

## BRIEF ARTICLE

## Acne Keloidalis Nuchae Successfully Treated with Halobetasol 0.01% and Tazarotene 0.045%

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### ABSTRACT

Acne keloidalis nuchae (AKN) is an idiopathic chronic inflammatory condition that predominantly affects African-American men and presents with follicular papules, pustules and plaques, which may eventually lead to keloid-like scarred lesions, fibrotic plaques, abscesses, sinuses, and alopecia. Conventional treatment approach focuses on avoidance of exacerbation factors, utilization of topical and oral antibiotics, and decreasing inflammation with intralesional steroids. This is the first case showing successful treatment of AKN with halobetasol 0.01% and tazarotene 0.045% lotion. Although topical steroids and topical retinoids have been used as treatment options, there are no published data supporting the use of their fixed combination in patients with AKN.

### INTRODUCTION

Acne keloidalis nuchae (AKN) is a chronic inflammatory condition that predominantly affects African-American men 14-25 years of age.<sup>1</sup> It clinically presents with skin-colored follicular papules, pustules and plaques, which may coalesce, eventually leading to keloid-like scarred lesions, fibrotic plaques and alopecia.<sup>1,2</sup> Advanced cases may present with abscesses and sinuses exuding pus.<sup>3</sup> The lesions are usually located at the occiput and neck. The condition is thought to be triggered by skin injury, which may cause chronic irritation or occlusion of follicles, or immune reaction that may lead to the cicatricial alopecia.<sup>2,4,5</sup>

Conventional treatment focuses on avoidance of exacerbation factors, utilization of topical and oral antibiotics, and decreasing

inflammation with intralesional steroids.<sup>2</sup> Cryotherapy, light and laser therapies, and surgical excision demonstrated some success as well.<sup>1,2</sup> In this case report, we present a patient with a history of AKN who failed the treatment with intralesional steroids, but was successfully treated with halobetasol/tazarotene lotion. Although topical retinoids have been used in AKN patients, the efficacy of these agents has not been evaluated in research studies and current literature lacks reports of AKN resolution with a fixed combination of halobetasol and tazarotene treatment.

### CASE REPORT

A 25-year-old African-American male presented to an outpatient dermatology clinic with a chief complain of hair loss and rash on the posterior scalp (Figure 1) of two years

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duration. The rash presented as boggy erythematous pustules and papules with scaly crust on the crown, keloidal papules on the posterior neck, and erythematous papules in a beard distribution at the time of the physical examination. The review of systems was negative for fever, chills, and other constitutional symptoms. The review of medical history and medications were unremarkable.



**Figure 1.** Erythematous papules and pustules on the posterior scalp prior to the treatment with halobetasol 0.01% and tazarotene 0.045% lotion.

Fungal workup was negative: potassium hydroxide with calcofluor white preparation revealed no fungus, and no yeast or mold were isolated on dermatophyte mycology medium. After tinea capitis was ruled out, the patient was clinically diagnosed with AKN and started on clindamycin gel once a day and intralesional triamcinolone injections 5 mg/cc once a month. With little improvement after 4 months on the regimen, the patient was given a fixed combination of halobetasol 0.01% and tazarotene 0.045% lotion applied twice daily. The patient noticed a significant improvement after one month of the topical combination trial; hence, the medication was continued. At the month 4 follow-up visit, the

patient noted remarkable improvement, with decrease in erythema and fewer pustules and papules (Figure 2).



**Figure 2.** A significant improvement of erythema was noted after four months relative to the initial presentation.

## DISCUSSION

Though the exact cause of AKN remains unknown, the following pathogenesis has been proposed by Sperling et al. Antigens, mainly sebum, desquamated keratinocytes, normal skin flora, accumulate within follicular canal and attract perifollicular inflammatory cells to the isthmus of the hair follicles, leading to the damage or destruction of the sebaceous gland, as well as the follicular wall. Due to the weakening of the follicular wall, an additional leakage of intrafollicular antigens may lead to further inflammation, eventually causing hair follicle rupture, follicular scarring, and the inability of hair regrowth.<sup>3,4</sup>

Considering this proposed pathogenesis, the therapy should be aimed at halting the initial inflammation to prevent the subsequent cicatricial alopecia. The inflammatory

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component of pathogenesis is commonly addressed with steroids due to their ability to stop the production, release, and biological activity of endogenous mediators of inflammation. Monthly intralesional triamcinolone acetonide alone or in combination with antibiotics, commonly topical clindamycin or erythromycin or oral tetracycline, is the treatment of first choice.<sup>1,6</sup> Topical steroids, preferably of high potency, may be used in the medical management of AKN as well because of their anti-inflammatory, antipruritic, and vasoconstrictive activity. In a study involving 20 African-American patients with AKN, monotherapy with topical clobetasol propionate demonstrated to be effective in preventing progression and improving symptoms of mild-to-moderate cases.<sup>4</sup>

Another component of pathogenesis, chronic irritation or occlusion of follicles, may be addressed with retinoids. Topical retinoids, aside from their anti-inflammatory properties, normalize follicular keratinocyte maturation and desquamation, thereby decreasing follicular blockage and potential antigens that have been proposed to initiate the immune response in AKN. Oral retinoids, including isotretinoin, in combination with oral antibiotics and topical steroids, have previously been used to treat AKN.<sup>2</sup> However, the efficacy of topical retinoids in the treatment of AKN has not been supported by any clinical trials. Nor have there been studies analyzing the use of a combination of topical steroids and topical retinoid.

There are other treatment options available for cases refractory to the aforementioned therapies. In one interventional study, 16 patients with AKN were treated with five sessions of long-pulsed neodymium:yttrium aluminum garnet (Nd:YAG) laser.<sup>7</sup> The follow-up biopsies showed significant decrease in the inflammatory infiltrate in 15

patients, while clinical symptoms significantly improved in all patients. The results of this study and other reports of successful treatment with Nd:YAG and diode laser suggest possible benefit of laser hair removal for AKN.<sup>7-9</sup> A prospective, randomized study of 11 patients with AKN demonstrated significant decrease in lesion count after eight weeks of treatment with targeted ultraviolet B phototherapy.<sup>10</sup> Radiotherapy has been reported to lead to a full response with excellent clinical and cosmetic long-term results in a case of persistent AKN.<sup>11</sup> Surgical excision is typically reserved for extensive plaque- and tumor-stage cases.<sup>6,12</sup> Although successful results of the said therapies have been reported in case reports and small studies, larger controlled trials with long-term follow-up are needed to assess the value of these interventions.

## CONCLUSION

A combination product containing high potency topical steroid and retinoid may be beneficial in treating mild AKN and presents an affordable non-invasive therapeutic option that could increase patient compliance as well as improve quality of life. Both topical steroids and retinoids have been used as treatment options; however, to the best of our knowledge, there are no published data supporting the use of their combination. This is the first case showing successful treatment of AKN with a 4-month regimen of fixed halobetasol/tazarotene lotion twice a day. Further investigation of the efficacy of topical halobetasol/tazarotene combination for the treatment of AKN is recommended, with special attention to the long-term control of the condition in a larger sample size.

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