Splitting Hairs: Approach to Diagnosis and Management of Hair Disorders

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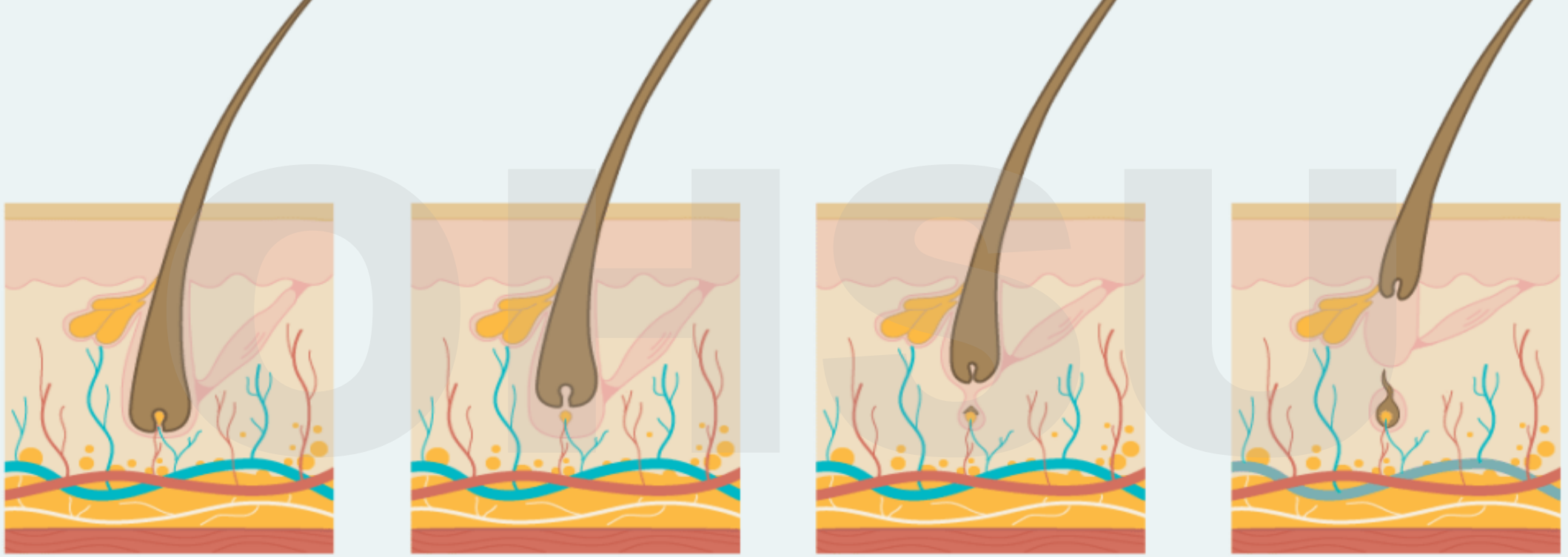


STAGES OF HAIR GROWTH

Anagen lasts 2-6 years
Catagen lasts 1-2 weeks
Telogen lasts 2-4 months
Exogen lasts 2-5 months

WHY DO WE CARE ABOUT HAIR?

- Hair loss significantly impacts self-image, contributing to lowered self-esteem, decreased self-confidence, and increased self-consciousness
- Stress may be a trigger for hair loss and hair loss may perpetuate cycle of anxiety
- Systematic review of psychosocial impact of alopecia areata indicates that individuals with alopecia areata have higher incidence of anxiety, depression, ADHD, paranoia, and OCD (especially with concern for relapse).
- There have been reports of suicide in individuals with alopecia areata, and one study indicates that 12.8% of patients with alopecia areata reported suicidal ideation.
- Studies indicate that people often perceive their hair loss to be more severe than the clinical assessment by their provider
- In one study, 40% of patients reported that they felt their providers had been “dismissive,” “unsupportive,” or “insensitive” regarding their hair loss and 18.5% reported their provider offered “no tests” and “no treatment”

Your patient arrives reporting hair loss—
What will you do first?

FIRST: GET THE DETAILS

-Onset: acute vs slowly progressive

-Location of hair loss

(scalp, eyebrows, eyelashes, axillae, extremities)

-Shedding?

-Hair thinning?

-Patchy or diffuse?

-Hair breakage?

-Associated itching, pain, scaling, redness, or bumps?

-Dietary restrictions, crash diet, vegetarian?

-Hair care (heat, tension, frequency of washing)

-Stress?

-History of Vitamin D deficiency, iron deficiency?

-History of anemia?

-New medications prior to hair loss onset (about 3 months prior)

-Illness prior to onset? (about 3 months prior)

-Family history of hair loss?

-History of autoimmune disease? Thyroid disease?

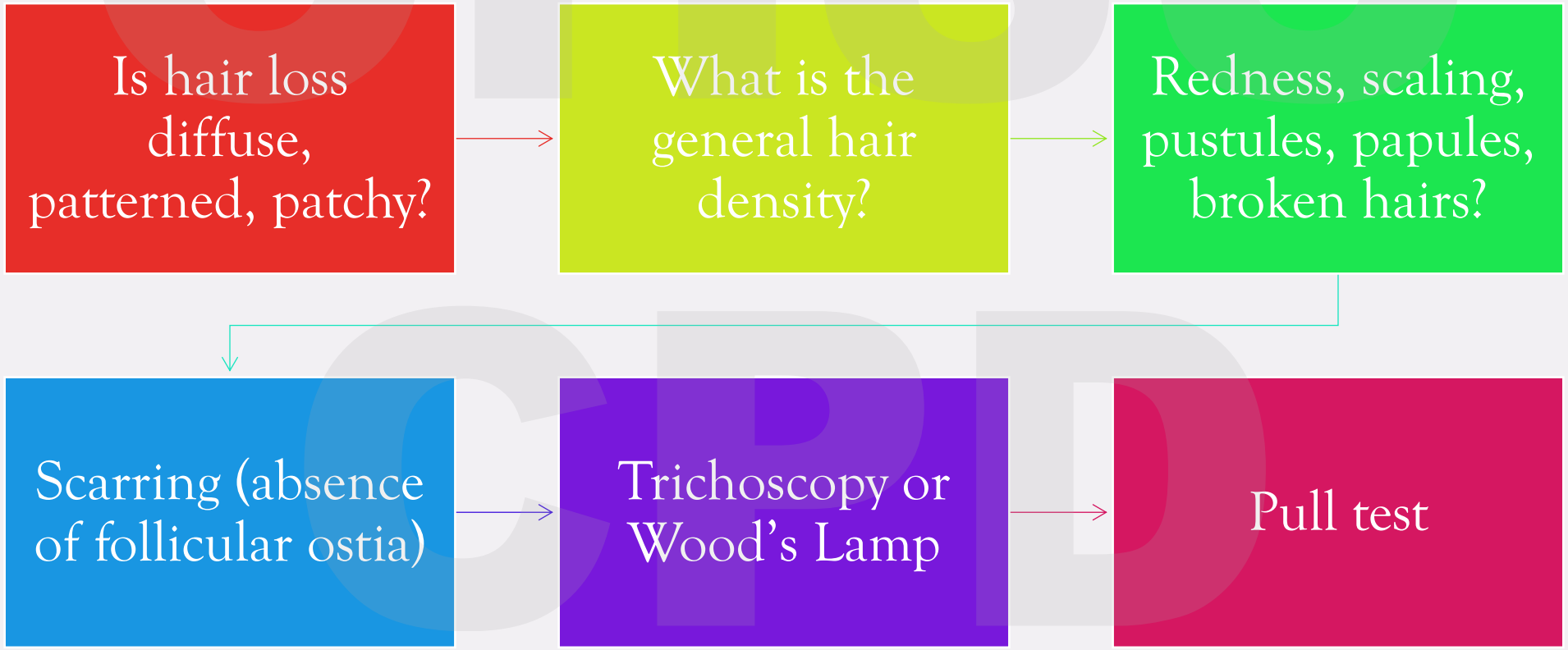
-Nail changes?

-Excessive hair growth elsewhere?

-History of hormone therapy, hysterectomy, postpartum, PCOS?

-Systemic symptoms?

NEXT: TAKE A LOOK



CATEGORIZE THE APPEARANCE

REDNESS OR SCALING?

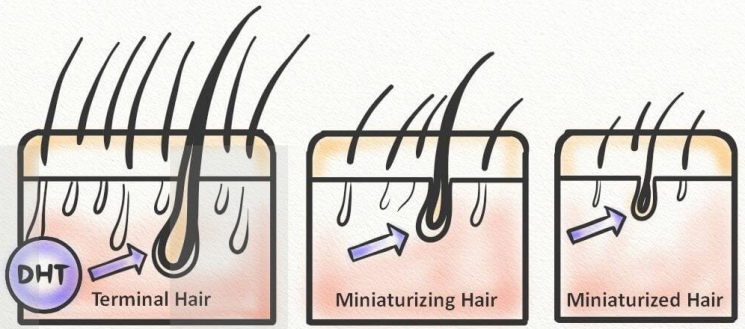
SCARRING?

NO INFLAMMATION OR SCARRING

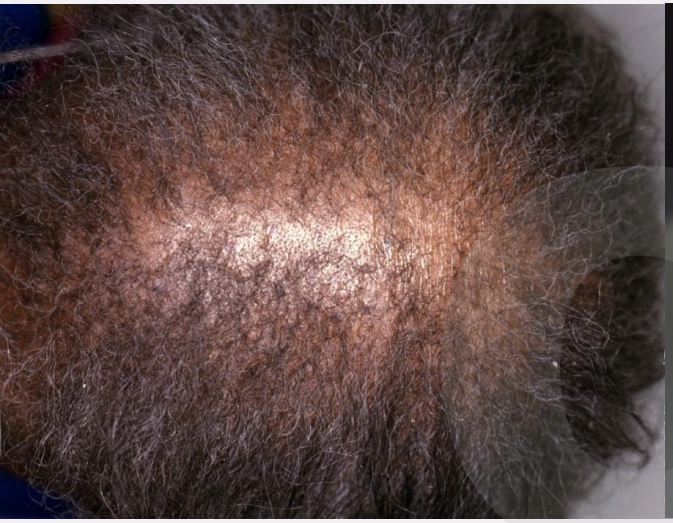
NO VISIBLE INFLAMMATION OR SCARRING

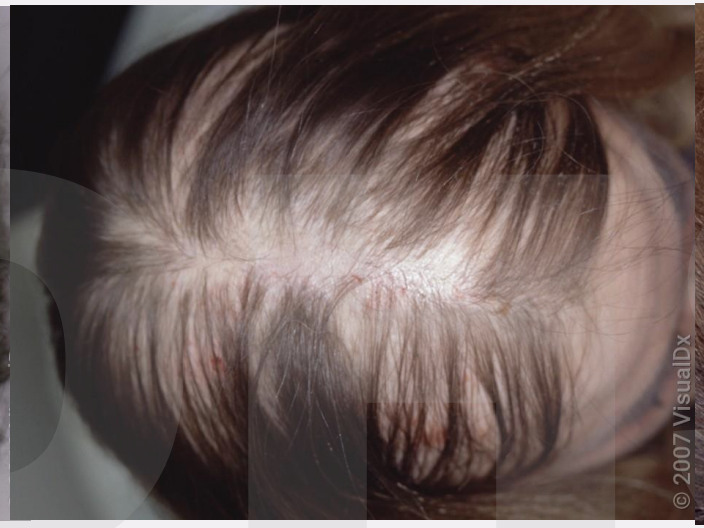
- Androgenetic alopecia (patterned hair loss)
- Telogen effluvium
- Alopecia areata

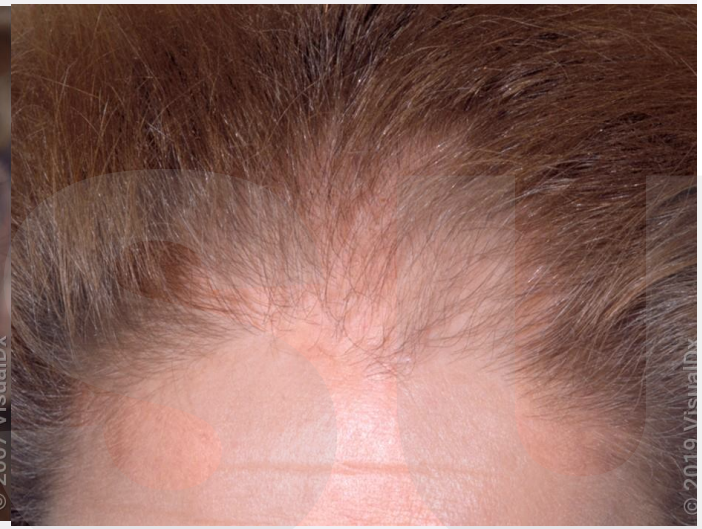
ANDROGENETIC ALOPECIA



- Most common cause of alopecia affecting men and women
- Multifactorial and polygenic
- Mediated by dihydrotestosterone (DHT) which signals the hair follicles to miniaturize over time, converting terminal hairs into vellus hairs
- Male pattern hair loss is clearly androgen-dependent, but the role of androgens is less well-understood in females
- In males, onset is usually prior to age 40; in females it is typically noticed after menopause
- More frequent in White individuals than in Asian or Black individuals
- Hair loss is typically slowly progressive and may be preceded by a shedding event

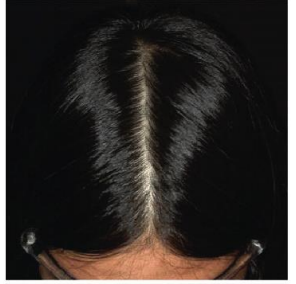






SCALP FINDINGS IN FEMALES

-DIFFUSE THINNING ON VERTEX
-RETENTION OF FRONTAL HAIR LINE
-WIDENING OF THE FRONTAL MIDLINE PART



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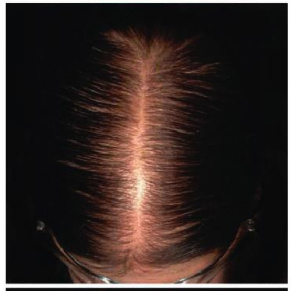

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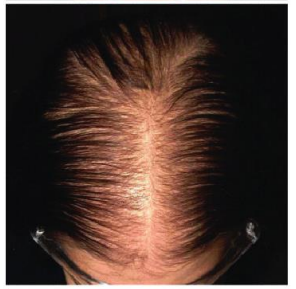

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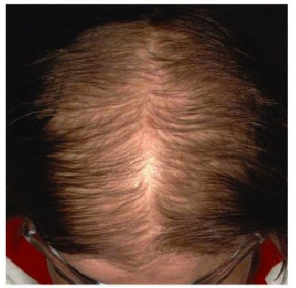

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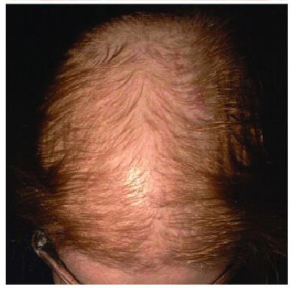

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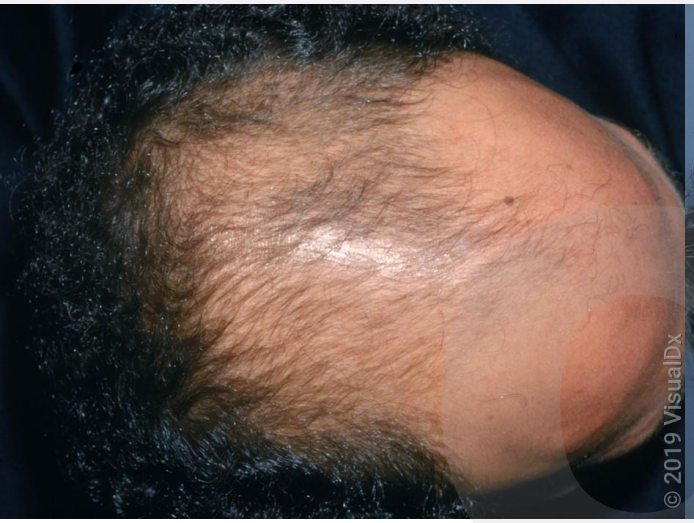
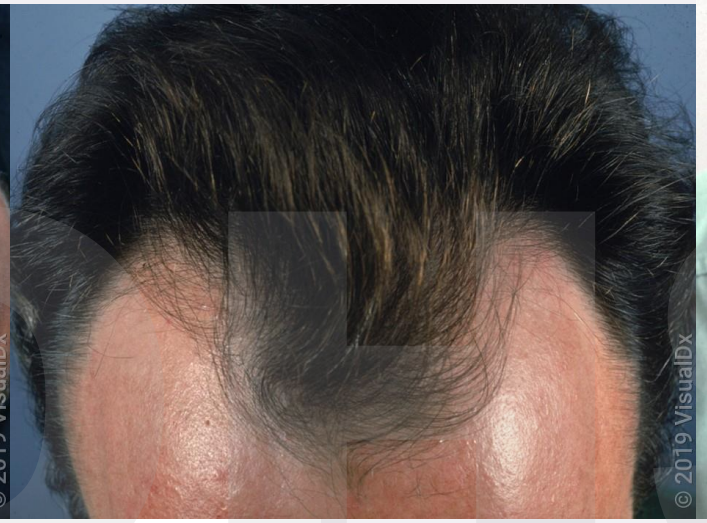
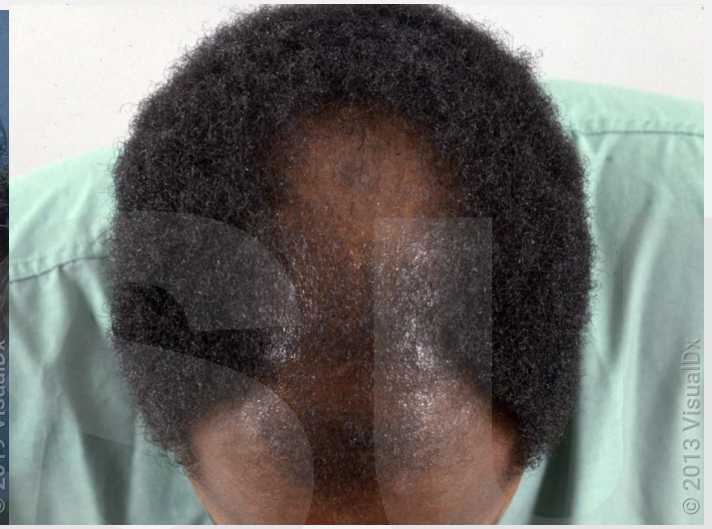
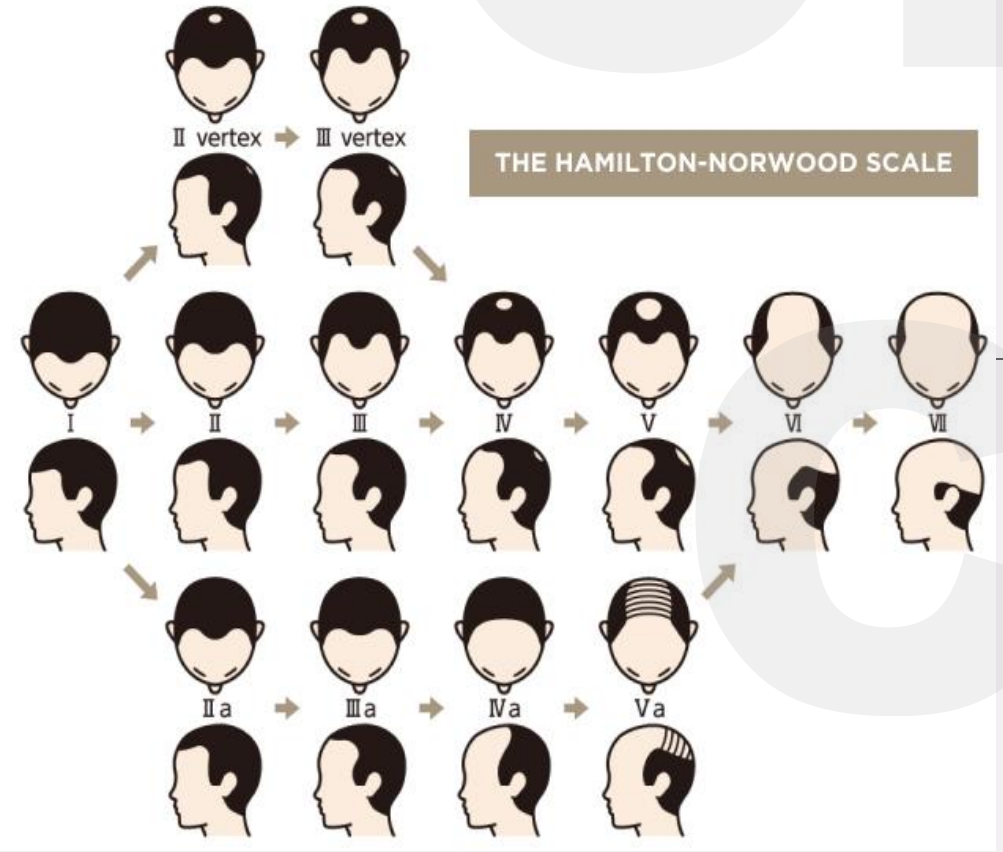








SCALP FINDINGS IN MALES

-BITEMPORAL RECESSION
-THINNING OF VERTEX

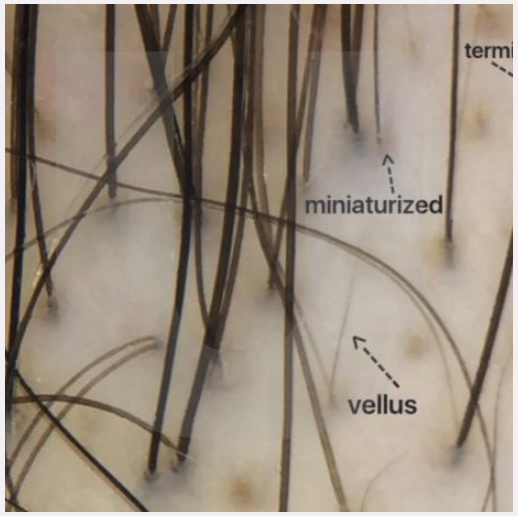
TRICHOSCOPY OF ANDROGENIC ALOPECIA

Hair shaft diameter variability

Miniaturized hairs

Fewer hairs per follicle

Variability in number of hairs per follicle



ANDROGENETIC ALOPECIA TREATMENT

Main goal of treatment is to stop progression—emphasize this to patients to set realistic expectations
ALWAYS TAKE PHOTOS
Topical 5% or low dose oral minoxidil
Spironolactone 50mg to 200mg daily (for females)
Finasteride 1mg (for males) or 2.5mg -5mg (for females)
Dutasteride 0.5mg TIW or once daily (for males or females)
Low level light devices for at home use
Platelet-rich plasma (PRP)
Mesotherapy
Supplements
Hair transplant

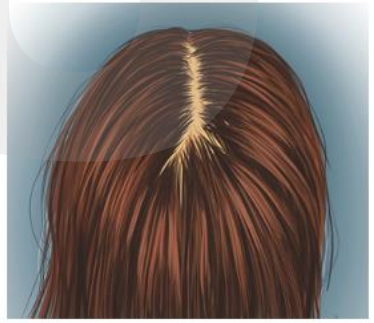
RECOMMENDED PHOTO SERIES

1. Frontal Hairline

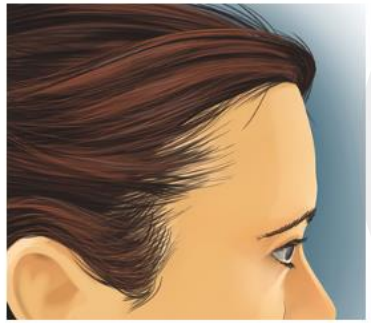
2. Mid-scalp

3. Right temple

4. Left temple



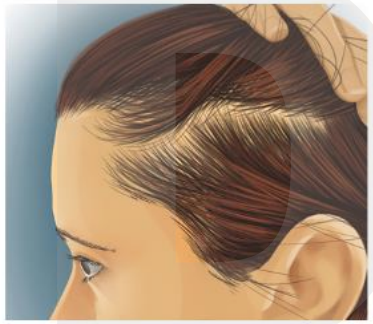
5. Crown



6. Right sideburn

7. Left sideburn

8. Right side

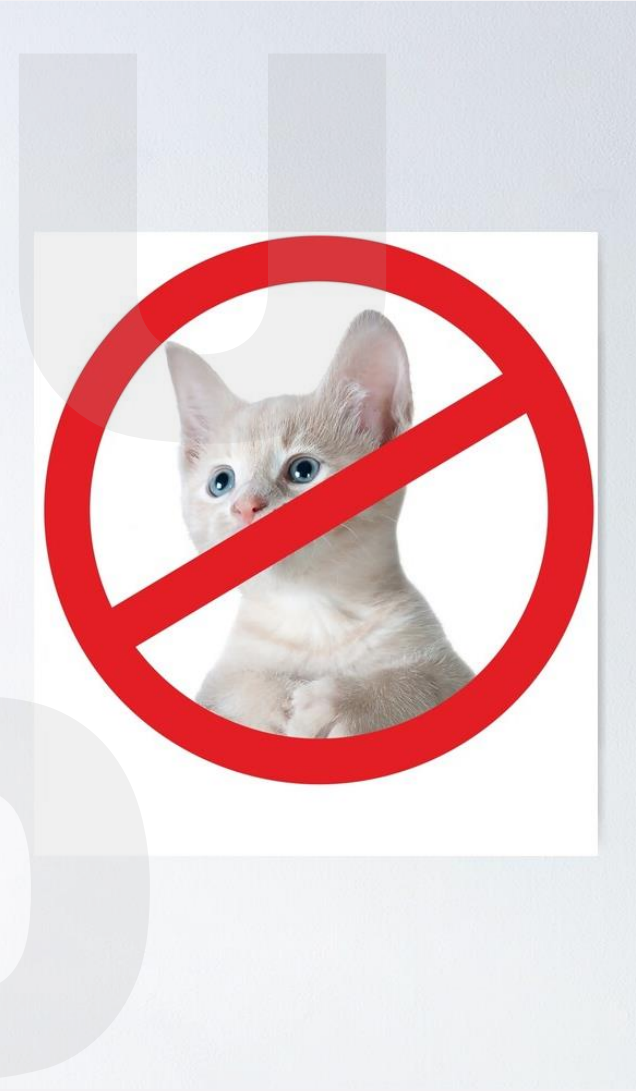


9. Left side

10. Back/neckline

TOPICAL MINOXIDIL

- Topical minoxidil 5% foam or solution 1-2 times daily (BID works better) to the scalp. Bottle will say it is only for men, but this has been studied in women and is safe and effective for women. Don't bother with the 2% formulation.
- Very effective. Increases hair density, decreases hair shedding.
- Potential side effects: application site irritation, unwanted hair growth around the areas of application (ie: forehead, sideburns), temporary shedding may occur in the first 4-6 weeks of use. Can cause shedding if stopping use.
- Not for cats!! There have been reports of cats dying from exposure



LOW DOSE ORAL MINOXIDIL

- For females, start with a quarter tablet (0.625mg) or half a tablet (1.25mg) daily and may increase up to one full tablet (2.5mg) daily.
- For males, start with half tablet (1.25mg) daily, and may increase incrementally up to 5mg (2 pills)
- Generally well-tolerated. Most common side effect is unwanted hair growth elsewhere (face, arms).
- There tends to be more unwanted hair growth elsewhere above 1.25mg daily dosing.
- Can cause temporary shedding 4-6 weeks after starting and if stopping
- May cause a 1-2 point average drop in systolic blood pressure (insignificant)
- Can cause lower extremity or periorbital edema. Do not give to patients with heart failure.
- Two reports of pericardial effusion in literature
- If patient has seen cardiology in past, ask cardiology permission prior to starting

SPIRONOLACTONE

- Spironolactone should only be used for hair loss in females
- Spironolactone: systematic review (2020) showed that 49.3% of female patients taking spironolactone for AGA achieved improvement in follicular density, with the most significant improvement being with doses higher than 100mg daily (max dosing 200mg daily) for at least 12 months.
- Start with 50mg once daily. If tolerating well at two weeks, may increase to 100mg daily, then incrementally increase up to 200mg if needed.
- Potential adverse effects: lightheadedness, dizziness, breast tenderness, spotting between periods, transient hyperkalemia, hypotension, increased urination.
- May cause birth defects in male fetus. Encourage reliable birth control.
- Monitoring: Blood pressure each visit. If over age 45, check renal function and potassium once yearly

FINASTERIDE

Dosing in males:
1mg daily

Dosing in females:
Start at 2.5mg (half pill) and increase to 5mg (full Pill) at six months if tolerating well

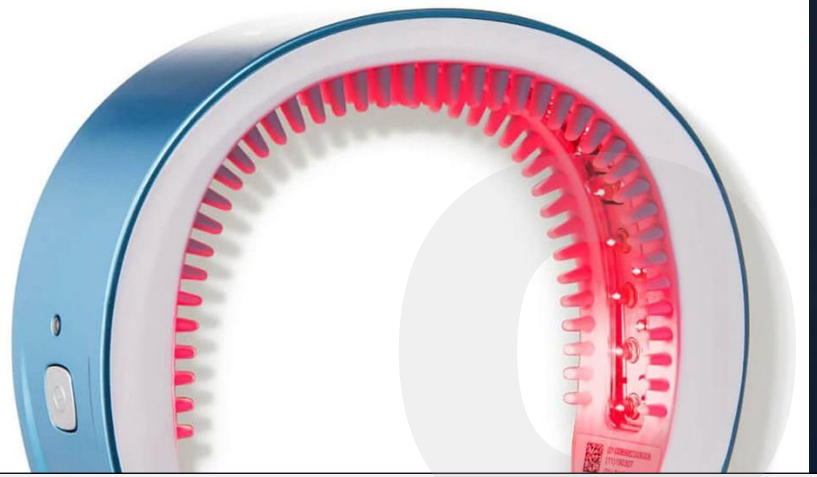
- Type 2 5-alpha reductase inhibitor that decreases the conversion of testosterone to DHT, exhibiting an overall decrease in serum DHT of up to 70%.
- Not hepatotoxic or nephrotoxic and has no relevant drug interactions. It is metabolized in liver, so should be avoided in liver disease.
- TERATOGENIC: can cause feminization of male fetus. Individuals of child-bearing potential should be on very reliable birth control. Pregnant individuals should not handle this medication. People taking finasteride should not donate blood. Males taking finasteride do not pose a risk to a pregnant female or the fetus.
- Sexual side effects are reported in 2% of individuals, including decreased libido, erectile dysfunction (may begin after 6 months and peak during first year). Sexual side effects may resolve spontaneously or may continue even after discontinuation
- Other side effects: Impotence (up to 19%), orthostatic hypotension (9%), gynecomastia (up to 2%)
- Reduces PSA by ~50%, which could mask early diagnosis of prostate cancer. Men >50yo should have PSA checked prior to starting. Finasteride does not increase mortality form prostate cancer

DUTASTERIDE

Dosing for males and females is 0.5mg either three times per week or once daily (more effective)

- Type 1 and 2 5-alpha reductase inhibitor that decreases the conversion of testosterone to DHT, exhibiting an overall decrease in serum DHT of up to 90%.
- Side effects of dutasteride are similar to finasteride, but the sexual side effects seem to be less frequent compared to finasteride.
- When given TIW, no sexual side effects or gynecomastia are reported.

- TERATOGENIC: can cause feminization of male fetus. Individuals of child-bearing potential should be on very reliable birth control. Pregnant individuals should not handle this medication. People taking finasteride should not donate blood. Males taking finasteride do not pose a risk to a pregnant female or the fetus.
- Dutasteride has a very long half life, and if a person of child-bearing potential is taking dutasteride, they must stop taking it at least six months prior to trying to conceive.



LOW LEVEL LIGHT DEVICES

- Diode or LED delivering 630-670nm wavelength (usually 650nm)
- Targeted thermal injury stimulates hair growth and decreases inflammation; MOA not entirely known; may stimulate mitochondria, generate ROS and antioxidants to prolong anagen and inhibit catagen
- SEs: sunburn type sensation, pruritus, headache. Hypothetical risk of retina damage
- Contraindicated: pregnancy, photosensitizing meds, scalp malignancies
- Response takes at least 12-16 weeks with optimal results at 1 year
- 11 studies (5 RCTs) have shown increases in hair regrowth, thickness, and patient satisfaction
- Insufficient data on darker photo types
- Many devices are FDA-approved

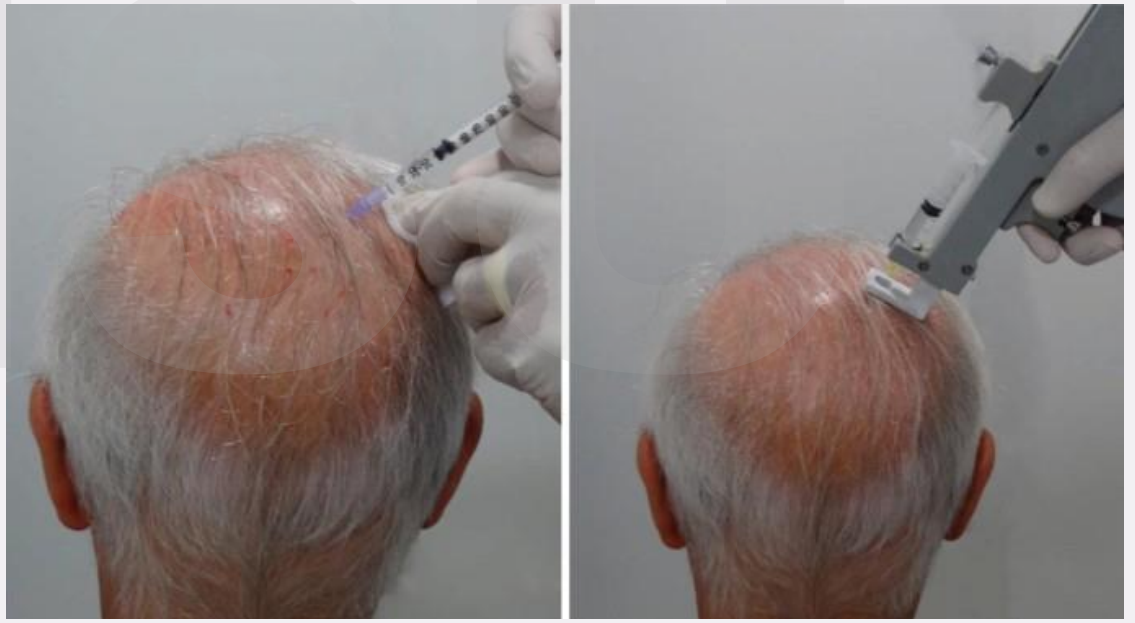
PLATELET-RICH PLASMA (PRP)

- Plasma composition from a person's own whole blood, which is centrifuged to separate the platelet-rich plasma from the remaining components of blood.
- PRP contains three to five times the baseline number of platelets found in whole blood.
- Platelets in PRP contain growth factors that can promote hair growth.
- Once prepared, PRP is reinjected into the areas of hair loss in the deep intradermal skin.

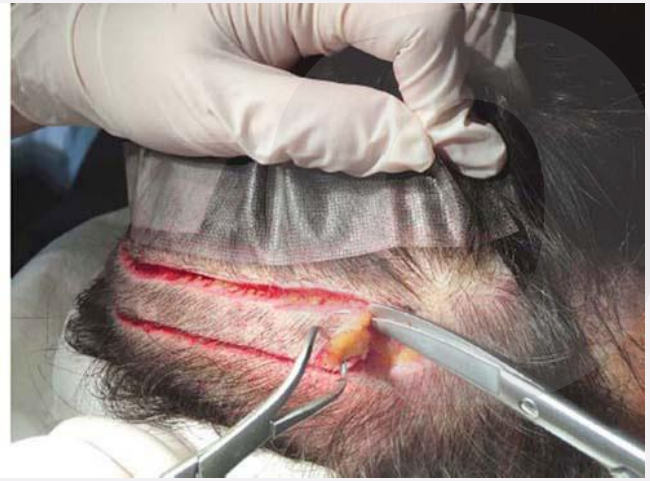
PLATELET-RICH PLASMA (PRP)

- **Effectiveness:** PRP studies have not been standardized and different studies utilize different equipment, techniques, and dosing regimens when investigating PRP.
- Regardless of the varying study designs, of the twenty controlled trials for PRP in androgenetic alopecia in the literature, only one of these studies indicated that there was no benefit from the treatment of androgenic alopecia with platelet-rich plasma. Majority of studies demonstrated statistically significant increases in hair counts and hair density in PRP-treated patients.
- Greater frequency of PRP treatments, but not greater volume or higher number of PRP treatments, was associated with increased hair density. Increases in hair density were also found to be greater in patients who received PRP at a younger age. Eight controlled trials have demonstrated an increase in hair diameter in PRP-treated patients. There was no difference in response to treatment with PRP among males and females with androgenic alopecia.
- **Few side effects.** Most frequent minor side effects of PRP in the treatment of alopecia include: bruising, injection site pain, scalp sensitivity, pruritus, headache, lightheadedness, and mild swelling. Facial hypertrichosis, increased hair shedding, and hyperpigmentation have also been reported with less frequency. No serious complications, such as infection or scarring have been observed in controlled studies of PRP for androgenic alopecia.
- **Frequency and cost:** Once monthly for 4 months, then every 3-4 months thereafter for maintenance. Without regular maintenance treatment, the effect of PRP will be lost. The cost of each treatment is $500. Not covered by insurance.

MESOTHERAPY



- Injecting medications, such as minoxidil, finasteride, or dutasteride into the scalp.
- No standardized studies
- Not covered by insurance
- We are not doing this at OHSU yet

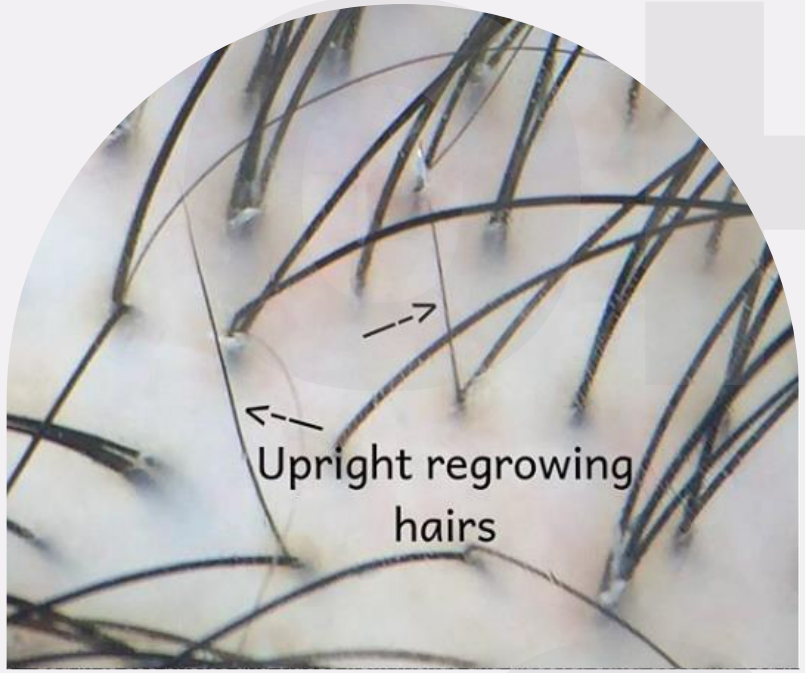


HAIR TRANSPLANT

- Can be done with strip technique or follicular unit extraction technique
- Hair is transplanted from posterior scalp
- Satisfaction rates of 90% to 97% have been reported by individuals receiving transplants
- Not covered by insurance and costs ~$15,000
- Not yet offered at OHSU

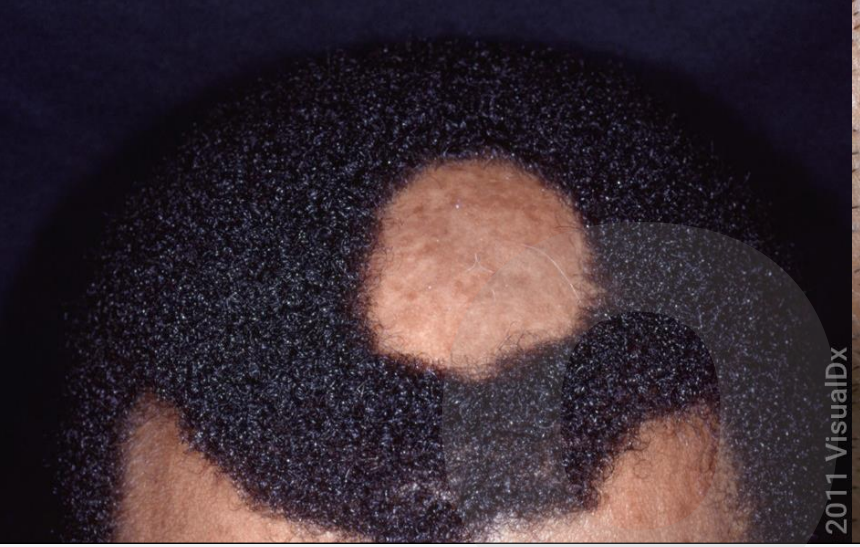
TELOGEN EFFLUVIUM

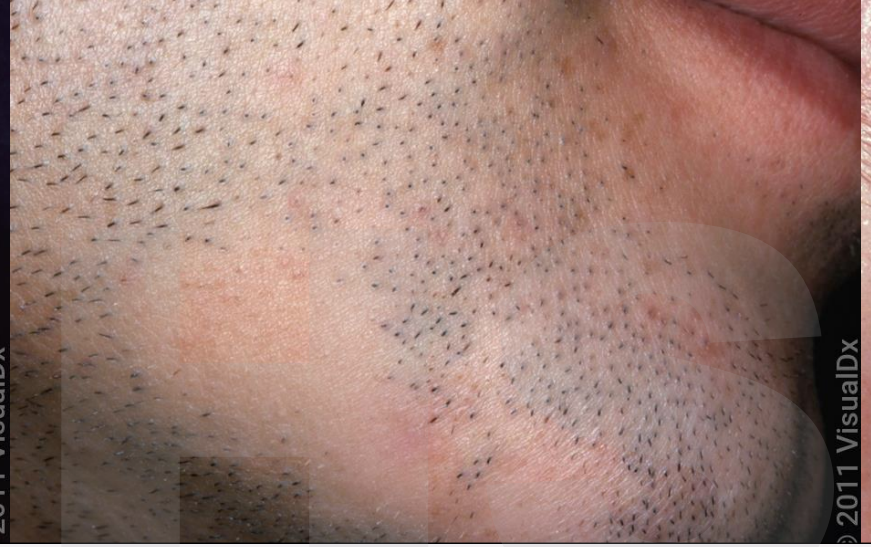
- Abnormally large number of actively growing anagen hairs synchronously enter the telogen resting phase and are shed from the **entire scalp** (may also include pubic and axillary hair).
- >100-150 hairs lost per day
- Positive pull test
- Temporary, non-scarring hair loss that typically fully resolves within six months; may persist longer.
- Acute telogen effluvium typically occurs 3 months after an inciting factor, which may include: childbirth, febrile or infectious disease, SLE, severe stress, surgery, thyroid or parathyroid abnormalities, decreased nutrient intake (crash diet, starvation), low iron, discontinuation of oral contraceptives, and medications (most commonly retinoids, anticoagulants, antithyroid medications, anticonvulsants, heavy metals, beta blockers, lithium, interferons).

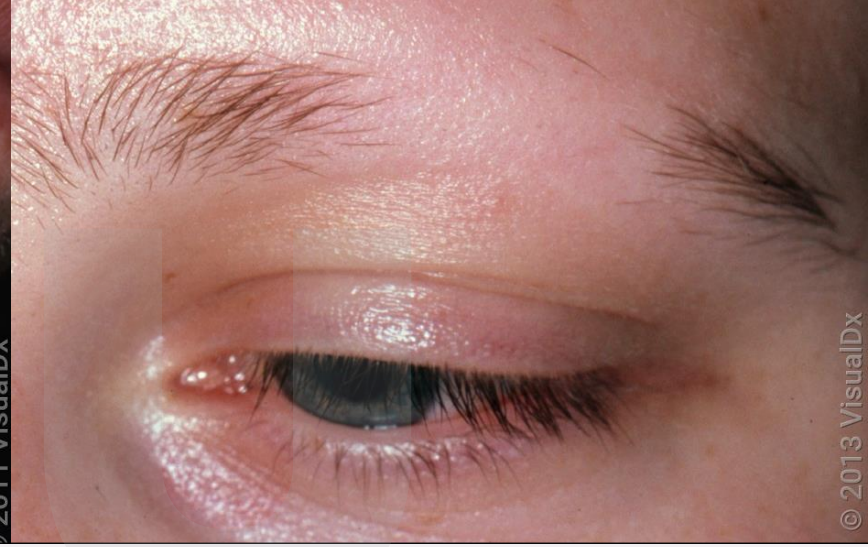


TREATMENT OF TELOGEN EFFLUVIUM

- Primary treatment is identifying the underlying cause and correcting it or reassuring the patient that the shedding is expected to be temporary from a known precipitating event
- If cause of telogen effluvium is unclear lab testing for ferritin, Vitamin D, zinc, ANA, CBC, TSH, B12 should be considered
- When chronic, there is often not a discernable cause.
- Additional first line treatment is topical or oral minoxidil (in same dosing as AGA)
- May add finasteride or dutasteride if telogen effluvium is chronic (in same doing as AGA)
- May try PRP (in same dosing as AGA)
- Can use pull test, serial photography, and dermoscopy to evaluate treatment response







ALOPECIA AREATA

- T lymphocyte-mediated autoimmune disease of the hair follicle
- Hair follicle loses its immune privilege and is swarmed by T lymphocytes at the level of the hair bulb
- Causes non-scarring hair loss, typically in focal patches, but may be diffuse
- May be associated with shedding
- Most cases are confined to scalp, but may also have loss of hair in other areas, such as eyebrows, eyelashes, beard, axillae, extremities, groin
- Often accompanies other autoimmune conditions and atopy

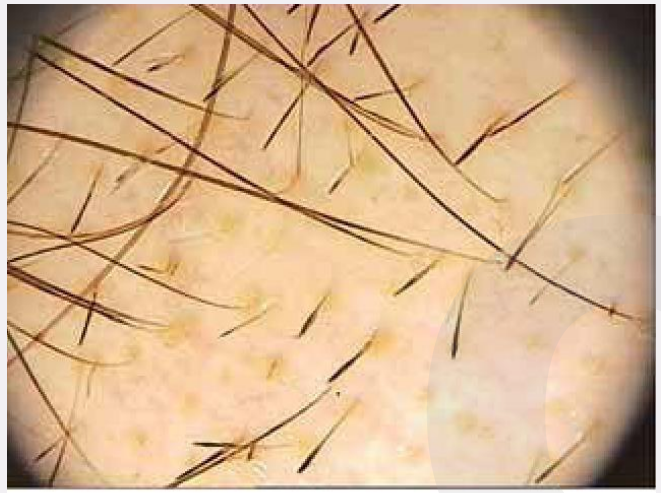
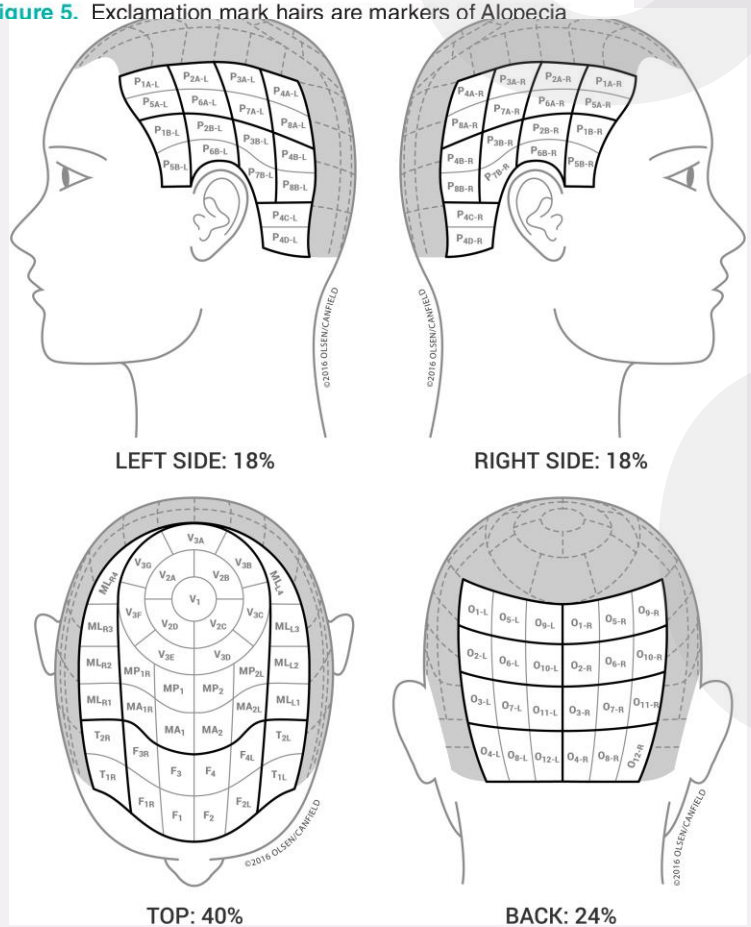
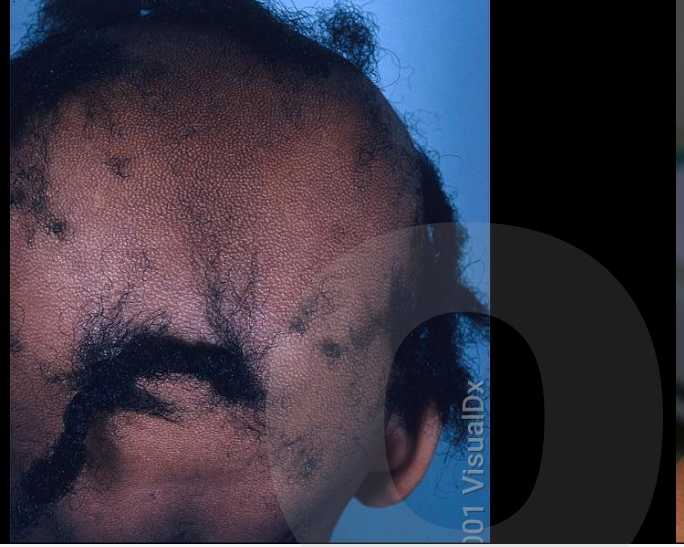


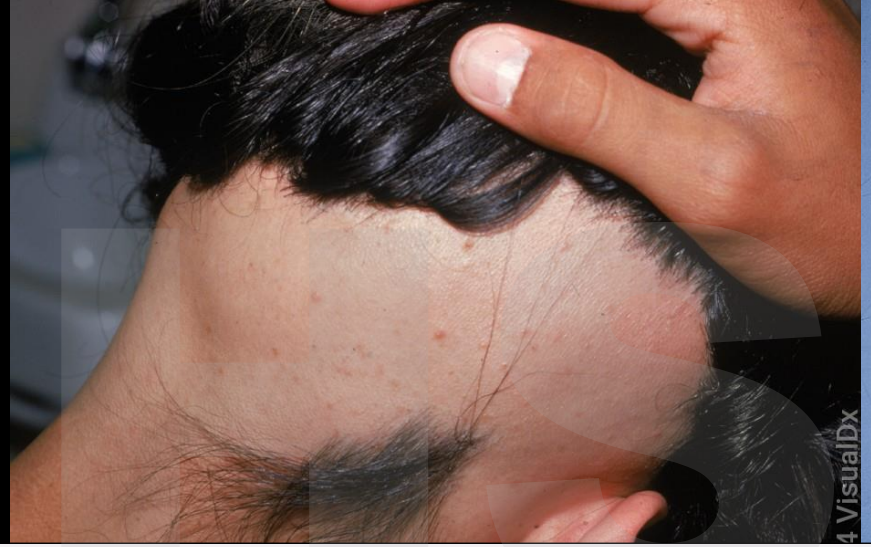
Figure 5. Exclamation mark hairs are markers of Alopecia

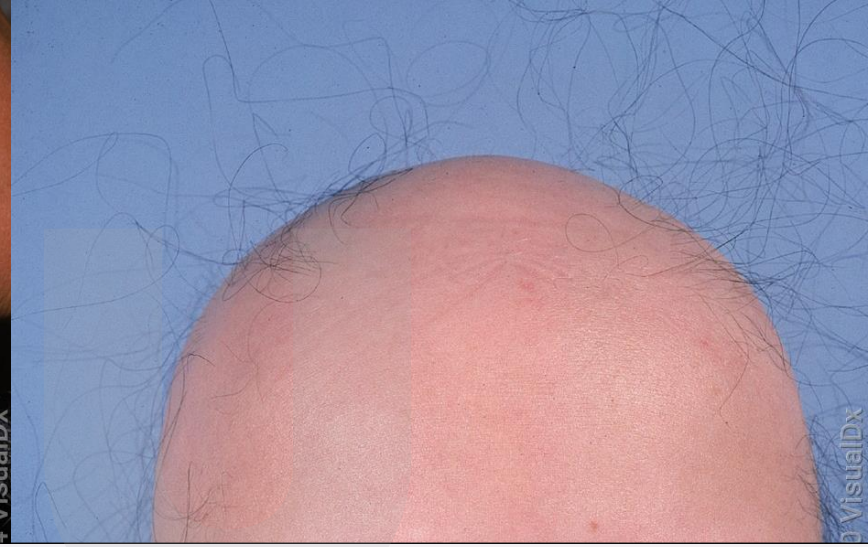


MANAGEMENT OF ALOPECIA AREATA

- Check TSH with reflex to T4
- Calculate SALT score using patient's thumb size
- If SALT less than 10, may treat as follows:
- Watchful waiting: Often, hair regrows spontaneously without treatment within one year
- Topical steroids (such as clobetasol solution) once daily x4 weeks, then decrease to TIW
- Topical or oral minoxidil (same dosing as AGA)
- Intralesional Kenalog 5mg/mL (0.1mL per 1cm spacing); may repeat every 6 weeks until hair regrowth
- Serial photos and dermoscopy to evaluate response

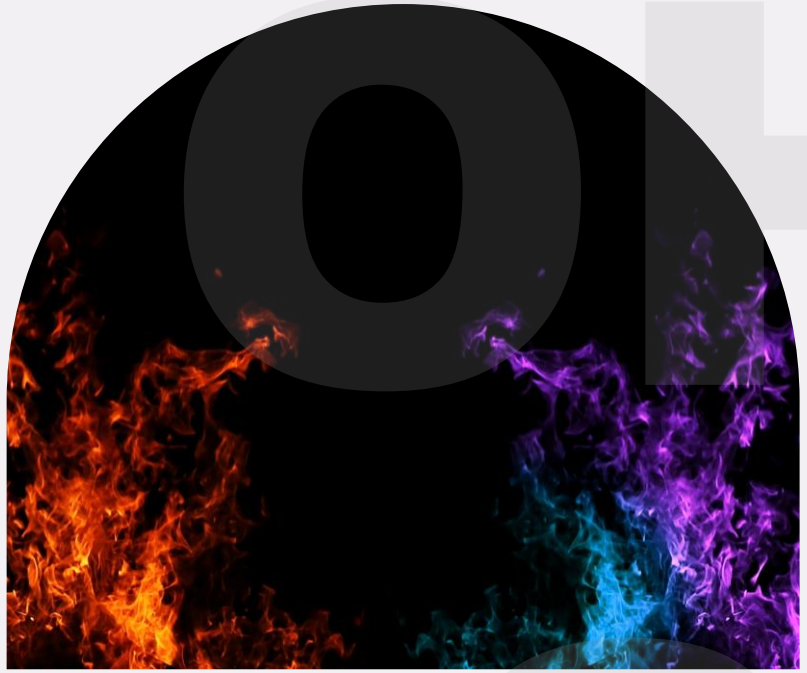






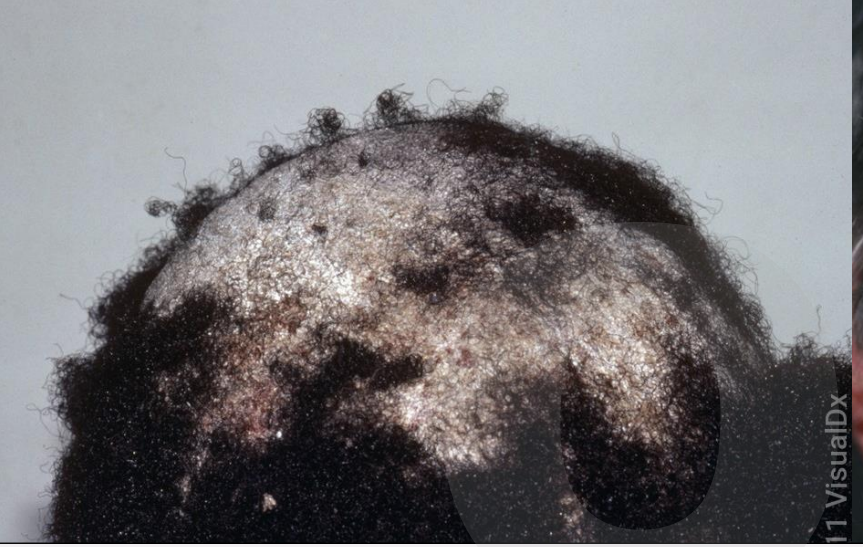
SEVERE ALOPECIA AREATA

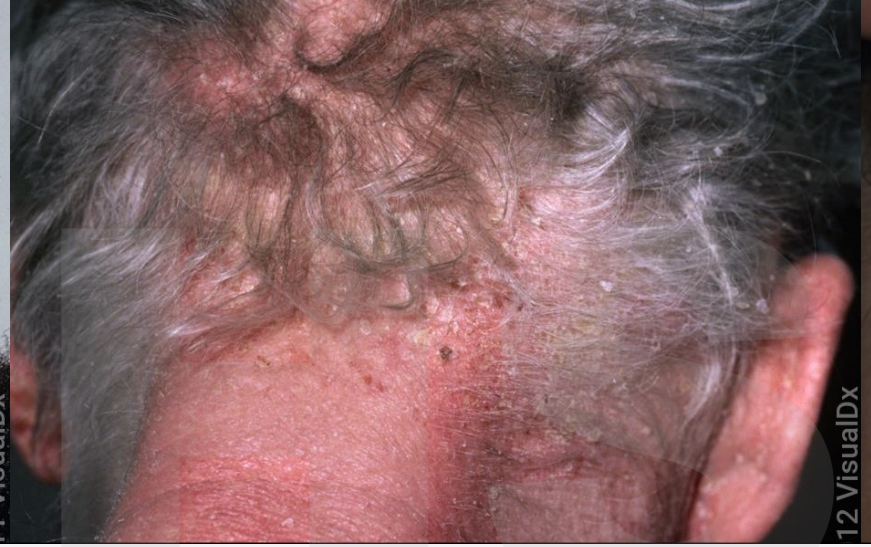
- Totalis= hair loss on entire scalp
- Universalis=hair loss entire body (including brows and lashes)
- Ophiasis= wave-like alopecia around head
- SALT score >10 refer to dermatology
- SALT score of 50 or greater should be referred to dermatology for systemic medication (such as JAK inhibitors like Baricitinib, Ritlecitinib or methotrexate)

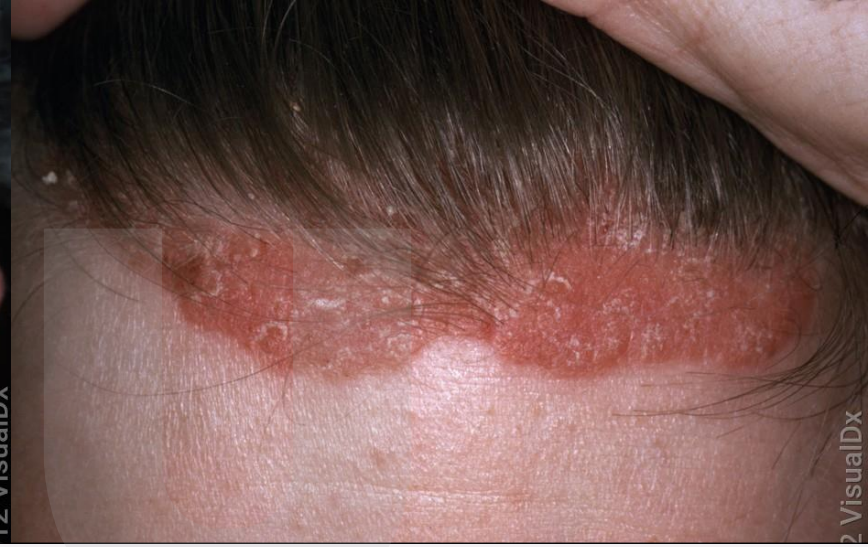


INFLAMMATORY SCALP DISORDERS THAT CAN LEAD TO SCARRING ALOPECIA

- Psoriasis
- Lichen planopilaris (LPP)
- Frontal fibrosing alopecia (FFA)
- Central centrifugal cicatricial alopecia (CCCA)
- Discoid Lupus (DLE)
- Dissecting cellulitis
- Tufted hair folliculitis

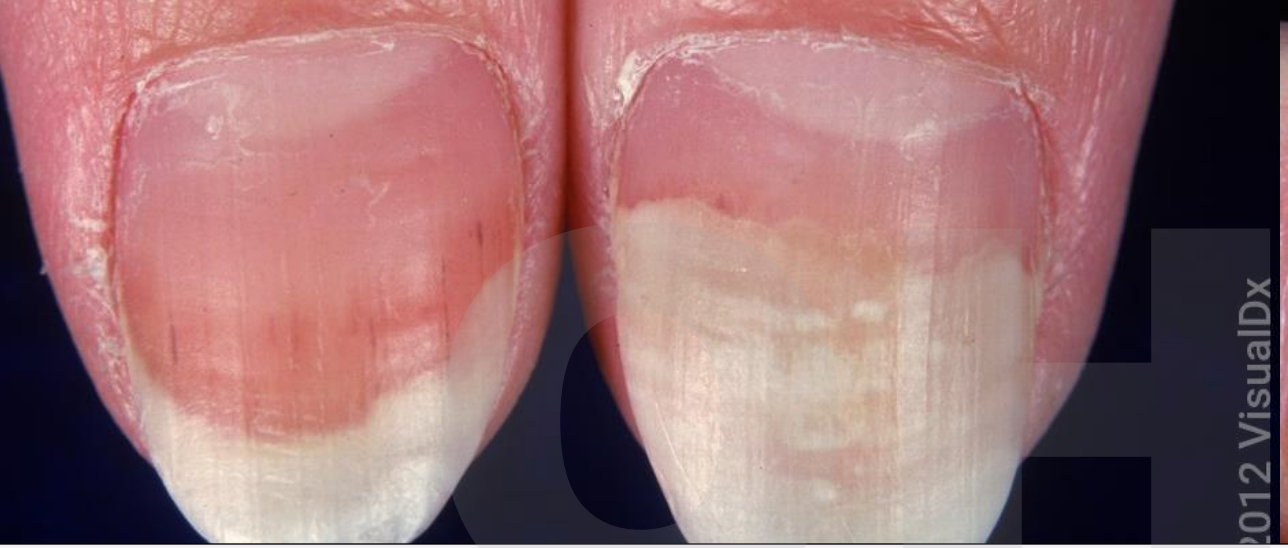


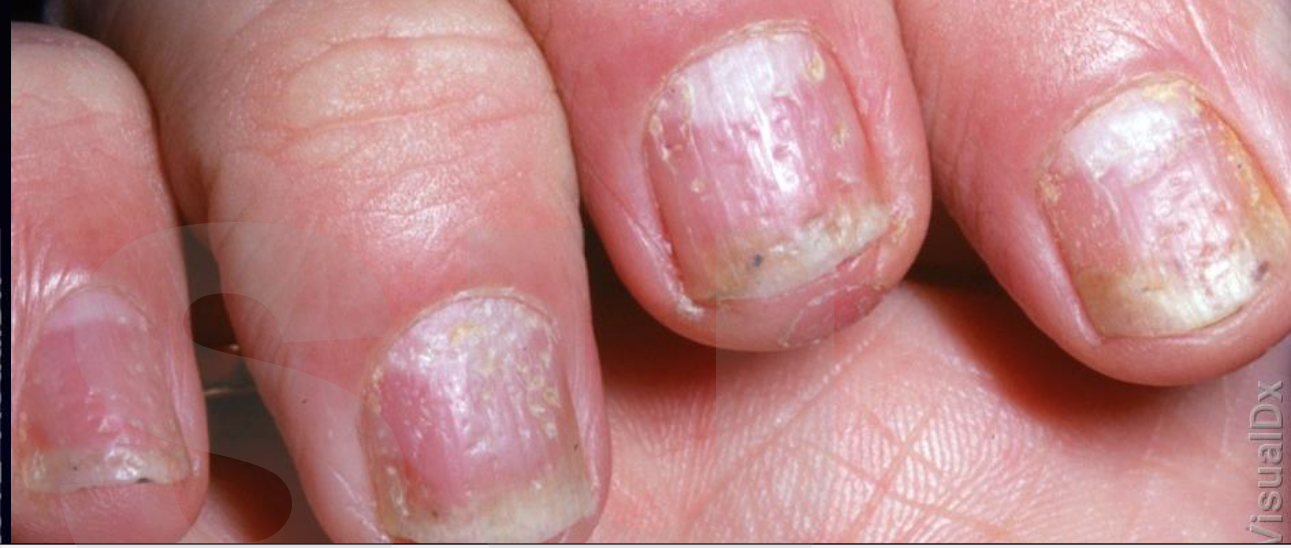




SCALP PSORIASIS

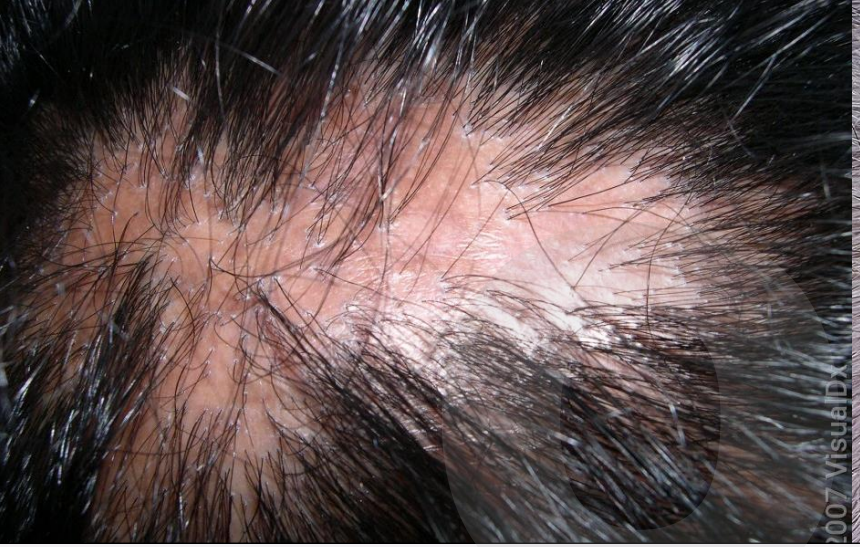
- Chronic inflammatory condition which can affect any cutaneous site, including the scalp and the nails
- About 2% of the population is affected
- Well-demarcated salmon-colored plaques with micaceous scale
- May cause hair loss in areas of involvement on scalp
- May have nail pitting, oil spots, onycholysis
- 30% of individuals with psoriasis develop psoriatic arthritis. Higher risk arthritis with scalp involvement

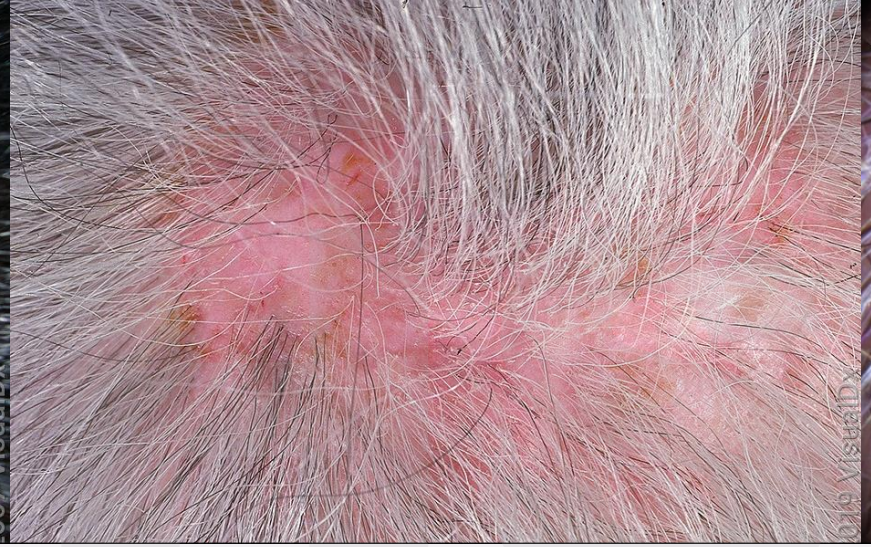


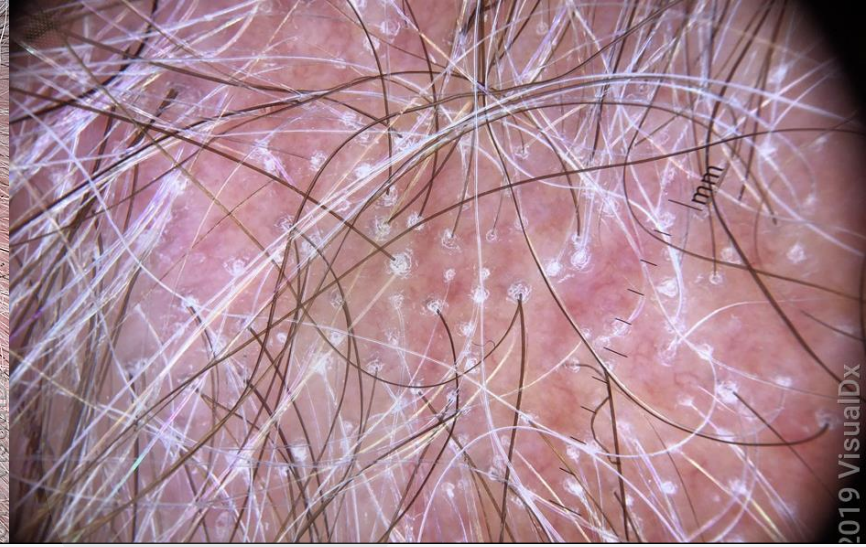


MANAGEMENT OF SCALP PSORIASIS

- Scalp psoriasis can be challenging to treat
- Check skin and nails for clues to diagnosis and body surface area (BSA)
- Ask about inflammatory arthritis symptoms—refer to rheumatology if positive
- If total BSA is >10%, or scalp is not responding to first line treatments, refer to dermatology for systemic therapy (MTX or biologic)
- START clobetasol 0.05% solution bid for 2 weeks, then decrease to 2-3 times per week
- START coal tar or salicylic acid shampoo 2-3 times per week
- Consider calcipotriene solution in alternation with clobetasol

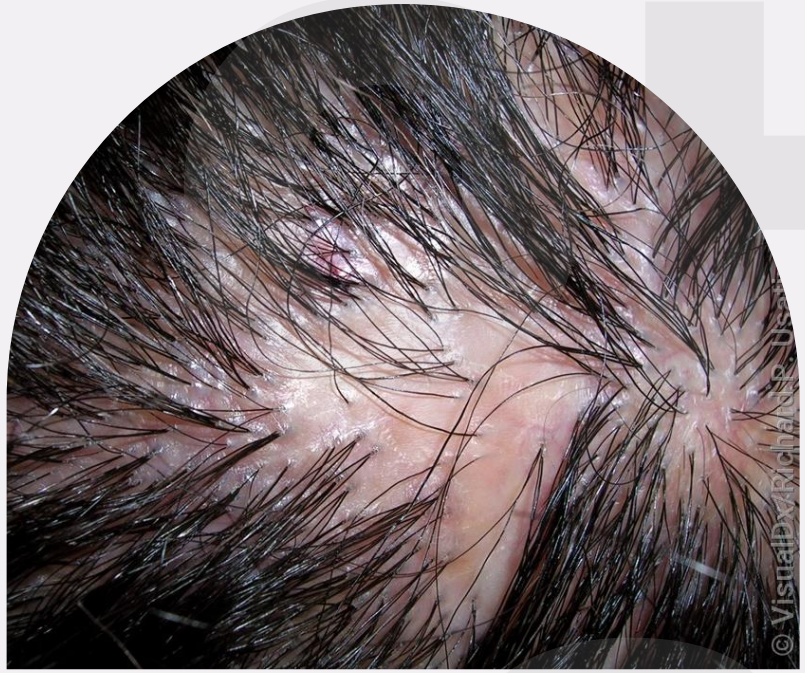






LICHEN PLANOPILARIS

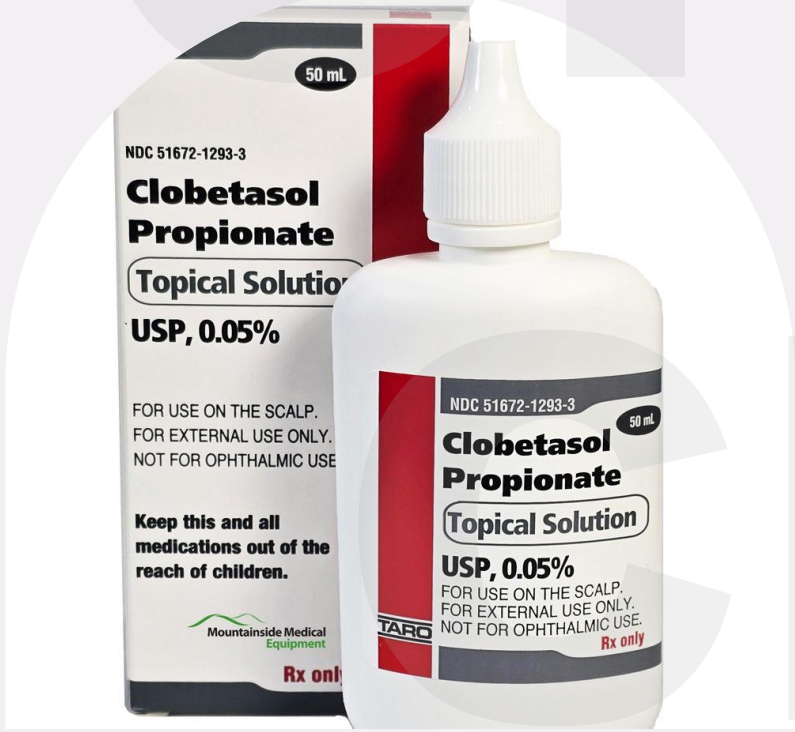
- Follicular form of lichen planus which causes scarring hair loss
- Considered to be autoimmune and thought to be caused by cell-mediated immunity dysfunction which results in the loss of immune privilege at the hair bulge (location of the stem cells)
- Can present with cutaneous or oral lichen planus
- Most common in women, especially white women between the ages of 40-60



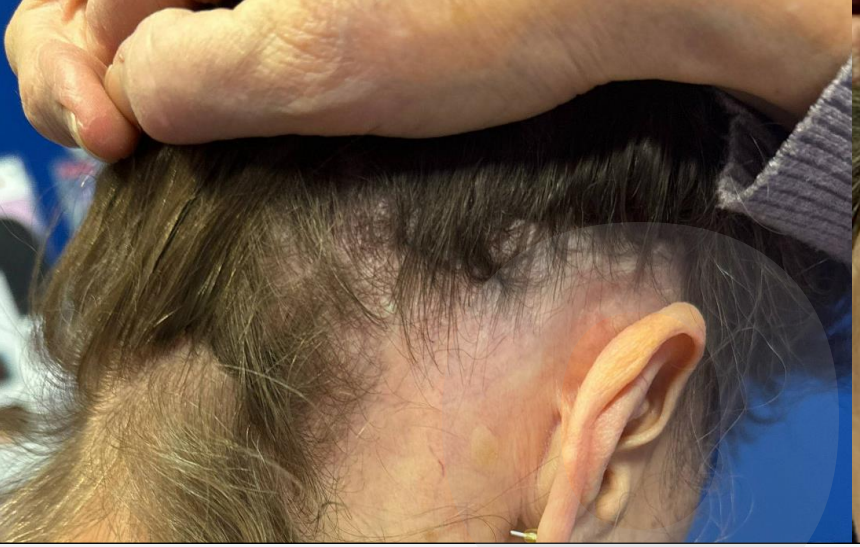
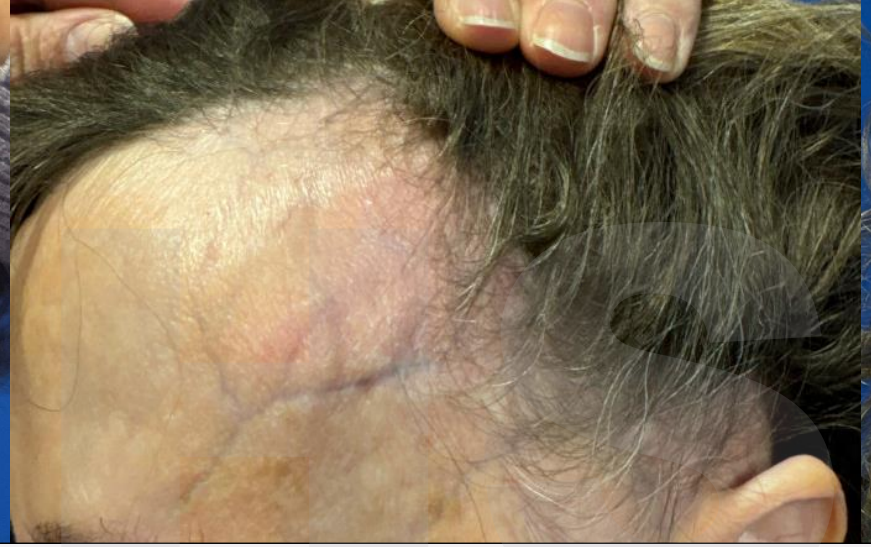
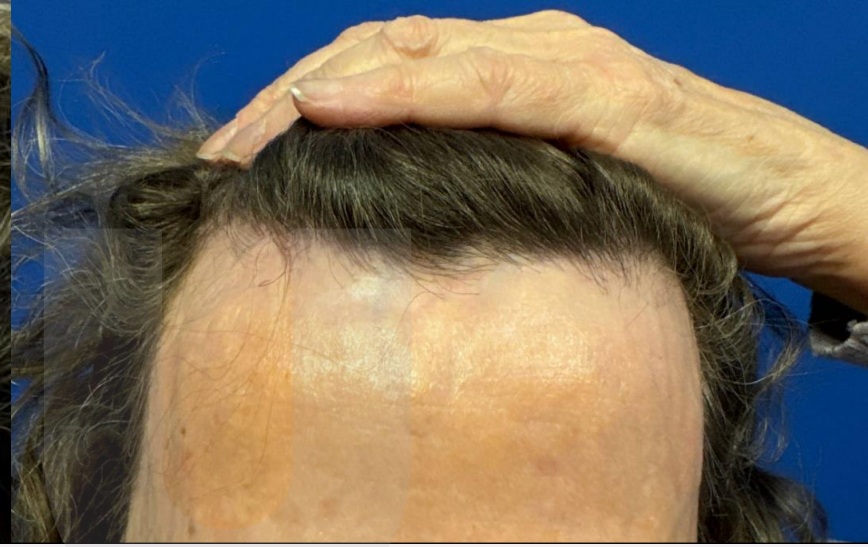
LICHEN PLANOPILARIS EXAM

- Can occur anywhere on scalp, but prefers the vertex (baseball cap distribution)
- Perifollicular red papules
- Perifollicular scale
- Stand alone hairs
- Shiny white patches (scarring)
- Loss of follicular ostia
- May see multiple hairs in one follicle due to scarring
- Pruritus
- Hair shedding

MANAGEMENT OF LPP

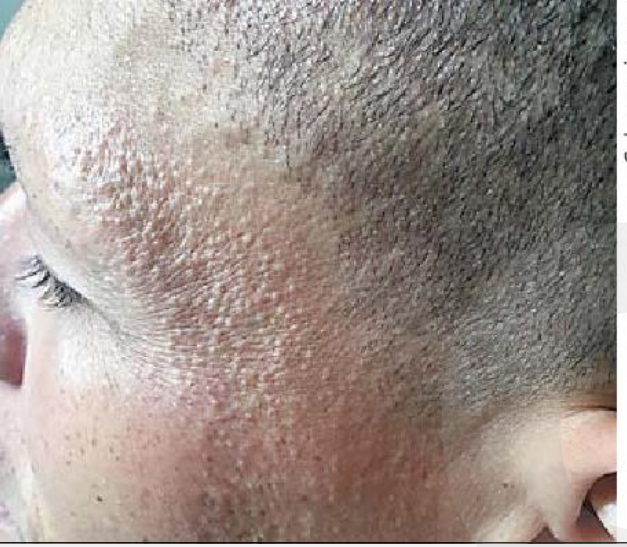
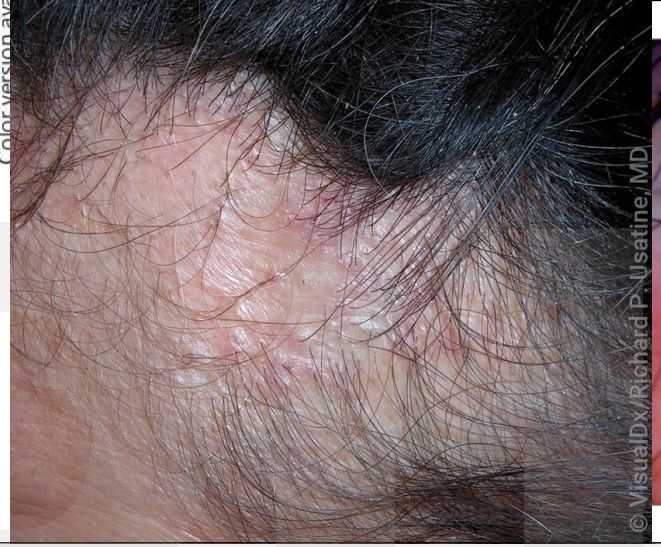


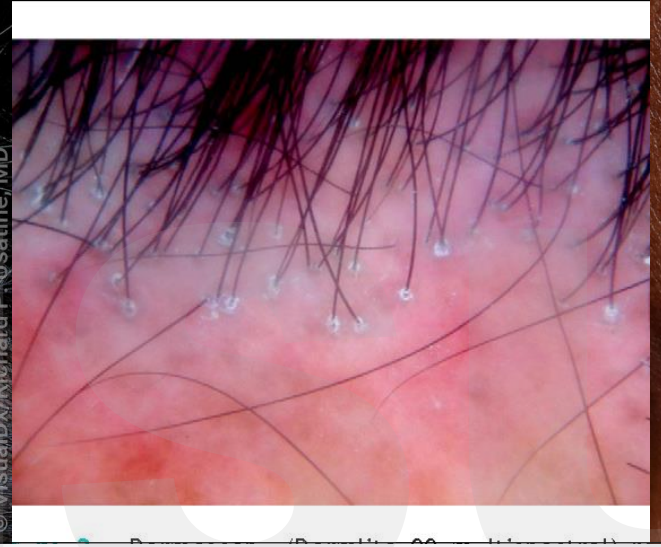
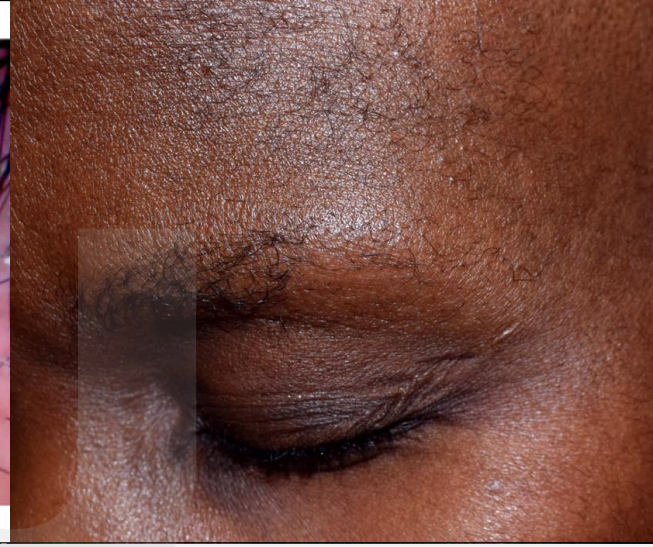
- **Refer to dermatology**
- START 1st line treatment with Clobetasol 0.05% solution three times per week to scalp
- Systemic treatments may include:
- Doxycycline 20mg BID, 50mg BID, or 100mg BID depending on amount of inflammation (expect to continue this for at least 12 months)
- Finasteride (same dosing as in AGA)
- Hydroxychloroquine
- Methotrexate
- Cyclosporine
- Mycophenolate mofetil
- Serial photography and dermoscopy to evaluate effect

FRONTAL FIBROSING ALOPECIA (FFA)

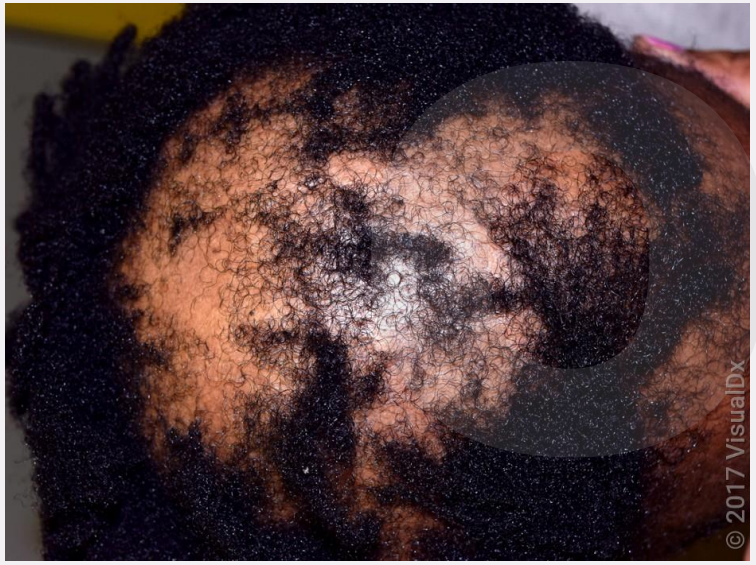
- Scarring alopecia that presents as a symmetric band-like zone of hair loss on the anterior hair line
- Often also affects postauricular scalp and lateral eyebrows
- Considered to be a patterned variant of lichen planopilaris
- Keys to diagnosis: Alopecia of frontal hair line, lateral brows. Perifollicular erythema and scaling. Lonely hair sign. Hypopigmentation of the superior forehead, facial papules.

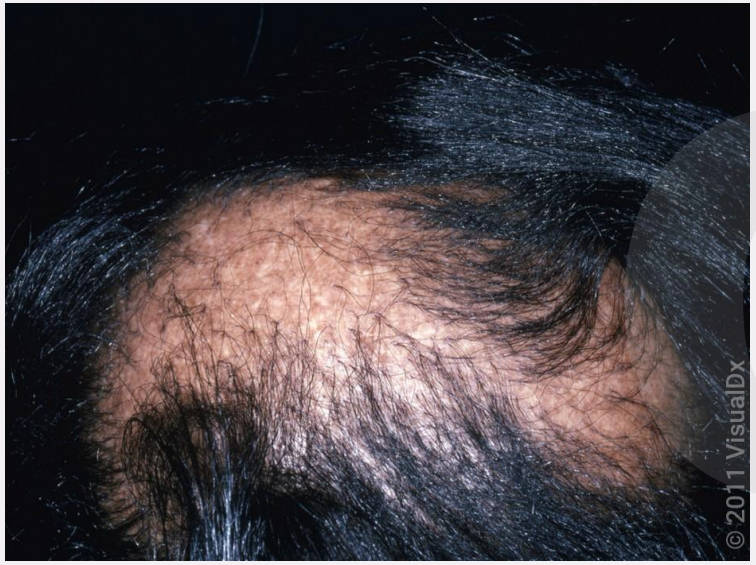



MANAGEMENT OF FFA

- Topical tofacitinib 2% cream or tacrolimus 1% solution once nightly
- Or hydrocortisone butyrate TIW (not as effective)
- Finasteride (same dosing as AGA)
- Intralesional Kenalog 2.5mg/mL inject 0.1mL every 1cm along the inflamed areas q2 months
- Possible association with chemical sunscreen and scented products, recommend discouraged use of these products
- Refer to dermatology
- Additional systemic treatments: doxycycline, hydroxychloroquine, isotretinoin, excimer
- Serial photography and dermoscopy to evaluate effect



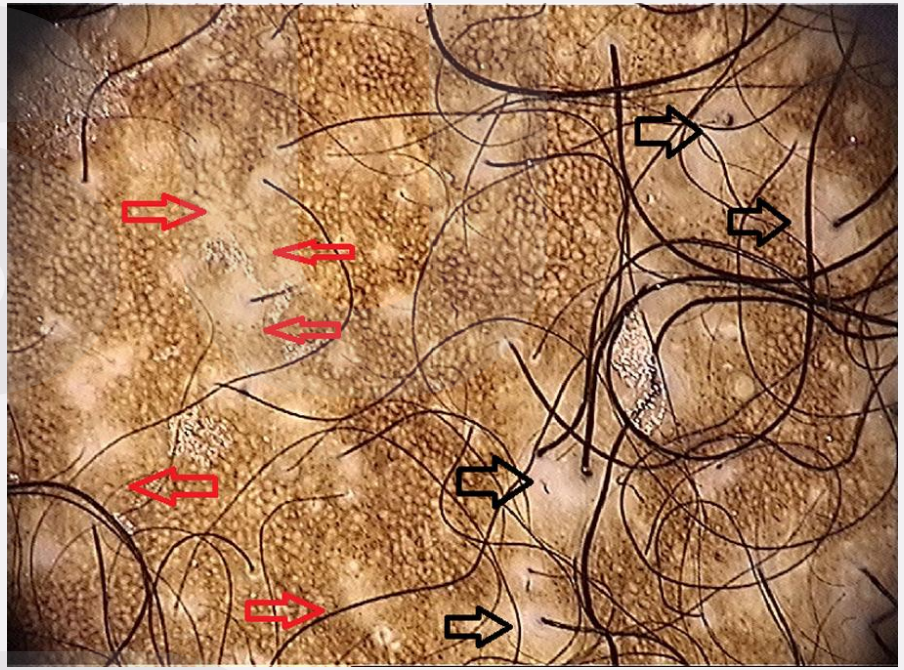


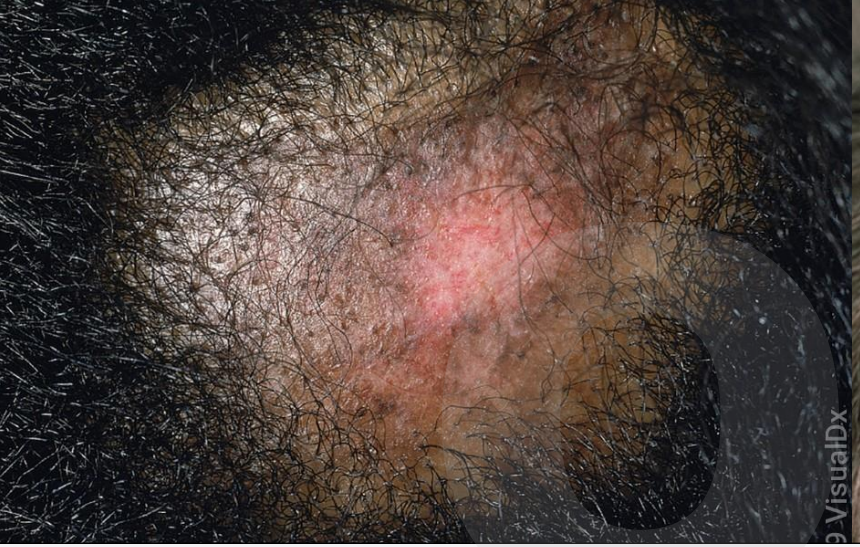
CENTRAL CENTRIFUGAL CICATRICIAL ALOPECIA (CCCA)

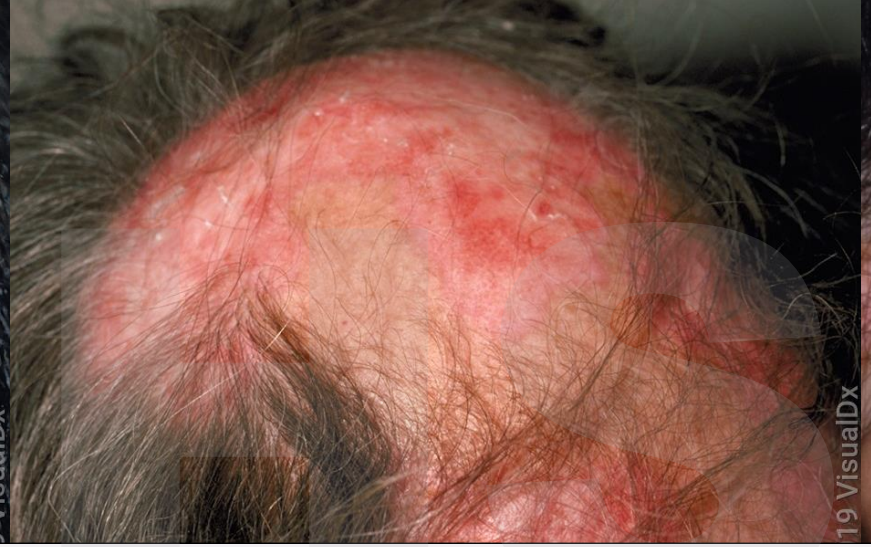
- Scarring alopecia that typically affects middle-aged females of African decent. Prevalence is 3% to 6% in this population. There is often a family history
- Pathogenesis is multifactorial, and a mutation in the PADI3 gene has been identified as contributory.
- It is thought that hair practices, such as hot combs, relaxers, tight braids, and sewn-in weaves may trigger CCCA
- Typically starts as an alopecic patch on the central vertex which expands. It may be associated with papules, pustules, erythema, or scaling, but typically the inflammation is subtle.
- May have pruritus or burning sensation of the scalp

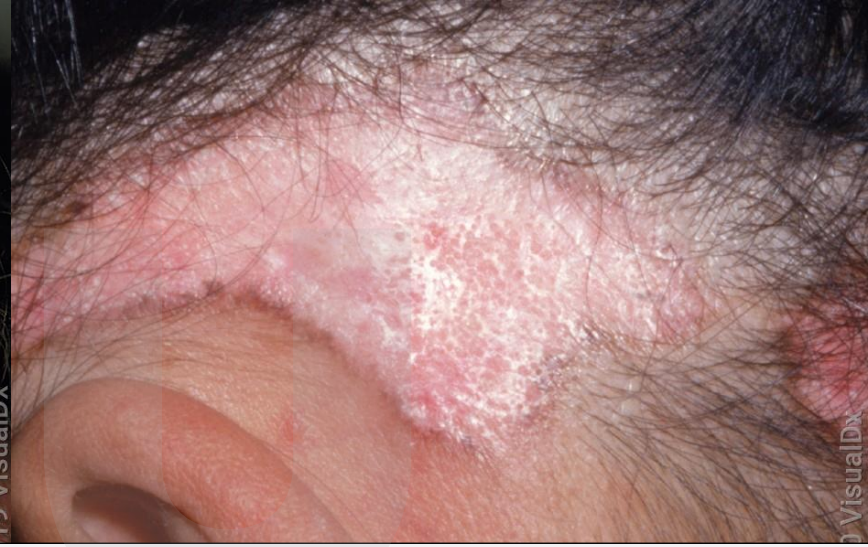
MANAGEMENT OF CCCA

- Refer to dermatology
- If suspicious for CCCA, needs scalp biopsy
- Discuss possibility of contributory hair practices and recommend avoidance hot combs, relaxers, tight braids, sewn-in weaves
- START clobetasol 0.5% ointment three times per week to the affected area of the scalp
- START ketoconazole 2% shampoo once weekly, leave on 5 minutes then rinse.
- START Doxycycline 20mg BID, 50mg BID, or 100mg BID depending on amount of inflammation (expect to continue this for at least 6 months)
- Consider starting metformin 500mg daily
- Monitor with serial photos and dermoscopy (peripilar white/gray halos and peripilar erythema)



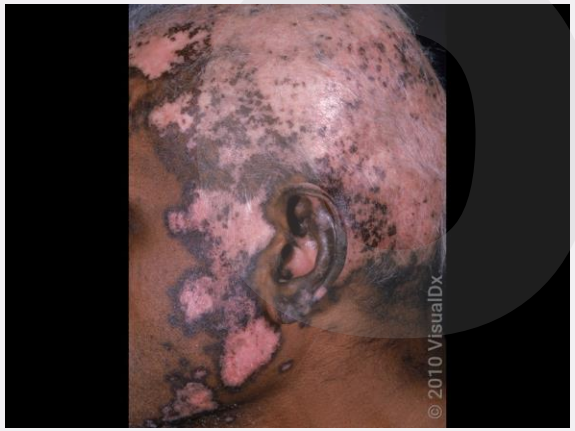






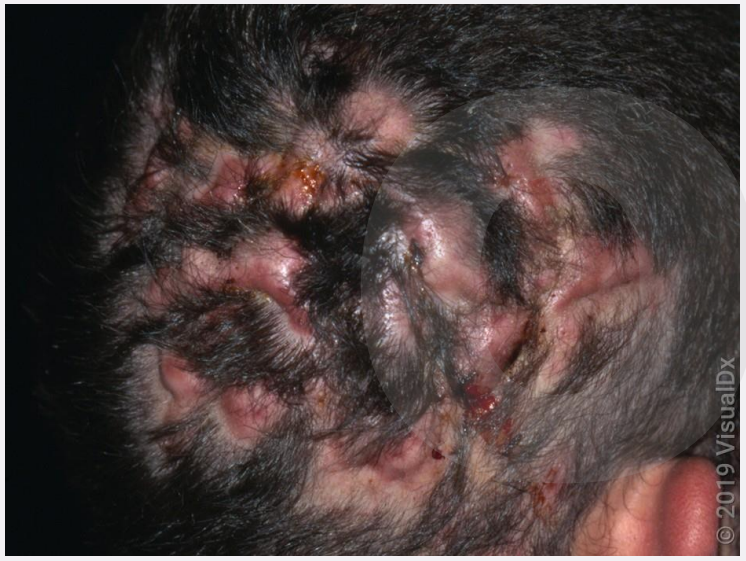
DISCOID LUPUS ERYTHEMATOSUS (DLE)

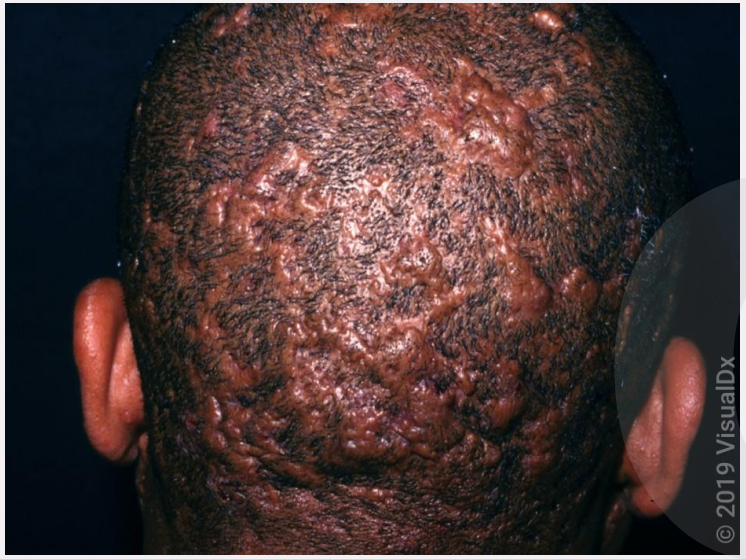
- Autoimmune skin disease that can lead to disfigurement and scarring alopecia
- Presents as discoid pink or violaceous papules or plaques with scale that can lead to depigmentation, atrophy, and scarring
- Predilection for conchal bowl—check here
- Most common in females in second, third, and fourth decades of life
- May be localized to face, scalp, ears, and neck or generalized
- Generalized DLE has 20% risk of associated systemic lupus; whereas, localized only has a 5% association.



MANAGEMENT OF DISCOID LUPUS ERYTHEMATOSUS

- Evaluate entire skin to calculate involvement
- Perform punch biopsy for suspected DLE
- Check labs for SLE: ANA with reflex to IFE, anti-SSA, anti-SSB, anti-DsDNA, CBC with Diff, ESR, CMP, and urinalysis
- Refer to dermatology and rheumatology if positive for SLE
- Recommend strict sun protection, avoidance of extreme heat or cold, and avoidance of trauma
- Advise stopping any unnecessary supplements and medications
- START high potency topical steroid (such as clobetasol 0.05% solution on scalp) once daily until lesion is smooth.
- Intralesional Kenalog 5mg/mL every 4-6 weeks
- Systemic therapies, such hydroxychloroquine or methotrexate may be needed.



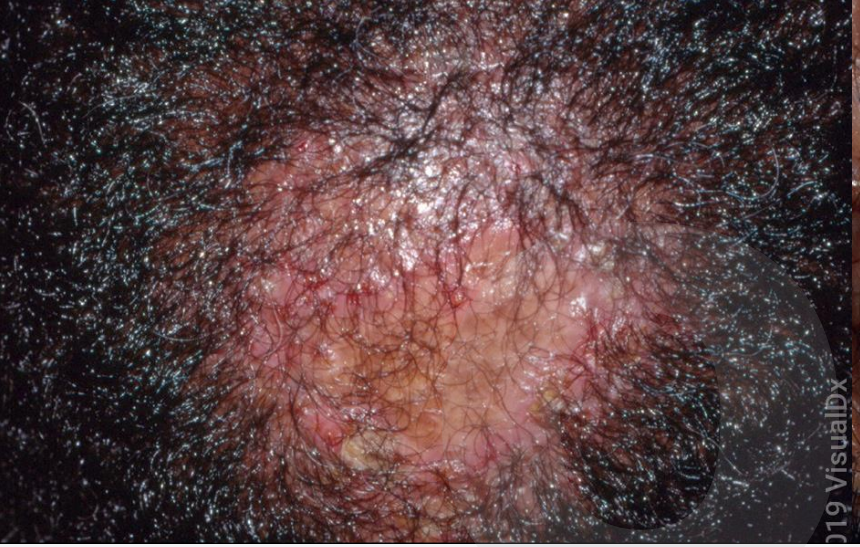


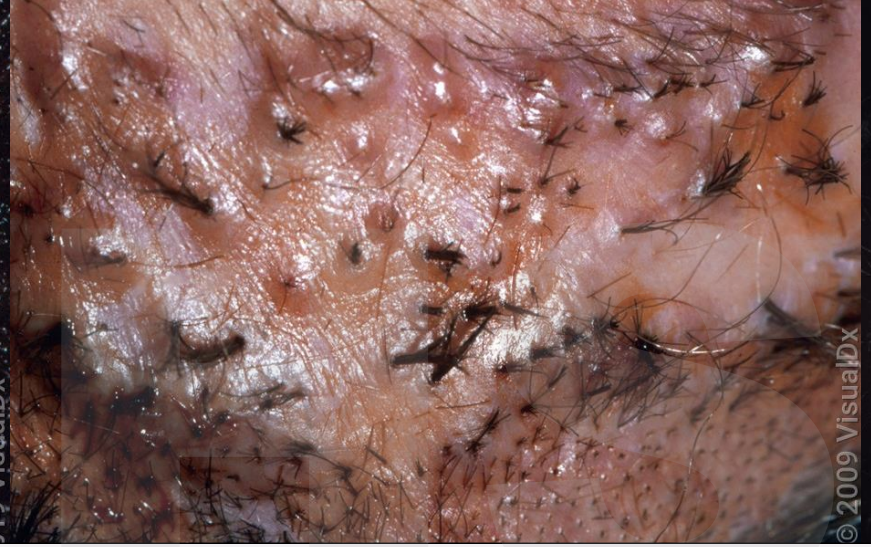
DISSECTING CELLULITIS

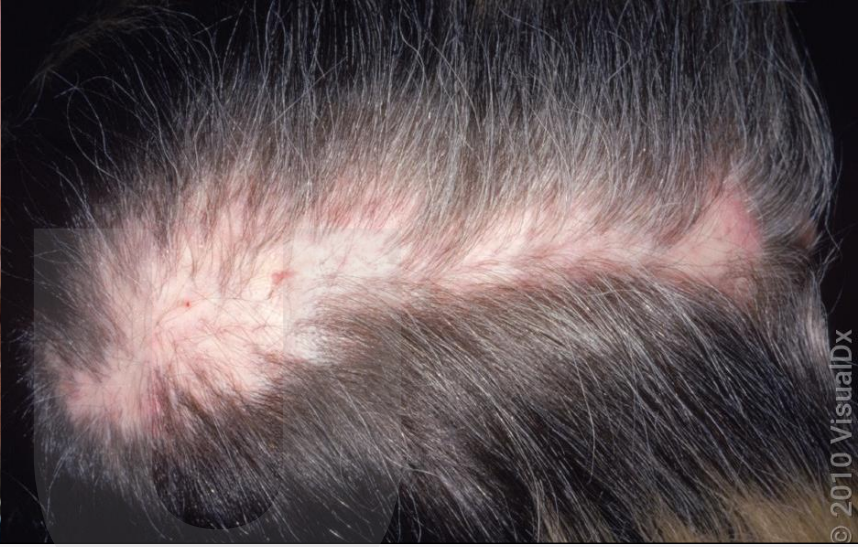
- Neutrophilic, scarring alopecia which is thought to be caused by an abnormal inflammatory response to staph antigens.
- Causes follicular occlusion and rupture, promoting inflammatory response, staph infection, and neutrophilic infiltrate.
- Typically affects Black men aged 20-40
- Part of the follicular occlusion tetrad (hidradenitis suppurativa, acne conglobata, pilonidal cyst, and dissecting cellulitis)
- Causes boggy, fluctuant nodules and pustules which typically drain purulent discharge.

MANAGEMENT OF DISSECTING CELLULITIS

This condition is challenging to treat
Refer to dermatology
Culture for bacteria
First line: Start doxycycline 100mg bid and benzoyl peroxide wash once daily
Isotretinoin or Dapsone can be very helpful
Clindamycin and Rifampin 300mg each bid may help
Intralesional Kenalog 10mg/mL
Adalimumab



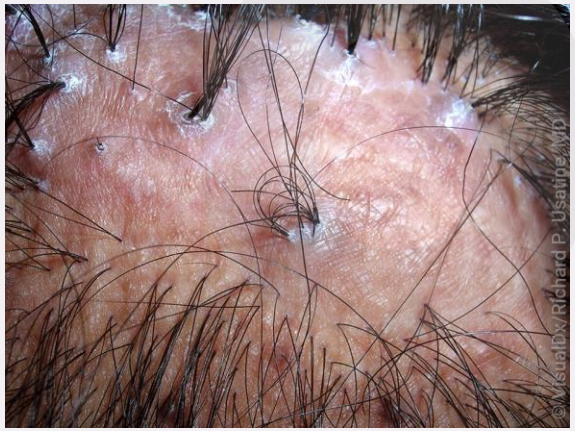




TUFTED HAIR FOLLICULITIS

(FOLLICULITIS DECALVANS)

- Neutrophilic scarring alopecia that usually affects young males
- Thought to be an abnormal immune response to staph aureus
- Inflammatory lesions and alopecia typically occur on the vertex
- Lesions present as crops of follicular-based pustules and red papules
- 70% of patients have associated pruritus, burning, or pain
- As the name suggests, the inflammation and scarring can lead to tufting or “doll’s hairs”



TUFTED HAIR FOLLICULITIS TREATMENT

- Treatment can be challenging
- Refer to dermatology
- Punch biopsy to confirm diagnosis
- Bacterial culture of any pustule
- START clobetasol 0.05% solution TIW
- START doxycycline 100mg bid for 3 months
- Consider intralesional Kenalog 5mg/mL (0.1mL every 1 cm of inflamed areas every 8-12 weeks)
- Isotretinoin for recalcitrant cases

Questions??

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