Short communication

Treatment with photodynamic therapy of circumscribed choroidal hemangioma

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ABSTRACT

Case reports: The clinical characteristics of three patients with circumscribed choroidal hemangioma and subfoveal exudation detected by optical coherence tomography are described in this paper. The three patients were successfully treated with photodynamic therapy.

Discussion: Photodynamic therapy is the most adequate therapeutic option for circumscribed choroidal hemangioma associated with subfoveal exudation. Some questions such as whether attempts should be made to obtain a complete tumour regression, laser settings or the way the spots must be applied remain unresolved.

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Tratamiento mediante terapia fotodinámica del hemangioma coroideo circunscrito

RESUMEN

Casos clínicos: Se presentan las características clínicas de tres pacientes con hemangioma coroideo circunscrito y exudación subfoveal, detectada mediante tomografía óptica de coherencia, tratados con éxito mediante terapia fotodinámica.

Discusión: La terapia fotodinámica es actualmente la alternativa terapéutica más efectiva para tratar los hemangiomas coroideos circunscritos asociados a exudación subfoveal. Respecto a la utilización de este tratamiento quedan por definir algunas cuestiones como son si se debe buscar o no la desaparición total de la masa tumoral, los parámetros de láser más adecuados en estos casos o la forma de aplicación de los impactos.

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Introduction

Circumscribed choroidal hemangioma is a benign hamartous vascular tumor. Clinically, it appears like a rounded or oval mass with poorly defined edges and orange or reddish color located in the retroequatorial region. Many of these lesions can remain asymptomatic, but are frequently accompanied by subfoveal chronic exudation which diminishes visual acuity.¹

This paper describes the clinical characteristics and evolution of three patients with circumscribed choroidal...
Figure 1 – A) ocular fundus image showing an orange tumor in the superior temporal arch. B) OCT over the macular area shows subfoveal subretinal liquid accumulation. In addition, the mass effect of the tumor can be seen. C) Mode B echography before PDT: solid, homogeneous and hyperintense mass without posterior acoustic shadow. D) Retinography after PDT. Persistence of the orange mass. E) OCT after treatment shows the absence of subretinal fluid and persistence of the mass effect of the tumor. F) Mode B echography after PDT. The mass has not diminished significantly.

Figure 2 – A) ocular fundus image of the eye prior to therapy, showing an orange tumor in the suprapapillary area. B) OCT over the macular area exhibits subfoveal subretinal liquid. C) Mode B echography before PDT. Solid, hyperintense and homogeneous mass without posterior acoustic shadow. D) Appearance of the retina after PDT. E) Absence of subretinal fluid in OCT after the treatment. F) Echography after PDT, showing a considerable reduction of the mass.
Clinical cases

Three patients with circumscribed choroidal haemangioma and submacular serous detachment were studied. The diagnostic was made on the basis of funduscopy findings, fluorescein angiography and ocular echography. In addition, optical coherence tomography was performed before and after treatment for all cases to determine the presence of subfoveal fluid (figs. 1-3).

The three cases were treated with photodynamic therapy (PDT) with verteporfin, applying doses of 6 mg/m² of bodily surface, an intensity of 600 mW/cm² and an irradiating exposure of 50 J/cm² during 83 seconds. A single spot was applied, covering the entire tumor and leaving a margin of 200 µ from the edge of the papilla. In two cases, the subfoveal liquid disappeared and visual acuity improved with a single application. In the third case, the treatment was repeated due to the absence of initial response, increasing irradiation exposure to 100 J/cm² and the application time to 166 seconds. After this second application a positive response was obtained. This patient additionally exhibited a macular epiretinal membrane that was intervened with vitrectomy after the two PDT sessions. The data of these patients are included in table 1.

Discussion

The treatment of circumscribed choroidal haemangioma is indicated for diminished visual acuity due to submacular serous detachment. In recent years, PDT has been described as a successful alternative for treating these patients. The therapy exhibits selected action on the vascular endothelium and respects the remaining structures. In addition, its iatrogeny is lower than that of other treatments. Despite the good results of this technique, some issues are not yet entirely clarified. Firstly, there is a debate about whether the objective of the treatment should be the complete disappearance of the tumor or only the reabsorption of the submacular fluid. Although in two of the three patients of this article the tumor disappeared almost entirely, the objective was the reabsorption of the submacular detachment. In a further case, a substantial visual acuity increase was obtained despite the persistence of the tumor mass. The total elimination of the hemangioma could require increasing the number of treatments or the power or duration of the laser, and this could cause vascular closure of the choriocapillaries and pigmentary alterations. In addition, it has not been demonstrated that total disappearance is associated to a lower percentage of subfoveal exudation relapses as against a partial persistence of the tumor.
The laser application parameters have not been agreed either. The IV verteporfin dose is usually of 6mg/m² of body surface and the intensity of 600 mW/cm². But while some authors obtained good results, utilizing in all cases the same values as in age-related macular degeneration (AMD), that is 50 J/cm² of radiation exposure during 83 seconds, others propose applications of 100 J/cm² during 166 seconds. The starting parameters of our study were those applied in AMD but in case 3, due to the poor initial response it was decided to double the values in the second treatment, obtaining a positive therapeutic effect. It seems likely that the laser application parameters should be adapted to the size of the tumor.

The form of applying the laser is also controversial. In general, a single application covering the entire tumor is enough. This option, which was applied to the patients of this series, is less costly and complicated for patients. However, irradiation by means of multiple applications has also been proposed, either confluent or not, or limiting treatment to the most prominent part of the tumor.

To conclude, PDT treatment of circumscribed choroidal hemangioma with subfoveal retina detachment appears as the most adequate therapeutic alternative at this time. We consider that the objective of the treatment should be the reabsorption of the subfoveal liquid. The application of a single spot with the same parameters utilized in AMD could suffice to obtain this objective, although in some cases having more prominent tumors it might be necessary to increase said parameters.

REFERENCES