Amiodarone-Induced Pigmentation Resolves After Treatment With the Q-Switched Ruby Laser

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The Cutting Edge: Challenges in Medical and Surgical Therapeutics

REPORT OF CASES

A 55-year-old woman presented with a 3-year history of diffuse blue-gray pigmentation on the nose, cheeks, and upper lips with sparing of the skin flexures. She had been treated with amiodarone for approximately 10 years because of severe cardiac arrhythmia with a cumulative dose of more than 900 g and a maintenance dose of 250 mg/d. She was taking no other medication. Results of light microscopy of a biopsy specimen from the discolored skin showed granular yellow-brown pigment in the cytoplasm of dermal melanophages at the junction of the papillary and reticular dermis (Figure 1 and Figure 2). Results of iron stain testing were negative.

THERAPEUTIC CHALLENGE

The only known therapy for amiodarone-induced pigmentation is discontinuation of drug treatment. However, the severity of the patient’s heart disease did not allow a reduced dose of amiodarone or a switch to another drug. The patient experienced the cosmetically stigmatizing blue-gray pigmentation of the face.

Editor’s Note: The impressive fading of amiodarone-induced hyperpigmentation with the Q-switched ruby laser in this patient could probably be duplicated with the Q-switched Nd:YAG laser as well as the Q-switched alexandrite laser. The ability to fade any specific dermal pigment depends on its absorption spectrum. Therefore, a test spot with one of the Q-switched lasers in patients with objectionable drug-induced dermal hyperpigmentation makes sense. Treatment should be deferred until after the drug has been stopped to prevent recurrence of the hyperpigmentation and a sufficient period of time has elapsed to allow as much of the hyperpigmentation as possible to fade spontaneously.

SOLUTION

A small area on the nose was chosen for a therapeutic test with the Q-switched ruby laser at an energy fluence...
of 8 J/cm², wavelength, 694 nm; spot size, 5 mm; and pulse
duration, 40 nanoseconds. Within 4 weeks, the pigment-
tation disappeared in the treated site with no change in
nontreated areas (Figure 3, top). The remaining hy-
perpigmentation on the nose, cheeks, and upper lips was
treated using the same parameters with equivalent reso-
duction of the hyperpigmentation after a single treat-
ment. There were no adverse effects of the laser therapy.
Pigmentation did not recur during the follow-up period
of 1 year (Figure 3, bottom).

**COMMENT**

The class III antiarrhythmic drug amiodarone, an iodin-
ated benzofurane derivative, has been used in the man-
agement of intractable cardiac arrhythmias in Europe since
1964. Skin reactions are common, usually presenting as
photosensitivity and less frequently as a blue-gray pigmen-
tation on sun-exposed areas of the skin.1,2 In most cases,
a photosensitivity reaction in sun-exposed areas occurs
prior to pigmentation. Blue-gray discoloration is seen in
2% to 24% of patients and appears to be related to a daily
amiodarone dose of more than 200 mg.3 Skin deposits
are observed 7 to 60 months after the start of therapy.3 Re-
results of light microscopy of the discolored skin show
aggregates of granular yellow-brown pigment in the cy-
toplasm of dermal histiocytes at the junction of the pap-
illary and reticular dermis. Results of staining are mod-
erate positive for periodic acid–Schiff and strongly
positive for Ziehl-Neelsen and Fontana stain.4 Electron
microscopy studies of affected skin reveal lysosomal mem-
brane-bound dense bodies within the cytoplasm of his-
tiocytes, believed to be lipofuscin. Pigmentation usually
fades spontaneously within 1 year after cessation of treat-
ment with the drug, but there are some patients in whom
the hyperpigmentation persists.5

The Q-switched ruby laser uses very high-energy
pulses that produce specific thermally mediated injury
to exogenous and endogenous pigment and pigment-
containing cells. Q-switched ruby laser therapy is effec-
tive in treating dermal pigmentation, particularly blue-
black tattoos and some pigmented lesions.6 Recently,
clearing of minocycline-induced pigmentation after treat-
ment with the Q-switched ruby laser was reported.7,8

Although medically benign, amiodarone-induced
pigmentation may be cosmetically disfiguring. Curr-
ently, there are no effective therapies to reverse this con-
dition except discontinuation of drug treatment. As this
was not possible in our patient, treatment with the Q-
switched ruby laser was performed, resulting in resolution of the colored lesions after a single treatment. Laser therapy was very well tolerated. Hypopigmentation or scarring did not occur. Thus, we recommend Q-switched ruby laser for the treatment of amiodarone-induced hyperpigmentation. Even if recurrences are to be expected since amiodarone therapy cannot be discontinued, our patient had real benefit from the laser treatment.

REFERENCES