



# Successful treatment with Nd:YAG in recalcitrant hypertrophic port-wine stain



DERMATOLOGÍA  
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## Background

Port-wine stain (PWS) is the most common congenital capillary malformation, found in 0.3 to 0.5% of newborns. At birth, they're characterized by pink macular patches, but with age, they become hypertrophic and darker due to progressive vascular ectasia affecting the individual's psychosocial life. Two-thirds of these malformations present in the cervicofacial region, predominantly along the trigeminal nerve dermatomes. Pulsed dye laser (PDL) is the current standard of care therapy for PWS, however it has a significant limitation regarding the depth of tissue penetration. Although the 1064nm wavelength may be less efficient against oxyhemoglobin as a target, it has a superior tissue penetration and better ability to reach dermal vessels.

## Objective

To highlight the importance of using a laser with a superior penetration in hypertrophic port wine stains.

## Case

A 40-year-old male patient presented to the outpatient clinic with a history of a flat erythematous macule in the face since birth, that grew in size and depth and became hypertrophic 8 years ago. He was treated with three sessions of pulsed dye laser in another clinic with no improvement. No relevant personal or family history.

Physical examination revealed hypertrophic erythematous-violaceous plaque with multiple lobes in the left side of the face, slightly limiting vision in the left eye. The diagnosis of port wine stain was established.

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## Methods

Since he had been treated several times with PDL with no improvement, we decided to offer Nd:YAG laser as an initial treatment option.

Two sessions of 1064nm Nd:YAG laser have been performed under local anesthesia with 2% lidocaine.

## Results

The patient has had dramatic improvement in appearance with significant reduction in size and lobules of the lesion. In the treated areas there are erythematous eutrophic scars. The patient is satisfied with the treatment and willing to continue it until the lesion is fully removed.

### Before



### After





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## Conclusion

- Since the early 80s, vascular specific lasers have been considered the gold standard in treating port-wine stains, and pulsed dye laser irradiation is the current standard-of-care therapy. This is due to the excellent avidity of the 585nm wavelength for oxyhemoglobin.
- Pulsed dye laser is most applicable to patients with vascular lesions in superficial dermal layers and patients with hypertrophic port-wine stains may be recalcitrant to this laser because of the depth of tissue penetration.
- The 1064nm wavelength may be less efficient against oxyhemoglobin as a target, but it has superior tissue penetration and a better ability to reach dermal vessels. This could have a role in treating thicker hypertrophies lesions such as port-wine stains.



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