Short communication

Laser and ranibuzumab combination for retinal vasoproliferative tumor’s management


Servicio de Oftalmología, Hospital General Universitario de Elche, Alicante, Spain

ARTICLE INFO

Article history:
Received 15 April 2011
Accepted 9 February 2015
Available online 28 November 2015

Keywords:
Vasoproliferative tumors
Neovascularization
Epiretinal membrane

ABSTRACT

Case report: A 34 year-old man presented with progressive visual loss in his right eye. Ocular fundus showed a vasoproliferative tumor in the peripheral retina with an associated epiretinal macular membrane. Angiography showed a rapid filling of tumor vessels. The treatment consisted of laser photocoagulation and a single injection of intravitreal ranibizumab. After 8 weeks, there was a residual area of fibrosis, the posterior hyaloid was detached, and the epiretinal membrane disappeared. Visual acuity returned to 20/25.

Discussion: Laser photocoagulation and intravitreal ranibizumab combination could be useful for vasoproliferative tumors.

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Resumen

Combinación de láser y ranibizumab en el manejo del tumor retiniano vasoproliferativo

RESUMEN

Caso clínico: Varón de 34 años que presentó pérdida progresiva de visión en el ojo derecho. Se objetivó un tumor vasoproliferativo en la retina periférica con membrana epimacular asociada. La angiografía mostró un rápido llenado de los vasos tumorales. Se trató con fotocoagulación láser más ranibizumab intravitreo. Tras 8 semanas se evidenció la fibrosis de la lesión, el desprendimiento de la hialoides posterior y la desaparición de la membrana. La agudeza visual volvió a 20/25.

Discusión: La combinación de fotocoagulación y ranibizumab intravitreo podría ser útil en el tratamiento de este tumor.

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* Please cite this article as: Fernández-Martínez C, Martínez-Toldos JJ, Hernández-Artola F. Combinación de láser y ranibizumab en el manejo del tumor retiniano vasoproliferativo. Arch Soc Esp Oftalmol. 2015;90:593–596.

* Corresponding author.

E-mail address: cristianfermar@gmail.com (C. Fernández-Martínez).

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Introduction

Vasoproliferative retinal tumors are benign lesions of unknown origin which equally affect middle-aged men and women. Morphologically these are small, pinkish or yellowish solitary tumors with clearly differentiated afferent and efferent vessels. Typically these tumors are localized in the inferior temporal quadrant close to the ora serrata. Frequently they associate intraretinal hemorrhage, intra-or sub-retinal exudation and hyperpigmentation of the retina pigment epithelium. A range of therapeutic strategies have been proposed including observation, laser therapy, brachytherapy, cryotherapy and eventually vitrectomy.

Clinic case report

Male, 34, without previous ocular history, who consulted due to progressive and painless diminishing visual acuity in the right eye. Exploration revealed a visual acuity of 20/200 in the right eye and 20/25 in the left eye. Biomicroscopy and intraocular pressure were normal for both eyes. Ocular fundus revealed consistent peripheral lesion in aberrant vascular formation of approximately 2 papilla diameters accompanied by the vitreous and intraretinal hemorrhage, exudation and pigment alteration (Fig. 1). The posterior pole of the same eye exhibited associated epiretinal membrane (Fig. 2) secondary to cell-fibrous proliferation in the interface between the posterior hyaloids and the internal limiting membrane. Fluorescein angiography revealed quick filling of the lesion in early times with dilatation of substitute vessels (Fig. 3). Late times exhibited contrast leak toward surrounding tissue without vitreous humor infiltration.

It was decided to approach the case with a combination of perillesional and direct photocoagulation over aberrant vessels with laser-argon and intravitreal injection of 0.05 ml ranibizumab (Lucentis. Novartis Pharmaceutical, Basel, Switzerland). After 8 weeks a complete involution of the vascular tumor was observed together with a cicatricial lesion in the area previously taken up by the tumor (Fig. 4), as well as the spontaneous detachment of the fibrous-cellular complex which joined the posterior hyaloids and the internal limiting membrane of the posterior pole (Fig. 5) and a recovery of visual acuity up to 20/25.

Discussion

Vasoproliferative retinal tumors were described by Shields et al. in 1995 as neurosensory retina-dependent neoplasiae. On the basis of a series of 103 cases in which 74% of these tumors were idiopathic and 28% were related to previous ocular disease (vitreoretinal, inflammatory, vascular,
traumatic, degenerative or dystrophic), the authors classified these tumors as idiopathic and secondary. Since then, many clinic cases have been reported together with multiple therapeutic proposals. In 1996, Khawly et al.\(^5\) reported the case of a fast-growing vascular retinal tumor successfully treated with laser photocoagulation without recurrence after 4 years. Some authors\(^3,4\) have proposed an expectant attitude in the presence of small and solitary lesions, while other specialists\(^6\) favored treatment in early stages to minimize retinal aggression and potential visual acuity loss. Cryotherapy can be useful in the treatment of small tumors (<2 mm) but side effects increased in proportion to the size of the lesion, which restricts its usefulness in injuries exceeding 2 mm. Lafaut et al.\(^5\) reported cryotherapy failure in 2 cases of retinal vasoproliferative tumors. Ruthenium 106 brachytherapy\(^7\) has been used successfully. This therapeutic approach has the advantage of treating only the area of the retina which is affected by the tumor, reducing the risk of producing exudates or iatrogenic hemorrhages. However, no clear consensus has been established on the appropriate dosage and there is a risk of producing cataract and retinopathy due to radioactivity.\(^8\) Photodynamic therapy with verteporfin has also obtained good responses from this type of neoplasia.\(^9\) Biological therapy has been recently added to these treatments. Intravitreal application of drugs which inhibit the vascular endothelial growth factor (VEGF) are demonstrating to be an efficient tool according to the results reported by Kenaway et al.\(^10\) in a trial with bevacizumab. In the present case, the authors opted for peritumoral and direct argon laser treatment on the tumor nutrition vessels. After the sessions, the posterior hyaloids was raised to facilitate the detachment of the associated epiretinal membrane. In order to achieve full involution of tumor vessels, it was decided to associate a single intravitreal injection of ranibizumab (anti-VEGF antibody). The end result was obliteration and sclerosis of the tumor vascular network, the termination of lesion growth, the recovery of visual acuity and the persistence of a discrete raising adjacent to the lesion. It is likely that the co-adjuvant effect of the antiangiogenics on laser photocoagulation increased therapeutic effectiveness and shortened response time.

**Conflict of interests**

No conflict of interest has been declared by the authors.

**References**