

Hair Loss in Patients with Skin of Color

Valerie D. Callender, MD, FAAD

Professor of Dermatology

Howard University College of Medicine, Washington DC

Medical Director

Callender Dermatology & Cosmetic Center, Glenn Dale, MD

Disclosures

- Acne Store
- Admiral
- Aerolase
- AbbVie/Allergan
- Avava
- Avita Medical
- Beiersdorf
- Cutera
- Dermavant
- Eli Lilly
- Endo Aesthetics
- EPI Health
- Galderma
- Incyte
- Juenes Aesthetics
- L'Oréal
- Ortho Derm
- Pfizer
- Prolineum
- Scientis
- Sente
- SkinBetter Science
- SkinCeuticals
- Symatase
- Teoxane
- UCB
- UpToDate

Diagnosis: Many Faces of Alopecia



Treatment: Important Strategies

International Journal of Women's Dermatology 5 (2019) 37–45



Contents lists available at ScienceDirect

International Journal of Women's Dermatology



Current and emerging treatment strategies for hair loss in women of color[☆]



U.R. Okereke, MD, MSCI^a, A. Simmons, MD^b, V.D. Callender, MD^{c,d,*}

^a University of Iowa Clinics and Hospitals, Iowa City, Iowa

^b University Hospitals Cleveland Medical Center/Case Western Reserve University, Cleveland, Ohio

^c Howard University College of Medicine, Washington, District of Columbia

^d Callender Dermatology & Cosmetic Center, Glenn Dale, Maryland

Central Centrifugal Cicatricial Alopecia

- Common cause of progressive permanent scarring alopecia in women of African descent
- Prevalence: 2.7% (South Africa)-5.6% (USA)
- Idiopathic & multifactorial
- Genetic - autosomal dominant mode of inheritance (occurs in families)
 - **PADI3 gene mutation** in 25% of a study population
 - **Fibroproliferative genes** (PDGF, COL I and III, MMP1, 2, 7, and 9)
- Associated with **hair grooming practices**
- **Comorbidities**: pre-diabetes, diabetes, breast cancer, uterine leiomyomas and hyperlipidemia

Callender VD & Onwudiwe O. AD 2011;147:972-4. Dlova NC, et al. JAAD 2014;70(4):679-682.
Malki L, et al. NEJM 2019; Callender VD, et al. AD2012;148(9):1047-52.
Aguh C. JAAD 2018;79:904-12. Roche FC. JAAD 2022 Mar;86(3):661-662.
Brown-Korsah JB, et al. JAAD 2021;84(3):859-860.
Dina Y, Okoye GA, Aguh C. JAMA Dermatol 2018;154(2):213-214.
Leung B, et al. JAAD published online 2022;1-2.doi:10.1016/j.jaad.2022.06.013.

CCCA: Early Clinical Presentation

- **Clinical presentation**
 - Crown or the vertex of the scalp
 - Symmetric expansion centrifugally
 - Progressive and can eventually involve the entire scalp
 - **Hair breakage**
 - Follicular pustules
 - Scaling
- **Symptoms**
 - Tenderness
 - Pruritus
 - Burning
 - Tingling “pin pricks”
 - Pain
 - **Asymptomatic**



Photo courtesy of Valerie D. Callender, MD, FAAD

Hair Breakage: Early or Occult CCCA



CCCA: Late Clinical Presentation

- Loss of follicular ostia
- Smooth scalp
- Polytrichia
- Dyspigmentation
- Patchy



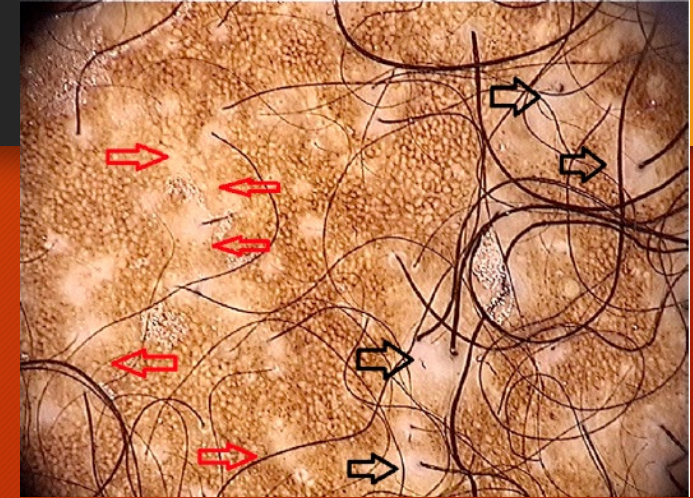
Photos courtesy of Valerie D. Callender, MD, FAAD.

Miteva M, Tosti A. Skin Appendage Disord 2015;1:1-5.

Herskovitz, Miteva. Clin Cosm Invest Dermatol 2016;9:175-181.

CCCA: Dermoscopy

- Peripilar white/gray halo around the emerging hairs (black arrows)
- Hair shaft variability
- White patches of follicular scarring that interrupt the regular honeycomb pigmented network (red arrows)
- Presence of mild peripilar erythema (red arrows)
- “Starry sky” pattern



Dermoscopy: Can Detect Erythema in SOC and Scalp Biopsy Site Selection

CCCA



Normal Scalp



Photos courtesy of Valerie D. Callender, MD, FAAD

CCCA: Differential Diagnosis

Alopecia Areata



Cutaneous Sarcoidosis



Patchy Traction Alopecia



Photos courtesy of Valerie D. Callender, MD, FAAD

SCALP BIOPSY

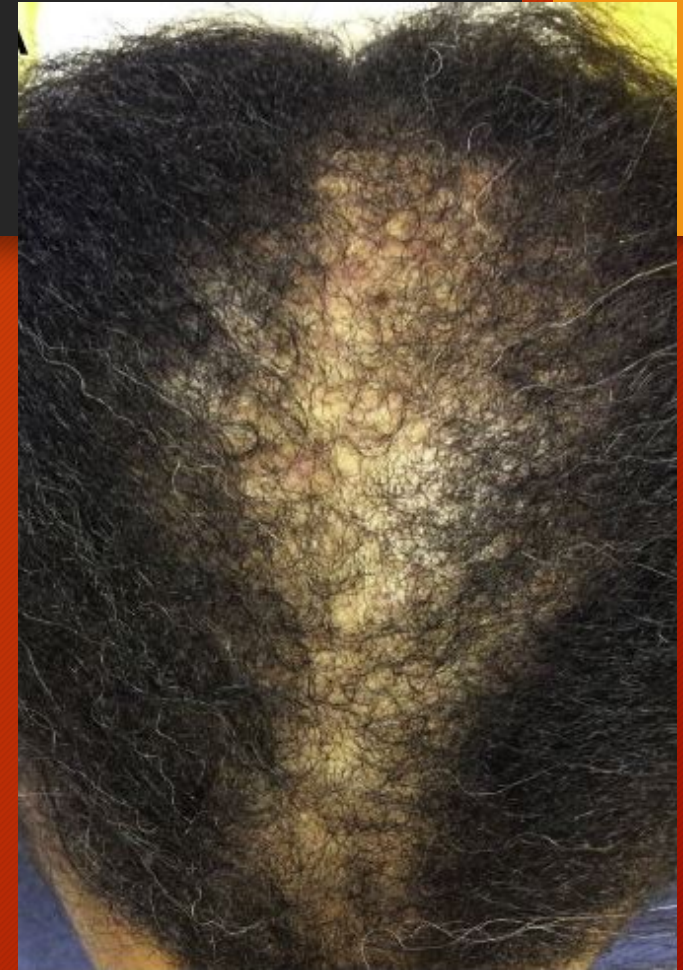
Alopecia: Quality of Life

Alopecia is associated with a negative psychosocial sequelae

More profound in women than in men

Affect younger women and scarring alopecias to a greater extent

Early diagnosis & treatment are essential in stopping or slowing the progression of the scarring and permanent hair loss.



Photos courtesy of Valerie D. Callender, MD, FAAD

CCCA: Prevention

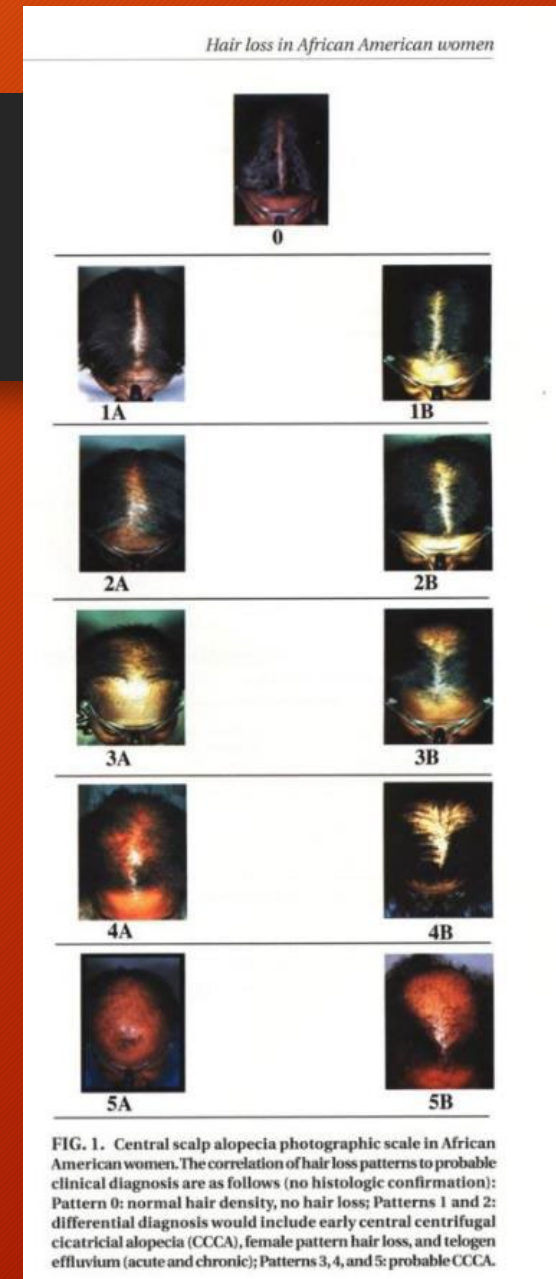
Grade 1



Grade 5



Photos courtesy of Valerie D. Callender, MD, FAAD



Olsen EA, et al. *Dermatol Ther.* 2008;21:264-267.

CCCA: Active Phase of Treatment

- Current treatment of CCCA is aimed at resolving the inflammatory process and preventing the progression of disease
 - Anti-dandruff/seborrheic shampoos
 - Topical and intralesional corticosteroids
 - Topical calcineurin inhibitors (off-label)
 - Topical and oral Minoxidil (off-label)
 - Oral antibiotics (doxycycline)
 - Nutraceuticals

Safety and Efficacy of Clobetasol Propionate 0.05% Emollient Foam for the Treatment of Central Centrifugal Cicatricial Alopecia

Valerie D. Callender MD,^a Abraham Kazemi MD,^b Cherie M. Young MD,^a Jeaneen A. Chappell MD,^c Leonard C. Sperling MD^d

^aCallender Dermatology & Cosmetic Center, Glenn Dale, MD

^bDepartment of Dermatology, New York Medical College, New York, NY

^cSaint Louis University, St. Louis, MO

^dHCT Dermatopathology Services, Baltimore, MD



Photo courtesy of Valerie D. Callender, MD, FAAD

CCCA: Natural History

2018



2022



Photos courtesy of Valerie D. Callender, MD, FAAD

CCCA: Treatment Protocol

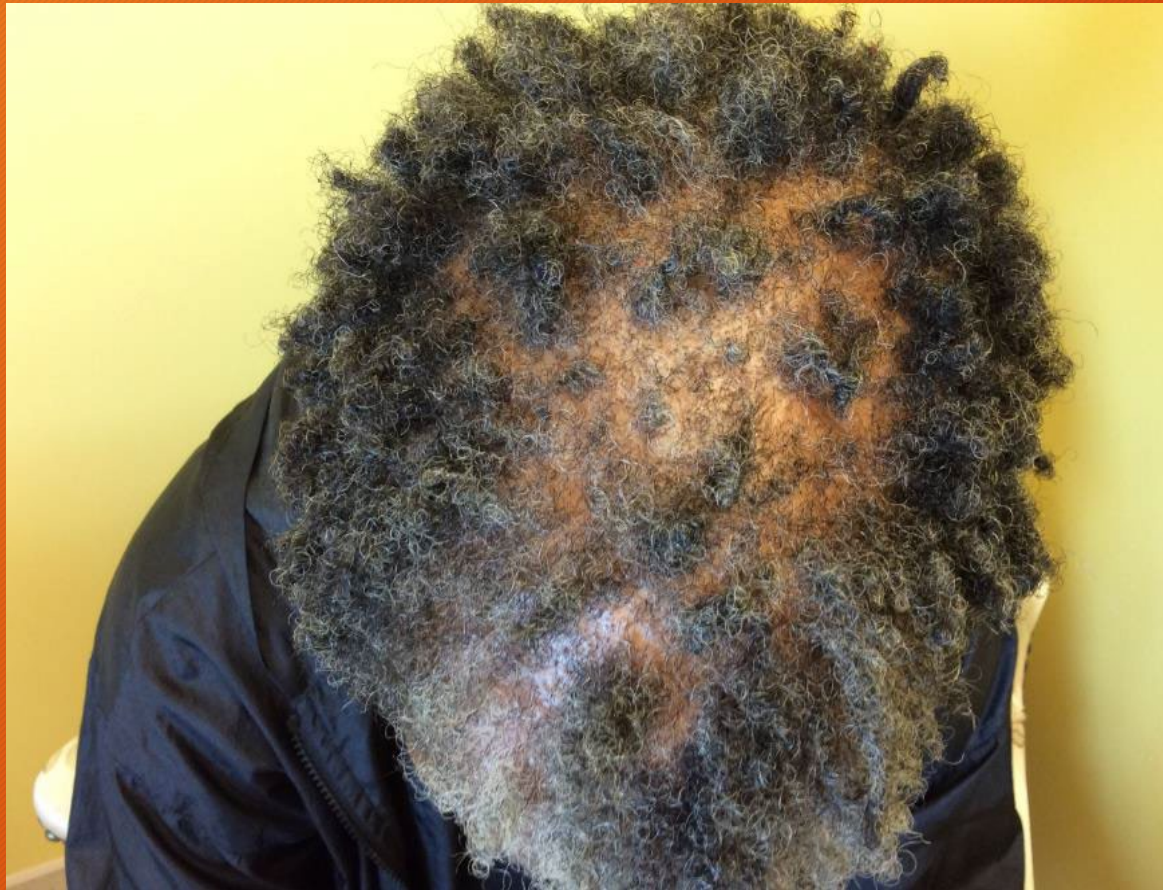
Regrowth Phase

- Oral and Topical 5%-8% minoxidil (off-label)
- Topical metformin (off-label)
- Platelet rich plasma injections
- Nutraceuticals

Maintenance Phase

- Anti-seborrheic shampoo 1x/week or every 2 weeks
- Mid-potency topical corticosteroid 2 to 3x /week
- Nutraceuticals
- Intralesional corticosteroid prn

CCCA: Medical Treatment



Photos courtesy of Valerie D. Callender, MD, FAAD

CCCA and AGA: Medical Treatment



Photos courtesy of Valerie D. Callender, MD, FAAD

CCCA and AGA: Medical Treatment



Photos courtesy of Nicole Rogers, MD, FAAD

AGA: Oral vs. Topical Minoxidil

- 24-week, randomized, open comparative study
- Oral minoxidil 1 mg qd vs. topical minoxidil 5% solution qd
- 52 patients; FST II-V; 20% SOC; Sinclair 2,3
- Total hair density increased by 12% (o) vs 7.2% (t)
- Oral = 4% pretibial edema
- Topical = 19% scalp pruritus
- Hypertrichosis = 27% (o) vs 4% (t)
- Mean heart rate increased by 6.5% (o), without tachycardia
- No hypotension reported

AGA: Oral Minoxidil + Oral Spironolactone

- 12-month open label observational study
- Oral minoxidil 0.25 mg qd and oral spironolactone 25 mg qd
- 100 patients, mean age 48, Sinclair 2-5
- Mean reduction in hair loss severity score = 0.85 (6mon) and 1.3 (12mon)
- Mean reduction in hair shedding score = 2.3 (6mon) and 2.6 (12mon)
- No hyperkalemia
- Urticaria in 2 patients (Spironolactone)
- Hypertrichosis = 4 patients



Oral Minoxidil

- 10 publications
- 19,218 patients
- Men>women
- 0.25mg-5 mg daily-BID
- Response in 61-100% AGA
- Response in 18-82.4% in AA
- AE= hypertrichosis and postural hypotension
- **Improved patient compliance with oral minoxidil**

Pharmacology and therapeutics: Review

Low-dose oral minoxidil as treatment for non-scarring alopecia: a systematic review

Ajay N. Sharma^{1,*}, BS,  Lauren Michelle^{1,*}, BA, Margit Juhasz¹, MD, Paulo Muller Ramos², MD  and Natasha Atanaskova Mesinkovska¹, MD, PhD

¹Department of Dermatology, University of California, Irvine, Irvine, CA, USA, and ²São Paulo State University – UNESP, Botucatu, SP, Brazil

Correspondence

Ajay N. Sharma, BS
Department of Dermatology
University of California, Irvine
843 Health Sciences Road, Hewitt Hall
Irvine, CA, 92697
USA
E-mail: ajayns@uci.edu

*Both authors contributed equally.

Conflicts of interest: None.

Funding source: None.

Abstract

Background Topical minoxidil has been used for almost 40 years to treat alopecia. There is growing evidence supporting off-label use of low-dose oral minoxidil.

Objective To conduct a systematic review evaluating the use of oral minoxidil for all types of alopecia.

Methods A primary literature search was conducted using PubMed in May 2019, utilizing the search term "oral minoxidil AND (hair loss OR alopecia OR baldness)". Reviews, non-English studies, and articles concerning only topical minoxidil were excluded.

Results Ten articles were included for review comprising a total 19,218 patients (215 women and 19,003 men). Oral minoxidil dose ranged from 0.25 to 5 mg daily to twice daily. The strongest evidence existed for androgenetic alopecia and alopecia areata (AA), with 61–100% and 18–82.4% of patients demonstrating objective clinical improvement. Successful treatment of female pattern hair loss, chronic telogen effluvium, monilethrix, and permanent chemotherapy-induced alopecia was also reported. The most common adverse effects with oral minoxidil included hypertrichosis and postural hypotension.

Conclusion Oral minoxidil is a safe and successful treatment of androgenic alopecia and AA. In addition to its therapeutic benefits, practical advantages over topical minoxidil stem from improved patient compliance.

Platelet Rich Plasma (PRP) Injections



Photos courtesy of Valerie D. Callender, MD, FAAD

CCCA and FPHL: PRP Injections



CCCA and FFA



Photos courtesy of Valerie D. Callender, MD, FAAD

Frontal Fibrosing Alopecia

- 1st described by Kossard in 1994
- Inflammatory scarring alopecia
- Progressive frontotemporal recession (with dyschromia in Blacks)
- 75% of patients may have eyebrow loss
- Non-inflammatory facial papules
- Prominent blood vessels in temporal areas
- Dyspigmentation in Blacks



FFA in Patients of African Descent

- **Lichen planus pigmentosus**
 - Herald sign in Black South Africans
 - Diffuse or local facial hyperpigmentation
 - Hair loss involving the fronto-temporal hair line and the eyebrows
- **Hypopigmentation**
 - Follicular hyperkeratosis
 - Perifollicular erythema/PIH
 - Facial papules



Photo courtesy of Valerie D. Callender, MD, FAAD

FFA: Associated Factors (2016-2020)

- Leave-on facial skincare products and sunscreens (Aldoori)
- UV filters in hair care products - FFA and LPP (Callander)
- No statistically significant association (Seegobin)
- **Insufficient evidence to establish a direct causal relationship between sunscreen and FFA (Robinson)**

FFA: Sunscreens and Moisturizers

- Systematic review with meta-analysis and 9 studies met the inclusion criteria
- n= 1248 FFA and 1459 controls
- Sunscreen use was associated with 2.21 times higher likelihood of developing FFA ($p < 0.001$)
- Moisturizer use was associated with 2.09 times higher likelihood of developing FFA ($p = 0.002$)
- Proposed sunscreen mechanism
 - Lichenoid reaction, generation of reactive oxygen species, hormone disruption, and attenuation of immunomodulatory effects of ultraviolet radiation
- Allergic contact dermatitis
 - Oxybenzone in sunscreen
 - Preservatives (quaternium-15) in moisturizers

FFA: Clinical Differences in White and Black Women

- Retrospective analysis of FFA **22 Black** and **118 White** females
- **Itching** was more prevalent Black vs White (50% vs. 5%)
- **Facial hyperpigmentation** greater in Black vs White (57% vs. 3%)
- Scalp itching + facial hyperpigmentation = more prompt diagnosis in Black patients
- Perifollicular hyperkeratosis/scale less likely in Black than White patients (5% vs. 44%)
- **Median age** lower in Blacks than Whites (53 years vs. 63 years)

FFA vs. Traction Alopecia

Fringe sign



Lonely Hair sign



Photos courtesy of Valerie D. Callender, MD, FAAD

Ophiasis Pattern: FFA and Traction Alopecia

FFA



Photo courtesy of Valerie D. Callender, MD, FAAD

Traction Alopecia



Photo: Heath R, Taylor SC. Cutis 2012;89:213-216.

Alopecia Areata



Photo courtesy of Valerie D. Callender, MD, FAAD

SCALP BIOPSY

FFA: Medical Treatment

- Intralesional corticosteroids: 88% (181/204)
- 5-alpha-reductase inhibitors (Finasteride, Dutasteride): 88% (158/180)
- Oral prednisone was rarely used
- Other therapies: topical corticosteroids, antibiotics, pioglitazone, systemic retinoids, and hair transplantation
- Doxycycline, topical minoxidil and calcineurin inhibitors (off-label)

FFA: Dutasteride

- Potent, selective and irreversible inhibitor of all 3 isoforms of the 5- α reductase
- Compared with finasteride, dutasteride has a greater suppression of serum dihydrotestosterone (71% vs.94.7%)
- Most effective systemic therapy, dose dependent
- **0.5mg daily 5-7x/week**
- AE: changes in sexual function (mainly in men)

Traction Alopecia

- Common hair loss condition secondary to prolonged traction and sustained pulling of the hair that leads to perifollicular inflammation and follicle destruction
- Can lead to a permanent form of alopecia
- Often seen in women of African descent
- Preceding symptoms: pain, erythema, traction alopecia and serum crust; often asymptomatic
- **Early TA:** decreased hair density, broken hairs, empty follicles, miniaturized hairs, fringe sign, flambeau sign
- **Late TA:** absence of follicular openings, fringe sign



Traction Alopecia: Ophiasis Pattern

- Similar to anterior hairline TA but is located along the posterior and parietal scalp
- Retained peripheral hairs “**fringe sign**”
- Up-do hairstyles including ponytails, buns and braids
- Differential Dx: AA and FFA



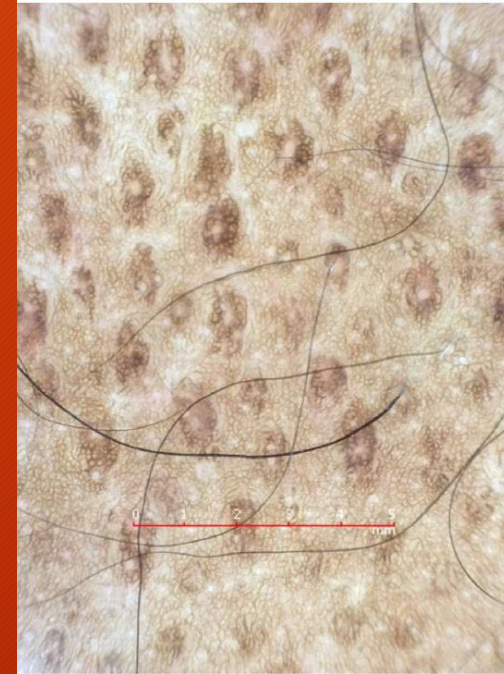
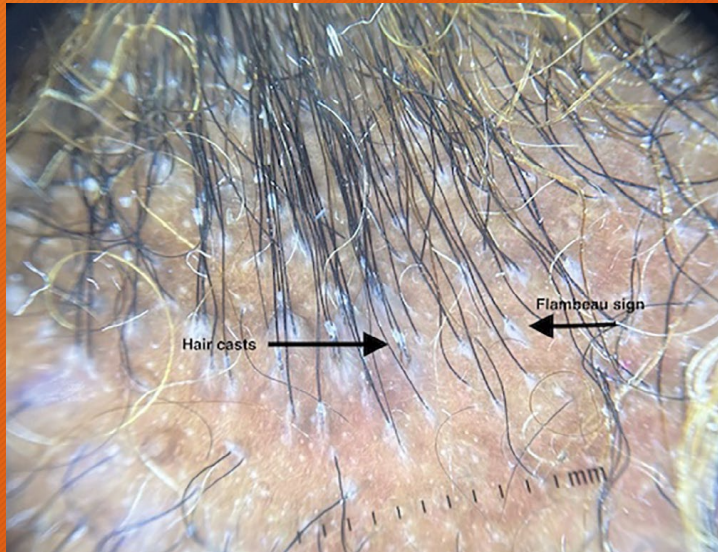
Photo: Heath R, et al. Cutis 2012;89:213-216.

Traction Alopecia vs Patchy CCCA

- Ill-defined areas of decrease density throughout the scalp
- Due to recurrent tension in a particular pattern or direction
- Locs or recurrent tight braids



Traction Alopecia: Dermoscopy - Flambeau Sign



- Billero V, et al Clin Cosmet Investig Dermatol. 2018;11:149-159.
- Agrawal S, et al. Australas J Dermatol. 2020;61:49-50.

Traction Alopecia: Treatment

Discontinuation of the traction hairstyle

Traction folliculitis: Mupirocin, topical clindamycin

Early TA: topical and intralesional corticosteroids, topical minoxidil

Late TA: Platelet-rich plasma treatments, hair transplantation, camouflage techniques (keratin hair fibers, micropigmentation)

Traction Alopecia: Medical Treatment

Case Reports > J Eur Acad Dermatol Venereol. 2007 Mar;21(3):433-4.

doi: 10.1111/j.1468-3083.2006.01933.x.

Traction alopecia: 2% topical minoxidil shows promise. Report of two cases

N P Khumalo, R M Ngwanya

Khumalo LN, Ngwanya RN. J EADV 2007;21(3):433-434

Intralesional Triamcinolone Acetonide in the Treatment of Traction Alopecia

Laura N. Uwakwe MD,^a Brianna De Souza MD,^b Andrea Tovar-Garza MD,^c Amy J. McMichael MD^b

^aDepartment of Dermatology, Columbia University Irving Medical Center, New York, NY

^bDepartment of Dermatology, Wake Forest School of Medicine, Winston-Salem, NC

^cDepartment of Dermatology, University of Texas Southwestern Medical Center, Dallas, TX

Uwakwe LN, et al. J Drugs Dermatol. 2020;19:128-130.

Traction Alopecia: Medical Treatment



Baseline



After 2 Treatments



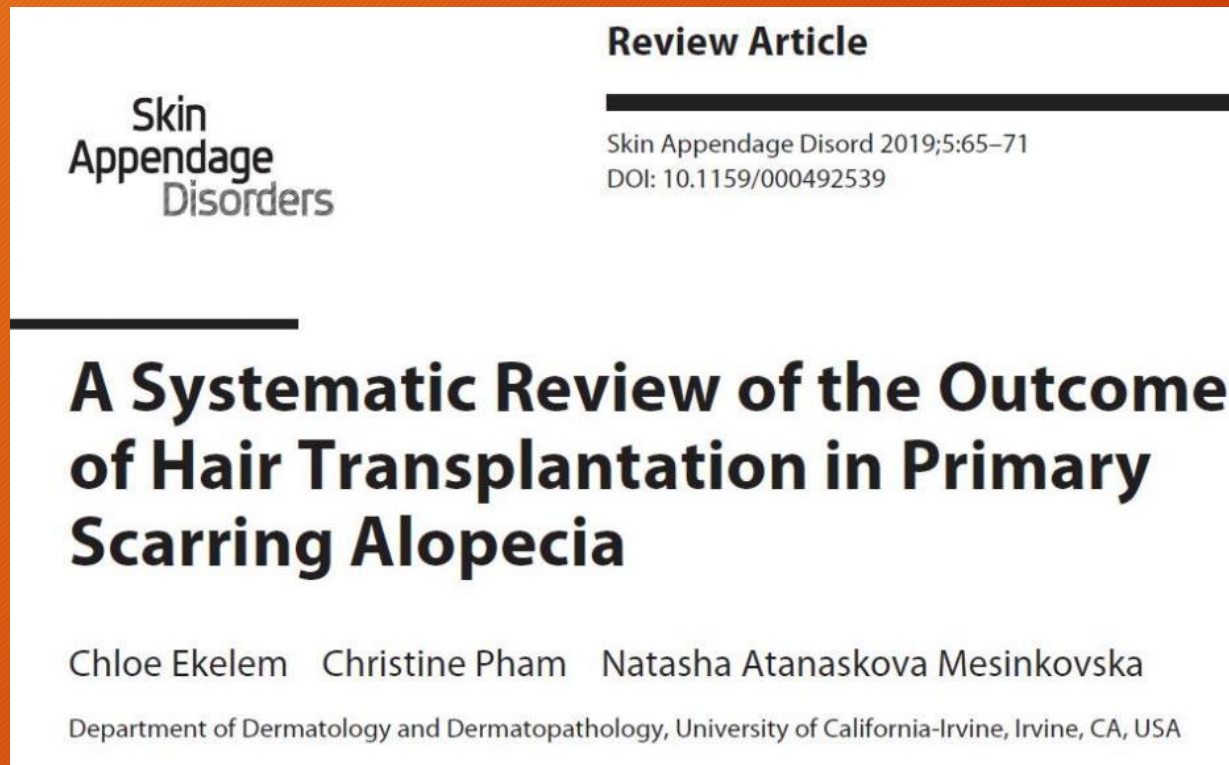
1 Year After 3 Treatments

Hypertrichosis from Topical Minoxidil Therapy



Photo courtesy of Valerie D. Callender, MD, FAAD

FFA: Surgical Treatment



- CCCA
- Morphe en coup de sabre
- DLE
- Pseudopelade of Brocq
- Folliculitis decalvans
- **LPP***
- **FFA***

***Negative results or recurrence.**

Ekelem C, et al. Skin Appendage Disord. 2019;5:65-71.

Conclusions

Early diagnosis and intervention may prevent long-term permanent hair loss in CCCA, FFA and TA

A thorough history, PE, dermoscopy and laboratory testing should be performed on all hair loss patients and can facilitate with the diagnosis

- A **scalp biopsy** may be needed to confirm the diagnosis

Treatments for CCCA, TA, AGA and FFA remain challenging and frequently occur together in WOC

- Minimizing and controlling the inflammatory process is the main goal of therapy for all forms of scarring alopecias

A better understanding of the pathogenesis & co-morbidities of scarring alopecia will help us to fuel future basic science and clinical research, and potential new treatments.

Patient Support

Scarring Alopecia Foundation



Thank you!

drcaller@CallenderSkin.com