

Lasers May Induce Terminal Hair Growth

Letter to the Editor:

We read "Hair growth induced by diode laser treatment" by Bernstein in the May 2005 issue of *Dermatologic Surgery* with great interest.¹ In that case report, the author observed development of terminal hairs in a treated area using an 810 nm diode laser. We have also had the same experience in our patients treated with different laser systems. Our observation was published in the April 2004 issue of *Dermatologic Surgery*.² In that article, we named this phenomenon as "terminalization," which is the conversion of vellus hairs to terminal hair secondary to laser treatment. Interestingly, this effect was observed in a significant number of our study population, and especially in those who were treated with 1,064 nm Nd:YAG laser.

The exact physiopathology of this phenomenon is not yet known. We observed "terminalization"

mainly in patients who were treated with low fluences. Hence, we hypothesize that in such cases, produced heat is less than the temperature necessary for thermolysis of hair follicle. However, the heat shock may induce follicular stem cell differentiation and growth. This may be via increasing the level of heat shock proteins (HSP) such as HSP 27 in the tissue. These proteins are found in the epidermis and hair follicle and are involved in the regulation of cell growth and differentiation.^{3,4} There are other growth factors associated with the growth and differentiation of hair follicles, which may be stimulated by heat shock.^{5,6} A better understanding of the pathophysiology of this event will not only be helpful for improvement in laser-assisted hair removal but may also be useful in the treatment of alopecia.

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