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Original article

Epiretinal membrane surgery: Anatomic and functional outcomes[☆]

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ABSTRACT

Objective: To study the influence of anatomic preoperative characteristics (based on the parameter, foveal central thickness, measured by optical coherence tomography) and functional characteristics (based on the parameter, best corrected visual acuity; [BCVA]) on functional recovery after epiretinal membrane (ERM) surgery.

Methods: A total of 88 eyes (of 86 patients), on whom a vitrectomy due to ERM was performed during a 3 years period were reviewed in this longitudinal, prospective study.

An analysis was made of, ERM aetiology, BCVA, presence or absence of metamorphopsia, lens status, and central foveal thickness. Data relating to surgery and local complications, changes in BCVA, and changes in foveal central thickness were collected during the follow-up period.

Results: An improvement was observed in BCVA in 82%, as well as a decrease in foveal thickness in 79% of the eyes which underwent surgery, both of these being statistically significant ($P < .01$). However, most of the patients showed different grades of oedema and/or macular thickening in the postoperative period. A significant correlation was found between preoperative and postoperative BCVA ($P = .001$), and also between preoperative and postoperative central foveal thickness ($P = .004$), but not between BCVA and foveal thickness.

Conclusions: There is functional recovery in terms of BCVA in more than 80% of the patients after ERM surgery. Most of the eyes showed persistent macular thickening, but this did not seem to have influenced the final BCVA. The best determinant of postoperative functional recovery (postoperative visual acuity) is, in our experience, the preoperative BCVA, and not the macular thickness.

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Cirugía de las membranas epirretinianas: resultados anatómicos y funcionales

R E S U M E N

Palabras clave:

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Vitrectomía
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Edema macular
Agudeza visual

Objetivo: Estudiar la implicación de las características preoperatorias anatómicas (según el parámetro del grosor foveal central, determinado mediante tomografía de coherencia óptica) y funcionales (según el parámetro de la mejor agudeza visual corregida; [MAVC]) en la recuperación funcional tras la cirugía de las membranas epirretinianas maculares (MEM). **Métodos:** En este estudio prospectivo, longitudinal se incluyeron 88 ojos (de 86 pacientes), intervenidos mediante vitrectomía debido a MEM, en un período de 3 años.

Se analizaron: etiología de la MEM, MAVC, existencia o no de metamorfopsia, estado del cristalino, y grosor foveal central. Asimismo se recogieron los datos relativos a la cirugía y las complicaciones derivadas de la misma, así como los cambios observados en la MAVC y en el grosor foveal a lo largo del período de seguimiento.

Resultados: Se produjo mejoría de la MAVC en el 82% de los casos, así como una disminución del grosor foveal en el 79% de los casos intervenidos, ambos estadísticamente significativos ($p < 0,01$). Sin embargo, la mayor parte de los pacientes exhibieron grados variables de edema y/o engrosamiento macular en el postoperatorio. Se halló correlación significativa entre la MAVC preoperatoria y postoperatoria ($p = 0,001$), así como entre el grosor foveal central preoperatorio y postoperatorio ($p = 0,004$), pero no entre la MAVC y el grosor foveal.

Conclusiones: Se produce una recuperación funcional en términos de MAVC en más del 80% de los pacientes tras cirugía de MEM. La mayor parte de los ojos muestran persistencia del engrosamiento macular, si bien este no parece tener influencia en la agudeza visual final. El mejor determinante de recuperación funcional postoperatoria (agudeza visual postoperatoria) parece ser, en nuestra experiencia, la agudeza visual preoperatoria y no el grosor macular.

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Introduction

The macular epiretinal membrane (MEM) is a translucent or semitranslucent fibrocellular proliferation which forms on the internal surface of the retina at the level of the macula.¹

MEM can be associated to posterior vitreous detachment (PVD), retinal tears, vascular retinopathy, ocular inflammation, congenital ocular disorders, retina detachment (RD) surgery, laser photocoagulation and cryotherapy among others. However, the most common forms of MEM are idiopathic.²

Usually, the evolution of MEM is benign and produces very few symptoms, but when it contracts it could cause varying degrees of distortion, intraretinal edema and degeneration of the underlying retina, causing visual loss and metamorphopsia.^{3,4}

In these cases vitrectomy pars plana surgery (VPP) could be necessary involving MEM peeling, associated or not to rhexis of the internal limiting membrane (ILM), facilitated by the use of vital dyes.

Various prognostic factors have been described to date as involved in the results of MEM surgery, including pre-surgery visual acuity (VA), the duration of symptoms, the presence of vitreoretinal traction, MEM thickness and the presence of pre-surgery macular edema. However, some of said factors still remain controversial.²

The primary objective of this paper is to study the involvement of the anatomic pre-surgery characteristics (according to the parameter of central foveal thickness determined by

means of optic coherence tomography [OCT]) and functional characteristics (according to the parameter of best corrected visual acuity [BCVA]) in functional recovery after MEM surgery.

Subject, materials and methods

A prospective longitudinal study with patients intervened for MEM in the Central University Hospital of Asturias, from January 2007 up to January 2010.

The inclusion criteria were: patients over 18 years of age diagnosed with MEM and intervened with vitrectomy in the period of time between January 2007 and January 2010 who did not exhibit other ophthalmological disorders that could produce VA reduction and/or metamorphopsia.

The surgery was carried out on an outpatient basis and under locoregional and peribulbar anesthesia and sedation. The technique consisted of 3-way vitrectomy with 20 G or 23 G systems. In phakic patients with lens opacity combined surgery was performed with phacoemulsification and intraocular lens (IOL) and VPP either in the same surgery or sequentially. In addition, the patients who developed cataracts after VPP were intervened for cataracts during the follow-up period.

In what concerns VPP, first a medium and posterior rather short vitrectomy was performed, releasing the posterior hyaloids if adhered. Subsequently, the MEM was released with tweezers and removed. In all cases the ILM was removed after staining with brilliant blue G (Brilliant Blue G 0.25 mg/ml,

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