Minimizing Bias in Alopecia Diagnosis in Skin of Color Patients

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ABSTRACT

Alopecia is one of the most common dermatologic conditions affecting Black patients, with a significantly negative impact on quality of life.[1,2] Timely and accurate diagnosis is therefore critical in order to reverse or halt progression of disease.[3] Unfortunately, lack of representation of skin of color (SOC) patients in the current literature may contribute to misdiagnosis as providers may be unfamiliar with the clinical spectrum of alopecia presenting in darker scalps.[4] Some scarring alopecia subtypes such as Central Centrifugal Cicatricial Alopecia (CCCA) are more prevalent in certain racial groups. However, focusing solely on patient demographics and gross clinical findings may obscure accurate diagnoses. To distinguish alopecia findings in Black patients, a dedicated approach using a combination of clinical exam findings and patient history, along with trichoscopy and biopsy, is essential to prevent misdiagnosis and improve clinical and diagnostic outcomes. We present three cases of alopecia in patients of color which the initial suspected clinical diagnosis did not correspond with trichoscopic and biopsy results. We challenge clinicians to reexamine their biases and fully evaluate patients of color with alopecia. An examination should include a thorough history, clinical examination, trichoscopy, and potentially a biopsy, particularly when findings do not correlate. Our cases highlight the challenges and disparities that exist in diagnosis of alopecia in Black patients. We emphasize the need for continued research regarding alopecia in skin of color and the importance of a complete workup for alopecia to improve diagnostic outcomes.

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INTRODUCTION

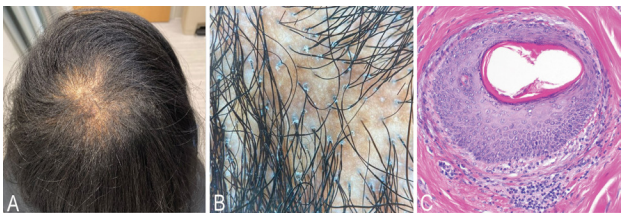
Alopecia is one of the most common dermatologic conditions affecting Black patients, with a significantly negative impact on quality of life.[1,2] Timely and accurate diagnosis is therefore critical in order to reverse or halt progression of disease.[3] Unfortunately, lack of representation of skin of color (SOC) patients in the current literature may contribute to misdiagnosis as providers may be unfamiliar with the clinical spectrum of alopecia presenting in darker scalps.[4] In particular, vertex alopecia in SOC patients can be subject to bias as certain scarring alopecias, such as central centrifugal cicatricial alopecia (CCCA), occur at a higher prevalence in patients of African descent[5] and classically presents as hair loss in the vertex of the scalp.[6] Other forms of alopecia may present with vertex involvement in patients of color, so clinicians should fight the urge to jump to a diagnosis of CCCA without performing a thorough examination. Trichoscopy, or scalp dermoscopy, allows dermatologists to evaluate alopecia based on visualization of morphologic patterns and can provide diagnostic clues to help clinicians avoid misdiagnosis of alopecia. Key studies have defined trichoscopic findings in SOC.[7,8] While trichoscopy does not replace the need for biopsy, it is a critical tool in the initial evaluation of hair loss.

We aim to highlight the importance of challenging bias in the clinical diagnosis of alopecia in SOC. The diagnosis of alopecia based on gross clinical morphology alone can lead to misdiagnosis of alopecia type in Black patients. Barriers to early diagnosis must be reduced to ensure quality care is given to patients of all racial backgrounds. Herein, we present three cases of vertex alopecia in which the initial suspected clinical diagnosis did not correspond with trichoscopic and biopsy results. To distinguish alopecia findings in Black patients, a dedicated approach using a combination of clinical exam findings and patient history, along with trichoscopy and biopsy, may be essential to prevent misdiagnosis and improve clinical and diagnostic outcomes.

CASE 1

A 52-year-old African American woman presented with concerns of hair loss and scalp pruritus. The patient reported a two-year history of progressive hair loss with an associated mild itch on her scalp. She denied scalp tenderness or hair breakage at her crown. She denied a family history of hair loss. Gross examination revealed hair thinning on her crown with decreased density and discrete areas of scarring (Figure 1A). Based on the patient's demographics and initial gross examination, CCCA rose to the top of the differential. Trichoscopy of the region, however, revealed significant perifollicular scale and subtle erythema. Honeycomb pattern was also present with uneven white dots (Figure 1B). Histopathological examination of a biopsy specimen demonstrated perifollicular fibrosis, polytrichia, and a subtle lichenoid folliculitis (Figure 1C) that was most suggestive of lichen planopilaris (LPP).

FIGURE 1. Case (1A) Thinning of scalp vertex. (1B) Trichoscopy of lesion showing perifollicular scale and erythema. (1C) Histopathology revealing perifollicular fibrosis, polytrichia, and a subtle lichenoid folliculitis. Hematoxylin and Eosin (H&E).

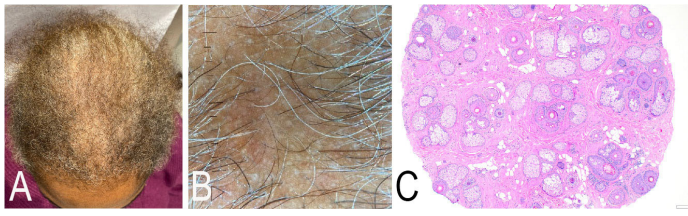


CASE 2

A 75-year-old African American woman presented with a 5-year history of progressive hair loss. The patient reported scalp pruritus for the past five to six months. She mentioned dyeing her hair 3 or 4 times per year for the past 10 years. Gross examination revealed significant thinning of hair on the frontal scalp with extension to the crown (Figure 2A). Prior to trichoscopic exam, clinical findings were more consistent with CCCA. Trichoscopy revealed miniaturized hair. Honeycombing was noted with presence of multiple pinpoint white dots with mild erythema (Figure 2B). A biopsy specimen from the mid-scalp revealed miniaturized hairs, retained sebaceous gland lobules, and no significant inflammatory infiltrate (Figure 2C) that was most consistent with androgenetic alopecia.

Superimposed features of chronic rubbing were also noted. Upon further inquiry, the patient noted a different hair dye may have been used prior to the onset of her pruritus. She was instructed to temporarily cease dyeing her hair and was started on fluocinonide 0.05% solution daily as needed and minoxidil 5% solution twice a day. After exactly 2 months of treatment, patient started to show signs of new hair growth.

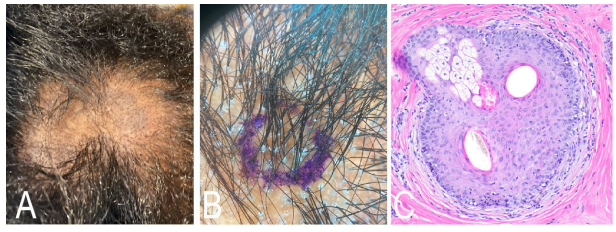
FIGURE 2. Case (2A) Superior scalp with thinning of frontal and vertex scalp. (2B) Trichoscopy of lesion showing miniaturized hair with honeycomb pattern and multiple pinpoint white dots with mild erythema. (2C) Histopathology revealing miniaturized hairs, retained sebaceous gland lobules, and no significant inflammatory infiltrate. H&E.



CASE 3

An Afrolatino male presented with a 3-year history of progressive hair loss with associated mild itch. The patient denied any family history of hair loss. Gross examination revealed two round patches of alopecia on his right parietal scalp with decreased hair density and loss of follicular ostia with slight hyperpigmentation centrally. (Figure 3A). Based purely on the initial gross clinical exam, the clinician was concerned about possible discoid lupus erythematosus (DLE) or CCCA. Trichoscopy, however, revealed significant peripilar casts and scale; no follicular plugging was noted (Figure 3B). Histopathological examination demonstrated polytrichia, perifollicular fibrosis, and a perifollicular lichenoid folliculitis (Figure 3C) that was consistent with LPP. A deep inflammatory infiltrate or deposits of mucin that would point to DLE were not identified. The patient was not interested in intralesional triamcinalone acetonide injections and was started on TCM therapy (tacrolimus, clobetasol, and minoxidil) applied twice daily. He was later lost to follow up.

FIGURE 3. Case (3A) Right parietal scalp with two round alopecia patches with loss of follicular ostia and slight hyperpigmentation centrally. (3B) Trichoscopy of lesion showing significant peripilar casts and scale. (3C) Histology revealed polytrichia, perifollicular fibrosis, and a perifollicular lichenoid folliculitis. H&E.



DISCUSSION

We present three cases of alopecia initially suspected to represent CCCA based on a hair loss pattern predominantly involving the vertex or crown of the scalp in skin of color patients. CCCA is the most common form of primary scarring alopecia in African American females and presents with hair loss beginning on the crown and spreading centrifugally.[5,6] In each of these cases, however, trichoscopic findings were suggestive of alternate diagnosis and led to a clinical decision of performing a biopsy. Histopathological examination from the biopsy specimens in each of these cases led to diagnoses other than CCCA.

In Patients 1 and 3, trichoscopic findings of perifollicular scale, which can be seen in LPP, were corroborated with the histopathological features on biopsy. The distinction between CCCA and LPP is important as treatment can vary between the two conditions. While initial treatment approaches with intralesional triamcinolone and oral antibiotics may be similar, 3rd line agents such as naltrexone and/or pioglitazone for LPP or topical metformin for CCCA may necessitate a more definitive diagnosis.[9-11]

In Patient 2, the biopsy specimen demonstrated androgenetic alopecia with features of chronic rubbing. External breakage of hair from trauma or rubbing is likely an under-reported contributing factor to presentations of alopecia. Therefore, treatments that also target pruritus or concomitant allergic contact dermatitis or seborrheic dermatitis should be added for optimal results.

4-mm punch biopsies down to the subcutaneous tissue are optimal specimens for the evaluation of alopecia.The presence of premature desquamation of the inner root sheath, perifollicular fibrosis, and follicular compounding point to a scarring process. Lymphocytic-mediated scarring alopecias such as CCCA, LPP, and DLE can be further distinguished by the depth and density of the infiltrate, the presence of interface changes at the dermal-epidermal junction as well as the basal layer of follicular epithelia, and the presence or absence of mucin. In late-stage or end-stage disease, however, histopathological features can be non-specific and dermatopathology may present similarly.

All three cases presented were in patients of color and revealed pathologic changes in the scalp during trichoscopic evaluation and biopsy that differed from the initial suspected clinical diagnosis. Some scarring alopecia subtypes are more prevalent in certain racial groups. However, focusing solely on patient demographics and gross clinical findings may obscure accurate diagnoses. We challenge clinicians to reexamine their biases and fully evaluate patients of color with alopecia. An examination should include a thorough history, clinical examination, trichoscopy, and potentially a biopsy, particularly when findings do not correlate. Our cases highlight the challenges and disparities that exist in diagnosis of alopecia in Black patients. We emphasize the need for continued research regarding alopecia in skin of color and the importance of a complete workup for alopecia to improve diagnostic outcomes.

DISCLOSURES

Dr. Adotama serves on the Advisory Boards for Argenx and Janssen.The other authors have no conflict of interest to declare.

Dr. Lo Sicco has been an investigator for Regen Lab. She is a current investigator for Pfizer and a consultant for Pfizer and Aquis.

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