

Pustular Psoriasis and Silver: Magical Jewelry

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Abstract

Case Report

Acrodermatitis continua of Hallopeau (ACH) is a rare chronic variant of pustular psoriasis characterized by sterile pustules affecting the distal extremities. We report an unusual case of a 75-year-old woman presenting with acropustular lesions evolving for 1 year, associated with distal onychodystrophy. Clinical examination revealed erythematous plaques with pustular eruptions involving the fingers and toes, with remarkable sparing of the right hand and the left middle finger, corresponding to the sites where the patient had continuously worn a silver bracelet and a silver ring for more than 50 years. Histopathologic examination demonstrated hyperkeratosis, parakeratosis, acanthosis, neutrophilic infiltrates, and spongiosis, supporting the diagnosis of ACH. Treatment with Acitretin resulted in significant clinical improvement. This observation suggests a possible locoregional anti-inflammatory protective effect of silver jewelry. Similar findings have previously been described with other metallic ornaments in psoriatic arthritis and nail psoriasis. Recent studies on silver- and gold-based nanoparticles further support the anti-inflammatory potential of metallic biomaterials in psoriasis. To our knowledge, this is the first reported case highlighting a possible protective role of silver jewelry in pustular psoriasis.

Keywords: Jewelry - Anti-inflammatory effect - Nanoparticles - Metal induced protection.

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INTRODUCTION

Acrodermatitis continua of Hallopeau (ACH) is a rare, chronic, and relapsing variant of localized pustular psoriasis primarily affecting the distal portions of the fingers and toes. First described by Hallopeau in 1890, ACH is characterized by sterile pustules arising on an erythematous and scaly background, frequently associated with nail involvement and progressive destruction of the nail apparatus. In longstanding cases, osteolysis and functional impairment may occur [1-2].

The diagnosis of ACH remains challenging because of its rarity and its overlap with other inflammatory and infectious disorders involving the acral regions. Histopathologic findings are usually consistent with pustular psoriasis and include hyperkeratosis, parakeratosis, acanthosis, spongiform pustules, and neutrophilic infiltrates [3-4]. Although several therapeutic options have been proposed, including topical agents, systemic retinoids, biologics, and phototherapy, treatment remains difficult, with variable clinical responses. [5-6].

Silver and other metallic compounds have long been recognized for their antimicrobial and anti-inflammatory properties. More recently, silver- and gold-based nanoparticles have demonstrated promising therapeutic potential in inflammatory dermatoses, particularly psoriasis, through modulation of inflammatory cytokines and reduction of cutaneous immune responses [7].

However, the potential protective role of metallic jewelry in psoriasis has rarely been discussed in the literature.

We report an unusual case of ACH in which the disease strikingly spared the right hand and the left ring finger, corresponding to the sites where the patient had continuously worn silver jewelry for more than 50 years, suggesting a possible locoregional protective effect of silver.

CASE REPORT

A 75-year-old woman, with no significant past medical history, presented with acropustular lesions evolving over a 1-year period. Examination of the hands

revealed poorly demarcated erythematous plaques studded with coalescing pustules and associated onychodystrophy involving the distal halves of the fingers of the left hand, sparing the middle finger, as well

as complete sparing of the right hand, where the patient had continuously worn a silver ring and a silver bracelet, respectively, for more than 50 years (Figures 1, 2).



Figure 1. Acropustulosis sparing the right hand and the ring finger of the left hand



Figure 2: Acropustulosis sparing the right hand and the ring finger of the left hand

Examination of the feet demonstrated similar findings. A skin biopsy showed hyperkeratosis, parakeratosis, acanthosis, and neutrophilic infiltrates associated with spongiosis. The clinical and histopathologic findings were consistent with pustular psoriasis of the ACH subtype.

The patient was treated with Acitretin, with marked clinical improvement.

DISCUSSION

We observed a striking and well-demarcated sparing of acral involvement in the digits where the patient had continuously worn silver jewelry for decades. Given the chronic and typically progressive nature of Acrodermatitis continua of Hallopeau, such a

distribution pattern is unlikely to be purely incidental. We therefore hypothesize that prolonged local exposure to silver may have exerted a locoregional anti-inflammatory or disease-modifying effect, potentially mediated through its known biological properties.

This observation, while anecdotal, raises the possibility of a physical or biochemical interaction between metallic surfaces and cutaneous immune responses in chronic inflammatory dermatoses. Silver is well recognized for its antimicrobial activity and has also been shown to modulate inflammatory pathways, including cytokine production and neutrophil activity. These effects may be particularly relevant in neutrophil-driven conditions such as pustular psoriasis, where innate immune dysregulation plays a central role.

To our knowledge, this is the first report suggesting a potential protective effect of metallic jewelry in pustular psoriasis. However, similar observations have been described in other psoriatic phenotypes. A case of psoriatic arthritis demonstrated selective sparing of the proximal interphalangeal joint corresponding to a finger wearing a gold ring, suggesting a possible local protective effect of gold exposure [8]. In addition, a case of nail psoriasis reported preservation of a single nail plate under a silver ring, despite diffuse trachyonychia affecting all other nails [9].

More broadly, experimental data support a potential anti-inflammatory role of metallic nanomaterials. Silver- and gold-based nanoparticles have demonstrated immunomodulatory effects in psoriatic disease models, including downregulation of pro-inflammatory cytokines and reduction of dermal inflammatory infiltrates. In experimental and translational studies, these agents have been associated with improvement in psoriasiform inflammation and, in some cases, reduction in clinical severity scores such as PASI after topical application [10-11].

Although these findings are intriguing, they must be interpreted with caution. The observed sparing in our patient may also be influenced by local factors such as occlusion, mechanical protection, altered friction, or microenvironmental changes induced by long-term jewelry contact. Moreover, a causal relationship cannot be established from a single case report.

Nevertheless, this observation generates a hypothesis that warrants further investigation into the potential role of metallic exposure as a modulator of localized inflammatory skin disease. Future studies exploring metal-skin interactions, particularly at the level of innate immune signaling and cutaneous microbiome modulation, may help clarify whether such effects are biologically meaningful or purely coincidental.

CONCLUSION

Our case strongly supports the potential anti-inflammatory properties of silver. However, this effect does not appear to be specific to silver alone, as similar observations have also been reported with gold, copper, and several other metals.

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