

Surgery Quick Notes:

**LASER TREATMENT OF  
 PIGMENTED LESIONS**

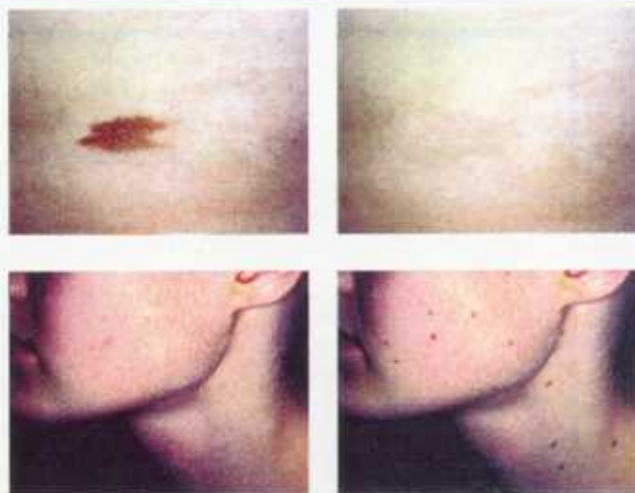


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**Problem:**

Cutaneous pigmented lesions tend to proliferate with advancing age. Traditional treatments such as cryotherapy, excision and chemical peels can lead to scarring, recurrence and permanent dyspigmentation. These risks can be minimized if they are treated with pulsed lasers that selectively target melanin.

**Background:**

- Melanin absorbs light across a broad spectrum of visible light, so many different wavelengths can potentially be used to target the cutaneous pigment.
- Green light lasers [Q-switched (QS) Nd:YAG (frequency-doubled to 532 nm) or the pulsed dye (510 nm)]: best suited to *superficial* pigmented lesions (solar lentigines and café-au-lait spots) due to high melanin specificity and limited tissue penetration in the 500–550 nm wavelength range.<sup>1</sup>
- Junctional and compound melanocytic nevi: Respond better to pigment-specific lasers that penetrate more deeply into skin.<sup>2</sup> Lasers: QS ruby (694 nm), QS alexandrite (755 nm), and QS Nd:YAG (1064 nm).

Laser	Wavelength (nm)	Pulse Duration (nsec)	Target Region	Lesions Treated
Pulsed Dye	510	300	epidermis	Solar Lentigines Café-au-lait
Nd:YAG (frequency doubled)	532	10		
QS ruby	694	25	epidermis/ dermis	Nevus of Ota Melanocytic Nevi
QS alexandrite	755	50–100		
QS Nd:YAG	1064	10		

**Pitfalls:**

- Dramatic purpura and/or vesiculation can occur after laser irradiation, often lasting for 1–2 weeks.
- If tissue splatter occurs during treatment, the skin is more likely to develop crusting, which slows healing.