

Management of circumscribed choroidal hemangioma with intravitreal metoprolol injection: case report

Rodrigo Jorge¹; Arthur Sampaio Zupelli¹; Gabriela Mousse de Carvalho¹; Joacy David¹; João Victor Notini Arcanjo¹; Laís Arruda¹; Beatriz Mota²

¹Division of Ophthalmology, Ribeirão Preto Medical School, University of São Paulo, Ribeirão Preto, Brazil

²Residente da Escola Cearense de Oftalmologia

Abstract:

Purpose: We proposed the management of a patient diagnosed with choroidal hemangioma with subretinal fluid using intravitreal injection of Metoprolol 0.1% 0.05 mL and evaluated his response.

Case: 40-year-old female patient diagnosed with symptomatic circumscribed choroidal hemangioma treated with intravitreal application of metoprolol followed for 7 months.

Results: The use of an intravitreal dose of Metoprolol 0.1% 0.05 mL was effective in significantly reducing subretinal fluid secondary to choroidal hemangioma, with a successive gain in vision and a reduction in complaints of metamorphopsia, without adverse effects during the follow-up period.

Discussion: The use of β -blockers, such as oral propranolol, has been used extensively in the treatment of periocular hemangiomas with good results. Other studies have demonstrated the similarity of the effectiveness of propranolol with metoprolol in blocking β -adrenergic receptors. The importance of the need for more studies to evaluate the risk and benefit profile of the use of beta-blockers in populations with choroidal hemangioma is highlighted.

Key words: Choroidal hemangioma, subretinal fluid, Metoprolol.

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¹Division of Ophthalmology, Ribeirão Preto Medical School, University of São Paulo, Ribeirão Preto, Brazil

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PURPOSE

Circumscribed choroidal hemangioma (HCC) is a benign vascular tumor that presents in middle-aged adults, presents as a red-orange tumor, usually solitary, located in the posterior pole of the eye, without any other ocular or systemic anomalies. Diagnosis is clinical, with most HCC diagnosed if the patient becomes symptomatic or incidentally during routine examination. Symptoms include progressive decrease in vision, metamorphopsia, floaters and defects in the visual field.

It must be differentiated from amelanotic melanoma and choroidal metastasis. Treatment is indicated in symptomatic cases.

Metoprolol is a selective beta-adrenergic blocker by β_1 receptor, this class has overlying mechanisms such as local vasoconstriction effect, negative regulation of angiogenic growth factors, decreased proliferation and induction of apoptosis of endothelial cells.

In this case report, based on recent literature demonstrating cases with safe and beneficial use of intravitreal metoprolol^{11,12}, we proposed the management of a patient diagnosed with choroidal hemangioma with subretinal fluid using this medication and evaluated his response.

CASE

A 40-year-old female patient attended the ocular oncology department complaining history of low visual acuity and metamorphopsia in the right eye for 6 months. Her best-corrected visual acuity in right eye was 20/40 and left eye of 20/20.

Upon biomicroscopic examination, the anterior segment and intraocular pressure were normal in both eyes. On funduscopy, an oval-shaped orange lesion measuring approximately 3 disc diameters was observed in the posterior pole of the right eye.

Near-infrared reflectance imaging demonstrated hyporeflectivity over the choroidal lesion. Also the autofluorescence showed hypoautofluorescent surrounded the central lesion. Optical coherence tomography also showed the presence of smooth solid choroidal lesion raising the bruch-retinal pigment epithelium complex associated subretinal fluid (Fig 1.).

Off-label use of intravitreal metoprolol (50µg/0,05 mL) was proposed as a treatment. After reviewing pros and cons of this therapy and obtaining patient's consent, first injection was administered without complication.

Patient returns to the department 11 weeks after applying metoprolol. He had no complaints and reported improvement in visual symptoms. The visual acuity of the right eye was 20/30. OCT demonstrated significant improvement of subretinal fluid (Fig. 2). Due to significant improvement and absence of adverse effects, a new dose of intravitreal metoprolol was proposed on the same day.

Patient returns after loss of regular follow-up for personal reasons 22 weeks after the last application. He states that he had no complications during the period of absence. Visual acuity demonstrated an improvement in the right eye of 20/25 with a small presence of subretinal fluid on OCT.

Figure 1: Baseline multimodal assessment of choroidal hemangioma in the right eye.

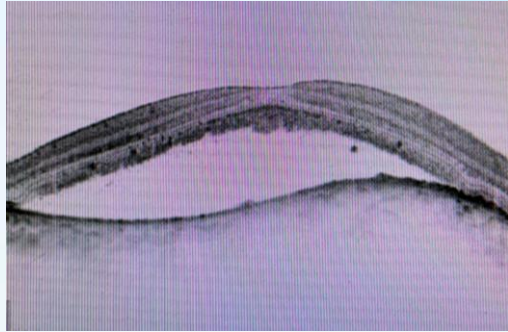


Figure 2: Optical coherence tomography 11 weeks after the first application of intravitreal metoprolol demonstrating improvement in subretinal fluid.



DISCUSSION

The use of β -blockers, such as oral propranolol, has been used extensively in the treatment of periocular hemangiomas with good results. Other studies have demonstrated the similarity of the effectiveness of propranolol with metoprolol in blocking β -adrenergic receptors.

The use of an intravitreal dose of Metoprolol 0.1% 0.05 mL was effective in significantly reducing subretinal fluid secondary to choroidal hemangioma, with a successive gain in vision and a reduction in complaints of metamorphopsia, without adverse effects during the follow-up period.

CONCLUSION

The importance of the need for more studies to evaluate the risk and benefit profile of the use of beta-blockers in populations with choroidal hemangioma is highlighted.

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