

# Treatment of infantile hemangioma with intense pulsed-light: A case report

Usman Rafiq, Asmat Abbas Shah, Muneeza Rizwan

Department of Dermatology, Pakistan Air Force Hospital, Islamabad

**Abstract** A five-month-old boy with skin phototype IV was successfully treated for a large infantile hemangioma on his left antecubital fossa with three intense pulsed-light treatments at 4-week interval. The lesion regressed approximately 90% without any side effects leading us to say that intense pulsed-light is a safe and effective modality for treatment of infantile hemangioma in Asian patients.

**Key words**

Infantile hemangioma, intense pulsed-light.

## Introduction

Infantile hemangioma (IH) is the most common benign tumor of infancy, which usually appears shortly after birth, and affects one in 10 infants.<sup>1</sup> The pathophysiology is not exactly known but it likely results from deregulation of angiogenesis.<sup>1</sup> The first 6 months is the proliferative phase followed by a period of stabilization and finally progressive regression which is mostly completed before puberty.<sup>2</sup> Since 90% of the IH tends to regress by the age of 9 years, hence for a very long time its treatment is based on a “wait and see” policy.<sup>3</sup> But this concept has now been outdated with the introduction of beta-blockers and advancement of laser and light therapies.

Currently, the first-line therapy for IH includes the beta-blocker propranolol, but its administration requires close medical monitoring.<sup>4,5</sup> Similarly, laser therapy can possibly leave dyschromia and scarring.<sup>3</sup>

However, intense pulsed-light (IPL) therapy has been reported to have efficacy and safety in the treatment of IH in Caucasian patients.<sup>3</sup> IPL flash lamps emit broadband polychromatic high-intensity light with a wavelength spectrum ranging between 500-1200nm, targeting dermal vessels at various depths.<sup>6</sup> It works on the principal of selective photothermolysis and the cutoff filters allow treating a wide variety of skin conditions including vascular, pigmentary and hair removal in a range of skin phototypes.<sup>6</sup>

## Case Report

A 5-month-old boy with Fitzpatrick skin type IV presented with IH since birth on the right antecubital fossa, measuring 7x4cm in size and thickness 0.4 mm above the skin surface (**Figure 1a**). There was no associated malformation. The patient had not received any previous treatment. The lesion was treated with the IPL (HS 300C) with 510 nm cutoff filter. Fluence used was 12 J/cm<sup>2</sup>. At each treatment 3 shots were delivered. The child received three IPL treatments 4 weeks apart. No local anesthesia was given considering that the shots only last for a few milliseconds and the child stopped crying right after the

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**Address for correspondence**

Dr. Muneeza Rizwan  
Consultant Dermatologist  
Head of the Dermatology Department  
PAF Hospital, Islamabad  
Email: muneezar@yahoo.co.uk



**Figure 1** Infantile hemangioma of antecubital fossa in a 5-month-old child (A) Prior to treatment; (B) After 1<sup>st</sup> treatment; (C) After 2<sup>nd</sup> treatment; (D) 3 months after 3<sup>rd</sup> treatment.

Treatment. Photographs, for assessment by the treating physician, were taken pre-treatment, at each visit and 3 months after the last treatment (**Figure 1**). The parents were asked to grade their own satisfaction from a scale of 0 to 10, with 0 being unsatisfied and 10 being completely satisfied.

On assessment at 3 months after the last treatment the lesion regressed by approximately

90% (**Figure 1d**) and parents' satisfaction level was 9 on a scale of 0 to 10. There were no side effects like scarring, ulceration or pigmentation.

### Discussion

Solitary and uncomplicated IH have a natural course to complete regression in 50% of the children by the age of 5 years and an additional 10% regression per subsequent year.<sup>7</sup> However,

the actual evolution is unpredictable during the early proliferative phase; some hemangiomas remain unchanged, whereas others reach a large size. Children bearing hemangiomas on the exposed areas may suffer from a functional and social disability and are also likely to be subjected to teasing at school causing social withdrawal.<sup>8</sup> Marie Caucanas in her retrospective study of treatment of IH with IPL suggested that lesions larger than 1cm in diameter at the first visit or those rapidly growing more than 0.5cm over the first 6-8 months of life must be treated in order to avoid further physical and psychological sequelae.<sup>1</sup>

IPL has been under use for treatment of IH for a considerable period of time and is considered as a safe and effective early intervention in treatment of IH.<sup>2,3</sup> The documented studies of IPL in IH are available for Caucasian children; to-date no data is available for their efficacy and safety in Asian children. Our case report demonstrates the remarkable efficacy of IPL in the treatment of large IH along with a significant safety profile in an Asian child with skin phototype IV. Treatment in an early stage of development with IPL appeared to stop the rapid growth and initiated involution in 3 treatment sessions, thus preventing any unpredictable disfiguring impairment. Also the tolerance to the therapy was very good with no scarring or ulceration.

## Conclusion

IPL treatment in the early evolution phase of IH stops its growth phase and induces regression with minimal cosmetic adverse effects.

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