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Preventing stimulus-deprivation amblyopia in eyelid capillary haemangioma
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Case Report

Early Management of Capillary Haemangioma to Prevent Stimulus-deprivation Amblyopia

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ABSTRACT

Introduction: Infantile capillary haemangiomas (IHs) are common, benign tumours that are self -limiting and generally found in the head and neck region.

Case: We present a case of a three month old female baby who presented with a left upper eyelid capillary haemangioma because of which she could not lift the upper lid subjecting her to a high risk of stimulus-deprivation amblyopia. Treatment was provided in the form of an intralesional Triamcinolone acetate injection (40 mg/ml) under general anaesthesia, along with oral Propranolol (1 mg/kg body in 2 divided doses for the first two days, followed by 2 mg/kg in 2 divided doses for ten days (continued upto four months) and topical Timolol (0.5%) lid massage twice a day upto a period of six months.

Observation: No adverse effects were reported and a marked reduction in size of the tumor was observed thereby providing an immediate relief to the child.

Conclusion: Hence a combination therapy using intralesional steroids, along with oral propranolol and topical timolol over the lesion has proven to be very effective in providing early response.

Key words: Haemangioma, Intralesional triamcinolone, Propranolol, Stimulus-deprivation amblyopia, Timolol.

INTRODUCTION

Infantile hemangioma (IH) is a common congenital vascular malformation that affects 4–5% of full-term infants (Grzesik and Wu, 2017). The incidence of IH is higher in females than in males, with an estimated ratio of 3–5:1 (Harter and Mancini, 2019). Because of a natural history of spontaneous involution, most IHs do not need treatment (Harter and Mancini, 2019). However, some severe IH cases are associated with complications including

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bleeding, ulceration, or disfigurement, which require early interventions (Singh et al, 2019). There have been multiple modalities to treat IHS with glucocorticoids considered to be very effective (Chinnadurai et al, 2016). Since the first-report of successful treatment of IH with oral propranolol in 2008, this non-selective beta-blocker has become the mainstay for managing complex IHs (Yang et al, 2019).Another non-selective beta blocker Timolol, which can be used topically, in gel form or solution, has also emerged as a novel IH treatment (Zheng and Li, 2018). Eyelid haemangiomas generally resolve spontaneously, but are of particular concern when they obstruct the visual axis and lead to stimulus-deprivation amblyopia (Ceisler and Blei, 2003) hence the need to address them urgently in such cases. Therefore combined therapy with corticosteroids, oral propranolol and topical timolol is more effective in obtaining faster resolution of IH where prompt and urgent treatment is warranted.

CASE REPORT

A 3 month old baby girl presented to our hospital with a cherry red spongy mass over the left upper lid resulting in ptosis (Figure 1). The mass was first noted on the left upper lid within weeks of a normal delivery. It gradually increased in size over 3 months. On examination, the child could fix and follow light in the right eye (OD).The left upper lid could not be lifted up so visual acuity assessment in the left eye (OS) was not possible. Ocular motility in the right eye was full in all directions of gaze but it could not be assessed in the left eye. Pupillary reaction was brisk in both the eyes. There was no evidence of any orbital extension of the tumor, which was confirmed on MRI (Magnetic Resonance Imaging).

Treatment modality adopted was administration of 1ml of intralesional Triamcinolone acetate (40 mg/ml) given through a 30 gauge needle mounted on an insulin syringe. The site of injection was

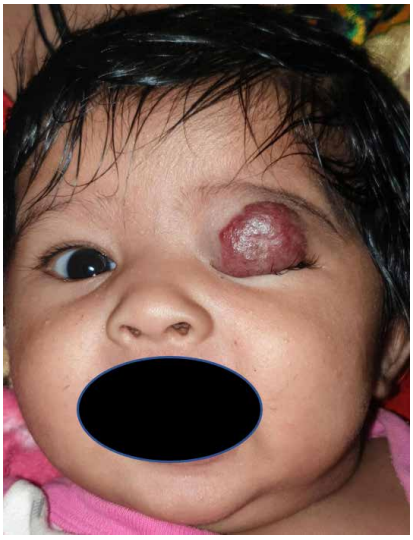

Figure 1: Capillary haemangioma over the left upper lid in a three month old infant.

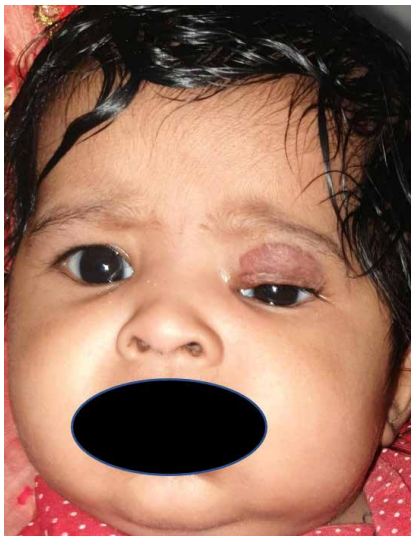

Figure 2: Post-procedure (after 10 days) marked reduction in size of capillary haemangioma over left upper lid.

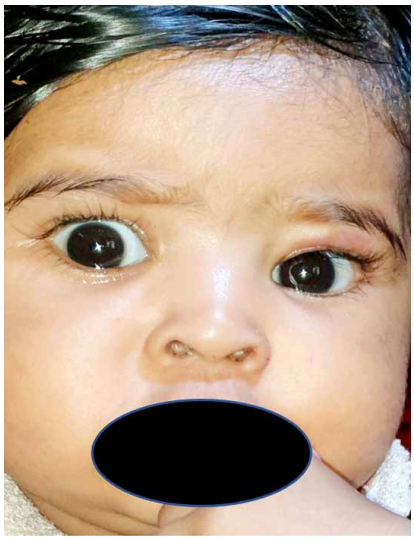

Figure 3: Post-procedure follow-up after a period of 3 months (marked reduction in size of capillary haemangioma over left upper lid).

in the superior part of the lesion. The procedure was performed under general anaesthesia and fundus evaluation was done thereafter, which turned out to be normal. No ocular massage was performed after the procedure. The child was then put on oral Propranolol 1 mg/kg in 2 divided doses for the first two days(under the guidance of a paediatrician),followed by 2 mg/kg in 2 divided doses for ten days .Topical Timolol (0.5%) lid massage twice a day was also advised. The child came for follow-up after ten days where a marked reduction in size of the tumor was noted (Figure 2). The child was administered oral Propranolol (2 mg/kg/day in 2 divided doses) upto three months,then tapered to 1 mg/kg/day in the fourth month following which it was stopped.Topical timolol was continued two times a day upto a period of six months (Figure 3).The child was continuously monitored for side effects like hypotension, bradycardia and hypoglycemia but none were reported during any stage of the treatment.

DISCUSSION

Capillary haemangiomas are one of the most common periocular and orbital tumors of childhood that are benign in nature ,with a self-limiting course. These are vascular malformations that typically arise in infancy and undergo spontaneous regression. However, they can be vision threatening when large in size and when obscuring the visual axis. Therefore the need for urgent intervention arises in such instances to prevent the development of amblyopia.

The case presented herein shows a capillary haemangioma of the left upper lid in a 3 month

old female infant which due to rapid growth covered the visual axis, thereby threatening vision of the child. We started treatment with a combination of intralesional steroids followed by oral propranolol. Topical Timolol (0.5%) lid massage twice a day was also advised.

Steroids play a major role in regression of haemangiomas by sensitizing the vascular bed to vasoconstricting agents.A study conducted by Haider et al demonstrated the effectiveness of oral propranolol in treating IHS (Haider et al, 2010). Direct application of 0.5% topical timolol solution over the surface of the capillary haemangioma results in its regression, as demonstrated in a study by Guo et al. (Guo et al, 2010). Therefore, we employed a combination therapy consisting of intralesional triamcinolone injection, together with oral propranolol and topical timolol lid massage. The therapy proved to be very effective as the tumor markedly reduced in size providing immediate relief to the infant, clearing the visual axis, thereby preventing the development of amblyopia.

CONCLUSION

Various modalities have been tried to enhance spontaneous regression in Infantile capillary haemangiomas, especially those which are vision threatening. A combination therapy using intralesional steroids, along with oral propranolol and topical timolol over the lesion has proven to be very effective in providing early response.

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