

Lessons Learned From CO₂ Laser Resurfacing

Facial resurfacing using pulsed CO₂ lasers appeared a little more than 10 years ago to tremendous fanfare. Every educational meeting was full of talks on this wonder procedure that eradicated rhytides. Weekend courses taught eager users how to begin performing this hot new technique. Yet, in just over a decade, enthusiasm has waned and the procedure is performed much less often. What happened to cause this, and what can be learned from this experience?

First, let me clearly state that CO₂ laser resurfacing is a terrific procedure for the right patient. There is nothing like it for deep wrinkles on loose facial skin. However, it is a stressful procedure for the patient, the doctor, and the medical staff. The procedure produces a significant facial wound that alarms many patients. No matter how well patients are psychologically prepared by doctors and staff, a percentage of patients will be truly distressed by their appearance during the wound-healing phase. The acute wound only lasts a week or so, but it is a long week for the patient and the doctor. Following the acute phase, the patient may be erythematous for up to 4 months and may require quite a bit of hand-holding and reassurance from the doctor and the staff.

There are risks to the procedure. Infection and scarring do happen. The late-term complication of permanent hypopigmentation in up to 20% of patients was appreciated only after the procedure had been widely adapted and performed.¹ Despite these potential problems, patients will gladly undergo this procedure if they will see a dramatic improvement in their appearance. If the result is modest, the patient will certainly question whether the procedure was worthwhile.

Importance of Careful Patient Selection

What can we learn from the experience with CO₂ lasers? First, patient selection is important. As previously stated, when performed on the right patient, the results are truly impressive. However, as the old saying goes, if your only tool is a hammer, every problem looks like a nail. In my opinion, the procedure was overutilized and was performed on patients in whom it was unlikely to produce a dramatic result.

Beware of Fads

Furthermore, beware of fads. There will always be a new laser, device, or filler. Doctors should keep an open mind to innovation but evaluate new procedures carefully and adopt these procedures slowly as they gain experience with them.

CO₂ laser resurfacing remains the gold standard of resurfacing procedures and offers a level of cosmetic improvement that cannot be achieved with other techniques. It is not for every patient, and it does have side effects and complications.

Long-term Results

Lastly, CO₂ laser resurfacing dramatically demonstrates the need to wait for long-term results before adopting new techniques. At first it seemed that only short-term erythema and hyperpigmentation were the adverse effects associated with CO₂ laser resurfacing. However, it became apparent that 1 year after having the procedure performed, a significant percentage of patients developed permanent hypopigmentation. This could not have been foreseen from preliminary trials.

CO₂ laser resurfacing remains the gold standard of resurfacing procedures and offers a level of cosmetic improvement that cannot be achieved with other techniques. It is not for every patient, and it does have side effects and complications. Experience with CO₂ lasers also offers valuable lessons for evaluating other new cosmetic techniques.

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Reference

1. Bernstein LJ, Kauvar AN, Grossman MC, et al. The short- and long-term side effects of carbon dioxide laser resurfacing. *Dermatol Surg.* 1997;23:519-525. ■