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Acrodermatitis continua of Hallopeau response to optimized biological therapy

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Abstract

Acrodermatitis continua of Hallopeau, first described in 1890, is an uncommon variant of pustular psoriasis. It presents as a sterile pustular eruption of the tips of fingers and toes. The condition has a chronic, relapsing course and is often resistant to many anti-psoriatic therapies. In the following case, we present our experience of etanercept use in a 61-year-old man. Although initial therapy with high-dose etanercept achieved a rapid, sustained response and remission, the lesions relapsed a few months into a lower, maintenance dosage. This result prompted the use a second biotherapeutic agent ustekinumab, which resulted in complete remission, but required a higher dosage than recommended with reduced dosing intervals.

Keywords: Acrodermatitis of hallopeau, pustular psoriasis, biotherapy, optimization, etanercept, ustekinumab

Introduction

Acrodermatitis continua of Hallopeau (ACH), is a rare variant of pustular psoriasis which is often very difficult to treat; its incidence is unknown owing to the paucity of cases. It presents with chronic recurrent pustulation of the nail fold, nail bed, and tip of one or more fingers or toes. With time, it spreads proximally with the destruction of the nail matrix, and sometimes osteolysis and bone reabsorption. The condition is often resistant to topical steroids and many systemic anti-psoriatic therapies including methotrexate, retinoids and cyclosporine [1].

Case Synopsis

A 61-year-old man was seen in our department for cutaneous lesions of the left thumb. Past medical history included hypertension, hypercholesterolemia, and heavy smoking. The pustules had been present for three months and had not responded to topical antibiotics or antiseptics. The digit had become painful and the patient had difficulty performing manual activities. One year previously he had presented with similar lesions on his fifth finger of the left hand, which then was amputated because of presumed gangrene, although bacterial culture remained negative.

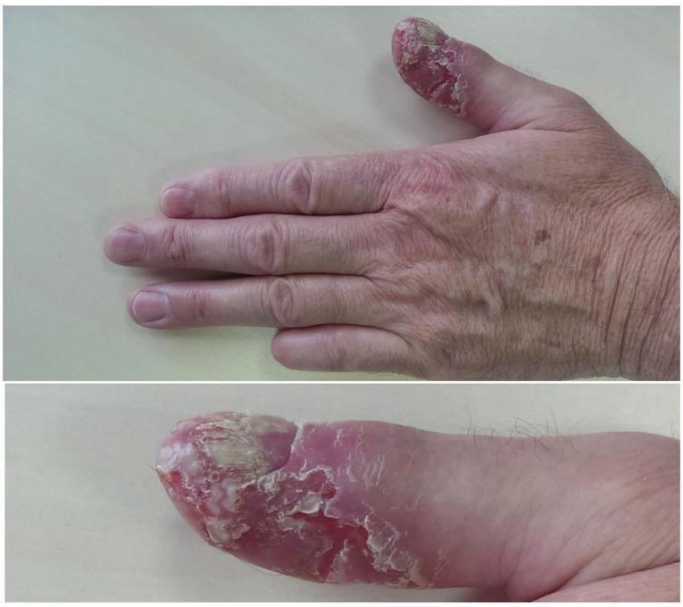

Figure 1. *Erythemato-squamous, psoriasiform plaques and pustular eruption with onycho-dystrophy of the left thumb. Note previously amputated fifth digit.*

Clinical examination revealed erythematous and scaly, focally erosive plaques with several pustules circumferentially covering the distal portion of the left thumb. The whole digit was swollen. The nail showed dystrophic changes including distal onycholysis with subungual pustules (**Figure 1**). Bacterial and fungal cultures did not reveal any pathogenic microorganisms. Plain film radiographs did not show any sign of articular involvement. Joint ultrasound was normal. Clinical examination also showed asymptomatic erythematous and scaly plaques on the knees and elbows consist with psoriasis. These findings were consistent with the diagnosis of acrodermatitis continua of Hallopeau (ACH).

Topical superpotent corticosteroids (clobetasol proprionate) were ineffective. Subcutaneous etanercept therapy 100mg weekly was initiated. The patient had a normal chest X-ray and negative purified protein derivative test prior to the start of therapy. Three months later the inflammatory plaques and pustules had entirely disappeared, with slight remaining erythema. Nail regrowth was at about 75 % (**Figure 2**). The dose of etanercept was then decreased to 50mg weekly, as per French guidelines for plaque-type psoriasis. The lesions started to reappear progressively in the following months. The patient reported many flare-ups with onychodystrophy and severe erythematous scaly plaques with numerous pustules. Etanercept was discontinued.

The patient was then started on ustekinumab, according to the dosage regimen for plaque-type psoriasis for patients with less than 100kg body weight. Initially, 45mg was administered subcutaneously and 4 weeks later, followed by 45mg twelve weeks later. The lesions quickly disappeared after the first two injections, but the response which short-lived, with recurrence of the erythema and pustules on his thumb a few weeks later. Therefore, in spite of the patient's weight of 80kg, treatment with ustekinumab was optimized by increasing the dose to 90mg every eight weeks. At five months follow up, we found excellent improvement; with discrete residual erythema but without skin lesions, onycholysis, or joint inflammation. At the 18-month follow-up, the patient showed a sustained response with no signs of active disease.

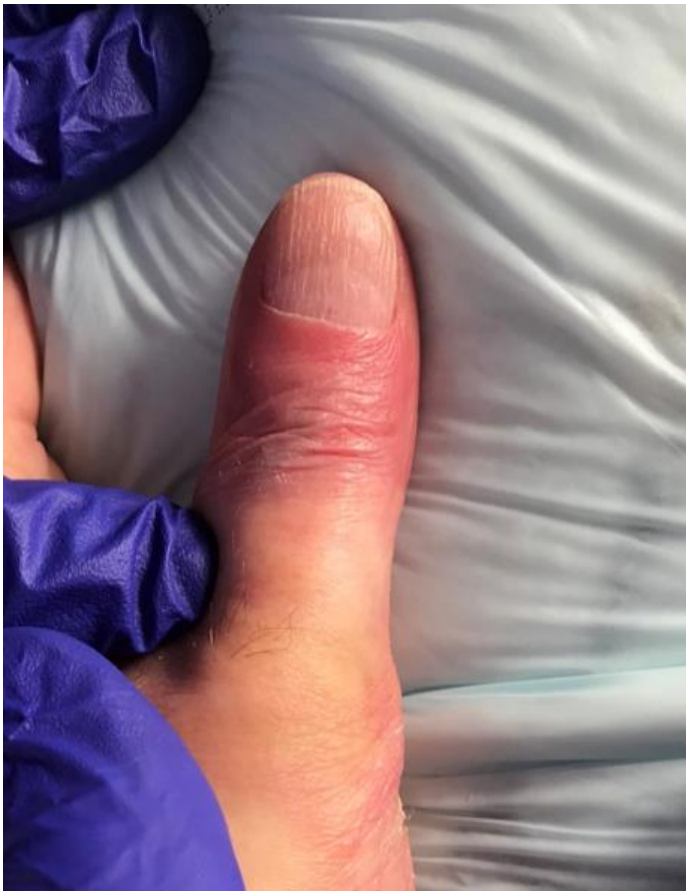

Figure 2. *Complete nail growth and resolution of pustular psoriatic plaques after optimized therapy by Ustekinumab.*

Case Discussion

Acrodermatitis continua of Hallopeau (ACH) was initially described by Hallopeau in 1890 as a sterile pustular eruption of the distal phalanges. Initially, crops of pustules erupt within areas of erythema on the acral portion of affected digits [2]. Continuous acrodermatitis is often confused with paronychia of bacterial, viral, or fungal origin because of the purulence and nail damage. The differential diagnosis also includes dyshidrotic eczema, contact dermatitis, and squamous cell cancer. Histopathological tests, Gram stain, KOH preparation, and culture to rule out infectious causes may be required. However, the progression of the disease often leads to the diagnosis. Early diagnosis is important to prevent sequelae such as nail and joint deformities.

Traditional topical and systemic treatments are often ineffective. Various biological therapies have shown varying results in the management of ACH. However, experience is limited.

Etanercept is a TNF blocking agent that has been approved for use in psoriatic arthritis as well as moderate-to-severe plaque-type psoriasis [3, 4]. One patient achieved complete remission after four weeks of subcutaneous etanercept 50mg weekly. However, two weeks after discontinuation of treatment, the lesions relapsed [5]. Another patient responded well to a combination of etanercept, acitretin, and topical corticosteroids with significant and sustained clinical improvement [6]. Concomitant use of biologic therapy and acitretin have showed varying results [7, 8]. Monotherapy with ustekinumab has also been used successfully in the treatment of two recalcitrant cases [9, 10]. A patient with recalcitrant ACH has been treated successfully with the anti-TNF antibody infliximab [11].

Proposed strategies to optimize the efficiency of biological therapies by either increasing the dose or decreasing the interval between doses have been used in practice, in cases of very severe, inflammatory psoriasis with insufficient response to standard dosage regimens.

Ustekinumab is a fully human monoclonal antibody of the IgG1 class, which is directed to the shared p40 subunit of cytokines IL-12 and IL-23. Optimization of the use of ustekinumab 90mg at 8-week intervals resulted in complete resolution of two recalcitrant cases of a different form of psoriasis, palmoplantar pustular psoriasis, which had not responded to the usual psoriatic dosage [12].

In our patient, etanercept showed a higher efficacy at a dose of 100mg weekly with good response achieved by three months. However, 50mg proved insufficient with a plateaued response and relapse. Our experience with ustekinumab as a monotherapy showed a better response, but only with dose optimization.

Conclusion

Our case illustrates the potential use of etanercept and ustekinumab for ACH as monotherapy, although clearing required higher doses than usual and a sustained response was not possible at the regular therapeutic dosage. Treatment with an optimized regimen of ustekinumab, namely higher dosage and reduced intervals resulted in complete and sustained clearing. We conclude that adopting optimization techniques in the use of biotherapies should be considered in patients with this highly inflammatory variant of psoriasis who do not sufficiently respond to regular medication dosing regimens.

Potential conflicts of interest

The authors declare no conflicts of interests.

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