SURGICAL REMOVAL OF PERIPAPILLARY CHOROIDAL NEOVASCULARIZATION IN YOUNG PATIENTS

EXTRACCIÓN QUIRÚRGICA DE LA NEOVASCULARIZACIÓN COROIDEA PERIPAPILAR EN PACIENTES JÓVENES

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ABSTRACT

\textbf{Purpose:} To analyze anatomical and visual outcomes after subretinal surgery for peripapillary choroidal neovascularization (CNV) not associated with age-related macular degeneration (AMD).

\textbf{Methods:} Five eyes from five patients with peripapillary CNV who had been treated by subretinal surgery were retrospectively analyzed.

\textbf{Results:} The patients averaged 32 years of age (range, 11 to 49, SD 14.5 years) and mean follow-up was 31.4 months (range, 8 to 48, SD 20.8 months). Best corrected visual acuity was 0.05 (range, 0.001 to 0.16, SD 0.07) before surgery and 0.64 (range, 0.2 to 0.9, SD 0.26) after surgery (p=0.005; Student’s t test for paired data). Neither intraoperative nor postoperative incidences occurred.

\textbf{Conclusions:} Surgical removal may be considered one of the therapeutic options to treat peripapillary CNV not related to AMD (Arch Soc Esp Oftalmol 2009; 84: 39-42).

Key words: Peripapillary choroidal neovascularization, vitrectomy, subretinal surgery, non-AMD-related choroidal neovascularization.

RESUMEN

\textbf{Propósito:} Analizar el resultado anatómico y visual después de la cirugía subretiniana de la neovascularización coroidea (NVC) peripapilar no asociada a Degeneración Macular Asociada a la Edad (DMAE).

\textbf{Métodos:} Se estudiaron retrospectivamente cinco ojos de cinco pacientes con NVC (neovascularización coroidea) tratados mediante cirugía subretiniana.

\textbf{Resultados:} La media de edad de los pacientes fue de 32 años (rango de 11 a 49, DE 14,5 años) y la media del seguimiento fue de 31,4 meses (rango de 8 a 48 , DE 20,8 meses). La Mejor agudeza visual corregida antes de la cirugía fue de 0,05 (rango de 0,001 a 0,16, DE 0,07) y de 0,64 (rango de 0,2 a 0,9, DE 0,26) después de la cirugía (p= 0,005; t de Student para datos pareados). No hubo incidencias intraoperatorias ni postoperatorias.

\textbf{Conclusiones:} La cirugía de extracción de membranas debe ser considerada entre las opciones terapéuticas para tratar la NVC peripapilar no relacionada con DMAE.

Palabras clave: Neovascularización coroidea peripapilar, vitrectomía, cirugía subretiniana, neovascularización coroidea no asociada a DMAE.
INTRODUCTION

Choroidal neovascularization (CNV) adjacent to the papilla is less frequent than sub-macular CNV and is usually associated to Age Related Macular Degeneration (ARMD). In young patients, peripapillary CNV is usually associated to other ocular pathologies such as pathological myopia, presumed ocular histoplasmosis syndrome (POHS), optic disc drusen, angiod streaks and papillary edema (1).

Different therapeutic alternatives have been described for treating peri-papillary CNV of any etiology, including thermal laser photocoagulation (1), photodynamic therapy (PDT) (2), sub-retinal surgery (2-4) and more recently antiangiogenic drugs. This paper presents the results of a consecutive series of peri-papillary CNV not associated to Age Related Macular Degeneration in patients under 50 after surgical extraction of CNV.

SUBJECTS, MATERIAL AND METHODS

A retrospective assessment was made of the clinical records, Optical Coherence Tomographies (OCT), fluorescein angiographies (FA) and retinographies of five young patients (5 eyes) with peri-papillary CNV treated with sub-retinal surgery after obtaining their informed consent in writing for the study.

The informed consent in writing was obtained after explaining the nature of the procedure prior to surgery. The procedures were carried out in accordance with the ethical standards of the Helsinki 1975 Declaration (reviewed in 1983). Under peribulbar anesthesia (one case under general anesthesia) a vitrectomy pars plana was carried out with hyaloid detachment followed by a small retinotomy through which the CNV was detached and removed utilizing sub-retinal instrument. Finally, a fluid-air exchange was made and the patient was positioned for 72 hours.

RESULTS

The mean age of patients was 32 (range from 11 to 49, SD 14.5 years). Three were women and 2 men (Table I). The mean follow-up was of 31.4 months (range from 8 to 48. SD 20.8 months). Prior to the surgery, the macula was affected by a hemorrhage in one case and by exudation in two cases. The etiology of the CNV was unknown in 3 cases, while one case was associated to optic disc drusen and a further one to papillary edema (Table I).

The best corrected visual acuity (BCVA) before surgery was of 0.05 (range: 0.001 to 0.16. SD 0.07) and of 0.64 (range: 0.2 to 0.9. SD 0.26) at the end of the follow-up period (p= 0.005; t for Student for paired data).

One 38-year-old woman (case #2) exhibited a central scotoma in her right eye, with 15-day evolution. The BCVA was hand movement and the eye fundus exploration showed a papillary edema and a sub-retinal hemorrhage close to the RE optic disc (Figure 1). The FAG showed a peri-papillary CNV involving the macula (figs. 1B and C) with increased of the retinal thickness in OCT (fig. 1D). The CNV was removed with surgery as described. Two months later the BCVA was of 0.65 (fig. 1E) with a normal macular thickness (fig. 1F).

Tabla 1

<table>
<thead>
<tr>
<th>Paciente #</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>11</td>
<td>38</td>
<td>25</td>
<td>49</td>
<td>37</td>
</tr>
<tr>
<td>Sex</td>
<td>Male</td>
<td>Female</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Initial BCVA (dec.)</td>
<td>Finger counting Drusen</td>
<td>Hand mov. Papilla edema</td>
<td>0.1</td>
<td>Finger counting</td>
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</tr>
<tr>
<td>Macula</td>
<td>Affected</td>
<td>Affected</td>
<td>Affected</td>
<td>Normal</td>
<td>Normal</td>
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<tr>
<td>BCVA 2 months</td>
<td>0.4</td>
<td>0.65</td>
<td>0.3</td>
<td>0.16</td>
<td>0.5</td>
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<tr>
<td>BCVA final</td>
<td>0.7</td>
<td>0.7</td>
<td>0.9</td>
<td>0.2</td>
<td>0.7</td>
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<tr>
<td>Follow-up (months)</td>
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<td>8</td>
<td>37</td>
<td>35</td>
<td>48</td>
</tr>
<tr>
<td>Previous treatment</td>
<td>PDT (twice)</td>
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<td>No</td>
<td>No</td>
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</tr>
</tbody>
</table>

BCVA: Best Corrected Visual Acuity. PDT: Photodynamic therapy.
DISCUSSION

Peri-papillary CNV accounts for about 10% of all CNV cases (3). This pathology may resolve spontaneously or grown and invade the macula, causing a sub-macular hemorrhage or macular serous detachment, reducing visual acuity.

PDT has been used extensively for treating sub-macular CNV. However, PDT is not considered adequate for treating CNV if within 200 µm of the optic disc due to the higher risk of damaging the disc fibers (4). One of the patients of our series had received 2 PDT sessions for an extra-foveolar CNV located over 200 µm from the optic disc. The CNV reached the papilla after the second PDT session and for that reason it was decided to remove it with surgery.

Kokame has demonstrated that the foveal function can be preserved if the CNV is removed before it involves the fovea (5). The main drawback of sub-retinal surgery in sub-foveal CNV is the surgical trauma to the retina pigmentary epithelium (RPE). Sub-retinal surgery for treating peri-papillary CNV may achieve the full removal of the CNV without affecting the sub-foveal RPE or the choriocapillaris, thus preserving visual acuity. In our small series the macula was affected in 3 cases by sub-retinal fluid and hemorrhage, which disappeared after CNV surgery. In case 2, described above, the visual acuity improved when removing the peri-papillary CNV which did not reach the fovea and the sub-foveal adjacent hemorrhage.

Kies and Bird have demonstrated CNV relapses in 50% of eyes submitted to successful photocoagulation (6). One of the advantages of sub-retinal surgery is that the CNV can be removed completely, thus reducing the risk of early recurrences.

Sub-retinal surgery has proved to be efficient in the management of peri-papillary CNV in cases in which thermal laser photocoagulation or PDT were not advisable or were performed and failed. Bains analyzed 17 eyes of elderly patients after surgical removal of CNV with improvement or stabilization of BCVA in over 1/3 of cases (7). In a retrospective study of 17 eyes with peri-papillary CNV associated to POHS in young patients submitted to surgery for removing the neovascular membrane, Atebara (8) demonstrated that BCVA was of 20/40 or better in 50% of the eyes with sub-foveal extension of the CNV, and 20/20 in three eyes with extra-foveal CNV. However, Essex (9) et al concluded that recurrences appeared in up to 33% of cases after observing the results of a two-year follow-up study after surgical extraction of CNV not related to ARMD.

The appearance of anti-angiogenic agents such as pegaptanib, ranibizumab and bevacizumab, could open an alternative for treating peri-papillary CNV. However, sub-retinal surgery is demonstrating to be an effective therapy with good anatomic and visual results as well as recurrence rate reductions. We have found BCVA improvements in all the cases of our series, free of adverse effects during the follow-up. Sub-retinal surgery should be considered as one of the therapeutic options for treating CNV not associated to ARMD. However, the potential risks must be taken in account, such as retina detachment, retinal holes and cystic macular edema.
Considering that our series, similarly to other published series, is short, randomized, multi-center studies with longer follow-up period and higher numbers of patients would be necessary to demonstrate the true efficiency of this therapy vis-à-vis other possibilities such as photocoagulation with thermal laser, PDT of the endothelial vascular anti-growth factor.

REFERENCES