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## Hemangioma Treatment Using the GentleLASE® 755 nm Alexandrite Laser

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### Introduction

Hemangiomas are nonmalignant tumors of vascular endothelium generally appearing in infancy. Most hemangiomas develop in the head and neck region, and more common on girls and premature infants. Up to 10% of all year-old infants demonstrate hemangiomas somewhere on their bodies. The cause of hemangiomas has not been determined.

There are three types of hemangiomas:

**Superficial**—hemangiomas that are flat and reddish in color.

**Deep**—hemangiomas that are situated beneath the skin and bluish in color.

**Compound**—hemangiomas that exhibit the clinical characteristics of both superficial and deep hemangiomas.

Hemangiomas generally progress through two phases of growth, a proliferative phase and an involutonal phase. The proliferative phase is characterized by an increased number of endothelial and mast cells, the latter being a stimulus for vessel growth.

The involutonal phase is characterized by regression of the hemangiomas. During this phase, mast cell numbers decrease to normal, and there is a decrease in endothelial and mast cell activity. These vascular spaces become lined with endothelial cells without muscular support.

While nearly all hemangiomas will involute by age five years, and 70% will involute by age seven, the result is not always cosmetically acceptable. Additionally, some hemangiomas persist until later years. Early intervention has been shown to reduce the need for corrective surgery later on in life.

Multiple modalities exist for the treatment of hemangiomas, including laser intervention. The efficacy of the argon and pulsed dye lasers in the treatment of hemangiomas has been well documented. Recently, longer wavelengths have been investigated for their utility in treating these vascular anomalies, including the 1064 nm wavelength Nd:YAG laser and the 755 nm alexandrite laser.

The following section reports on the successful treatment of a facial hemangioma on a 38-year-old man using the GentleLASE alexandrite laser from Candela.

### Method

A 38-year-old white male presented with a 2 x 2 cm raised (3 mm) hemangioma on the right superior forehead. The lesion had been present since early childhood and had not recently changed in size.

At the first visit, the superior part of the hemangioma was treated with the GentleLASE (8 mm spot, 60 J/cm<sup>2</sup>, 90/80 Dynamic Cooling Device™ (DCD™), 4 pulses) and the inferior aspect of the



lesion with a pulse-dye laser (7 mm, 14 J/cm<sup>2</sup>, 3 ms, 40/30 DCD, 4 pulses). Follow-up six weeks later demonstrated some improvement of the inferior aspect (pulse-dye laser) with lightening of the lesion, but dramatic clearing and flattening of the superior part treated with the GentleLASE. The entire lesion was then treated with the GentleLASE alexandrite laser with the 8 mm hand piece at a setting of 70 J/cm<sup>2</sup> and the DCD set at 90/80. This treatment was then repeated six weeks later.

### Results

Follow-up six weeks after the entire lesion was treated with the alexandrite laser showed near complete clearing. The edge of the lesion persisted, and the periphery was treated again using the GentleLASE at the above settings. Complete clearing was seen at the six-week follow-up.

### Discussion

While the pulse-dye laser has been an excellent treatment option for some hemangiomas, especially those treated in infancy or early childhood, longer wavelengths are better suited to treat deeper lesions. Longer wavelengths have the advantage of deeper and therefore more complete penetration into the lesion due to less scattering and less efficient absorption in hemoglobin. Although higher fluences must be used, the more complete thermal destruction seen with longer wavelength lasers makes them an excellent choice in the treatment of thicker hemangiomas.



**Figure 1—Hemangioma of the lateral forehead, pre-treatment**



**Figure 2—Hemangioma six weeks following a test-treatment of the inferior half with the Vbeam laser, and the superior half with the GentleLASE**



**Figure 3—Hemangioma six weeks following full-treatment with the GentleLASE using an 8mm spot size, 70 J/cm<sup>2</sup>, and a DCD setting of 90/80**



**Figure 4—Six weeks following third and final GentleLASE treatment**

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