common cause of hypotonia is post-surgical, up to 20% of cases of glaucoma filtration surgery are associated with hypotonic maculopathy

In addition to filtration surgery, there are other causes of hypotonic maculopathy, in particular that following a closed ocular trauma where the hypotonia can be either transient, caused by a lesion of the ciliary

body and therefore a decrease in the secretion of aqueous humor, or persistent, caused by a mechanism that creates a direct pathway from the aqueous humor to the suprachoroidal space such as cyclodialysis.

Male gender, myopia and young age were associated with an increased risk of hypotonic maculopathy, reduced scleral stiffness in these patient groups would contribute to scleral wall collapse during hypotonia, causing chorioretinal folds.

Hypotonic maculopathy results in decreased visual acuity, or even metamorphopsia, as well as relative hyperopia due to the reduction in the anteroposterior diameter of the eye. Examination of the fundus reveals papillary edema associated with chorioretinal folds which often radiate to the fovea. Reducing IOP can lead to abnormal retinal capillary permeability and increase the risk of cystoid macular edema and serous retinal detachment.

Optical coherence tomography (OCT) is an important tool for diagnosing subclinical hypotonic maculopathy and assessing resolution of abnormal anatomy after improvement in IOP.

Fluorescein angiography also highlights chorioretinal folds and differentiates choroidal folds from retinal folds. We can note an irregular choroidal filling, producing hyperfluorescent streaks corresponding to the crests of the choroidal folds. The hollows of the folds appear hypofluorescent.

There may also be late papillary retention and diffusion

Treatment for hypotonic maculopathy depends on the cause of the hypotonia. Delayed treatment of hypotonia can lead to permanent changes in the retina and choroid and permanent visual loss

Post-traumatic macular hypotonia sometimes resolves spontaneously. If hypotonia persists, treatment is necessary, we note:

Medical treatments including atropine and topical corticosteroid therapy,

Physical treatments: cryotherapy or argon angle laser,

Surgical treatments: suturing of the ciliary body, intraocular injection of expanding gas, implantation of intraocular lens in the sulcus, vitrectomy and encircling loop.

IV. Conclusion :

Post-traumatic hypotony maculopathy is rare, however it must be feared in the presence of severe closed ocular trauma, of course it can heal spontaneously but in a significant number of cases medical and / or physical or surgical treatment has been resorted to

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