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Palpebral Capillary Hemangioma in Children: A Case Report

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Abstract **Case Report**

Hemangiomas are the most common benign tumors in children (10% of infants), affecting girls more than boys. It corresponds to a transient proliferation of endothelial cells fed by neo-vessels. Hemangiomas of orbito-palpebral localization affect 10 to 12% of children, requiring rapid diagnosis and management as they can be complicated by amblyopia due to mechanical ptosis and astigmatism due to compression of the eyeball. We report the case of a 7-year-old male child who presented with a swelling of the left lower eyelid, discovered at the age of one, progressively increasing in size and unimproved by beta-blockers. On examination, a bluish mass was found, with fine telangiectasias and no pain on palpation. Imaging, in particular orbital MRI, confirms the diagnosis of subpalpebral capillary hemangioma, as well as assessing its retrobulbar extension, appearing as T1 hyposignal, T2 hyperhypersignal and the site of numerous structures in "signal voids" corresponding to fast-flowing vessels, and which takes on strong contrast after injection of Gadolinium with respect for intra- and extra-conical fat and the optic nerve.

Keywords: Hemangiomas, transient proliferation, children, signal voids.

INTRODUCTION

Infantile hemangiomas are the most common vascular anomalies and the most common tumors in children. They occur in 10% of infants. Their origin is unknown and their location ubiquitous, but they are common on the face.

Orbito-palpebral capillary hemangiomas are vascular malformations linked to capillary proliferation. They affect 10 to 12% of children. Palpebral involvement is particular due to the specific anatomy of the eyelids and their intimate relationship with the eye [4]. In general, they do not require any particular treatment, and simple monitoring is sufficient.

Depending on their location and size, they may be responsible for functional or anatomical damage, in particular orbito-palpebral hemangiomas responsible for amblyopia secondary to palpebral occlusion, heterotrophy or anisometropia.

Imaging plays a major role in the diagnosis and rapid management of these conditions, in particular the combination of color Doppler ultrasound and MRI [5].

OBSERVATION

We report the case of a 7-year-old child, with no particular pathological history, consulted for swelling of the left lower eyelid at the age of one, put on beta-blockers, with no clear improvement.

Clinical examination: The swelling was about 3 cm long, soft, bluish in color, with fine telangiectasias, painless to palpation, and limited the full opening of the left eye.

An ultrasound scan revealed a well-limited subpalpebral tissue formation, hypervascularized on color Doppler, measuring 3x2 cm, suggestive of a capillary angioma (Figure 1).

The patient underwent orbital MRI, which revealed a left lower palpebral tissue mass, appearing as T1 hyposignal, T2 hypersignal and punctiform hypo signals, and enhancing significantly after injection of Gadolinium, with respect for intra- and extra-conical fat and the optic nerve (Figure 2). The diagnosis of orbito-palpebral capillary hemangioma was accepted.

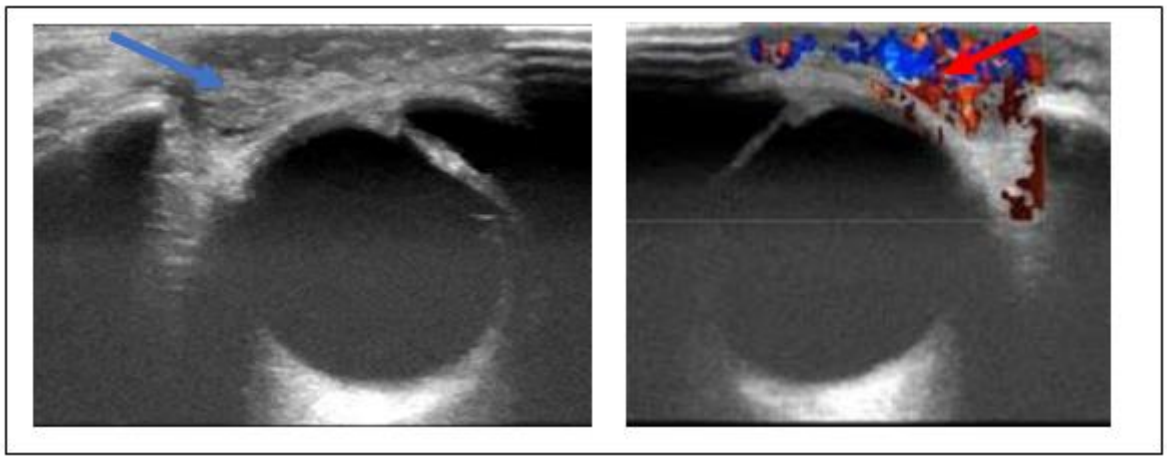

Figure 1: Objective palpebral ultrasound: well-limited subpalpebral tissue formation, hypervascularized on color Doppler (arrow), suggestive of a capillary angioma

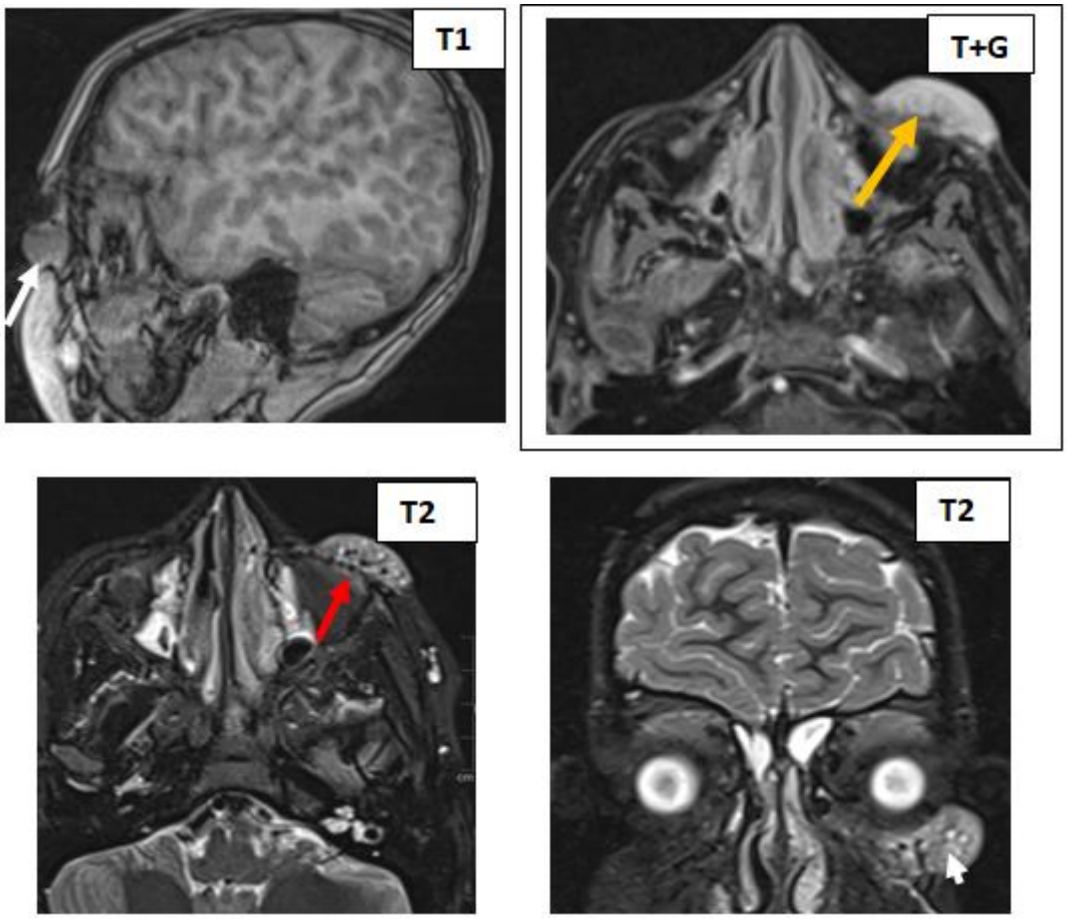

Figure 2: Brain MRI in T1, T2 sequence and after PDC injection: Left lower palpebral tissue mass, appearing as T1 hypo signal, T2 hypersignal and punctiform hypo signals (arrow), and enhancing significantly after injection of Gadolinium (orange arrow)

DISCUSSION

Capillary hemangiomas are the most common vascular tumors in children, particularly females and low-birth-weight children [2]. The etiopathogenesis of this proliferation remains unknown, but hormonal, immunological, genetic and vascular dysgenesis factors are often incriminated [3]. According to the literature, they occur in 10% of infants.

Histologically, capillary hemangiomas result from the organization of immature endothelial and pericyte cells into vascular channels in the presence of pro-angiogenic factors such as basic fibroblast growth factor (b FGF) and vascular endothelial growth factor

(VEGF) [6]. They are continuous with orbital vessels and share the same hemodynamic regime.

Hemangiomas may be associated with secondary glaucoma, choroidal hemangioma in Sturg Weber syndrome, arterial, cardiac and ocular anomalies and tortuosities of the cerebral vessels in PHACE syndrome, or other hemangiomas (20%) with the risk of bleeding, ulceration, airway obstruction and congestive heart failure.

In the absence of functional consequences, surveillance is the rule, given the tendency for resolution in the majority of cases. Occasionally, however, the visual prognosis is at stake, requiring urgent treatment. In palpebral or orbital localizations, amblyopia may occur in 60% of cases [1], due to the pressure exerted by the hemangioma on the oculomotor muscles and eyeball, causing anisometropia or significant astigmatism, or even optic neuropathy [4]. Exophthalmos, corneal exposure and bone framework damage have also been reported.

Clinically, the mass is painless, firm and elastic, not flapping, slightly warm and progressively increasing in volume. Imaging, notably Doppler ultrasound and MRI, enables rapid diagnosis of palpebral hemangioma.

In the first instance, ultrasound reveals a fleshy, well-limited and often lobulated mass. The Doppler mode is the key to diagnosis: it reveals an excessively developed arterial and venous network.

Arterioles predominate, forming a low-resistance system, with a very low resistance index, usually below 0.5 [8]. Efferent veins are large, with no change in velocimetric spectrum compared with a normal vein.

CT without and with PDC injection assesses posterior retro bulbar extension, to the face and external temporal fossa, helping to define the limits of the hemangioma and the intense but degressive nature of the enhancement.

Magnetic resonance imaging (MRI) is more efficient than CT, as it provides better discrimination of tissue contrasts. The sequences classically used are T1- and T2-weighted in two orthogonal planes, depending on the location of the hemangioma, usually axial and coronal [7]. The mass is T1 hyposignal to fat and T2 hyerintense to muscle, intensely enhanced after PDC injection.

CONCLUSION

Hemangiomas of the orbit include a variety of ethiopathogenic, histopathological, evolutionary and therapeutic entities. Their radiological aspects are variable, and CT and/or MRI allow topographical analysis, extension and relationships with the optic nerve and oculomotor muscles, which is decisive for appropriate therapeutic management.

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