Short communication

Massive combined brachytherapy and transpupillary thermotherapy in choroidal melanoma

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A B S T R A C T

Case report: A 59-year-old male with choroidal melanoma in the left eye who underwent plaque brachytherapy (iodine 125). One week after surgery, a massive exudation with retinal detachment and lipid exudation was observed. Progress was assessed with funduscopy and ultrasound every month. Nine months after surgery transpupillary thermotherapy (TTT) was performed over the fluid-free irradiated residual tumor. Three months after this procedure, new retinal breaks appeared in the treated area, with vitreous seeding that required enucleation.

Discussion: Combined treatment with plaque brachytherapy and TTT can involve severe complications that may require enucleation of the involved eye.

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Exudación lipídica masiva y desprendimiento de retina tras braquiterapia y termoterapia transpupilar combinada en melanoma de coroides

R E S U M E N

Caso clínico: Varón de 59 años con melanoma coroide en ojo izquierdo. Se realiza tratamiento con braquiterapia mediante placa (iodo-125), apareciendo exudación masiva, desprendimiento de retina y grandes placas de depósitos lipídicos una semana después. Se monitoriza la evolución mediante funduscopy y ecografía mensualmente y una vez reabsorbido el fluido subretiniano se realiza termoterapia transpupilar (TTT) de la masa tumoral irradiada, 9 meses tras la intervención. Tres meses después se producen roturas retinianas con siembra vitrea que hacen necesaria la enucleación.


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Introduction

Therapeutic options proposed for choroidal melanoma comprise enucleation, surgical endo- or exo-resection, transpupillary thermotherapy (TTT) and various forms of radiotherapy, including plate brachytherapy in plates as well as external proton beam brachytherapy. At present, for medium-sized tumors, the most extended techniques are enucleation and plate radiotherapy, on its own or combined with TTT. Similar results obtained by the Collaborative Ocular Melanoma Study (COMS) applying both options have tilted the balance towards radiotherapy treatment, a more conservative approach. The role of TTT as adjuvant to said treatment is controversial. Several complications derived of the use of plates with radioactive seeds and if applicable TTT have been reported. This paper presents a case report in which said combined treatment was applied, detailing the complications which appeared in the course thereof.

Case report

A male, aged 59, was referred by the ophthalmologist with a diagnosis of choroidal melanoma in the left eye (LE). Best corrected visual acuity (BCVA) was of 1.2 in the right eye (RE) and 0.7 in LE due to slight amblyopia. Ocular fundus exploration revealed a heterogeneous pigmented mass in the upper nasal quadrant, in the meridians from 8 to 11 o’clock (Fig. 1). Echography revealed a mushroom-shaped lesion and homogeneous ecogenicity, with a height of 9.9 mm and a base of 9.4 mm, mode A kappa wave compatible with choroidal melanoma diagnostic (Fig. 2). After analysis, liver function tests and radiological explorations the presence of metastatic disease was discarded, considering treatment with 125 iodine plate brachytherapy and adjuvant TTT in a second phase. After obtaining the appropriate informed consent, the intervention was carried out, placing the plates during 76 h on the basis of the calculations by the Radiotherapy Oncology team. The immediate post surgery period (24 h) elapsed without any event. One week after withdrawing the implant, funduscopy revealed the presence of 2 exudative retinal detachment (RD) pockets in the inferior nasal and temporal quadrant (Fig. 3) which prevented the execution of the TTT. The patient

Fig. 1 – Initial appearance. Melanoma visible in upper nasal quadrant.

Fig. 2 – Mode B echography in the initial visit. The lesion exhibits a height of 9.9 mm and a base of 9.4 mm. Mode A (lower line) shows the presence of kappa wave compatible with choroidal melanoma.

Fig. 3 – Exudative retina detachment pockets in inferior nasal and temporal quadrants one week after withdrawing the brachytherapy plate.
was requested to attend monthly assessments in order to monitor evolution at the ophthalmoscopic and ecographic level as well as analyses every 6 months and liver echography every year to assess the presence of metastatic disease. In the following months, the progressive reduction of the RD pockets gave rise to large subretinal lipid exudation plates (Figs. 4 and 5), with the height of the lesion diminishing down to 6.5 mm at month 6. At month 9, the absence of subretinal fluid was verified in the irradiated tumor mass. Accordingly, TTT was performed. 3 months after the procedure, the patient exhibited a large intraocular inflammation with iridian-lens synechiae, new exudative RD pockets becoming total and turbid, marked with the presence of retinal tears and vitreous seedings (Fig. 6), for which reason enucleation was recommended. Fifteen months after the diagnosis, said surgery was carried out and one month later a 20 mm diameter Medpor epiprostheses implant was placed. The patient continues attending quarterly checkups to assess implant tolerance, as well as half-yearly analyses and annual liver echography, without exhibiting to date any signs of metastatic disease.

**Discussion**

In the instant case, the complications derived from the combined treatment comprising plate brachytherapy and subsequent TTT involved massive exudation which caused the RD pockets with subsequent aggregation of subretinal lipid deposits and retinal tears after the application of diode laser in TTT.

The incidence of exudative RD after episcleral brachytherapy treatment is of 20–25% according to published series and even though it does not require specific treatment it does call for regular supervision up to resolution with the subretinal liquid being gradually reabsorbed by the RPE.3 Although the appearance of lipid exudation occurs in about 10–13% of cases, in the presence of DR pockets the association is higher because the resolution of these pockets gives rise to residual lipid deposits associated to worse final visual results according to some authors.4 If we take into account that said pockets are related to the overall radiation dose and that this largely depends on the height of the tumor, the reasoning of other authors who point out that this measure is the main factor that predisposes the patients towards the appearance of lipid exudation seems logical as it is related to higher dosages and therefore greater iatrogeny.5 In what concerns TTT, retinal tears have been previously described both in primary treatment as in adjuvant treatment to plates and can arise up to 6 months after the procedure on the basis of atrophy plates in the laser treated areas.5 In the cases in which said complications appear, enucleation continues to be the choice in the management of said conditions.
Conflict of interests

No conflict of interests has been declared by the authors.

REFERENCES