FILTERING BLEB AFTER SURGICAL CYCLODIALYSIS

AMPOLLA FILTRANTE SECUNDARIA A CIRUGÍA DE CICLODIÁLISIS

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ABSTRACT

case report: A 35-year-old man with degenerative myopia suffered blunt ocular trauma due to being hit in the face by a ball. The injury caused four cycloidialysis clefts in his left eye which resulted in hypotony and chorioretinal folds.

discussion: The persisting hypotony was unsuccessfully treated with topical therapy and with laser photocoagulation. Therefore, a surgical treatment with direct cyclopexy was performed. In one of the cycloidialysis clefts, incarcerated vitreous was found, and this was considered to be the reason for its incomplete closure. In the postoperative period complete closure of the cycloidialysis cleft was observed; however an unexpected filtering bleb appeared, which could have affected good control of intraocular pressure (Arch Soc Esp Oftalmol 2006; 81: 591-594).

key words: Eye injury, ocular hypotony, filtering bleb, cyclodialysis, cyclopexy.

INTRODUCTION

Cyclodialysis clefts consist in areas of deinsertion of the ciliar strip in the scleral spur (1). This can cause sustained hypotony together with painful irritative iridocyclitis (1,2). If the aqueous humor leakage (facilitated by this uveoscleral pathway) exceeds production, the anterior chamber flattens. Even a small cleft could result in a full evacuation of the secreted aqueous humor (1,2).

Received: Nov. 29, 2005. Accepted: Oct. 19, 2006.
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CASE REPORT

A 35 year-old man with degenerative myopia, myopic anisometropy and amblyopia, initial VA of 1 with –8.5 spherical D in his right eye and of 0.15 (–15 sph. D) in the left one. The patient got hit by a ball in the left eye. His eyesight reduced to mere perception of light and exhibited a clot occupying half of the anterior chamber (fig. 1) and intraocular pressure (IOP) of 3 mmHg. The eye fundus was not visible to opacity. The echography showed the applied retina and isolated echoes in the vitreous chamber compatible with blood. The gonioscopy revealed a grade I-II reduction of the anterior chamber and the deinsertion of the entire ciliar body except between 4-7 o’clock, as well as blood in Schlemm’s canal. In addition, there was a large Cyclodialysis made up by 4 fissures.

After a topical treatment with atropine and dexamethasone eye drops and systemic treatment with orally administered prednisone, IOP reached 9mmHg. When the clot disappeared, IOP went down again to 5 mmHg, with the exploration showing an oveal pupil, phacodonesis, posterior subcapsular opacity and vitreous fibers in the anterior chamber above the upper pupillar edge. The retina exhibited peripheral hemorrhage at 12 o’clock and chorioretinal folds throughout the posterior pole with macular edema.

Three months after the accident, the patient exhibited a VA of 0.033 but the hypotony remained in values between 4 and 5 mmHg. In addition, he exhibited 3 mm palpebral phthisis, positive aqueous Tyndall and intermittent eye pain.

Argon laser was applied to the internal scleral surface and to the ciliar body in the 4 Cyclodialysis fissures in two sessions a month apart. The 7-9 o’clock nasal Cyclodialysis was closed in the first laser session and the 3-4 o’clock temporal Cyclodialysis in the second (number of impacts: 35 and 117, power: 550-750 miliwatts, diameter: 100 microns and time: 100 milliseconds).

Two months after the laser treatment the hypotony persisted. Accordingly, a surgical cyclopecty was performed to seal the two remaining cyclodialysis clefts at 10.30-12 o’clock and 1-2.30 o’clock. The technique we applied was: air was injected to deepen the anterior chamber; a 4-mm scleral flap was made between 10.30 and 12 o’clock, based on limbus; subsequently, the sclera was perforated at 1.0mm behind the scleral spur, penetrating the cyclodialysis. When we opened, we found a vitreous bridle included inside the cyclodialysis between 10.30 and 12 o’clock originated in the herniated vitreous in the anterior chamber; a manual vitrectomy was performed with scissors and absorbing sponges. Low intensity bipolar cautery was applied on the detached ciliar body, suturing with 6 nylon 10-0 sutures, running the suture from the anterior sclera to the ciliar body and from there to the posterior lip of the sclera. Air was injected again in the anterior chamber to verify the absence of vitreous in the incision and increase the ocular tone. The external scleral flap was sutured with 6 stitches of Polysorb 6-0.

Twenty days postop the IOP regained normal values between 14 and 17 mmHg. The chorioretinal folds became smaller (fig. 2) and pain and palpebral phthisis disappeared. VA remained constant at 0,033. An unexpected post-surgery superior blister appeared (fig. 3), which facilitated adequate control of the tension.

After eighteen months of follow-up, VA is of 0.066 and the visual field is reduced to the central 15º. The anterior pole exhibits a oval pupil, displaced towards 12 o’clock by a vitreous strand which passes in front of the lens, reaching the edge of the iris. The cataract has not evolved, we did not find phacodonesis and the filtration blister is of medium size and located between 11 and 1 o’clock. The eye fundus reveals myopic chorioretinal atrophy, staphiloma and epiretinal membrane with intraretinal...
folds which deviate the vessels of the upper temporal arches, without macular edema. In the camerular angle we find a large goniosynechia between 10 and 12 o’clock and multiples isolated goniosynechia which reveal Schwalbe’s line pigmented at 180°, while the trabeculum is visible only between 7 and 9 o’clock.

**DISCUSSION**

Although the closure of a cyclodialysis can occur spontaneously even months after its appearance (3), it is a serious lesion with risk of severe vision loss and complex treatment. The first option would be medical treatment with 1% atropine eye drops to displace the ciliar muscle backwards and outwards, bringing it closed to the scleral spur and closing the gap from the posterior area. In our case the medical treatment failed to close any of the four fissures.

It has been described that laser is not usually effective in cyclodialysis covering over 30° (1). In our case, the laser closed two fissures of said extension, achieving a partial success by closing the area of the lower cyclodialysis but not the higher one, thus avoiding a quadruple cyclodialysis which, in addition, is dangerous due to the high compromise produced by such a large scleral flap in the irrigation of the anterior segment.

In the treatment of cyclodialysis, if non-invasive techniques such as cyclopexy, photocoagulation with transcorneal laser or trans-scleral cyclophotocoagulation fail, invasive treatment becomes necessary. In our case we opted for direct cyclopexy (1,4) because cryotherapy, diathermia and fixation with trans-scleral suture exhibit a high percentage of failure due to performing surgery without direct vision. The 360° scleral explant surgery is optimally indicated when the cyclodialysis includes an associated rupture, which was not our case. A further option could have been cilio-choroidal laser photocoagulation, which is a technique with direct vision but is indicated for smaller cyclodialysis. In addition, if the cataract of our patient was more opaque or if it evolved, perhaps the choice would have been another technique such as pars plano vitrectomy with gas buffering and direct cyclopexy under endoscopic visualization. However, this technique is complex and with slow recovery.

Lastly, a further technique could have been the ring sutured to the sulcus, also useful for cyclo-

dialysis up to 360° (5). In our case, with direct cyclopexy IOP was controlled, visual acuity was gained, pain disappeared and some abnormalities of the anterior chamber and posterior segment were corrected. The recovery of the palpebral phthosis could be due to the disappearance of hypotony or of the irritative element.

The passage of vitreous to the anterior chamber is relatively frequent after concussions, indicating lesions in the zonule which justify phacodonesis and the pre-lens vitreous humor and superiorly...
located. However, when performing direct cyclo-
pexy we unexpectedly encountered a vitreous brid-
le fixed in a superior fissure of the cyclodialysis and
after the vitreous humor of the anterior chamber. In
the other fissure we did not find vitreous. We belie-
ve the trapped vitreous could be one of the reasons
which prevented the cyclodialysis closure, while
the withdrawal of this vitreous together with the
suture of the superior cyclodialysis might have faci-
litated the definitive closure thereof.

We could not find any bibliographic reference of
vitreous trapped in a cyclodialysis. We considered
that this complication is underdiagnosed. The exist-
ence of vitreous in anterior chamber and traumatic
cyclodialysis leads us to suspect that one of vitreous
strips could be fixed, preventing the closure of the
fissure. Prior to repairing a cyclodialysis, an active
and deliberate search for this complication must be
made and, if confirmed, adapt surgery to this find-
ing.

As a consequence of the persisting hypotony,
with a transfer of sub-retinal fluid from the poste-
rior pole vessels and a shortening of the length of the
eye, a macular edema may arise and chorioreti-
nal folds may develop. If hypotony is not treated,
permanent macular changes may occur (2) . Fre-
quently, the IOP increase determines the recovery
of the width and functionality of the choroidal veins
and an important recovery of visual acuity.

In our patient, after surgery and the subsequent
normalization of IOP, the macular edema disappea-
red and the chorioretinal folds decreased. The final
low VA could be due to the pre-existing myopic
chorioretinal atrophy and the residual subretinal
fibrosis secondary to the initial injury or the persis-
ting hypotony. Kato and cols. (2) favored early reti-
nal cycloplexy before the development of irreversi-
ble retinal folds.

With the direct cycloplexy technique, Kuchle and
Naumann (1) described a case of «temporary filtra-
ting bleb which developed in the area of the scleral
flap and which disappeared spontaneously 3 weeks
after surgery». We unexpectedly encountered a post-
surgery filtering bleb in the place of the scleral flap,
which still remains 1.5 years after surgery. The ori-
gin of this bleb could lie in an unnoticed fistula due
to a defect in the closure of the deep scleral flap.

Even though direct cycloplexy surgery usually
achieves a normalization of IOP, the postop could
comprise high pressure peaks (1,4). It is reasonable
to think that his bleb contributed to prevent high
IOP peaks and perhaps to the subsequent IOP con-
trol because the eye exhibited permanent goniosy-
nechiae which closed most of the camerular angle.
Goniosynechiae can be secondary to the injury, to a
flat anterior chamber, to inflammation or subse-
quent healing, although they are also a known com-
plication of direct cycloplexy (1).

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