

Macular features assessed by optical coherence tomography-angiography after proton beam therapy for choroidal melanoma

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Introduction

To characterize the macular features of patients treated with proton beam therapy for choroidal melanoma (CM), using the optical coherence tomography-angiography (OCTA).

Methods

This observational, retrospective, study enrolled patients treated with proton beam therapy for a small CM (< 7 mm). All the consecutive patients had a comprehensive ophthalmic examination including: visual acuity, optical coherence tomography (OCT B-scan) and OCTA (Spectralis Heidelberg, Germany) or Swept Source OCTA Triton (Topcon) focused on the 10 central degrees. Only patients that had a patent clinical radiation retinopathy were included in this study. The definition of the radiation maculopathy was based on the fundus. Vascular features of both plexuses, of the choriocapillaris and the choroid were analyzed in OCTA.

Results

37 patients had undergone an OCTA following proton beam therapy for a small CM. Only 23 patients (10 men and 13 women) that a patent clinical radiation retinopathy were included in this study. The mean age of the patients was 52 years (21-86). The mean follow-up duration was 33 months (12-76 months). The mean tumor thickness was 3.51 mm (1.3-7 mm). On OCT B scan, 15 patients (65.2%) had macular cysts.

All the patients (100%) had abnormalities on OCTA. Cysts were found in 15 patients (65.2%) mostly in the deep capillary plexus. Some “flow void” spots were detected at the level of the choriocapillaris in 18 patients (78.2%). Choroid vessels were diminished (by size and density) in the macular area in 14 patients (60.9%).

Discussion

OCTA allows detection of micro vascular alterations on both plexuses in patients suffering from radiation maculopathy.

Conclusion

Patients treated with proton beam therapy for CM present some alterations at both plexuses but also a vascular rarefaction of the choriocapillaris and of the choroidal vessel.

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