

Photorejuvenation: Using Intense Pulsed Light Technology in a Cosmetic Surgery Practice

A significant group of patients have had aesthetic procedures but are still concerned with the condition of their skin. Intense pulsed light technology can diminish lines of demarcation and signs of photoaging, and it can provide a 50% to 75% improvement in facial flushing/rosacea and a 40% to 60% improvement in dyschromia. The author provides a protocol for using this technology and pointers for successful treatment. (*Aesthetic Surg J* 2001;21:255-258.)

The main concerns plastic surgeons have about acquiring new technology are versatility and longevity. The "laser craze" has left some surgeons holding onto vintage "boxes" of dedicated wavelengths, only to see newer wavelengths surface and consumer interest wane. In contrast, the technology of intense pulsed light (IPL) has advantages that I think may benefit an aesthetic surgery practice.

With this technology, the energy source is not limited to a single wavelength but modulated with filters ranging from

515 to 1200 nm. By manipulating fluence, delay time between pulses, pulse duration, and wavelength filter, the chromophore of hemoglobin and melanin can be selectively reduced. By inserting interchangeable filters on the Vasulite HR (Lumenis, Yokneam, Israel), treatment of unwanted hair, leg veins, and photoaging (brown skin discoloration and facial redness) can be accomplished with a single machine. In particular, I have found that photorejuvenation, a process that selectively reduces redness and dyschromia and provides some skin tightening, has made a significant impact on my practice.



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Indications

More than 50% of my patients who have undergone surgi-

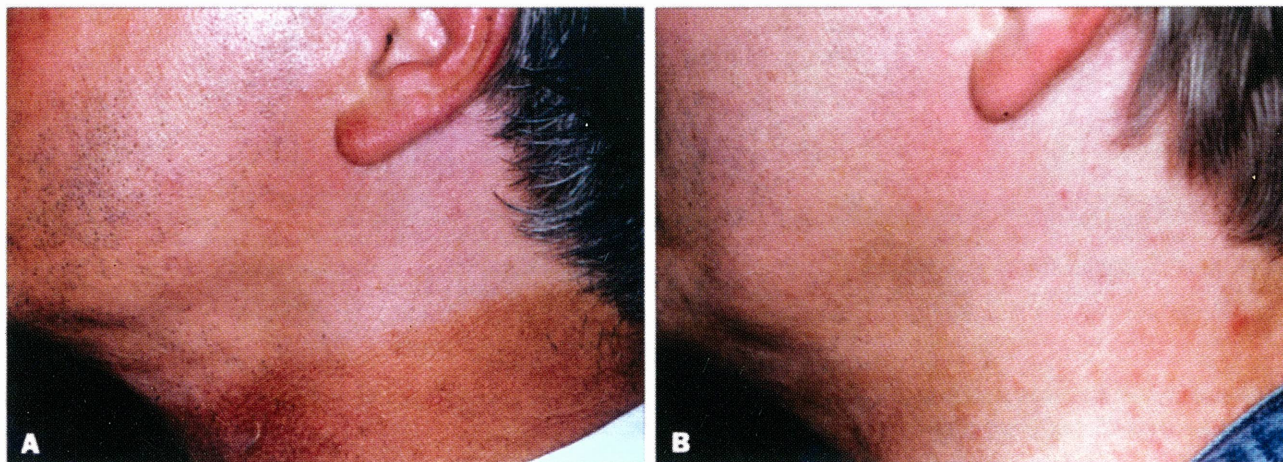


Figure 1. A, Pretreatment view of a 44-year-old man who sustained a flash burn on the left side of his face. For the past 2 years he has been applying various bleaching creams and also has had 2 "light" chemical peels. There has been no improvement in the line of demarcation along his neck. His problem is primarily hyperpigmentation with some hypervascularity of his neck skin. **B**, Posttreatment view 6 months after his eighth IPL treatment. Note the gradual blending and elimination of the line of demarcation.



Figure 2. A, C, Pretreatment views of a 49-year-old woman who had previous laser skin resurfacing and chemical peel. Her facial wrinkles improved, but she still demonstrates significant problems with dyschromia and hypervascularity, with the pigmentary condition appearing to be worse. **B, D,** Posttreatment views 3 months after her fifth IPL treatment.

cal procedures and/or skin resurfacing (laser or chemical peel) suffer from one or more of the following conditions:

- Lines of demarcation (Regardless of the cause [laser or chemical], these pigmentary borders of disunion can occur after full-face or zonal treatments.)
- Increased visible vascularity of the skin (After rhytidectomy, facial vascularity may be more apparent.)
- Dyschromia (areas of hyperpigmentation and hypopigmentation)
- Facial flushing (undesirable reactive vascular hyperemia)

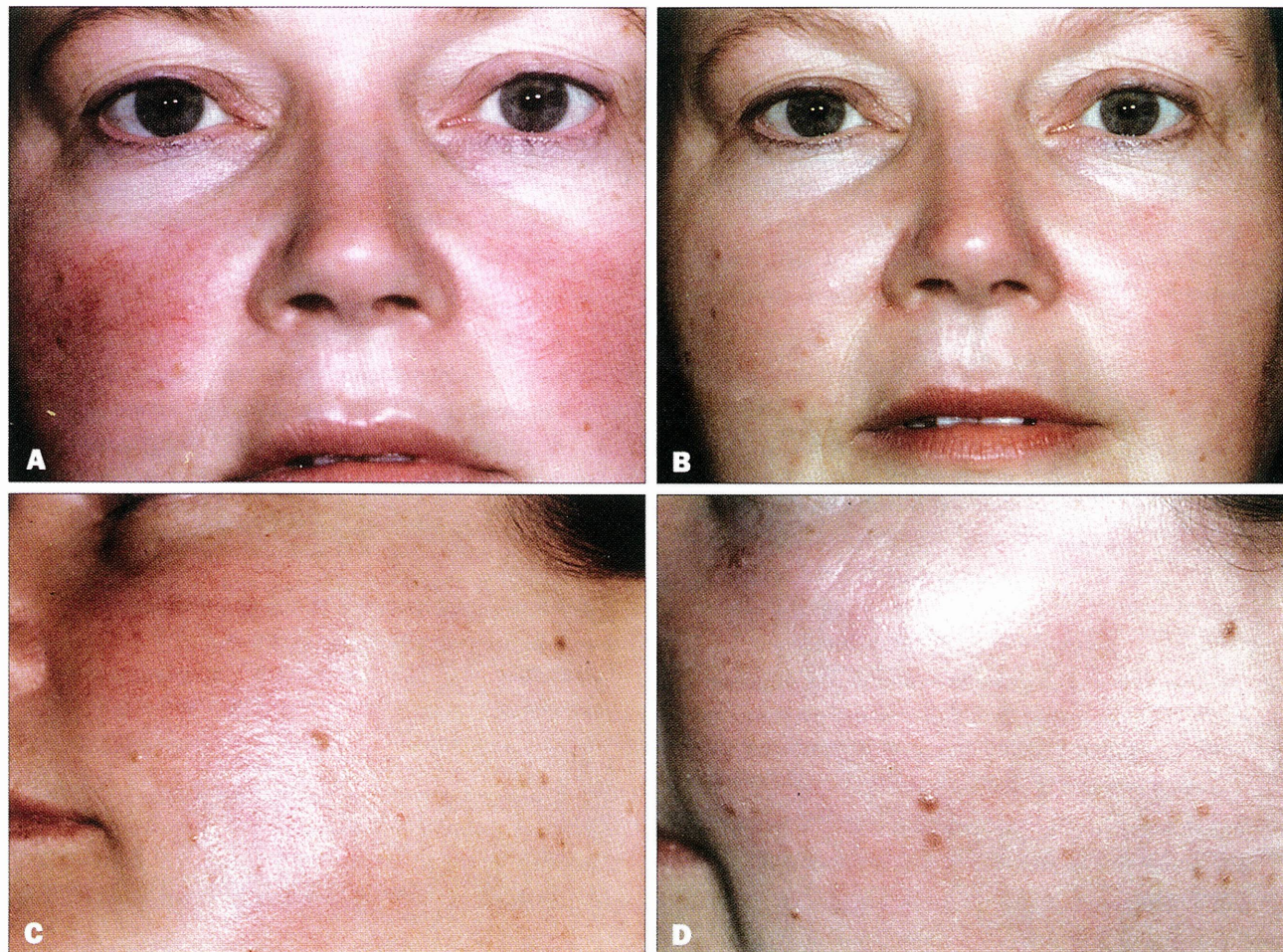


Figure 3. A, C, Pretreatment views of a 43-year-old woman with classic malar flushing and hypervascularity associated with rosacea. She had tried altering her diet and social activities as well as using a topical agent (metronidazole) without much success. She has had some form of this condition since her adolescence, but it has increased in severity. Although the close-up demonstrates both a pigmentary and vascular problem, the vascular problem appears to be worse. B, D, Posttreatment views 6 months after her seventh IPL treatment.

- Rosacea (Approximately 13 million people in the United States have this condition.)
- Photoaging of the neck, chest, and hands (Patients who have undergone aesthetic surgery still complain that their skin has an aged appearance. They also do not want to endure the recovery process after laser or chemical skin resurfacing.)

Before I offered IPL technology, my patients frequently sought treatment for these conditions elsewhere.

Photorejuvenation Technique

A series of sessions (frequently 4 to 7) is necessary to provide a lasting benefit. The interval between treatments is about 2 to 3 weeks. There is a relation between the type and severity of the condition, the

number of sessions needed for optimal treatment, and the recovery time for each treatment. In general, the fewer the treatment sessions, the longer the recovery time between treatments, and the longer it takes for each treatment to yield a comparable final result. With use of my protocol, patients can anticipate a 50% to 75% improvement in facial flushing/rosacea and a 40% to 60% improvement in dyschromia. Figures 1, 2, and 3 illustrate the improvements that can be obtained with IPL therapy.

A full-face session can last from 40 to 50 minutes. Treatment of the entire neck and décolleté area will take about 45 to 80 minutes, depending on how much of the chest is treated. Treatments may be performed by a surgeon or a nurse, depending on state laws and conditions set by insurance carriers.

Pretreatment of skin is not necessary. Patients should initiate treatments when their skin is not tanned. Before the initial session, I recommend that patients apply a topical anesthetic cream to help reduce treatment discomfort. In subsequent treatments, patients frequently do not apply the cream. This may be because of a reduction in anxiety as well as a reduction in the chromophore (vascular or pigmentary) from the previous sessions. After the treatment, patients demonstrate slight redness and dermal edema, which usually resolve within 24 hours. More aggressive treatments will have a correspondingly longer recovery time. Patients are advised to use sunblock between treatments.

The following pointers are keys to successful treatment:

- When establishing a treatment protocol, plan on multiple sessions. Although patients may not like the additional cost, they will appreciate the short recovery time (usually less than 24 hours) and the gradual resolution of undesirable skin conditions.
- Call patients the day after the initial session to get feedback concerning the degree of their redness and swelling. Adjust your machine settings at the next treatment session on the basis of this feedback.
- Supplement your treatments with topical retinoids and/or bleaching creams when treating dyschromia.
- Before the initial session, have the patient maximize facial flushing to provide a more accurate baseline for the condition you are treating. Patients may be required to exercise before coming to the office or to eat foods that accentuate rosacea or facial flushing.
- Present treatment in cost-effective *packages* of 1, 3, and 5 or 2, 4, and 6 treatments from which patients may select. The more sessions to which they have agreed, the lower the per-treatment cost. Make sure patients understand that having little or no recovery time depends on reducing the undesirable condition over time. The fewer the sessions, the greater the recovery time per session to obtain a comparable result.

Patients with the following contraindications should be excluded from IPL treatments:

- Unrealistic expectations
- Hypersensitivity to light
- Less-than-optimal skin color (Before initial treatment, skin should be the lightest color possible for each patient.)
- Suspicion of skin cancer within the zone of treatment
- Recent use of isotretinoin (Once patients no longer have systemic manifestations of such treatment, they can undergo IPL therapy; this is usually 4 to 9 months after cessation.)
- Concurrent use of photosensitizing medications
- Fitzpatrick skin types V-VI (relative contraindication)

This technology has enabled me to address the aesthetic needs of the patients in my practice. Furthermore, patient satisfaction and “word of mouth” have led to additional referrals. ■

Dr. Kulick serves as a consultant for laser companies, including Lumenis Medical Systems, and is paid a lecture fee when he speaks as a guest lecturer. He does not hold any financial interest in Lumenis Medical Systems.

Suggested Readings

1. Weiss, RA, Goldman MP, Weiss MA. Treatment of poikiloderma of Civatte with an intense pulsed light source. *Dermatol Surg* 2000;26:823-827.
2. Goldman MP. Treatment of benign vascular lesions with the PhotoDerm VL high intensity pulsed light source. *Adv Dermatol* 1998;13:503-521.

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