
Ethnic hair update: Past and present

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Hair and scalp disorders in African American patients are challenging because of the lack of pathophysiologic explanations for many of the disorders that occur in this population. To understand the clinical appearance of these disorders and to design an effective treatment plan, the dermatologist must have a clear knowledge of the basic hair-care practices and concerns of this group of patients. Given that patients of African American heritage are not a homogeneous group, this overview describes many of the common hair-care practices of African Americans and how they affect patients' health. The common hair and scalp disorders are discussed, with a specific focus on inflammatory disorders that result in significant pigmentation alteration or scarring. (J Am Acad Dermatol 2003;48:S127-33.)

To appreciate ethnic hair and its perspective position in society, it is important to look at the past and present state of hair care and the psychosocial aspects of hair in the population being studied. This review reports on ethnic hair in the normal state, hair-care practices, scalp and hair disorders, and an approach to problems seen in ethnic patients. Of particular interest are alopecia and hypertrichosis/hirsutism, the hair disorders of loss and excess. Observations are made from the author's experience with patients, as well as observations in the published literature, and certainly are not representative of all African American patients or those of other ethnic groups.

For many individuals, the appearance of their hair is an important aspect of their persona. It is apparent in current popular cultural advertisements that long shiny hair is an embodiment of health and physical appeal. Healthy hair expresses a complete and attractive person and often symbolizes youth.

Hair loss can have significant effects on the quality of life of patients, including loss of self-confidence and self-esteem. Van der Donk et al evaluated 58 women with androgenetic alopecia¹; 88% were found to have their daily behavior affected by hair loss, and 75% reported a loss of self-esteem. Another study by Williamson et al evaluated the effects of hair loss on the quality of life.² This group used a

Dermatology Life Quality Index and an adapted version of the Center for Epidemiologic Studies Depression Scale to study subjects with hair loss. The findings indicate that hair loss has significant effects on life quality long after the initial hair-loss event occurred. Forty percent of the patients were dissatisfied with the treatment by a physician. There was a 90% response rate ($n = 70$ patients) for the study. In those who responded, the mean scores were quite high (ie, a large disturbance in quality of life) in patients with a median duration of hair loss of 138 months \pm 114 (range 7-588). There was a significant loss of self-confidence and low self-esteem associated with the loss. Although these studies did not examine hair-loss effects in ethnic populations, a strong parallel to all women with hair loss can be made from these well-designed studies.

BIOCHEMICAL AND STRUCTURAL EVALUATION

Evaluations of hair fail to demonstrate biochemical differences among ethnic groups, but some structural differences are seen.³ In cross section, African American hair tends to be more elliptical in shape, with the hair follicle showing a spiral shape as well. Asian hair has a round hair shaft with a very large diameter. Caucasian hair tends to appear structurally between that of Asian and African American hair. The behaviors of the hair shaft with various insults such as heat, combing, and chemicals have yet to be quantified in population-based studies.

HAIR-CARE PRACTICES

Hairstyles vary significantly among ethnic populations. Multiple factors affect hairstyles, including current and historical trends and convenience of preparation. Some trends may occur because patients choose convenience and restrict styling time to once or twice per week. However, such restrictions may be detrimental to the health of the hair and scalp.

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In the past, heat restructuring was a common hair-care practice used by African Americans. Hot combing was the first method by which individuals were able to restructure or straighten the hair unit by temporarily manipulating the hydrogen/disulfide bonds. This practice began in the early twentieth century and required the use of an ointment-based lubricant.⁴ This process uses a hot comb and a heating element (eg, a regular stovetop or a specially designed heating stove that fits around the comb). After the hair is washed and dried, it is parted in small sections, and the hot comb is pulled through the hair from the scalp to the ends. It is a temporary process, because the hair reverts to its original state with the application of water. Persons typically need to perform this form of heat restructuring every 1 to 2 weeks before normal perspiration and humidity cause the hair to revert to its natural state. Also needed are oil-based lubricants on the scalp and hair shafts as protection from the very high heat levels accompanying the hot combing process.

Hot combing became less popular after the development of chemical relaxers. In 1968, LoPresti et al described hot-comb alopecia,⁵ in which the fragility of the hair shaft is increased and burns on the scalp can occur. He and his colleagues believed that a scarring process occurred when the lubricants placed on the hair during the hot-combing process dripped down the hair shaft onto the scalp, with particular involvement of the frontal and vertex scalp. This was never confirmed causally in this scientific description. To date, a causal relationship between hot combing and scarring alopecia has not been proven, although burns and hair-shaft fragility can be directly linked to heat exposure.

In the early twentieth century, crude forerunners of chemical relaxers became available. In earlier times, these crude chemicals were used primarily by African American men to straighten their hair. Some of the early chemicals used included lye, hog lard, and boiled eggs. Women tended not to use the products because they were harsh and burned the scalp.⁶ In the 1960s, the emergence of more elegantly formulated chemical relaxers increased their use by women. These relaxers primarily contained sodium, potassium, lithium, and guanine hydroxides; other products contained sulfites and thioglycolates. These products break the hydrogen/disulfide bonds and reset the hair in a straighter form. The effects of the chemical relaxers last permanently on treated hair, and new growth is treated once there is enough for chemical application. This became an easy way for African American women and men to control the kinkiness and curliness of their hair. Little knowledge of potential problems of this

chemical method of straightening the hair has been reported until recently. Potential problems include local contact irritation, local chemical burns, loss of tensile strength of the hair shaft, increased fragility of the hair shaft, and, possibly, scarring alopecia.⁷

Other hair-care practices commonly used by African American patients, particularly women, include other heat sources, styles, and potentially hazardous treatments of the hair. Heat sources commonly used are blow-dryers and hood dryers. Both of these dryers can become extremely hot and cause fragility of hair and damage to the tensile strength of the hair shaft. Curling irons are commonly used by those who have chemically or heat-restructured hair, increasing the likelihood of scalp and hair damage. Curling irons and other heating elements have been used on native or untreated hair as well. Other potential hazards associated with these heat sources include overdrying of the hair cuticle and scalp damage that can result from local burns to the scalp.

Other hairstyles used by African American women include braids. Small braids with attached hair pieces, as well as a particular form of braiding commonly known as "cornrowing" with close braids on the scalp, are used. Extensions may be attached, which are hairpieces that extend the length of the hair and accentuate style. However, they may be heavy and attach to a few very fragile hair shafts; this may cause damage similar to that observed with the use of ponytails, in which increased traction has been noted.⁸ There has also been concern about allergic contact reactions of the skin to some of the extension materials used,⁹ for example, some of the glues used to bond the hair extensions to the scalp contain latex. There are several reports of contact anaphylaxis to the latex-based glue products.^{9,10} One particular report demonstrated a positive radioallergosorbent test for hair-bonding glue and latex in a patient with systemic anaphylaxis on repeated exposure to hair-bonding glue.¹⁰ Her sera reacted to latex antigens as well. Assays of the glue revealed antigen patterns resembling ammoniated latex.

Types of products available

Do hair-care products hinder or help African Americans? The product types used by members of this ethnic group can be generalized into emollients, gels and spritzes, and shampoos and conditioners. Emollients are typically used to lubricate the hair shaft but also have been used to cover flaky, dry, or itchy scalp problems. Emollients may be used to smooth the hair so that the kinky or curly nature of the hair is not well seen.

Emollients are most easily separated for discussion into 2 groups: liquid and solid preparations. The purpose of all emollients is to impart a conditioning effect to the hair. For years, solid emollients (pomades are one form) were a mainstay of hair care for those with curly or kinky hair¹¹ for sheen in natural styles or ease of braiding hair. These products have also been used successfully as coating agents during heat-processing of curly hair and as finishing aids on chemically relaxed hair.¹² Patients will often refer to this kind of product as hair grease. These products usually contain mixtures of petrolatum, lanolin, and vegetable, mineral, or animal oils.¹²⁻¹⁴ Little to no water is found in these mixtures, which makes them reliable as protective agents against the elements.¹⁴ For African Americans who wish a more sculpted hairstyle with little movement, these are ideal products.

With the advent of chemical relaxing, many African American women have decreased their use of thick hair emollients and increased their use of liquid emollients or moisturizers.¹⁵ Thick lubricants are no longer required, because chemically relaxed hair is easier to style and less resistant to humid conditions that may cause virgin hair (untreated by chemical or heat) to revert back to the normal curly or kinky conformation. Oils (mineral and vegetable) are the primary lubricating agents in the liquid emollients, but liquid lanolin, which has good oil solubility, is sometimes added.

Liquid moisturizing agents containing oils mixed with silicone derivatives are among the newest hair moisturizers on the market. Many patients with chemically relaxed hair prefer these products instead of the thicker emollients because of the natural shine and lubrication they provide without greasiness.¹⁵

Other moisturizing liquid emollients include glycerin-based products and silicone-coating agents. Glycerin-based products have been formulated for use on hair that has been treated with a chemical curling agent, although it is sometimes used on virgin hair. Glycerin does not repel moisture or other emollients and can cause reversion to the natural curl pattern,¹³ limiting its usefulness. Patients who desire a moisturizer with very light coverage of the hair shaft often prefer the silicone-derived moisturizers.¹⁵ Some forms of this product are applied to freshly washed hair while the hair is still wet; the hair is then styled as usual. Other forms of the silicones are applied to styled hair to promote shine and reduce conditioner build-up between shampoos.

Shampoos and conditioners are used as part of regular personal hygiene. Many of the shampoos

and conditioners that are purchased by consumers are used too frequently or infrequently and are too harsh for chemically treated hair, causing problems with the fragility of the hair shaft and irritation of the scalp. Many emollients mask underlying medical conditions and actually worsen dry scalp conditions.¹³ By using products that mask dry scalp, patients may assume they can wash the hair less frequently, allowing continuation of the scaly build-up on the scalp.

Gels and spritzes may dry out the hair shaft, also allowing for easy fracture. Both of these products are designed to form a thick protective coating that dries on the hair. Sculpted hairstyles are easier to maintain with these products and are usually kept in place for 1 to 2 weeks before the hair is washed and restyled. When a patient has a sculpted hairstyle, there is relatively little upkeep between washings because the surface of the hair is protected from the elements by the gel coating. Problems with this style include the drying effect these products have on the hair and potential worsening of seborrheic dermatitis from lanolin additives.¹² Tensile strength is diminished by any product that dries the hair shafts, and the resulting effect is increased fragility and breakage of the hair shafts. Patients may also be tempted to leave this hairstyle intact for longer than 1 week to minimize hair care further. Dermatologists should encourage patients to wash these products out regularly to ensure healthy sloughing of scalp skin and to minimize drying of the hair shafts.

COMMON HAIR AND SCALP COMPLAINTS

The most common hair and scalp complaints from patients include hair breakage, scalp itching, dandruff, scalp flaking, and hair loss over the crown of the scalp and temporal areas. No study to date has evaluated the most common complaints from African American women who seek guidance from dermatologists for hair care. However, many women obtain hair-treatment recommendations from hairstylists rather than physicians. Thus, it is important that dermatologists understand clinical problems of the scalp in patients of color to instill confidence in these patients from the very first visit.

Inflammatory scalp conditions such as seborrheic dermatitis are important in ethnic patients, but they are by no means specific to this group. Seborrheic dermatitis can often be a chronic process and may interfere with other hair fragility or hair-loss processes (Fig 1). When patients are confronted with an itchy, flaky scalp, they may choose to use over-the-counter dandruff shampoos. These shampoos may improve the itching and scaling, but they commonly



Fig 1. Severe seborrheic dermatitis with scalp and facial involvement. Note scaling and hypopigmentation in the well-demarcated plaques.

dry even the normal hair shaft. In patients who routinely use heat or chemical relaxers, these shampoos may dry the cuticular layer of the hair and cause fragility.

Alternatively, the patient with seborrheic dermatitis may try to camouflage the dry flakes on the scalp with emollients purchased over the counter. Although these products may prevent the further appearance of flaking, they can worsen the problem by causing increased irritation. Even prescription shampoos approved for use in seborrhea can dry the hair shaft. The dermatologist may recommend increasing the use of moisturizing conditioners, staggering the antidandruff shampoos with regular moisturizing shampoo, and increasing the use of an emollient to coat the hair as opposed to the scalp.¹⁶

CICATRICAL HAIR LOSS

Clinical scarring alopecias in women of color have been recognized for years. There have been many classification types dating back to LoPresti et al and, more recently, to Sperling.¹⁷ Sperling described follicular degeneration syndrome, a condition similar to hot-comb alopecia: scarring of the frontal and vertex of the scalp, with maintenance of frontal hairline, often with progressive worsening, and accompanied by clinically inflamed follicles and significant inflammation on biopsy.¹⁷ A classification system is offered by Sperling for the clinical scarring alopecias in women of color.¹⁸ This classification encompasses chronic cutaneous lupus erythematosus, lichen planopilaris, acne keloidalis nuchae



Fig 2. Severe probable multifactorial scarring alopecia in a patient with a history of scleroderma, significant traction in the area, and history of chemical use.



Fig 3. Typical mild scarring alopecia on the vertex scalp in an African American woman.

(AKN), dissecting cellulitis, and central centrifugal scarring alopecia (which may be synonymous with follicular degeneration syndrome), among others. The other category includes cicatricial alopecia and unclassified entities that do not fit within one of the aforementioned classifications.

Despite the classification of scarring processes, the causation is often unclear^{17,18} (Figs 2 and 3). In an unpublished study, this author evaluated the hair-care practices of 21 African American patients with scarring alopecia and 23 patients without scarring alopecia (unpublished data, 2000). This evaluation revealed that most patients without scarring discontinued chemical relaxing, compared with the affected group ($P < .03$). More of the women with scarring had a history of hair weave ($P < .01$), and the duration of chemical relaxing seemed to be

longer for those affected with cicatricial alopecia than for those without the condition (18.6 vs 13 years; $P < .01$). The small sample size makes it difficult to say what population-based triggers could be causal. It is of the utmost importance to evaluate this in a population-based setting to understand exactly what is happening in these patients and to determine what is recollection bias versus true cause or association.

Many treatments have been discussed for scarring alopecia in African American women, and many of the articles listing treatment do not classify variables systematically (eg, appearance, clinical data, histology, and duration of disease).^{17,19} Treatment for scarring alopecias has included anti-inflammatory agents, minoxidil, isotretinoin, thalidomide, vitamins, herbal treatment, and laser ablation. Topical antibiotics and antifungals, topical and intralesional corticosteroids, oral corticosteroids, dapsone, hydroxychloroquine, and even methotrexate have all been cited as potentially helpful agents for cicatricial scalp disease. Unfortunately, there have been no breakthroughs in terms of treatment, even when the cause of the alopecia is well established, such as chronic cutaneous lupus and AKN. Population-based information on the response to drugs in this setting, in which confounding factors may be measurable, is needed. One accepted treatment regimen includes decreasing inflammation by all means possible (eg, using topical and intralesional corticosteroids, increasing shampoo frequency, and using moisturizing antidandruff shampoos as much as possible to decrease inflammation from seborrheic dermatitis).

EXCESSIVE HAIR AND SEQUELAE

It is important to evaluate patients with excessive facial or body hair or sequelae of the excessive hair (eg, pseudofolliculitis barbae [PFB], postinflammatory hyperpigmentation, and keloidal nodules). Many women are distressed by excessive facial hair or hirsutism. Recent data indicate that there is no difference in the extent of hirsutism in African American women compared with white women, but no large-scale studies have been performed.²⁰ Hirsutism is a condition defined as hair growing in areas where it is normally considered to be a secondary male characteristic (Fig 4). Alternatively, hypertrichosis is a condition defined as increased hair anywhere on the body that is longer in length or more full in density than what is deemed normal for the individual. In a study performed at this author's institution (unpublished data, 2000), excessive facial hair in women was positively associated with obesity, heavy menstrual flow, number of hair-removal



Fig 4. Hirsutism in a young woman with moderate to severe inflammatory papules and hyperpigmentation.

methods, and a significantly larger Ferriman-Gallwey score than those without excessive facial hair (self-administered). The Ferriman-Gallwey score was designed to be a physician-administered tool measuring hair density and type in areas where it is typically considered to be a secondary male characteristic.²¹ The women who reported excessive facial hair also showed a significant increase in their quality-of-life scores when asked to re-rate all aspects of their quality of life as if they no longer had excess facial hair (2-sided, $P = .007$).

Another sequela of excessive or coarse facial hair is PFB. This disorder occurs in men and women on the face or in other areas where hair follicles become inflamed secondary to shaving with resultant perifollicular papules (Fig 5). Hyperpigmentation, pustules, and even keloids often accompany this process.²² Some patients experience permanent disfigurement from this process. A similar process, AKN, occurs on the posterior scalp in both men and women.¹³ The pathogenesis of these diseases (PFB and AKN) is not well understood, although the coarser the hair, the more likely PFB and AKN occur. It is not known whether hereditary factors are important in the pathogenesis of these disorders. In an evaluation of several patients with pseudofolliculitis, Hordinsky found that eflornithine cream improved pseudofolliculitis.²³ She found that there is a miniaturization of hair follicles and reduction in a number of large curved follicles on histologic examination after treatment with topical eflornithine. Confocal microscopy showed disorganization and loss of normal orientation of actin filaments before treatment. Hordinsky suggested possible inhibition of signal transduction cascade, causing improvements in clinical outcome with this topical medication.

TREATMENT FOR EXCESSIVE FACIAL HAIR AND SEQUELAE

Available treatment modalities for coarse or excessive hair on the face and neck include all of the

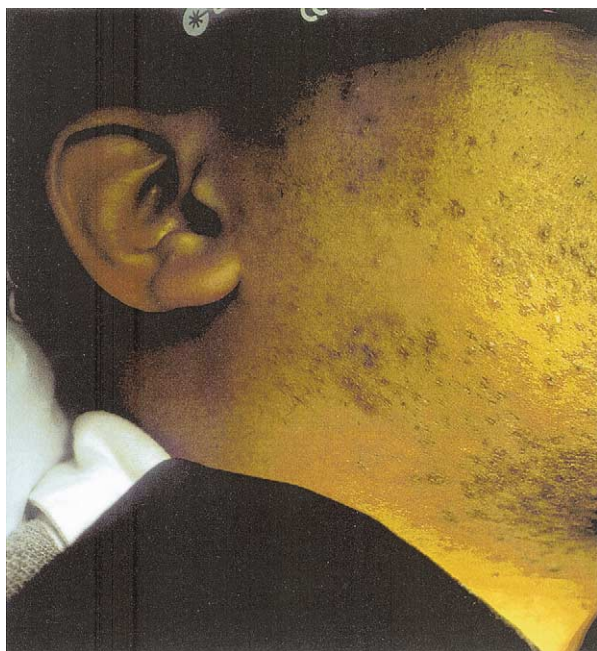


Fig 5. Pseudofolliculitis on the chin in a young man preparing for laser hair removal.

physical modalities of removal (eg, waxing and shaving), topical eflornithine cream, electrolysis, and laser hair removal. When there is inflammation accompanying excessive facial hair, other treatment may help to control symptoms. Topical corticosteroids, intralesional steroids, topical and oral antibiotics, and topical retinoids are some of the most popular medications used. No single treatment option works for all patients. Often, combinations are necessary, and the choice of treatments should be based on patient desire, expectations, and lifestyle. Many of these treatments are new, and patients are not aware of them. Dermatologists must provide patients with enough information to make informed choices regarding treatment for PFB and AKN.

UNANSWERED QUESTIONS

Many questions remain unanswered in the field of ethnic hair disorders. Is there an increased prevalence of scarring alopecias in the African American population? This can best be answered by population studies comparing those who have scarring alopecias with age-matched controls who do not have scarring alopecias in terms of care practices, environmental exposures, and, possibly, hereditary factors.

- Is there a genetic predisposition to scarring alopecia? This may be a question for those who study the basic science of scar and keloid formation. Genetic information must be obtained in a

population-based manner to answer this question.

- Is there atypical penetration of products in the spiral follicle of African Americans? This is a question for biochemists and those who perform detailed research on the hair follicle. A special question remains: Do in vivo chemical and heat treatments cause different reactions in the scalp when the hair follicle is spiraled (as in African American hair vs white and Asian hair)?
- Is there a similar mechanism in all scarring diseases? Keloids and scar formation are one topic that may be evaluated to understand what occurs in patients who develop scarring alopecia.
- Should treatments be formulated differently for patients with deep pigmentation? What role does pigmentation play in the formation of scarring of the scalp? There may be a confounding process occurring that has nothing to do with pigmentation. Pigment cell biology would help us understand how to approach this question.

CONCLUSION

A large body of research is required to evaluate African American patients and the hair disorders that are most common in this population. We have just begun to find support for basic science, epidemiologic, and genetic research. We have a better opportunity now than ever to find some of the answers to these questions. Dermatologists, basic scientists, industry spokespersons, and epidemiologists must come together to care for these patients.

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