
SHORT COMMUNICATION

Case report

Choroidal neovascularization secondary to vitrectomy for idiopathic epiretinal membrane: Report of an unusual case

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PURPOSE. *Epiretinal membranes (ERM) are a common finding in old patients. Pars plana vitrectomy is effective for removing ERM from the macula, but some postoperative complications are relatively frequent. In the present report, we describe a 73-year-old man in whom extrafoveal choroidal neovascularization developed four months after surgery.*

METHODS. *Choroidal neovascularization was treated by argon laser photocoagulation.*

Results: *Six months after treatment, the choroidal neovascularization was obliterated, with no recurrence of ERM.*

CONCLUSIONS. *Choroidal neovascularization can be an unusual complication of ERM surgery, and should be suspected in case of poor visual outcome or recurrence of symptoms. (Eur J Ophthalmol 2003; 13: 218-20)*

KEY WORDS. *Argon laser photocoagulation, Choroidal neovascularization, Epiretinal membrane, Membrane peeling*

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INTRODUCTION

Epiretinal membranes (ERM) were first described by Iwanoff (1) in 1865, and are a common finding in patients over 50 years of age. Although they may be associated with several clinical conditions, most ERM occur in the absence of ocular pathology. Patients may be asymptomatic or else complain of severe vision loss and metamorphopsia. When the membrane involves the macula, it can cause loss of visual acuity (VA), micropsia, metamorphopsia and occasionally monocular diplopia. The severity of symptoms depends on the membrane thickness, the degree of retinal distortion, the extent of edema in the macular area and whether there is significant traction, causing a microdetachment of the posterior pole.

Machmer (2) first showed that ERM can be removed using vitrectomy. Pars plana vitrectomy has indeed

been found to be effective in removing ERM from the macula, resulting in an improvement of VA and a decrease of metamorphopsia in 80-90% of patients. Final visual outcome has been correlated with duration of symptoms, preoperative VA, degree of fluorescein leakage, ophthalmoscopically detectable cystoid macular edema, transparency of the membranes, intraretinal macular hemorrhage, cotton-wool spots and the patient's age.

Surgery has been advocated for all symptomatic cases. However, some caution is recommended for eyes with VA better than 0.25 (20/70) because of the limited improvement in vision after surgery and the relatively high incidence of complications. These include postoperative progressive nuclear sclerosis, macular edema and retinal pigmentary epitheliopathy, retinal tears causing detachments, intraoperative hemorrhage and, occasionally, macular hole and hypotony.

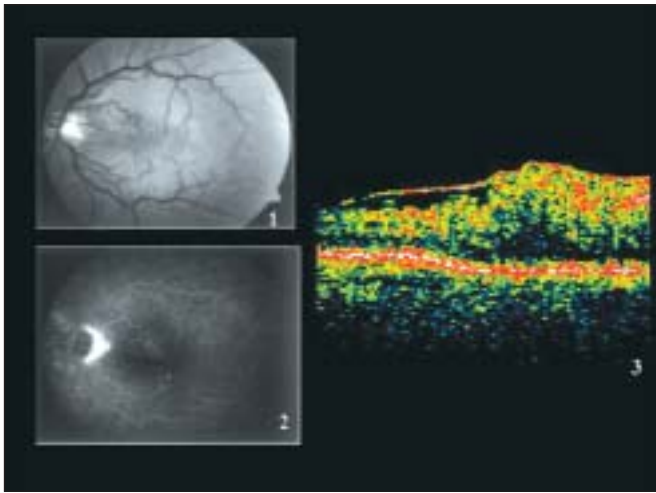


Fig. 1 - Pre-operative epiretinal membranes: late phase of fluorescein angiography shows increased tortuosity of the retinal vasculature and foveal leakage. OCT shows a thin reflective band anterior to the neurosensory retina with focal areas of macular attachments and absence of the normal foveal contour.

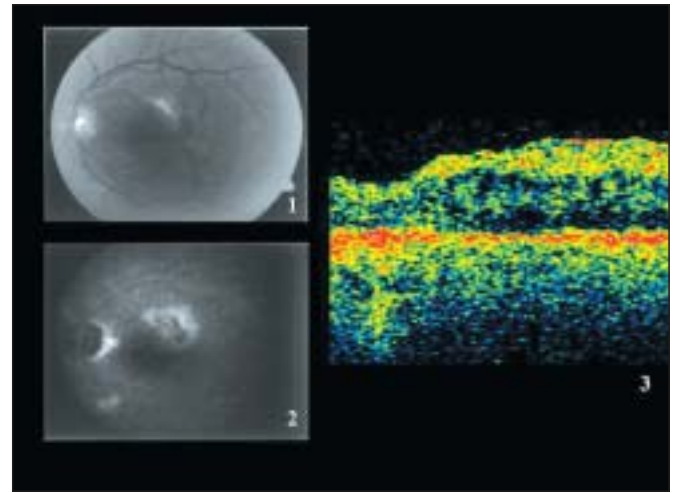


Fig. 2 - Four months after pars-plana vitrectomy: the late phase of fluorescein angiography shows superotemporally to the fovea a classic extrafoveal choroidal neovascularization, with leakage and pooling of the dye. OCT indicates increased reflectivity of the pigment epithelium, corresponding to a fibrotic evolution of the CNV. Retinal thickness is reduced to 352 μm in the macular region and 420 μm in the treated area.

Case report

A 73-year-old man presented with a three-month history of decreased vision in the left eye, and metamorphopsia. He had a history of hypertension, but was taking no systemic medications. Preoperative and postoperative examinations included best-corrected VA using the Early Treatment Diabetic Retinopathy Study (ETDRS) chart, biomicroscopy of the fundus with a contact lens, retinography (RG), fluorescein angiography (FA), and optical coherence tomography (OCT).

OCT is a non-invasive imaging technique that produces high-resolution cross-sectional images of the retina, and permits a structural assessment of the macula and pre- and post-operative evaluation of the results of ERM surgery. The surgical prognosis of eyes with an ERM can be assessed on the basis of the detection and quantitative measurements of membrane adherence with OCT.

Two months later, the patient underwent pars plana vitrectomy with membrane peeling in the left eye. The choroidal neovascularization observed later was treated by argon laser photocoagulation.

RESULTS

On initial examination, the patient had best-corrected VA of 20/50 in the left eye and 20/20 in the right eye with the ETDRS chart. The anterior segment findings in both eyes were unremarkable, but high-power biomicroscopy of the posterior segment showed an ERM in the central macula of the left eye. FA of the left eye showed increased tortuosity of the macular retinal vasculature and fluorescein leakage, with pooling in the late frames on the superior perifoveal site. The OCT pattern (Fig. 1) showed the membrane as a thin, reflective band anterior to the neurosensory retina, with focal areas of macular attachments. The normal foveal contour was lost, and some regions of decreased reflectivity, most likely resulting from membrane traction, were observed within the neurosensory retina centrally, possibly consistent with fluid accumulation. The preoperative membrane was 39 μm thick and the thickness of the neurosensory retina in the macular area was 500 μm .

Two months after presentation the patient underwent pars plana vitrectomy, and three months after

surgery a decrease in metamorphopsia was recorded in the left eye and his best corrected VA improved to 20/32. Indirect biomicroscopy showed that the epiretinal membrane had been completely removed. No complication occurred before or after vitrectomy.

Four months after surgery, the patient presented again, complaining of a new decline in VA in his left eye. The corrected VA was in fact reduced to 20/100 with Amersler grid distortion in the left eye, and indirect biomicroscopy showed a gray, mildly elevated subretinal lesion temporally to the fovea.

FA of the left eye showed an extrafoveal, well-defined, hyperfluorescent lesion consistent with classic extrafoveal choroidal neovascularization (CNV) (Fig. 2). OCT confirmed the diagnosis and indicated an increased reflectivity of the pigment epithelium, corresponding to a fibrotic evolution of the CNV. Retinal thickness was reduced to 352 μm in the macular region (Fig. 2). CNV was treated by argon laser photocoagulation and six months later the best corrected VA of the left eye was 20/100, without metamorphopsia. The CNV was obliterated, with no recurrence of ERM.

The patient's vision and the fundus of the right eye remained normal during follow-up.

DISCUSSION

Macular ERM have been associated with a number of clinical conditions, including postretinal detachment repairs, ocular inflammatory disorders, macular holes, trauma accompanied by intravitreal hemorrhage, diabetic retinopathy, retinal vascular occlusive diseases, intraocular tumors, telangiectasias, retinal arteriolar macroaneurysms and retinitis pigmentosa. ERM can also occur after photocoagulation or cryotherapy, or even as an idiopathic disorder (3). However, ERM is generally considered a slowly progressing disease, with only 5% of patients having their VA decreased to 0.1 (20/200) or worse.

Previous studies have shown that pars plana vitrectomy is successful in treating ERM, even with only moderately decreased vision. Indeed, both idiopathic and secondary ERM do well after surgery, with significant visual improvement in 75-85% of the eyes after vitrectomy. In addition, metamorphopsia is often reduced postoperatively (4). Complications, however, are relatively frequent, although they can usually

be managed successfully. Among them, only retinal detachment has a negative effect on the final functional outcome.

In 1997 Korobelnik, et al (5) described the onset of a juxtafoveal CNV two years after surgery for an ERM. The patient achieved complete obliteration of the neovascularization and functional improvement with argon laser photocoagulation.

In the present case too extrafoveal neovascularization was observed four months after pars plana vitrectomy for a macular ERM. It was treated by argon laser photocoagulation and after six months the CNV was completely obliterated, with functional improvement and disappearance of metamorphopsia. No sign of phototraumatism was detected on FA after surgery. In agreement with Korobelnik et al, we suggest that the membrane peeling for ERM may cause an indirect trauma to the retinal pigment epithelium and/or Bruch's membrane, thus inducing CNV, even if surgery is uncomplicated.

In conclusion, though rare, CNV can be a post-vitrectomy complication for ERM, and it should be suspected in all cases of poor visual outcome or relapse of symptoms.

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