

CLINICAL roundtable

HOYA ConBio's MedLite C6 Laser Provides Efficacious Melasma Tx

By Bob Kronemyer, Associate Editor

Each year, melasma is believed to affect between five to six million women in the U.S. alone. Women who are pregnant, taking contraceptives (oral or patch) or on medication for hormone replacement therapy are especially prone to this disorder. Despite its prevalence, melasma remains incurable.

There are three types of melasma – determined by its facial distribution. The most common is centrofacial (forehead, nose, chin and central cheeks), followed by malar (cheeks and bone) and mandibular (on the jawline). There are also four types of melasma based on cellular patterns: epidermal being the most common, dermal, mixed epidermal and dermal and inapparent (seen in extremely dark skinned individuals). Recalcitrant melasma is particularly challenging to treat and bleaching creams or chemical peels may show limited benefit.

Due to the heightened risk factor for this skin disease in women of Asian, Hispanic and Caribbean descent exposed to sunlight, much of what we have learned about melasma derives from Asian physicians. Physicians in Asia are experiencing great success in treating this stubborn dermal and epidermal pigment condition with the MedLite C6 Q-switched Nd:YAG laser from HOYA ConBio (Fremont, Calif.), as part of a holistic skin rejuvenation regimen.

MedLite C6 represents the latest generation of the MedLite laser best known for its PhotoAcoustic engineering and flat-top beam profile introduced nearly 20 years ago. Unlike most American physicians, practitioners in Asia schedule more laser treatment sessions with the MedLite and often combine laser treatment with the use of topical preparations.

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Editor's Note:

In this roundtable, two Asian practitioners (both from Thailand) and one American physician share their experience and knowledge of melasma and the effectiveness of the MedLite C6 laser in treating this condition.

What has your experience been with melasma in your practice?

Niwat Polnikorn, M.D. – Melasma is the most popular consultation at our busy aesthetic center. Most of our cases have been Fitzpatrick skin types III to V. Most cases – more than 70% – represent the mixed type of melasma. More than 95% are females ranging in age from 35 to 55 years old. The majority of these patients have been treated with a topical triple drug regimen: hydroquinone (HQ), vitamin A acid and a steroid. There has only been a partial response or recurrence. Some cases develop complications from topical treatments such as ochronosis, contact dermatitis and acne.

Penpun Wattanakrai, M.D. – Melasma is one of the most common cosmetic problems among Asians. Mixed or dermal component melasma is often difficult to treat, and due to its refractory and recurrent nature, melasma is often difficult to cure.

Bruce Saal, M.D. – Since approximately one-third of my patients are Caucasian, one-third Hispanic and about one-third Asian and Indian, I have a large patient population with pigmentation and dyschromia issues. I began using lasers in 1978, but was comfortable with chemical peeling and medical treatments for many years before this.

How do you assess or measure the degree of melasma?

Dr. Polnikorn – We use standard photography and measure the melanin index with a dermaspectrometer.

Dr. Wattanakrai – Initially, we always use topical bleaching agents and broad spectrum (UVA plus UVB) sunscreens. Topical lightening agents include hydroquinone, retinoic acid, azelaic acid, kojic acid, alpha hydroxyl acid (AHA), licorice and arbutin. Chemical peeling is accomplished with either AHA or trichloroacetic acid (TCA).

For research, we divide melasma into epidermal, mixed and dermal melasma. We measure the degree of melasma with three methods: standard digital photography using VISIA-CR from Canfield Imaging Systems (Fairfield, N.J.); objective measurement of pigmentation with a tristimulus colorimeter using the Chromameter CR 200 from Minolta (Stamford, Conn.) to objectively quantify changes in skin color using the CIE L*a*b* color system; and subjective assessments with the Melasma Area and Severity Index (MASI).

“We have introduced the MedLite C6 laser as the first line of treatment to reduce hyperpigmentation quickly.”

Dr. Saal – I prefer to understand when the patient first noticed the most prominent pigmentation; for example, during or after their first or most recent pregnancy, or after beginning oral contraceptives. Did it become most noticeable after intense sun exposure or after a facial treatment? Had it been treated before? If so, for how long and with what? Also, how successful was that treatment? If patients have used the traditional methods of hydroquinone and topical retinoids, and have had light chemical peels, all without much benefit, I know that it’s going to be a long and difficult process to make much of a lasting change.



Bruce Saal, M.D.
Dermatologist
Los Gatos, CA

I explain to patients that their melanocytes are sensitive to systemic hormones (because of estrogen receptors) as well as exposure to ultraviolet light. This can help reduce the frustration patients often feel, when despite using the medications and sunscreen, their progress/resolution is slow.

Describe your clinical approach, specifically your use of Q-switched Nd:YAG lasers?

Dr. Polnikorn – We have introduced the MedLite C6 laser as the first line of treatment to reduce hyperpigmentation quickly, we then maintain with topical 7% alpha arbutin plus ascorbyl phosphate palmitate sodium plus fullerene.

Our settings with the MedLite laser are a 6 mm spot size, 3 to 4 J/cm² and 10 Hz for 20 passes to cover the whole face. We also perform treatment on a small area before proceeding to adjacent areas. We perform treatment every week for a total of ten sessions. Each session takes about ten minutes. For some difficult cases of mixed or dermal melasma, we inject transaminic acid (4 mg/ml) intradermally at the lesion site immediately after laser treatment.

Clinical endpoints include immediate lightening of epidermal hyperpigmentation, whitening of fine hair and perilesional erythema (for mixed melasma lesions).

Dr. Wattanakrai – We employ the MedLite laser for recalcitrant melasma that does not respond to standard treatments.

We use a low fluence of between 2.0 and 3.8 J/cm² with the 1064 nm wavelength, along with a 6 mm collimated homogenous flat top beam profile. Patients schedule a treatment once every one to two weeks, initially, then once every two to four weeks to maintain results. A session generally lasts 10 to 20 minutes.

The clinical endpoint has been immediate lightening or mild erythema without petechiae or immediate whitening. Results are evident by five treatments.

Dr. Saal – I have been using the MedLite laser since it was first introduced in 1992 and have upgraded through the years to the newest series of Q-switched YAG lasers from HOYA ConBio.

I first have patients wash their face to remove any make-up and sunscreen. I usually use a large spot size with maximum 1064 wavelength power (7 or 8 mm on the adjustable spot size handpiece) at 10 Hz. The fluence ranges from 2 to 3.5 J/cm², depending on which model you use. I hold the handpiece with the plastic protective tubing about a half inch or so from the skin surface and apply the energy in a sweeping



Melasma before Tx



Melasma after MedLite C6 Tx



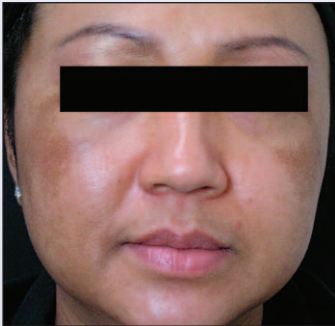
Melasma before Tx



Melasma after MedLite C6 Tx

Photos courtesy of Niwat Polnikorn, M.D.

“After completing a series of MedLite laser treatments, we have achieved a statistically significant improvement in melasma.”



Melasma before Tx



Melasma after MedLite C6 Tx

Photos courtesy of Niwat Polnikorn, M.D.

motion to cover the entire skin surface with at least two passes. I also concentrate on the most heavily pigmented areas performing four to six passes, or until the patient begins to feel a little warm or tingly. The process takes no longer than three to four minutes.

What cooling agents, if any, do you use with the MedLite C6 laser?

Dr. Polnikorn – We pre-cool skin with cold air before using the laser.

Dr. Wattanakrai – Cooled air with a temperature of about 20° C or an ice pack is used to protect the epidermis and relieve pain during the procedure.

Dr. Saal – Although it is unnecessary to use any cooling agents with the Q-switched YAG, we can always offer the patient forced air cooling upon request; but this is rare. In these instances, I have the patient hold ice bags on the treated area for roughly five minutes to limit any minimal discomfort, swelling or erythema. In addition, patients may apply moisturizer and make-up immediately after treatment and may resume their topical medications that same evening. There is really no downtime whatsoever.

Patients return in two weeks for re-evaluation. If there are no problems, I will increase the fluence to 4 J/cm² by reducing the spot size to 6 mm and re-treat as mentioned earlier. Most patients begin to see improvement in six to eight sessions.

How does the use of the MedLite C6 Q-switched Nd:YAG laser compare to treatment with other modalities, including fractionated devices?

Dr. Polnikorn – A full 66% of our patients achieved good-to-excellent results after ten treatment sessions with the MedLite C6; in other words, an average of 50% to 75% improvement.* These are much better results than those achieved with topical triple drug regimens alone. With fractional lasers, we have seen a higher incidence of post-inflammatory hyperpigmentation (PIH) in our dark skin patients.



Niwat Polnikorn, M.D.
Dermatologic Surgeon
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Dr. Wattanakrai – After completing a series of MedLite laser treatments, we have achieved a statistically significant improvement in melasma. This was observed in both colorimeter (P < 0.001) and the modified MASI score (P < 0.001) in the low fluence Q-switched Nd:YAG laser side, compared to that of baseline. Side effects include rebound of melasma and, in less than 1% of patients, transient hypo- or hyperpigmentation — especially in darker skinned patients — which is difficult to treat.

Also, after discontinuing laser treatment, most patients experience a recurrence of melasma, so this treatment does not cure the melasma. However, there is no downtime or wounding. We have not performed fractional resurfacing for melasma.

Dr. Saal – Fractional treatments are considerably more time consuming, uncomfortable and have at least some element of social downtime. The cost of performing the procedure is also considerably higher for the practitioner. While occasionally effective, it can inadvertently cause increased pigmentation because of its greater energy intensity.

* Niwat Polnikorn, M.D., unpublished data, August 2008

“We have treated more than 1,000 cases with the MedLite C6 technique, achieving good-to-excellent results in 66% of patients after six months. This is a higher success rate than with other treatment modalities.”

When using the MedLite C6 laser, do you pre-treat with any topicals such as bleaching creams? How about post treatment care?

Dr. Polnikorn – We offer no pre-treatment, whereas post treatment depends on the history of past treatment. If the patient has been using a triple drug formula, we will continue with Tri-Luma cream (a combination of hydroquinone, tretinoin and fluocinolone acetone) from Galderma (Fort Worth, Texas). We prevent recurrence with broad spectrum sunscreen such as Anthelios XL SPF 50, PA+++ from La Roche-Posay (New York, N.Y.) and topical fullerene plus APP (I-MED) plus 7% arbutin.

Dr. Wattanakrai – All patients must use topical bleaching and sunscreen to treat and control the recurrence of their melasma. No additional post-operative care is necessary. However, patients continue using sunscreen and topicals.



Penpun Wattanakrai, M.D.
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Dr. Saal – It is imperative to use topical agents along with laser treatment. I rely heavily on both hydroquinone and retinoids, but unfortunately have not found kojic acid, azelaic acid or other hydroquinone substitutes to be very effective. Topical non-fluorinated steroids can help to minimize inflammation and any post-inflammatory hyperpigmentation associated with treatment, acne, etc. However, it is usually not necessary to pre-treat with medications before initiating a Q-switched YAG laser protocol.

How do you manage patient expectations with the MedLite C6 laser and what has your success been to date?

Dr. Polnikorn – We advise our patients that this new approach will reduce melasma quickly, but that they still need long-term topical medication and good sunscreen. We can also avoid problems and side effects associated with well-known topical medications, for example, hydroquinone. We also take good photographs at every visit.

So far, we have treated more than 1,000 cases with the MedLite C6 technique, achieving good-to-excellent results in 66% of patients after six months. This is a higher success rate than with other treatment modalities we have performed in the past. Long-term complications with the MedLite have been less than 5%. Patients with mottled hypopigmentation often recover within a few months. Without effective post treatment medication, recurrence is also possible. If there is recurrence, we re-treat with the same protocol.

Dr. Wattanakrai – The MedLite C6 laser works to improve and clear melasma, but it does not cure it and there may be side effects. I think the laser should be used for treatment resistant melasma.

Dr. Saal – It has been my experience over the last four years or so, that virtually every patient who commits to a series of treatments, lasting six to eight months, with a Q-switched Nd:YAG laser obtains favorable results.



Melasma before Tx



Melasma after MedLite C6 Tx

Photos courtesy of Niwat Polnikorn, M.D.