Progressive Disseminated Essential Telangiectasia and Erythrosis Interfollicularis Colli as Examples for Successful Treatment with a High-Intensity Flashlamp

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Key Words
Erythrosis interfollicularis colli • High-intensity flashlamp • Intense pulsed light source • Poikiloderma of Civatte • Progressive disseminated essential telangiectasia

Abstract
Background: Treatment of progressive disseminated essential telangiectasia and erythrosis interfollicularis colli by flashlamp pulsed dye laser frequently results in a mottled appearance and often leads to hypo- or hyperpigmentation after treatment. Furthermore, treatment is time-consuming due to the small spot size. Objective: To report the successful removal of thin vessels in patients with the above-mentioned indications by an intense pulsed light (IPL) source. Methods: Four patients with progressive disseminated telangiectasia on the extremities and 5 patients with erythrosis interfollicularis colli were treated with IPL. Results: A clearance of up to 90% of the telangiectasias was achieved. Conclusion: The superficial, thin vessels of progressive disseminated essential telangiectasia and erythrosis interfollicularis colli can be successfully treated by IPL.

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Introduction
Progressive disseminated telangiectasia and erythrosis interfollicularis colli are vascular conditions with superficial vessels on exposed sites.

Progressive disseminated telangiectasia is a rare skin disorder of unknown etiology that leads to extensive erythema, especially on the extremities and face, due to the gradual development and spreading of thin superficial telangiectasia [1].

In contrast, erythrosis interfollicularis colli (also known as poikiloderma of Civatte) is a common skin disorder in middle-aged patients caused by – amongst others – cumulative UV exposure. Patients complain of extensive erythema of the lateral sides of the neck and upper chest, which consists of thin telangiectasia arranged in a distinct perifollicular or reticulate pattern, with or without associated hyperpigmentation. Histologically, the most prominent finding is solar elastosis of the upper dermis associated with vasodilation, perivascular edema and mild lymphohistiocytic inflammatory infiltrate [2].

Depending on the clinical features that dominate, one can distinguish 3 different clinical types of erythrosis interfollicularis colli: the erythematotelangiectatic type (which predominates in the affected individuals) the pigmented type and the mixed type [2].
Patients affected by progressive disseminated telangiectasia and erythrosis interfollicularis coli often feel impaired, due to the appearance of the conditions on exposed sites, and they seek medical treatment, which used to be performed by flashlamp pulsed dye laser (FPDL).

Treatment of progressive disseminated telangiectasia and erythrosis interfollicularis coli by FPDL frequently results in a mottled appearance and often leads to hypopigmentation or hyperpigmentation after treatment. Additionally, persistent depigmentation as a late adverse event after treatment with FPDL has been reported in a series of patients with poikiloderma of Civatte. Another problem is the difference in appearance of treated and untreated areas of the skin, especially in the transitional zone. When using the FPDL with average hand piece spot sizes of 7 and 10 mm, dozens of time-consuming treatments are needed, especially in the above-mentioned indications where large areas have to be treated to achieve a satisfactory result.

Besides depilation and treatment of pigmented lesions, reports of the successful treatment of many, especially vascular, skin lesions by intense pulsed light (IPL) technology have been published in recent years. The aim of these high-intensity flashlamps is the deletion of target structures – in our case, thermal damage of vessels, which is mediated by hemoglobin – by emitting high-power noncoherent light according to the mechanism of selective photothermolysis.

Patients and Methods

Four patients (3 women and 1 man, mean age 49.3 years) with progressive disseminated telangiectasia on the extremities, and 5 patients (all women, mean age 48.6 years) with typical signs of erythrosis interfollicularis coli on the sides of the neck were treated with IPL (Ellipse Flex, Danish Dermatologic Development, hand piece size 48 x 10 mm).

In 8 of these 9 patients a ‘vascular’ hand piece (VL-2) emitting noncoherent light with a cutoff filter of 555 nm was used. One patient with a light skin type (Fitzpatrick skin type I) was treated with a hand piece that is normally applied for pigmented lesions (PR, with a cutoff filter of 530 nm) after 4 previous treatments with VL-2 that had caused hyperpigmentation. In this case, lower energy doses were required.

All patients were treated with fluences between 14 and 17 J/cm² (except patient 6) and with pulse durations of 14 ms (except patient 4). To minimize light reflection and reduce side effects due to thermal damage, ultrasound gel was applied generously to the skin before treatment.

All treatment parameters used are shown in Table 1. Before each treatment, a photographic record of the treatment sites was made. Results were judged by the treating physicians, who compared the photographs taken before treatment started with those taken 4 weeks after it ended. Although color perception by physicians might not seem to be an objective measurement, studies have shown that it is a valid method and that results from different examiners can be compared. No specific posttreatment care was applied, but patients were advised to use a sunscreen and avoid UV radiation.

Results

Results were scored according to the following grading scale (percent improvement): 6 = 0%, 5 = 1–25%, 4 = 26–50%, 3 = 51–75%, 2 = 76–90% and 1 = >90%. Six of our 9 patients (66.6%) showed clearance rates of 76–90%, 2 patients (22.2%) showed clearance rates of 51–75% and in 1 female patient a reduction of 50% of telangiectasias was observed (Table 1). Patients who had erythrosis interfollicularis coli received an average of 2.8 treatments, while those who had progressive disseminated telangiectasia received an average of 2.8 treatments. Interestingly, all patients with progressive disseminated telangiectasia showed excellent results (76–90% improvement).

Occasionally, a thin stripe of untreated skin between rectangular areas of lightened skin could be seen. This was particularly the case when concave surfaces were treated, such as those on the side of the neck. The stripes could easily be corrected by placing the hand piece over these sites in the subsequent treatment sessions.

Adverse effects were observed in 2 patients after test treatments with fluences of 17 J/cm². In 1 patient, transient hyperpigmentation was observed, and 1 patient developed blisters and crusting after treatment that resulted in transient hypopigmentation. These side effects were restricted to an area of only a few spots and did not recur after a reduction of energy doses in the subsequent treatment session.

Discussion

The treatment of patients with progressive disseminated telangiectasia or erythrosis interfollicularis coli used to be restricted to the application of FPDL, a laser system which, in our department, was administered most frequently for vascular lesions.

Unfortunately, the use of FPDL in the case of the above-mentioned indications frequently results in a mottled appearance and often leads to hypo- or hyperpigmentation after treatment. Due to the average hand piece spot sizes of 7 and 10 mm, there is a frequent need for re-
treatment. With circular spots, considerable overlapping is necessary for a confluent lightening, which can lead to thermal damage and side effects like hyperpigmentation. If the overlap is smaller, areas with vessels and insufficient lightening remain, and these are difficult to correct in the following sessions.

The treatment of progressive disseminated telangiectasia and erythrosis interfollicularis colli by noncoherent light has considerable advantages compared to FPDL: the treatment sessions are less painful; due to the rectangular shape of the treatment crystal, spots can be perfectly positioned one by one, leading to an exact and visually even result, and the spot size of 48 × 10 mm enables treatment of larger areas much more quickly than by FPDL.

There is no appearance of esthetically displeasing posttreatment intracutaneous hematomas, which normally last from several days to weeks. Common side effects after treatment with a high-intensity flashlamp are transient posttreatment erythema and localized swelling [8]; in our patients this was reported particularly by those who were treated for erythrosis interfollicularis colli.

In a recently published study, the effects of IPL on the concentration of thymine dimers and lipid peroxides, which are 2 biological markers of UV-induced tissue damage and oxidative stress, were investigated in skin biopsy specimens of healthy volunteers [16]. No thymine dimer formation induced by IPL could be found, which is not surprising due to the absorption spectrum of pyrimidine bases (260 nm). Nevertheless, significant oxidative stress in the skin, marked by an increased concentration of lipid peroxides, could be detected. The authors of

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<th><strong>Erythrosis interfollicularis colli</strong></th>
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A VL-2 hand piece with cutoff filter of 555 nm was used on all subjects, except patient 6, who received treatment using a PR hand piece with cutoff filter of 530 nm. Results (percent improvement): 6 = 0%; 5 = 1–25%; 4 = 26–50%; 3 = 51–75%; 2 = 76–90%; 1 = >90%.

* See figure 1. ** See figure 2. *** See figure 3.
this study concluded that a careful follow-up of patients treated in a recurrent manner by high-intensity flashlamp is advisable [16].

In our patients, treatment of both progressive essential telangiectasia and erythrosis interfollicularis colli by a high-intensity flashlamp showed good to excellent results. Adverse effects were transient and only appeared when using higher energy doses for test treatments. As is the case with other laser systems, in order to reduce the risk of side effects some safety precautions should be taken, namely the avoidance of sun exposure before and after treatment as well as using cooling measures to lower skin temperature during treatment [17, 18].

Acknowledgement

We thank Mrs. Christine Fabritius for her expert help with the clinical documentation.
References


