

## Use of Phototherapy for Acrodermatitis Continua of Hallopeau in Childhood: Case Report and Review of the Literature

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**Received date:** March 20, 2018; **Accepted date :** May 08, 2018; **Published date:** May 21, 2018.

**Citation this Article:** Linda Susan Marcus MD, Neal Carlin MD, Robert Carlin MD .Onychomycosis of Fingernails Treated with Genesis Plus Laser. J. Dermatology and Dermatitis, DOI: 10.31579/2578-8949/033

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### Abstract:

Acrodermatitis continua of Hallopeau (ACH) is a rare and difficult to manage skin disease in childhood, because of drawbacks or off-label use of many therapeutic options in this age span. We describe the case of a 6-year-old girl with ACH successfully treated with narrow band ultraviolet B phototherapy and clobetasol ointment. The efficacy of phototherapy, alone or in association with tacrolimus, had also been reported in 2 out of 3 cases of children with ACH published in literature. Since phototherapy showed to be well-tolerated and efficacious for other recalcitrant childhood dermatoses, its therapeutic role should also be deepened in pediatric ACH.

**Keywords:** Phototherapy; Inflammatory disorders; Nail disorders; Corticosteroid-topical.

### Case Report

A 6-year-old girl presented to our attention with a 7-month history of erythema and pustules on the distal portion of her left first finger, which deeply affected the beginning of her scholar activity. On examination, her digit was swollen, markedly erythematous, and littered with several small pustules; nail was strikingly dysmorphic. The other digits showed variable degree of onychodystrophy (Fig. 1A). There were neither prior history of psoriatic lesions nor familiarity for psoriasis. Microscopic and cultural examination did not show any microbiological infection. Histological sample showed psoriasiform hyperplasia, with a collection of granulocytes in the context of parakeratosis as well as in the intraepithelial area (Munro-like microabscesses), and focal spongiosis with absent granular layer. The dermis showed increased vascularity within the dermal papillae. Ultrasonography highlighted cutaneous and sub-cutaneous thickness increase with intra-articular synovial effusion (Fig. 1C); at color Doppler, increase of vascularization was present in sub-cutaneous tissue (Fig. 1D). On the basis of these findings, a diagnosis of acrodermatitis continua of Hallopeau (ACH) was performed. Past treatment only consisted of topical steroids. A cycle of clobetasol 0.05% ointment under occlusion and narrow band UVB (310 -311 nm) was prescribed for 30 days. The improvement observed at follow-up visit (Fig. 1B), increased after the subsequent 2 months of therapy, without relapse. The young patient is still under treatment and no relapse was noted at 3.5 months follow-up.



**Figure 1:** Acrodermatitis continua of Hallopeau: (A) clinical manifestations at first visit, and (B) after 1 month of clobetasol and narrow band ultraviolet B phototherapy; ultrasound evaluation of the first finger, that showed (C) cutaneous and sub-cutaneous increase of thickness with intra-articular synovial effusion, and (D) increase of vascularization at color Doppler in sub-cutaneous tissue.

## Discussion

ACH is a rare chronic recurrent skin disorder, characterized by pustular eruption on the distal phalanges of fingers and toes. Involvement of the nail bed and matrix often leads to onychodystrophy, and even to anonychia (1). In a later stage, ACH may lead to osteolysis of the distal phalanges, perceived as joint pain and stiffness (1). Some authors consider ACH as a variant of pustular psoriasis, but others classify it as a separate entity (1). The disease mainly affects middle-aged women whereas is rare in childhood (1).

Treatment of ACH can be a challenge, because the use of many therapeutic alternatives has drawbacks or is off-label in childhood. Phototherapy is a well-tolerated treatment for many childhood dermatoses, and is especially efficacious for recalcitrant skin disorders, such as psoriasis (2). Literature reports only 3 cases of ACH in children, all refractory to previous therapies; in particular, the efficacy of phototherapy, alone or in association with tacrolimus, was reported in 2 cases, while in the third case report, phototherapy use was not attempted (3-5) (Table 1).

Patient (sex, age)	Involved body site	Osteo-articular involvement	Family history of psoriasis	Previous therapies	Successful treatment
F, 6 y (index case)	left first finger	intra-articular synovial effusion	no	topical steroids	clobetasol ointment and narrow band UVB (310-311nm)
M, 2 y	nineteen digits	no	no	clobetasol ointment, pimecrolimus, acitretin, methotrexate	broad band UVB and thalidomide (50 mg/day)
M, 9 y	fourth finger of the left hand	no	no	azithromycin and fluconazole orally, betamethasone valerate/fusidic acid, gentamycin, rifampicin, tacrolimus, econazol, amorolfin, calcitriol, calcipotriol/betamethasone dipropionate topically	near band UVB (311 nm)
F, 9 y	distal portion of the fingers and toes	no	no	potent topical corticosteroids, cyclosporine, etanercept	adalimumab induction and maintenance therapy

**Abbreviations:** F, female; M, male; y, years; UVB, ultraviolet B.

**TABLE 1:** Demographical and clinical characteristics of children with acrodermatitis continua of Hallopeau described in our case and in literature.

Also our little patient benefitted from a therapy regimen including phototherapy plus clobetasol ointment; however, only 3.5 months of follow-up have been performed until now. Moreover, as absenteeism from school for patients as well as loss of working days for their attendants are a significant challenge in this treatment modality, we performed phototherapy sessions in the late afternoon.

In conclusion, phototherapy might be considered in pediatric patients with ADH who failed previous topical and/or systemic therapies. Nevertheless, as already performed for more common childhood disease, such as psoriasis and atopic dermatitis, studies deepening the use of phototherapy should be performed also for pediatric ACH. The absence of treatment guidelines is attributed to a lack of controlled studies, which is justifiable by the infrequency of the illness. Many therapeutic modalities have been used for ACH with equivocal results. These include topical preparations such as corticosteroids, calcineurin inhibitors, and vitamin D analogs. Moreover, many reports have evaluated the use of systemic therapies, including immunosuppressive medications and biological therapy, with variable results (6,7). Since ACH is considered a variant of psoriasis, it is assumed that inhibition of tumor necrosis factor  $\alpha$  could achieve a successful response (6).

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