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Case Report

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Acne Keloidalis Nuchae: Follicular Curvature and Hair Texture as Predisposing Factors for Chronic Follicular Inflammation - Case Report

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ABSTRACT

Acne keloidalis nuchae (AKN) is a chronic inflammatory dermatosis of the scalp that primarily affects young men with Afro-textured hair and skin phototypes IV–VI. Its pathogenesis involves an immune response against follicular antigens, leading to perifollicular inflammation, papules, pustules, and hypertrophic plaques. Despite its clinical relevance in populations of African descent, AKN remains underrepresented in dermatological literature. This report aims to contribute to the understanding of the disease by documenting clinical, trichoscopic, and histopathological findings in a clinical case, emphasizing the role of follicular curvature as a structural and genetic factor in disease predisposition.

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Case Study

We present the case of a 21-year-old male patient, with no prior medical history, who had a 10-year history of occipital dermatosis characterized by papules, pustules, and a keloid-like plaque. In May 2025, he attended the Dermatology Department of Ciudad Hospitalaria "Dr. Enrique Tejera." Physical examination revealed skin phototype IV–VI, with dermatosis localized to the nape of the neck, characterized by papules and pustules coalescing into a hypertrophic, thick, raised plaque measuring 3 × 4 cm, with poorly defined, indurated borders (Figure 1). Trichoscopy revealed tufted hairs, perifollicular erythema, scaly areas, and zones of atrichia without follicular ostia (Figure 2).

Figure 1: Male, Phototype IV–VI, Keloid-Like Plaque with Band-Like Distribution, Localized in the Occipital Region

Figure 2: Trichoscopy:
(A) Tufted Hairs with up to 5 Hairs per Follicular Unit and Perifollicular Whitish Scaling.
(B) Perifollicular Erythema and Areas of Atrichia Without Follicular Ostia

Laboratory tests were within normal limits. Histopathological examination of an incisional biopsy of the scalp lesion, stained with hematoxylin and eosin at 40× magnification, revealed a lymphoplasmacytic follicular and perifollicular inflammatory infiltrate, dense collagen bundles in the reticular dermis, and vascular congestion (Figure 3).

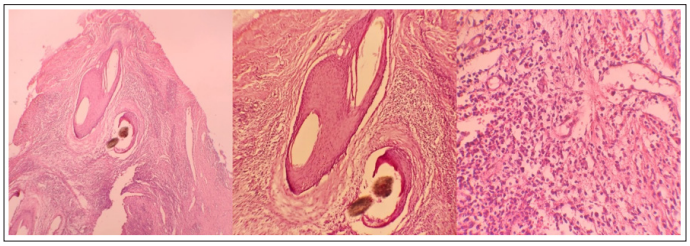

Figure 3: Histopathological Features of Acne Keloidalis Nuchae: Hematoxylin and Eosin Staining
(A) Scalp at 4x
(B) Follicular Curvature, Some Naked Hair Shafts, a Ruptured Follicle in the Mid Dermis, Residual Follicular Epithelium Mixed with Acute and Chronic Inflammatory Cells, and Compact Collagen Bundles Arranged Irregularly, View at 40×
(C) Compact Collagen Bundles and Dilated Vasculature with Perifollicular Lymphoplasmacytic Infiltrate

Based on clinical and paraclinical findings, a definitive diagnosis of acne keloidalis nuchae was established. Treatment included topical therapy, oral doxycycline, intralesional corticosteroid injections, and Nd:YAG laser therapy, with partial improvement; surgical intervention was subsequently planned.

Discussion

AKN is a chronic inflammatory dermatosis of the scalp characterized by an immune response against follicular antigens that induces chronic perifollicular inflammation, favoring the formation of papules, nodules, and hypertrophic plaques [1]. It predominantly affects males, with a 20:1 ratio, and is more prevalent in skin phototypes IV–VI. It typically begins between 14 and 25 years of age and is rare after age 55. With a predisposition in men with hair texture types 3C–4C, it is estimated to represent between 0.45% and 13.6% of all dermatoses in individuals of African descent [2].

Afro-textured hair has been associated as a predisposing factor for certain follicular conditions, including AKN. According to Blume-Peytavi U et al., hair type classification is based on the shape of the hair follicle and the cross-section of the hair shaft. In hair types 3C–4C, the follicle has a more curved or oval (elliptical) shape, resulting in a curly, spiral-shaped shaft with a helical pattern, which, during the anagen phase, grows inward rather than straight [3,4].

This architecture is modulated by the differential expression of genes such as TCHH, which encodes trichohyalin, a key structural protein in hair shaft rigidity and shape. Differential expression of trichohyalin influences hair morphology and retrograde penetration into the epidermis, favoring inflammation such as AKN. Additionally, the KRT75 gene, which contributes to hair cortex formation, has an uneven distribution that promotes curvature [5]. Thus, follicular curvature is not merely a phenotypic trait but a molecularly regulated structural manifestation with clinical implications in the presentation and distribution of AKN in populations of African descent [6].

The anatomical and molecular characteristics of Afro-textured hair favor re-penetration of the hair shaft into the epidermis, triggering an inflammatory reaction of the scalp [7]. This condition often develops in response to repetitive microtrauma, for example, after shaving, when thick, curly shafts are cut at an angle, producing sharp ends that lead to chronic inflammation and pseudofolliculitis [8].

Although no therapies exist that directly modify hair shape, current treatments acknowledge its architecture in clinical management. Nd:YAG laser therapy destroys curved follicles in active areas, reducing inflammation. Preventive measures include avoiding close shaving and adopting care practices that respect the natural hair texture. These approaches suggest that follicular architecture could represent a future therapeutic target in the management of AKN, particularly in populations of African descent [9].

Conclusions

The curved morphology of the hair follicle, characteristic of type 3C–4C hair, favors intradermal growth of the hair shaft. In this context, we propose incorporating follicular curvature and hair texture as predisposing factors for chronic follicular inflammation, which increases the risk of AKN. However, the limited representation of Afro-textured variants underscores the need for further research and recognition of hair diversity in dermatology.

Written informed consent was obtained from the patient for publication of clinical images.

Conflicts of Interest: None declared.

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Research Data Availability: Does not apply.

References

1. Ortiz-Lobato L, Imbernón-Moya A, Saceda-Corralo D, Vano-Galvan S (2025) Keloid acne of the nape of the neck: a therapeutic challenge for dermatologists. Proceedings of Dermosifiliogr 116: 394-402.
2. Orim I, Ahmed H, Asare O, Arul Jothi AN, Amoafo E (2025) Acne keloidalis nuchae: addressing diagnostic and treatment gaps in a high-risk population. British Journal of Dermatology 193: i114.
3. Whiting DA (2008) Histology of the human hair follicle. Hair Growth and Disorders 107-123.
4. Reddy AN (2025) Keloid acne on the nape of the neck. Medicover Hospitals https://www.medicoverhospitals.in/

diseases/acne-keloidalis-nuchae/.

5. Oladele DB, Markiewicz E, Idowu OC (2024) The genomic variation in textured hair: implications in developing a holistic hair care routine. Cosmetics 11: 183.
6. Ho YYW, Mina-Vargas Á, Zhu G, Brims M, McNevin D, et al. (2020) Comparison of genome-wide association study results for quantitative and categorical measures of human hair curvature. Twin Res Hum Genet 23: 265-273.
7. Lora-Barraza L, Gómez-Parra MB, Da Cruz-Conceição K (2021) Care of African American hair. Rev Asoc Colomb Dermatol. 29: 269-281.
8. Bocaney-Gómez G, Rivero M, Endara M, Vivas-Toro S (2024) Keloid folliculitis of the nape of the neck: a therapeutic challenge. Dermatol Rev Mex 68: 582-586.
9. Flament F, Maudet A, Barbarat P, Jabnoun M, Bayer-Vanmoen M, et al. (2025) Types and Characteristics of Hair Across the Globe: Results of a Multinational Study on 19,461 Individuals. Clin Cosmet Investig Dermatol 18: 393-404.