

## PROBLEMATIC PERIOCCULAR HEMANGIOMAS - SAME TREATMENT, DIFFERENT OUTCOMES

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### Abstract

Hemangiomas are the most common periocular and orbital tumors of children that arise soon after birth. Some of them require early intervention to prevent serious cosmetic and functional complications. Recently, Propranolol was approved as first line therapy for infantile hemangiomas with a good safety profile. We present three different cases managed with Propranolol, with different outcomes.

**Key words:** hemangioma, Propranolol, early treatment, complications

### Introduction

Hemangiomas are the most common periocular and orbital tumors of children that arise soon after birth. In the vast majority of cases, after an initial accelerated growth phase, they involute spontaneously. Some of them require early intervention to prevent serious cosmetic and functional complications. Periocular hemangiomas can determine amblyopia by multiple mechanisms: refractive errors, visual occlusion or strabismus. Treatment is indicated if it is a potential of vision compromise or cosmetic disfigurement. Cavernous hemangiomas in the orbit, in time, can shorten the axial length of the eye causing a gradual difference in refraction compared with the fellow eye.[1]The longer a complicated periocular hemangioma is observed, the greater the astigmatism and the harder correction it will be.[2]

Conventional therapies for infantile hemangiomas include the use of corticosteroids, laser surgery and immunomodulation therapy. Recently, Propranolol was approved as first line therapy for infantile hemangiomas. The mechanism of action remains uncertain, theories postulated include vasoconstriction, modulation of pro-survival signal transduction pathways and endothelial cell apoptosis.[3] No major adverse events have been reported, but bronchospasm, hypoglycemia, heart block, bradycardia and congestive heart failure can arise, making imperative a cardiologic exam and blood tests before treatment [4].

### Case presentation

We present 3 cases of periocular hemangiomas, with different outcome of the treatment. In all cases we did an initial evaluation with complete blood tests, cardiologic exam including cardiac ultrasound, ophthalmologic exam

and transfontanelle ultrasound. The patients were monitored for the first 24 hours and monthly after that. No adverse events were noted during therapy.

### First case

A 3 month old female patient presented with a deep hemangioma on the left superior eyelid and left frontal area affecting the opening of the left eye. The lesion appeared soon after birth and had grown fast. She received Propranolol, 2mg/kgC, for 6 months. The evolution was very good, with complete regression of hemangioma. The ophthalmological exam showed no visual impairment. The slight skin excess may improve in time. If not, it can be surgically excised. There are a few persistent telangiectasia that can be managed by laser therapy.

### Second case

A 2 month old female patient, presented with a left lower eyelid hemangioma, partially obstructing the visual axis. She received Propranolol 2mg/kgC for 6 months, with regression of the deep component. Due to the persistence of superficial component, we administered Propranolol for another 2 months, with no more improvement. In this case we had a partial response to Propranolol, preserving the function of the eye. The cosmetic part remained a problem, so we referred the patient to a laser clinic for continuing the treatment.

### Third case

A 5 month old female patient, presented in our clinic, with a massive compound hemangioma affecting the superior right eyelid and the right temporal area. Local examination showed almost complete visual obstruction and ocular globe protrusion. The lesion appeared soon after birth but the treatment was postponed by the general practitioner who advised the mother to wait because it will spontaneously regress. Concerned about the visual compromise the mother asked for another opinion.

Computer tomography showed the extension of the hemangioma on the superior and posterior orbital wall, pushing the ocular globe anterior and inferior. The ophthalmic nerve was not affected.

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Fig. 1. Case 1 before and after therapy.



Fig. 2. Case 2 before and after therapy.



Fig. 3. Case 3 before and after therapy.

We gave her Propranolol, 2mg/kgC for 3 months, then 3 mg/kgC. After 6 months, the CT showed an important involution of the hemangioma, but with persistence in the orbit. Also, the vascularization of the tumor was significant diminished, with areas of fibro-adipose degeneration. No asymmetry in dimension or position between left and right eye. We decided to continue the treatment for another 3 months. Due to the slow improvement, and the mother request for another therapy, we administered intralesional aetoxisclerol, with visible improvement after 2 treatments at 4 weeks interval. No visual impairment at final ophthalmological exam. The asymmetry noted is due to skin excess that shall be surgically excised.

#### **Discussions**

Early treatment with propranolol is effective in treating and preventing loss of visual acuity associated with periocular infantile hemangiomas. Greater reduction was achieved when Propranolol was administered during the proliferative phase of growth but may be beneficial even in

the later stage. Deeper hemangiomas have a later onset and a longer growth period than superficial ones. This is a valuable predictor in assessing the necessity and duration of treatment.[5]

In some cases, combined therapy can achieve better results. Intralesional therapy or laser therapy may be useful alternatives in the treatment of periocular hemangiomas refractory to conventional treatment modalities or for a better cosmetic result.

Residual lesions like telangiectasia, fibro-adipose tissue or skin excess can be managed secondary by lasers or surgery.

#### **Conclusions**

Propranolol is an efficient, safe treatment for periocular infantile hemangiomas, alone or in combination with other methods. Appropriate education in natural history, expected outcome and treatment update is mandatory for appropriate intervention.

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#### **References**

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