



Dermoscopy of Traction Alopecia in Black Scalp Patients: Insights from a Literature Review

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ABSTRACT Introduction: Traction alopecia (TA) is a form of hair loss from excessive tension due to specific hairstyling practices. It disproportionately affects black women, including children.

Objective: Our study aimed to review the trichoscopy of TA.

Methods: A literature search was performed in the scientific database PubMed for articles published between 1958 and 2023, using the terms “traction alopecia,” “black scalp,” “trichoscopy,” and “dermoscopy.”

Results: The most frequent findings were vellus hair, hair casts, black dots, broken hairs, and white dots. Reduction in hair density, hair diameter variability, empty follicle openings, and vellus hairs may appear early or later during the disease course.

Conclusions: Trichoscopy is a crucial diagnostic tool if associated with a suggestive clinical history. Despite non-specific, its common clinical findings offer relevant information about the disease’s progress.

Introduction

Traction alopecia (TA) is characterized by prolonged tension and damage to the hair shaft and follicle, commonly associated with tightly pulling hairstyles [1]. The term was introduced in 1958 to replace denominations such as alopecia liminaris frontalis and traumatic marginal alopecia, where traction and subsequent inflammation were implicated in the disease's origin [2]. High-risk hairstyles include braids, weaves, extensions, buns, and ponytails [3-4]. The prevalence is higher with traction from artificial extensions compared to dreadlocks. Moreover, TA increases when traction occurs in chemically-relaxed hair [5]. Dark-skinned patients have three common presentation patterns: 1) anterior hairline (most frequent), often symmetric in the frontotemporal hairline, 2) ophiasis pattern, and 3) patchy [1]. Both early and late TA may exhibit conserved short hairs along the frontal or temporal rim, termed "fringe sign" (Figure 1). This may be useful for diagnosis given its high sensitivity and specificity [6]. The early symptoms of TA precede hair loss and may be subtle, such as pain, erythema, folliculitis (braid bumps), or serum crust [1]. Ultimately, the diagnosis hinges on a careful history of current and past hair practices, including details about bedtime behavior, combined with trichoscopy [1, 3].

Objectives

Our study aimed to review the trichoscopic findings of traction alopecia.

Methods

A literature search was performed in the scientific database PubMed for articles published between 1958 and 2023 using the terms "traction alopecia", "trichoscopy", and "dermoscopy". The search was limited to literature in English, and duplicate titles were excluded. It yielded 20 relevant articles, including five literature reviews, eight observational studies, four cross-sectional studies, and three case reports.

Results

Below, we summarize some article findings from different populations studied. In a cross-sectional descriptive study of a cohort of 158 female adults in a community in Lagos, Nigeria, the most frequent trichoscopic features were white dots (98.7%), same-size white dots with regular distribution (94.3%), preserved honeycomb pigment (93.0%), and reduced hair density (92.4%) [7]. In an Egyptian study



Figure 1. Clinical presentation of traction alopecia patients with different hair styles.

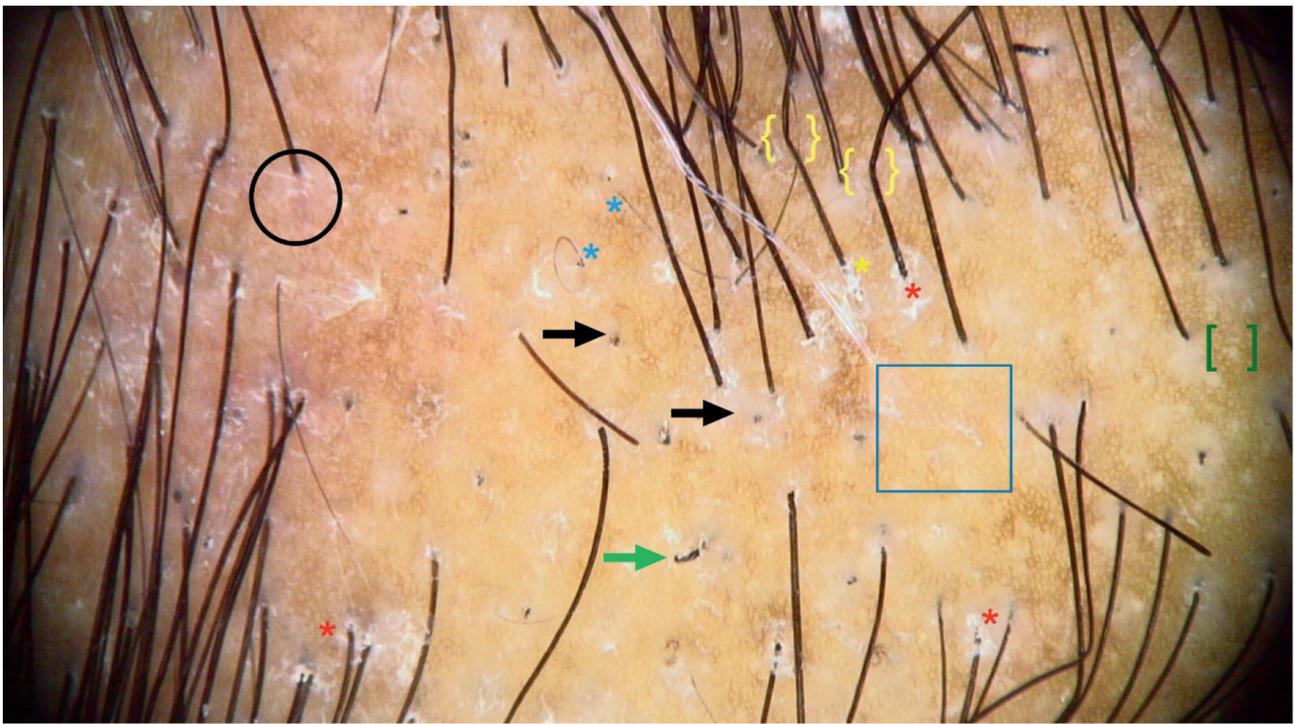


Figure 2. Trichoscopy of acute TA. Black dots (black arrows), broken hairs (green arrow), perifollicular scales (red asterisks), hair cast (yellow asterisk), pinpoint white dots (green bracket), absence of follicular opening (blue rectangle), perifollicular erythema (black circle), short hairs (blue asterisks), and pili torti (yellow braces).

involving 200 females with frontal hairline recession, 73 had TA (36,5%), the second most frequent disease. This group's predominant trichoscopic findings were vellus hair, followed by perifollicular casts, black dots, broken hairs, black powder, yellow dots, V-sign, and I-hair. [8] A similar Turkish paper reviewed the trichoscopic findings of 25 women above age 18 with TA. Reductions in hair density, hair diameter variability, empty follicles, and vellus hairs were universally present. The authors also described the loss of follicular openings, yellow dots, broken hairs, black dots, hair casts, circular hairs, arborizing red lines, and comma and coiled hairs [9]. Another Korean paper on 148 subjects with small round hairless scalp patches initially suspicious of alopecia areata, found that 12 of them had, in fact, TA. Their trichoscopy revealed broken hairs and black dots, clustered short vellus hair, yellow dots, and atypical red vessels [10]. Regarding the pediatric population, a study involving 134 children with patchy hair loss identified 18 cases of TA; the trichoscopic features were similar to trichotillomania [11]. Hair casts, perifollicular erythema, and black dots prevail in early TA, while loss of follicular opening is predominant in the late stages. Therefore, if there is any remaining hair in the bald patches, it is exclusively of vellus origin. Black dots are found in TA as lost, broken, or bent hairs but are common in numerous other scalp disorders [11]. Studies have shown that hair casts are an important TA feature. They are mobile, have a length of between 2 to 7 mm, and are

present in either early or late stages. They slide easily along the shaft and are seen mainly at the patch borders of active and persistent traction—a valuable diagnostic clue. On histopathology, they correlate with the desquamated root sheaths [12-14]. Any stage of TA may show reduced hair density, variability in hair diameter, empty follicular openings, vellus hairs, miniaturized hairs, and pinpoint white dots [12,15]. The persistence of vellus hair is characteristic of late-stage TA, often accompanied by a decreased terminal-to-vellus hair ratio. These findings can be observed in both marginal and non-marginal disease areas. Additionally, brown pigmentation may be present within empty follicular openings. [16] In 2019, a study described multiple linear white tracks at the base of terminal hair shafts, specifically located posterior to the fringe and in the direction of pulled hairs. This phenomenon was termed the “flambeau sign” due to its torch-like appearance [17]. Trichoscopic differences exist between longstanding and recent-onset TA. Longstanding TA is associated with yellow dots, white dots, vellus hairs, and hair casts in areas of ongoing traction. In contrast, recent-onset TA often presents with black dots, broken hairs, yellow dots, and vellus hairs [18]. Figures 2–5 illustrate the most common trichoscopic findings. There is strong evidence that Black individuals are disproportionately affected. However, different ethnicities, including children, can also develop TA, making it important to inquire about hair care practices in all patients, not just those with dark skin.



Figure 3. Trichoscopy of acute TA. Hair casts (yellow asterisk), perifollicular scales (red asterisks), empty follicle unit (green bracket), perifollicular erythema (red circle), short hairs (blue asterisks), and pili torti (yellow braces).

Conclusions

TA may be confused with other hair disorders such as trichotillomania (TTM), patchy central centrifugal cicatricial alopecia (CCCA), and frontal fibrosing alopecia (FFA). TTM may mimic TA in adult and pediatric populations [11-12]. Both conditions can present with broken hairs [16], but hair cast is not a trichoscopic finding of TTM [9,14]. On the other hand, flame hair is not frequent in TA due to its peculiar mechanism of follicular damage [19]. When the traction is too intense, it may lead to ulceration and later result in scarring alopecia [20]. In TA, the maintenance of vellus hair was the most prevalent finding (93.6% of the patients in cross-sectional studies), followed by hair casts, black dots, and broken hairs (Table 1). As mentioned, except for hair casts, such features are also common in TTM [11,14,16]. Disease onset would also be a relevant factor during the trichoscopy assessment in TA. However, associating it with disease course can be challenging due to the lack of consensus about its time frame; data from the literature estimate anywhere from six months to 10 years [8-9]. Nonetheless, it is well established that peripilar casts are consistent with current hair traction, while empty follicle openings, a decrease in hair density, and shaft diameter may occur in any stage of the disease [9,16]. Regarding the age group, TA may affect individuals at any point throughout their lifespan. Notably,

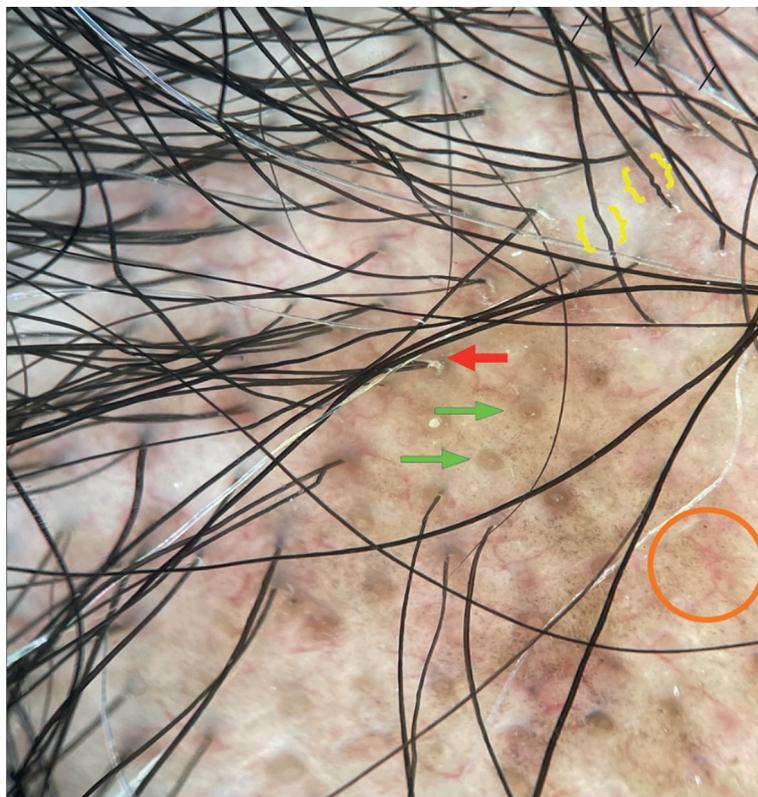


Figure 4. Trichoscopy of chronic TA. Pili torti (yellow braces), yellow dots (green arrows), peripilar scales (red arrow), thin arborizing vessel (orange circle), and decreased hair density.

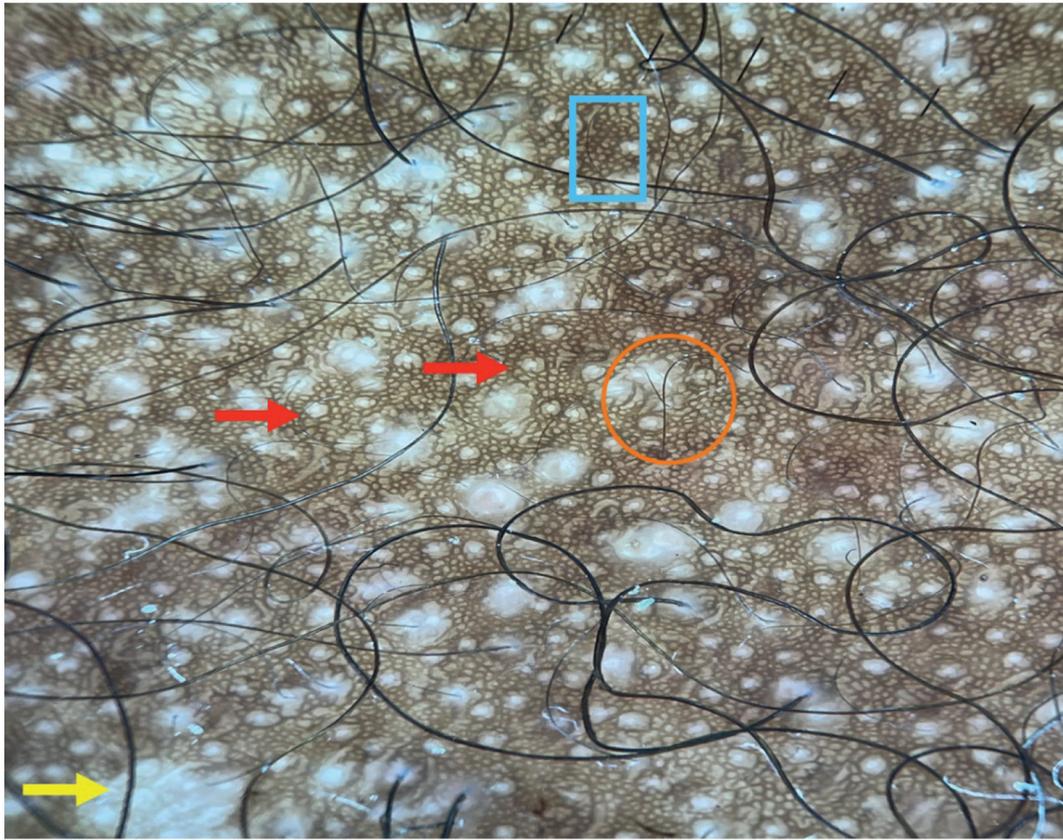


Figure 5. Trichoscopy of chronic AT. Pinpoint white dots (red arrow), white patch (yellow arrow), vellus hair (orange circle), preserved honeycomb pigmented network (blue box), and marked reduction in terminal hairs.

Table 1. Frequency of Trichoscopic Findings of Traction Alopecia in Cross-Sectional Studies.

	Shim et al., 2014 [10]	Polat, 2017 [9]	Said et al., 2020 [8]	Anaba et al., 2022 [7]		Shim et al., 2014 [10]	Polat, 2017 [9]	Said et al., 2020 [8]	Anaba et al., 2022 [7]
Reduction in hair density		100%		92.4%	White dots				98.70%
Hair diameter diversity		100%		69.40%	White dots regular distribution				94.30%
Empty follicles		100%			Preserved honeycomb pigment				93%
Vellus hairs	42%	100%	100%	39.50%	Thin hair				50.30%
Loss of follicular opening		76%		12.10%	Scales				22.90%
Yellow dots	17%	68%	13.70%	4.40%	Varying hair length				35.70%
Broken hair	100%	68%	41.10%		Peripilar white grey halo				21.70%
Black dots	92%	48%	64.40%	5.70%	Single hair				18.50%
Perifollicular erythema		48%		5.10%	Hypopigmented hair				8.30%
Hair cast		28%	91.80%		Peripilar scaling				8.30%
Circle hair		28%			Miniaturized hair				6.40%
Arborizing red lines	8%	12%			Brown pigment				4.40%

Table1 continues

Table 1. Frequency of Trichoscopic Findings of Traction Alopecia in Cross-Sectional Studies.
(continued)

	Shim et al., 2014 [10]	Polat, 2017 [9]	Said et al., 2020 [8]	Anaba et al., 2022 [7]		Shim et al., 2014 [10]	Polat, 2017 [9]	Said et al., 2020 [8]	Anaba et al., 2022 [7]
Coiled hairs		8%			Honeycomb pigment network				4.40%
Comma hairs		4%			White patches				3.20%
V-Sign			4.10%		Perifollicular pustules				2.50%
Black Powder			15.10%		Brown peripilar halo				2.50%
I-Hair			1.40%		White dots				98.70%

Table 2. Clinical and trichoscopic description of Traction Alopecia, Trichotillomania, and Frontal Fibrosing Alopecia.

	Clinical features	Trichoscopic findings
Traction Alopecia	Hair loss from excessive tension due to hairstyling practices in 1) anterior hairline (most frequent) - often symmetric in the frontotemporal hairline, 2) ophiasis pattern, and 3) patchy. Both early and late traction alopecia may exhibit conserved short hairs along the frontal or temporal rim “fringe sign”.	Presence of vellus hair, hair casts, black dots, broken hairs, and white dots.
Trichotillomania	Irregular alopecic patches on the scalp are covered with broken hairs of different lengths.	Broken hairs, black dots, question mark hairs, flame hairs, and hair powder.
Frontal Fibrosing Alopecia	Progressive recession of the frontotemporal/occipital hairline	Loss of follicular openings, absence of vellus hair at hairline, perifollicular erythema, peripilar casts, broken hairs, black dots, and dystrophic hairs.

the clinical presentation in pediatric patients seems not to differ from the general population, though we acknowledge that publications are scarce for this group [11]. In the late stage, TA needs to be distinguished from scarring alopecias such as patchy CCCA. This condition shows on trichoscopy small pinpoint white dots, single hairs, or a group of two hairs surrounded by a peripilar gray-white halo, and loss of follicular openings, although is not immediately evident because of the presence of pinpoint white dots [15,16]. In FFA, vellus hairs are absent at the hairline, which are characteristically preserved in TA. The terminal hairs at the new hairline demonstrate peripilar casts [15]. Table 2 summarizes the clinical and trichoscopic features of TA, TTM, and FFA.

Early recognition of TA is essential for a time-effective cessation of scalp traction practices and to prevent permanent hair loss. While the most common trichoscopic findings are not specific to TA, they provide crucial insights into the disease’s progression and ongoing monitoring.

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References

1. Mayo TT, Callender VD. The art of prevention: It’s too tight-loosen up and let your hair down. *Int J Womens Dermatol.* 2021;7(2):174–179. DOI: 10.1016/j.ijwd.2021.01.019. PMID: 33937486
2. Slepian AH. Traction alopecia. *AMA Arch Derm.* 1958;78(3): 395–398. DOI: 10.1001/archderm.1958.01560090111025. PMID: 13570702.
3. Samrao A, McMichael A, Mirmirani P. Nocturnal traction: Techniques used for hair style maintenance while sleeping may be a risk factor for traction alopecia. *Skin Appendage Disord.* 2021;7(3):220–223. DOI: 10.1159/000513088. PMID: 34055912
4. Haskin A, Aguh C. All hairstyles are not created equal: What the dermatologist needs to know about black hairstyling practices and the risk of traction alopecia (TA). *J Am Acad Dermatol.* 2016;75(3):606–611. DOI:10.1016/j.jaad.2016.02.1162. PMID: 27114262.
5. Khumalo NP, Jessop S, Gumedze F, Ehrlich R. Determinants of marginal traction alopecia in African girls and women. *J Am Acad Dermatol.* 2008;59(3):432–438. DOI: 10.1016/j.jaad.2008.05.036. PMID: 18694677.
6. Samrao A, Price VH, Zedek D, Mirmirani P. The “fringe sign” - A useful clinical finding in traction alopecia of the marginal

- hair line. *Dermatol Online J.* 2011;17(11):1. DOI: 10.5070/D325m840mz PMID: 22136857.
7. Anaba EL, Akinkugbe EO, Otofanoewei E, et al. Marginal traction alopecia: Hair care practices, severity score and trichoscopic features in Lagos, Nigeria. *West Afr J Med.* 2022;39(8):808–815. PMID: 36057972.
 8. Said M, El-Sayed SK, Elkhoully NDE. Trichoscopic evaluation of frontal hairline recession in Egyptian female patients. *J Cosmet Dermatol.* 2020;19(10):2706–2716. DOI: 10.1111/jocd.13324. PMID: 32048427.
 9. Polat M. Evaluation of clinical signs and early and late trichoscopy findings in traction alopecia patients with Fitzpatrick skin type II and III: A single-center, clinical study. *Int J Dermatol.* 2017;56(8):850–855. DOI: 10.1111/ijd.13599. PMID: 28369851.
 10. Shim WH, Jwa SW, Song M, et al. Dermoscopic approach to a small round to oval hairless patch on the scalp. *Ann Dermatol.* 2014;26(2):214. DOI: 10.5021/ad.2014.26.2.214. PMID: 24882977
 11. Al-Refu K. Clinical significance of trichoscopy in common causes of hair loss in children: Analysis of 134 cases. *Int J Trichology.* 2018;10(4):154–161. DOI: 10.4103/ijt.ijt_101_17. PMID: 30386074.
 12. Afifi L, Oparaugo NC, Hogeling M. Review of traction alopecia in the pediatric patient: Diagnosis, prevention, and management. *Pediatr Dermatol.* 2021;38(S2):42–48. DOI: 10.1111/pde.14773. PMID: 34467569
 13. Miteva M, Tosti A. Hair and scalp dermatoscopy. *J Am Acad Dermatol.* 2012;67(5):1040–1048. DOI: 10.1016/j.jaad.2012.02.013. PMID: 22405573.
 14. Tosti A, Miteva M, Torres F, Vincenzi C, Romanelli P. Hair casts are a dermoscopic clue for the diagnosis of traction alopecia: Correspondence. *Br J Dermatol.* 2010;163(6):1353–1355. DOI: 10.1111/j.1365-2133.2010.09979.x. PMID: 20716211.
 15. Yin NC, Tosti A. A systematic approach to afro-textured hair disorders. *Dermatol Clin.* 2014;32(2):145–151. DOI: 10.1016/j.det.2013.11.005. PMID: 24680001.
 16. Billero V, Miteva M. Traction alopecia: The root of the problem. *Clin Cosmet Investig Dermatol.* 2018;11:149–159. DOI: 10.2147/CCID.S137296. PMID: 29670386
 17. Agrawal S, Daruwalla SB, Dhurat RS. The flambeau sign – A new dermoscopy finding in a case of marginal traction alopecia. *Australas J Dermatol.* 2020;61(1):49–50. DOI: 10.1111/ajd.13187. Epub 2019 Oct 24. PMID: 31647110.
 18. Barbosa AB, Donati A, Valente NS, Romiti R. Patchy traction alopecia mimicking areata. *Int J Trichology.* 2015;7(4):184–186. DOI: 10.4103/0974-7753.171588. PMID: 26903751
 19. Miteva M, Tosti A. Flame hair. *Skin Appendage Disord.* 2015;1(2):105–109. DOI: 10.1159/000438995. PMID: 27171360
 20. Johns HR, Wright TS, Pourciau CY. Acute onset traction-associated ulceration and alopecia. *Pediatr Dermatol.* 2021;38 Suppl 2:103–105. DOI: 10.1111/pde.14728. PMID: 34339534.