

Phototherapy for Pediatric Segmental Vitiligo

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PRACTICE POINTS

- Narrow-band UVB in combination with topical tacrolimus may be an effective treatment option for pediatric segmental vitiligo (SV), even in longstanding disease.
- Current evidence for Janus kinase (JAK) inhibitors largely is derived from studies in nonsegmental vitiligo and in patients aged 12 years or older.
- Segmental vitiligo is underrepresented in clinical trials, and topical and systemic JAK inhibitors are not approved for younger children, in whom SV most commonly occurs.

To the Editor:

Segmental vitiligo (SV) accounts for a minority of vitiligo cases and most frequently occurs in children.¹ It characteristically manifests unilaterally and affects a single body area with a sharp midline demarcation. In contrast to nonsegmental vitiligo (NSV), SV typically stabilizes early in the disease progression.¹ The pathophysiology of this vitiligo subtype is not well established, but possible autoinflammatory mechanisms associated with somatic mosaicism, neuronal mechanisms, and/or microvascular skin-homing have been proposed.² We present the case of a pediatric patient with segmental vitiligo of the right hemiface treated with a combination of a topical calcineurin inhibitor and narrow-band UVB (NB-UVB) phototherapy.

An otherwise healthy 7-year-old boy presented to the dermatology department for evaluation of depigmented macules and patches affecting the right hemiface (temporal, periorbital, malar, perioral, preauricular, and

mandibular regions) and neck associated with homolateral leukotrichia of the scalp and facial hair as well as the eyelashes of 5 years' duration. The findings were consistent with SV (Figure 1). The patient previously had been diagnosed based on the clinical findings and treated with continuous application of topical calcineurin inhibitors plus oral cyclosporine (3 mg/kg/d) for 1 year, but the response was poor. The condition had a severe impact on the patient's quality of life and social relationships. Therapeutic options were discussed with the patient's caregivers, and ultimately NB-UVB phototherapy was started twice weekly with 10% increases in the dose at each treatment. Topical tacrolimus ointment (1 mg/g) also was started, and the cyclosporine was stopped. Evaluation of treatment progress occurred every 3 months, with progressive repigmentation of the patches following a perifollicular pattern. After 6 months of phototherapy, there was notable repigmentation of the affected areas, particularly in the malar, perioral, and perinasal regions (Figure 2) and the therapeutic response improved after 1 year of treatment (Figure 3). No adverse events were noted during the treatment period.

Segmental vitiligo lacks consistently effective treatment options. This subtype of vitiligo is classically resistant to conventional therapeutic options. Surgery may be a more effective and long-lasting treatment option but is not suitable for every patient.^{1,3} Janus kinase (JAK) inhibitors are the newest treatment options being explored for topical and systemic treatment of vitiligo, with promising results in active and stable NSV lesions^{4,5}; however, SV rarely is represented in case reports and clinical trials. The topical JAK inhibitor ruxolitinib has been approved for use in NSV,⁵ and a phase 2 trial with oral ritlecitinib only included patients with NSV.⁴ Furthermore, JAK inhibitors have been studied and approved for children

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FIGURE 1. A and B, Patient at baseline with depigmented macules and patches affecting the right hemiface and neck with leukotrichia of the eyelashes, scalp, and facial hair.



FIGURE 2. A and B, Six months after treatment with NB-UVB phototherapy and topical tacrolimus with notable repigmentation of the malar and preauricular areas.



FIGURE 3. A and B, Patient after 1 year of treatment with more homogeneous repigmented patches on the right hemiface.

aged 12 years or older as well as for adults,^{4,5} but younger age groups (4-10 years)—in whom SV most frequently manifests, as in our patient—have been excluded from these studies.¹ We present a novel case of SV of the right hemiface in a child that was successfully treated with NB-UVB phototherapy in association with topical calcineurin inhibitors.

The role of phototherapy for the treatment of vitiligo has been well documented, and it frequently is combined with other therapeutic modalities, such as topical anti-inflammatory drugs or, most recently, laser and micrografting techniques.^{6,7} The most frequently used modality is NB-UVB. In the active phase, it performs an immunomodulatory role, while in the stable phase, it stimulates migration and activity of perilesional and hair follicle melanocytes.⁸ Initiating therapy early is advisable, particularly during the first 6 months of progression, as there is a higher probability of response^{1,3,8}; nevertheless, a good response was achieved despite the 5-year evolution of vitiligo in our patient. This is a safe option for a skin condition that may begin early in life and require long-term treatment.⁸ A main concern would be an increased risk for skin cancer associated with repeated NB-UVB exposure, which has not been verified in a recent analysis.⁹

Segmental vitiligo can considerably impact the patient's quality of life, affecting social interactions and self-perception, particularly in younger patients with facial involvement; thus, effective and safe therapeutic strategies adapted to the individual and their vitiligo lesions should be discussed. Classical treatment options

remain valid and provide good results for some patients; therefore, they should not be disregarded even with the rise of innovative therapies.

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