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REVIEW ARTICLE

Early Intervention for Infantile Capillary Haemangiomas at Mater Dei Hospital

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Infantile capillary haemangiomas (strawberry nevus) are common, benign vascular tumours that appear in infancy, typically within the first few weeks to months of life. While many of these haemangiomas undergo spontaneous regression, some may present challenges due to their size, location, or associated complications. Early intervention is crucial to prevent potential disfigurement, functional impairment, or other complications, especially when lesions affect critical areas such as the face, particularly near the eyes or nasal bridge. Propranolol is highly effective in arresting progression and inducing regression of these lesions. This paper describes the problems and issues that may arise from infantile haemangiomas and alerts the local medical community to this service at Mater Dei Hospital since early referral for prompt evaluation and treatment, if necessary, ensures optimal functional and cosmetic outcomes.

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Infantile capillary haemangiomas (strawberry nevus) are common, benign vascular tumours that appear in infancy, typically within the first few weeks to months of life. They are red, maculopapular haemartomatous benign neoplasias of endothelial cells. These lesions may appear anywhere with a propensity (50%) for the head and neck. Haemangiomas occur in 1-2% of all children.[1]

Some grow rapidly in the first 2 years of life in size, depth, and elevation above the skin surface in the proliferative phase, but then regress, with 60% disappearing by 5 years of age, and in over 90% of cases by 9 years age in an involutional phase.[2]

They are commoner in females (5:1) and in Caucasians and treatment when necessary was traditionally surgical, or with laser, or medical therapy including high dose corticosteroids, alpha-interferon, and vincristine.[3,4] In 2009, an infant with a large nasal haemangioma who was treated with corticosteroids developed iatrogenically induced hypertrophic obstructive cardiomyopathy (HCM). On commencing propranolol, the standard treatment for HCM, rapid involution of the haemangioma was noted, prompting the successful treatment of a series of children (who received up to 5 mg/kg/d), which led to the acceptance of this modality of treatment as first line.[5]

While many of these haemangiomas undergo spontaneous regression, some may present challenges due to their size, location, or associated complications. Early intervention is crucial to prevent potential disfigurement, functional impairment, or other complications, especially when lesions affect critical areas such as the face, particularly near the eyes or nasal bridge.

TREATMENT OPTIONS

Treatment for infantile capillary haemangiomas has evolved significantly over recent years. Observation is critical as a significant proportion of these lesions resolve without intervention. However for those requiring treatment, early intervention is crucial, and this involves simple propranolol which is available in both syrup and tablet form. This non-selective beta-blocker has emerged as a cheap, simple and highly efficacious frontline treatment for problematic infantile haemangiomas and demonstrates remarkable efficacy in promoting rapid regression, particularly when initiated early.[5]

Topical timolol maleate, a topical beta-blocker, has also shown promise in certain cases, particularly for smaller, superficial haemangiomas.[5] Laser and surgical therapy are beyond the scope of this short paper.[5]

Formerly due to the high rate of spontaneous resolution, treatment was limited to those lesions that impaired senses, such as the eyes or that impaired function of vital organs.[5] However the safe and widespread use of this drug for these conditions has led to its use in the setting of haemangiomas also for cosmetic reasons.[6,7]

AT MATER DEI

Propranolol is commonly used in paediatric cardiology, typically for the suppression of arrhythmias, for the prevention of cyanotic spells in tetralogy of Fallot and for the management of hypertrophic cardiomyopathy. Since paediatric cardiologists are most familiar with propranolol, it has devolved to paediatric cardiology at Mater Dei Hospital to treat these patients. The first patient treated was a Libyan child in 2011 with an ulcerating haemangioma on the latter aspect of the arm, with rapid resolution.[8] Since then, over 50 children have been treated with oral propranolol. The clinic also provides a platform to educate parents and caregivers about infantile haemangiomas, including signs to watch for and the importance of early intervention.

RATIONALE FOR EARLY CLINIC INTERVENTION

The establishment of a dedicated clinic several years ago (within the paediatric cardiology outpatient clinic) for infantile capillary haemangiomas at Mater Dei Hospital addressed the critical need for early assessment and intervention. By identifying and treating these haemangiomas promptly, complications may be prevented, such as obstruction of vision with the potential for amblyopia, airway compromise, or deformation of facial structures. Haemangiomas at risk of trauma and bleeding are also effectively treated, for example on the extensor surfaces in toddlers, on the fingertips, and on the buttocks which are enclosed in nappies. Trauma in the latter location in the sitting infant may result in skin rupture and infection.

Early intervention can also minimize the long-term cosmetic impact of haemangiomas, especially when they affect highly visible areas like the face, neck, and upper torso. An example is shown in **Figure 1**, before treatment at 8½ weeks of age, and **Figure 2** at 10

Figure 1 *Haemangioma at 8½ weeks of age, with treatment*

Figure 2 *Same lesion at 10 weeks of age*

weeks of age. A more dramatic example is shown in Figure 3 before treatment at 2 months of age, and Figure 4 after treatment at 10 months of age.

TREATMENT

The approach is simple. Patients who have lesions deemed worth treating have baseline weight, blood pressure and heart rate measured. These are typically infants weighing four to six kilograms, so propranolol is started gradually, incremented over several weeks to approximately 1mg/kg per dose, thrice daily, with monitoring of the aforementioned parameters at each visit.

Results are generally almost dramatic, with a swift reduction in lesion tenseness, and a decrease in redness, which progresses over several months.[7]

CONCLUSION

Medicine is replete with serendipitous discoveries, such as the accidental discovery of penicillin, as well as minoxidil for promotion of hair growth and sildenafil for erectile dysfunction, both drugs having been developed initially to treat hypertension.[9]

Propranolol is effective and safe and results in a better response when treatment is commenced early, in infants under the age of three months.[7] Indeed there are suggestions that premature infants have superior responses to propranolol than term infants.[10] Propranolol has also been safely used in the presence of complicated haemangiomas, i.e., those with co-morbidities such as hypothyroidism and heart failure.[11]

The purpose of this paper is meant to alert the local medical community to this service at Mater Dei Hospital since early referral for prompt evaluation and treatment, if necessary, ensures optimal functional and cosmetic outcomes.

Figure 3 *Haemangioma at 2 months of age*

Figure 4 *Same lesion at 10 months of age, with treatment*

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