LETTER TO THE EDITOR

Successful treatment with 532-nm Q-switched Nd:YAG laser of cutaneous siderosis following intravenous iron extravasation

Editor

Intravenous iron replacement is the preferred therapy in iron-deficiency anaemia in patients with chronic kidney disease or inflammatory bowel disease. Low molecular iron sucrose is one of the available intravenous formulations approved by the United States Food and Drug Administration. Extravasation of iron solutions can induce a greyish to brown hyperpigmentation of the skin called siderosis. Despite a strong therapeutic demand of affected patients due to the marked cosmetic impact, few options have been reported so far.

A 65-year-old woman with a history of chronic anaemia secondary to gastric polyposis was treated with intravenous iron sucrose (Venofer®; Luitpold, Shirley, NY, USA). During the third session of intravenous infusion of iron sucrose, the solution was inadvertently injected paravenously. Following extensive extravasation of Venofer®, the patient developed a permanent discolouration on the forearm, which persisted for 1 year. She was referred to our Dermatology department. Cutaneous examination revealed a 10 × 15 cm brownish hyperpigmentation on the elbow crease extending to the forearm (Fig. 1a). The diagnosis of cutaneous siderosis was done.

The patient was treated using a 532 nm Q-switched Nd:YAG laser (Alex Travantage; Syneron/Candela, Boston, MA, USA). Given the lack of data in laser treatment of pigmentation due to iron deposit, we first made a test session on one part of the hyperpigmentation. The parameters were a fluence of 4.4 J/cm^2 and a spot size 2 mm. A topical anaesthesia using prilocaine-lidocaine cream was used (Anesderm®; Pierre Fabre Laboratories, Boulogne-Billancourt, France). The treatment was well-tolerated. In post-treatment, topical trolamine ointment (Biafine®; Johnson & Johnson, New Brunswick, NJ, USA) was applied. Immediate purpura was observed, and crusting developed from the second day after therapy. Both purpura and crusts disappeared within 2 weeks. A marked improvement of the treated zone was noticed 2 months after the first laser session (Fig. 1b). Four treatments at 2-month intervals were then performed. An almost complete disappearance of the hyperpigmentation was noted 6 months after the last session. (Fig. 1c). No scarring or dyschromia were noted. The patient was satisfied with the cosmetic outcome.

Cutaneous hyperpigmentation secondary to iron deposit is mostly observed in stasis dermatitis. It is due to the extravasation of the iron contained in the erythrocytes, and it is called haemosiderosis. In our patient, the accumulation of iron within the dermis is directly due to the extravasation of the iron sucrose infusion. It is called siderosis. Venofer® is a brown complex of polynuclear iron (III)-hydroxide in sucrose for intravenous use. Injection site extravasation is a rare adverse reaction. The highest frequency of 2.2% had been reported in a clinical trial involving 139 patients with non-dialysis-dependent chronic kidney disease.[1] The Q-switched lasers had proven to be effective to treat pigmented skin lesions due to haemosiderosis. In such cases, iron deposition into the skin was related to other disorders such as post-sclerotherapy hyperpigmentation,[2,3] stasis dermatitis,[4]

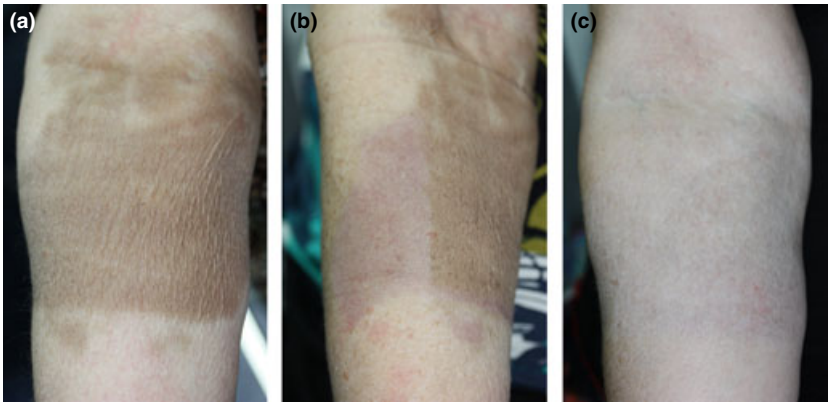

Figure 1 (a) Brownish plaque after intravenous iron extravasation. (b) Clinical aspect 2 months after one session of 532 nm Nd:YAG laser as compared to the part of the lesion untreated. (c) Marked bleaching 6 months after four laser sessions.

Kaposi sarcoma pigmentary sequalae.[5] However, few reports documented therapeutic modalities used to treat cutaneous iron deposit associated to this adverse reaction. In 2001, Raulin *et al.*,[6] described five patients who were treated with the Q-switched ruby and/or 1064 nm Nd:YAG laser for circumscripted siderosis after iron injection. The number of laser sessions was between 3 and 16 sessions per patient. A marked clearance had been achieved in all cases. Given the fact that iron has an absorption spectrum throughout the visible range, with major peaks at 410–415 nm,[2] 532 nm appears to be a better wavelength than 1064 nm to treat iron deposition.

Although relatively rare, siderosis induces a marked and unsightly hyperpigmentation that does not fade with time. A treatment has to be proposed, and in this respect the 532 nm Q-switched Nd:YAG laser appears to be an effective and safe option.

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