

# Considerations and recommendations on camouflage in alopecia in Black women

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## ABSTRACT

Alopecia is among the leading dermatological concerns affecting Black women. For many women, hair is a central component of identity and self-expression, the loss of which can have significant psychosocial effects. Hair camouflage is often utilized to minimize the visibility of hair loss, provide aesthetic benefits, and improve quality of life. The versatility and affordability of hair camouflage allows patients with alopecia to conceal hair loss, increasing self-confidence, and decreasing social stigma. However, hair camouflage practices often involve adhesives, chemicals, and/or high-tension braiding, all of which can exacerbate alopecia. Accordingly, special considerations should be made to protect patients' natural hair from damage while using these styling practices. A better understanding of best practices for some of the most widely used camouflage options—wigs, extensions, topical hair fibers, and micropigmentation—can help clinicians establish rapport with Black women and optimize individually-tailored therapeutic plans during active treatment and end-stage hair loss.

**Keywords:** alopecia, camouflage, extensions, hair transplant, microblading, wig

## Introduction: a brief history of hair camouflage in skin of color

Hair camouflage, the practice of altering one's hair to appear fuller or in some way different, has been a part of Black culture for several millennia, dating back to ancient African communities.<sup>1</sup> Ancient Egyptians, for example, donned wigs and weaves to protect their natural hair and scalp from the desert heat as well as to signify social rank, a practice that has been adopted throughout history by various African tribes, many of whom preserve this tradition even today.<sup>1</sup>

Hair camouflage has been employed both historically and currently in Black communities. For instance, camouflage by wigs was popularized during desegregation and women's rights movements as Black women joining the workforce were required to conform to Euro-centric standards of beauty which defined professional appearance.<sup>2</sup> Wigs were also used as a means of creative expression by Black artists, such as the doo-wop girl groups from the 1950s to 1960s.<sup>2</sup> Today, wigs, weaves, and other forms of hair camouflage continue to be an integral part of Black culture. A study of hair practices in 2015 demonstrated that at any given time about 50% of Black women are augmenting their natural hair with some form of camouflage technique.<sup>3</sup> The most common incentives

for hair camouflaging today include cultural expression, hair protection, and professional conformity.<sup>4</sup> Additionally, hair camouflage techniques are commonly employed medically to conceal alopecia.<sup>5–8</sup> This review explores popular forms of hair camouflage today and considers how to best manipulate these methods to mask alopecia without exacerbating hair loss.

## Popular hair camouflage practices in skin of color

Wigs have been used for centuries and remain a widely used hair prosthetic in Black communities.<sup>1,2,5</sup> Prior to using a wig, users typically cover their own hair with a “wig cap,” which can be made from a variety of materials including polyurethane and silicone.<sup>8</sup> Wig caps last longer than the more natural-appearing net foundations made from a mesh base (Fig. 1).<sup>8</sup> Lace wigs, which contain a net foundation made of nylon, are a popular choice for Black consumers as they are lightweight and offer versatility in styling.<sup>5</sup> They have an added appeal of transparent attachment that creates a more realistic frontal hairline. A more natural look can be achieved by wigs created with individual

### What is known about this subject in regard to women and their families?

- Hair camouflage techniques, such as wigs, extensions, micropigmentation, and so forth, are commonly used among Black women.
- These techniques can also be employed by women with alopecia for functional and aesthetic purposes, in addition to quality of life improvement.

### What is new from this article as messages for women and their families?

- This article explores various hair camouflage practices to provide recommendations for Black women with alopecia.
- Caution should be used when employing certain camouflage techniques as there is the potential to exacerbate alopecia or hair breakage.

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**Fig. 1.** Example of a synthetic fiber wig styled into twists (A). Wig caps made with net foundation of nylon are popular for being versatile and lightweight (B).

hair strands inserted onto a polyurethane base, which more closely resembles the human scalp.<sup>5</sup> Wigs applied with adhesives can typically be left in place for several days in contrast to longer-lasting sewn-in wigs, which can be worn for several weeks to months. To secure a sewn-in wig, “stitches” made with a thick, curved weave needle and weave thread join sections of the wig to sections of the braided natural hair, typically along the frontal hairline, behind the ears, and along the neck hairline.<sup>9</sup> Wigs, in particular full cap systems, can limit access to the scalp and impact haircare practices such as scalp washing for the duration of wear.

### Hair extensions

Hair extensions encompass a broad camouflage category that involves the addition of small sections of hair secured onto existing hair. Extensions can add length and volume, or they can change one’s hairstyle entirely. This practice is as old as wigs, with the earliest documented extensions also dating back to Ancient Egypt.<sup>10</sup> Similar to wigs, hair extensions can be applied by various means including braiding, crocheting, or clipping onto existing hair.

Weaves are a type of hair extension that includes the application of “hair tracks,” in which smaller sections of hair

extensions are either sewn, glued, or taped to the scalp or existing hair (Fig. 2).<sup>5</sup> When glued in, hair tracks are applied to the base of the hair shaft with the use of an adhesive such as latex-based bonding glues.<sup>5</sup> These can last for several weeks and are later removed with specially designed solvents.<sup>5</sup> When sewn in, weaves can be applied in a similar manner as that for wigs.<sup>11</sup> Extensions can also be applied using microrings with attached hair that are clamped onto the natural hair using pliers. Of these methods of hair extension application, braids, clips, sew-ins, and microrings do not require adhesives or other chemicals and are, therefore, preferred for scalp and hair health.

Weaves may be composed of human hair or synthetic material. Human hair is processed with dyes and chemical products to create a variety of hair colors and textures, providing consumers options to find extensions most similar to their natural hair.<sup>5</sup> Some women may also opt to try a style different from their natural strands. Human hair wigs and weaves can be styled with the most common hair styling products and tools. Synthetic weaves are generally composed of modacrylic, acrylonitrile, and vinyl chloride. These synthetic fibers are prepared and sold in a variety of colors and curl patterns. Unlike human hair weaves, the patterning of synthetic extensions is permanent and cannot be modified with thermal styling tools, which



**Fig. 2.** Example of a weave, a type of hair extension added to existing hair (A). Weaves consist of “hair tracks” of hair extensions that can be applied to the scalp with adhesives (B).



**Fig. 3.** Example of traction alopecia concealed using hair fibers along the frontal hairline.

would melt the synthetic fibers.<sup>5</sup> Additionally, some patients may develop contact dermatitis to the material composition of synthetic weaves.<sup>12</sup>

### Topical hair fibers

The use of topical hair fibers has recently emerged as a form of camouflage made possible by the extraction and manipulation of keratin in the 1970s.<sup>13</sup> Application of topical hair fibers requires existing hair, as it is applied after hair styling to give the user the appearance of fuller, thicker hair until they are washed out (Fig. 3).<sup>14</sup> Hair color-matched fibers are sprinkled onto the scalp, set with hairspray, and then combed through the hair for distribution.<sup>15</sup> The positively charged keratin fibers bind to negatively charged terminal hairs on the scalp via electrostatic force.<sup>6</sup> Hair fibers are commonly made from wool keratin, rice keratin, rayon, or human hair.<sup>6</sup> Creams and gels can disrupt the fibers and cause clumping, and these products can rub off on contact with items such as pillows, making them ill-suited for prolonged wear.<sup>14</sup> Other topical hair camouflage products have been marketed over the years including powder cakes as well as camouflage lotions and sprays. These function by coating the scalp with pigment to similarly produce the appearance of thicker hair.<sup>6</sup>

## Alopecia and considerations for hair camouflage in skin of color

### Alopecia in Black women

Black Americans are the only ethnic group in which alopecia is among the top 10 dermatologic conditions, making it likely that dermatologists will encounter the need to provide thoughtful counseling on hair camouflage techniques for these patients.<sup>16,17</sup> Traction alopecia (TA) and central centrifugal cicatricial alopecia (CCCA) affect about 33% and 15% of Black women, respectively.<sup>18,19</sup> While these disorders are often seen in Black

women, it is important to recognize that other forms of alopecia, such as frontal fibrosing alopecia (FFA) and androgenetic alopecia (AGA), are not uncommon in this population.<sup>20,21</sup> A 2007 study of hair disorders in African adults determined a 3.5% prevalence of AGA in women of African descent.<sup>22</sup> The exact prevalence of FFA in Black populations has not been elucidated; however, studies have shown that FFA may be underdiagnosed or misdiagnosed in Black individuals given its unique presentation.<sup>23,24</sup>

The diagnosis of alopecia can be devastating and have profound impacts on quality of life.<sup>25,26</sup> For many individuals, hair is a central component of identity and self-expression, the loss of which can have significant psychosocial effects.<sup>25,26</sup> While camouflage can boost patients' self-confidence by concealing hair loss, these practices often involve adhesives, chemicals, and/or high-tension braiding, all of which can exacerbate alopecia and contribute to further hair shaft damage that can increase the risk of acquired trichorrhhexis nodosa (ATN). Accordingly, special considerations should be made to protect patients' hair from damage while using these styling practices (Table 1).

### General considerations for healthy hair camouflage practices

When employing any form of hair camouflage, care of the natural hair should not be neglected. Black natural hair texture varies, with higher degrees of curl exhibiting increased mechanical fragility.<sup>27</sup> Studies have shown that curly-textured hair has less tensile strength and less moisture compared to straight hair, making it prone to breakage.<sup>27</sup> In its natural state, tightly coiled hair requires frequent moisturization to prevent knotting and damage. While hair camouflage can allow individuals to keep their natural hair tucked away from manipulation, proper techniques must be used to not aggravate hair breakage. The hair camouflage considerations presented can be used to initiate discussions and offer suggestions that align with individual goals and treatment plans. Ultimately, hair styling is a personal decision based on numerous factors including styling time, maintenance cost, and desired outcome. It is important to note the recommendations below may not be feasible for every patient utilizing camouflage techniques and a shared decision-making approach is warranted.

### Cranial prostheses: special considerations in alopecia

The initial phase of hair loss treatment often involves application of topical medications (in the form of ointment, oil, or foam) and intralesional corticosteroid injections. These aim to decrease the inflammatory response seen in conditions such as TA, CCCA, and FFA.<sup>28</sup> Given the need to access the scalp for treatment, optimal hair camouflage would be easily removed. Cranial hair prostheses (also known as medical wigs) and extensions are commonly used hair camouflage options that can serve this purpose.

When using cranial prosthetics, special considerations should be taken to maintain hair health and prevent exacerbation of alopecia. In preparation for hair system installation, it is ideal to moisturize natural hair. In its natural state, curly-textured hair has a propensity for dryness and requires regular application of moisturizing products to prevent exacerbation of ATN.<sup>29</sup> It is recommended that leave-in conditioner be applied to natural hair several times per week with aims to wash the scalp and hair every 1–2 weeks. If the natural hair is braided in preparation for the cranial prosthetic, minimal tension is recommended, and the direction of braiding should be alternated (ie, changing the orientation of braids from front to back to side to side or diagonal) between hairstyles. Additionally, any signs of inflammation such as discomfort, pulling, erythema, or pustules, should

**Table 1**  
**Advantages and disadvantages of various camouflage options with special considerations for Black women**

	Advantages	Disadvantages	Recommendations for Black women
Cranial prostheses (medical wigs)	<ul style="list-style-type: none"> <li>• Many customization options for natural appearance</li> <li>• Suitable for extensive hair loss</li> <li>• Well-maintained hairpieces can last years</li> </ul>	<ul style="list-style-type: none"> <li>• Requires styling and maintenance</li> <li>• May be cost-prohibitive</li> <li>• May cause hair breakage if not worn properly</li> </ul>	<ul style="list-style-type: none"> <li>• Use silk cap to reduce friction between prosthetic and hair</li> <li>• Apply emollients to natural hair to maintain moisture</li> <li>• Opt for a low-tension sew-in prosthetic when possible</li> </ul>
Extensions	<ul style="list-style-type: none"> <li>• Effective for patchy alopecia</li> <li>• Versatility in application and duration of wear</li> </ul>	<ul style="list-style-type: none"> <li>• Can induce or worsen traction alopecia</li> <li>• Not suitable for inflammatory hair loss or active alopecia areata</li> <li>• Synthetic hair may cause irritant contact dermatitis</li> </ul>	<ul style="list-style-type: none"> <li>• Choose loosely sewn-in extensions to minimize tension</li> <li>• Avoid extensions longer than shoulder length to reduce tension</li> <li>• Limit application to 3–4 weeks before alternating to natural style</li> </ul>
Topical hair fibers	<ul style="list-style-type: none"> <li>• Easy to apply</li> <li>• Instantly gives appearance of thicker hair</li> <li>• Affordable</li> </ul>	<ul style="list-style-type: none"> <li>• Temporary camouflage</li> <li>• Disrupted with hair products (gel, cream)</li> <li>• Not suited for extensive hair loss</li> </ul>	<ul style="list-style-type: none"> <li>• Use fibers in low densities with an applicator</li> <li>• Apply fibers after topical medication and/or hair products</li> </ul>
Scalp micropigmentation/microblading	<ul style="list-style-type: none"> <li>• More permanent option</li> <li>• Well-suited for various scarring and refractory alopecias</li> </ul>	<ul style="list-style-type: none"> <li>• Risk of infection, dye allergy, granulomatous reaction</li> <li>• May need repeat treatments/touch-ups</li> </ul>	<ul style="list-style-type: none"> <li>• Discuss desired hair follicle density and pigment</li> <li>• Consider future hair color changes and alopecia progression</li> </ul>

prompt loosening of the braids to prevent permanent hair follicle damage.

One method of hair system application involves the use of clips to secure the prosthesis to natural hair. Clips can be well suited for individuals with patchy hair loss, offering instant coverage and quick removal. However, caution should be used when removing clips as they can cause breakage of fragile hair with repeated use, particularly in individuals with preexisting TA and/or ATN. Another option is adhesive glue, such as that used in the fixation of lace front hair systems, which keeps the hairpiece in place for several days. Removal of adhesives from the scalp can precipitate hair loss along the frontal hairline due to mechanical damage of hair follicles from excessive pulling.<sup>30</sup> This fixation method does not rely on the presence of underlying hair, making it a viable option for patients with significant hair loss, particularly at the frontal scalp. However, acrylate glues used in hair system fixation have been implicated in allergic contact dermatitis and should be avoided in patients with sensitive skin.<sup>8</sup> A sewn-in cranial prosthetic in which the patient's hair is braided into low-tension cornrows and the hair system is sewn onto the braids may prove less damaging to the hairline.

The selection of cranial prosthetic type and attachment method should be chosen based on the condition of the user's natural hair, duration of wear, comfort, and cost. While hair systems pose an excellent camouflage option, the high cost of purchasing and maintaining these devices can be prohibitive. In June 2023, the United States House of Representatives introduced H.R.4034, a bill to provide coverage for wigs as durable medical equipment under the Social Security Act. If passed, physicians would be able to authorize the use of cranial prostheses for rehabilitative treatment with a letter of medical necessity. This bill would mark an essential acknowledgment of hair camouflage as medical therapy.

#### Hair extensions: special considerations in alopecia

The use of hair extensions in patients with preexisting TA, even mild cases, is discouraged due to concern for acceleration to end-stage disease. Even with judicious application, extensions exert stress on natural hair that may not be overt to patients. On

trichoscopic examination of 12 women with extensions and no hair loss complaints, broken hairs and signs of TA were observed in all patients.<sup>31</sup> When extensions exceed shoulder length, the added weight adds tension to fragile hair shafts.<sup>32</sup> Loosely sewn-in or microring extensions are preferred to adhesive glue. Application with adhesive glue should be limited, if possible, due to the difficulty of removal without trauma to surrounding hair.<sup>32</sup> For individuals who choose extensions, application to natural hair as opposed to chemically processed hair is recommended.<sup>32</sup> Patients should be made aware of the potential for irritant contact dermatitis with synthetic hair.<sup>12</sup> Studies have shown Black patients are significantly more sensitized to para-phenylenediamine (PPD), a chemical found in hair dyes, compared to White patients.<sup>12</sup> PPD is the most common allergen in hair dye, with darker-colored dyes containing higher levels of PPD. It is hypothesized that Black individuals are more sensitized to PPD given their propensity to select darker shades of hair dye compared to White individuals.<sup>33</sup> To minimize damage, extensions should not be worn for more than 3 to 4 weeks at a time before alternating to a natural style for the same duration, if possible.<sup>32,34</sup>

#### Topical hair fibers: special considerations in alopecia

Topical hair fibers, often made from keratin, are a camouflage option for patients with decreased hair density.<sup>35</sup> Given that application of topical fibers requires existing hair, it is not practical for individuals with extensive hair loss. Fibers are best suited for patients with mild to moderate hair loss and can be used in conjunction with topical medications.<sup>6</sup> Patients should be advised to apply medications to a clean scalp and allow it to dry completely before fiber application.<sup>5</sup> Creams and gels can cause clumping of the fibers, exposing the area intended for coverage. For Black women whose hair washing routines are often weekly or biweekly, using topical hair fibers with other hair styling products can be especially challenging. Black women should be encouraged to maintain their haircare regimen and use topical fibers at low densities with an applicator to reduce clumping risk. Further studies into the use of topical hair fibers on textured hair are needed to guide patients appropriately.

## Camouflage options for end-stage hair loss

When a patient has reached end-stage hair loss refractory to treatment, clinicians must approach the situation with empathy and honest communication regarding expectations. While hair regrowth may not be an option, providers can offer suggestions for hair camouflage if patients express interest. Eliciting the patient's hair goals is crucial to establishing rapport and offering congruent solutions.

### Fixed cranial prosthesis

Fixed cranial prostheses can be an option for individuals with irreversible end-stage alopecia. With this camouflage option, a custom hair system is bonded to the scalp using strong adhesives, with results lasting approximately 2 months. These installments mimic natural hair in that they are worn continuously, washed and styled in the same manner.<sup>8</sup> Adhesives often include a mixture of glues such as cyanoacrylate, hydroxyquinone, and polymethyl methacrylate among others.<sup>8</sup> Though uncommon, cases of contact dermatitis from adhesive glues have been reported and thus should be used with caution in sensitive individuals.<sup>36,37</sup>

### Scalp micropigmentation

Scalp micropigmentation (SMP) is a minimally invasive option for hair loss concealment. This form of cosmetic tattooing involves injection of pigment into the upper dermis to produce the impression of hair follicles on a scalp with decreased density.<sup>38</sup> SMP has been used for concealment of scarring alopecias, refractory alopecia areata, AGA, and scalp scars from previous trauma/surgery.<sup>39</sup> SMP is an individually-tailored procedure that takes into consideration several factors including needle size, penetration depth, and scalp resistance (ie, scarring). SMP needles can be single or grouped, with sizes typically ranging from 0.20 to 0.35 mm in diameter. Needle penetration depth varies between individuals and across scalp areas given the range of epidermal thickness.<sup>39</sup> Black individuals typically have lower follicular density and smaller hair shaft diameter compared to White individuals, which is considered when customizing SMP.<sup>39,40</sup> Clinicians work with patients to select appropriate pigment and formulate an individualized surgical plan.

### Microblading

A similar technique is used in eyebrow restoration, termed microblading. Microblading is a semipermanent form of cosmetic tattoo in which a small needle, typically 0.20 to 0.40 mm in diameter, is used to inject pigment into the papillary dermis lasting 12–18 months.<sup>41</sup> Several needles are arranged in a row to create a blade that is held within the microblading pen.<sup>41</sup> The arrangement of the blades can be customized to the thickness and depth of the desired strokes. Microblading is a suitable camouflage option for eyebrow alopecia often seen in FFA and alopecia areata. Disadvantages to SMP and microblading include the need for multiple treatments, the risk of infection from needle exposure, and potential allergy to pigment dye.<sup>38,42</sup> Granulomatous reactions of the eyebrows have been reported in a small subset of patients who underwent microblading.<sup>43</sup> Patients should also consider the permanent nature of the dyes including the contrast that can arise as hair regrows or hair color changes with age.

### Hair transplant

Hair transplantation is a surgical treatment for alopecia in which hair from a donor site is harvested and transplanted to an affected area. The most common method for donor harvesting is follicular unit extraction, in which multiple 1 mm punches are used to score

around individual hair follicles and remove them from surrounding tissue.<sup>38,44</sup> There are challenges associated with performing follicular unit extraction on individuals with tightly coiled hair including difficulty with curved follicle extraction and higher rates of hair follicle transection.<sup>44</sup> Additionally, the donor hair must be free of active inflammation and of suitable density so as not to deplete the selected area.<sup>45</sup> As a result, individuals with diffuse hair loss or primary scarring alopecias are often not suitable candidates for transplantation.<sup>45</sup> In certain inflammatory cicatricial alopecias, there exists the possibility of koebnerization with hair transplantation, therefore inflammatory quiescence is recommended for at least 1–2 years prior to help mitigate this risk.<sup>46</sup> Nevertheless, hair transplantation has been demonstrated to be an effective option for Black women with AGA, TA, and stable CCCA.<sup>28</sup>

## Concluding remarks

Black women often report difficulty in discussing hair issues with clinicians. In a study of 200 Black women, over half reported experiencing excessive hair loss, and among those only 32% felt that their physician understood Black hair.<sup>47</sup> Given the versatility of hair camouflage options, clinicians should obtain a detailed history of patients' hairstyling practices and offer recommendations that align with their therapeutic goals. The advantages and disadvantages of each hair camouflage practice should be carefully considered when counseling alopecia patients in identifying the technique best suited for their specific type and severity of alopecia. This article provides insight into commonly used methods of hair loss concealment among Black women to better equip clinicians caring for these patients throughout the stages of hair loss. Treating hair loss requires an ongoing partnership between patients and physicians and we provide this summary to augment equitable care for Black women with alopecia.

## Conflicts of interest

C.A. serves as a consultant for Pfizer, Lilly, Myovant Sciences & Olaplex and receives grant funding from Janssen. L.K. is a speaker for the Academy of Managed Care Pharmacy. The other authors have no conflicts of interest to disclose.

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## Study approval

The authors confirm that any aspect of the work covered in this manuscript that has involved human patients has been conducted with the ethical approval of all relevant bodies.

## Author contributions

MT: Research design, performance of research, and draft manuscript preparation. NAK: Draft manuscript preparation. CA: Manuscript review. LK: Research design, draft manuscript preparation, and manuscript review.

## Patient consent

Informed, written consent was received from all patients for whom photographs are present in the manuscript.

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