

  
**Benign Hair Disorders**  
—  
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MedNet21  
Center for Continuing Medical Education  THE OHIO STATE UNIVERSITY  
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- Objectives**
- Follow case-based discussion on patient hair complaints
  - Identify benign hair disorders
  - Discuss classic presentations and findings of benign hair disorders
  - Evaluate treatment options
  - Examine features that raise concern

**Case 1**



29-year-old woman presents with new onset hair shedding.


Denies any known chronic medical problems

Denies family history of hair thinning

Reports COVID19 infection 3 months prior

Source: DermNet - <https://dermnetnz.org/quizzes/hair-loss-14-cases/case/3>  
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**Case 1**



Exam reveals diffusely thin hair on scalp

Hair pull test is positive

Lab values for CBC, CMP, TSH are within normal limits

Source: DermNet - <https://dermnetnz.org/quizzes/hair-loss-14-cases/case/3>  
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### Case 1



Diagnosis?

Source: DermNet - <https://dermnetnz.org/quizzes/hair-loss-14-cases/case/3>  
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### Case 1



Telogen effluvium

Source: DermNet - <https://dermnetnz.org/quizzes/hair-loss-14-cases/case/3>  
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### Telogen effluvium

- Common nonscarring hair loss

### Telogen effluvium

- Typically – in normal scalp:
  - 90% of scalp hair is in anagen (growth) phase
  - 10% of scalp hair is in telogen (shedding) phase

### **Telogen effluvium**

- In patients with telogen effluvium:
  - 80% of scalp hair is in anagen (growth) phase
  - 20% of scalp hair is in telogen (shedding) phase

### **Telogen effluvium**

- Premature transition of more hairs to the telogen phase leads to more rapid hair shedding

### **Telogen effluvium**

- Numerous Triggers:
  - Emotional/psychological stressors
  - Systemic illness
  - Hormonal changes
  - Surgery
  - Medication changes
  - Diet/abrupt weight loss
  - Nutritional deficiencies

### **Telogen effluvium**

- Most common alopecia associated with systemic illness

### Telogen effluvium

- Common medications implicated:
  - Acitretin
  - Isotretinoin
  - Beta blockers
  - Captopril
  - Antidepressants
  - Anticonvulsants
  - Diabetic drugs
  - Oral contraceptives

### Telogen effluvium

- Interval between inciting event/agent and shedding
  - Typically weeks to few months

### Telogen effluvium

- Hair loss noted as increase in shedding
- May persist for 6-12 months
- Chronic form is less common but can persist for years

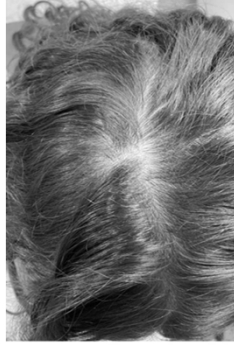
### Telogen effluvium

- Exam shows diffuse thinning across the scalp
- Gentle pull test with 10-20 hairs – perform gentle traction – will yield ~10 hairs. Normally 1-2 hairs should come out from the bulb (white hair bulbs noted on ends)



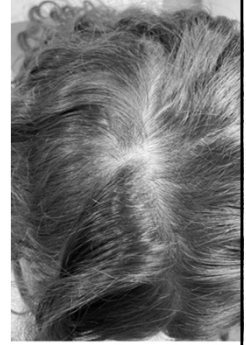
### Telogen effluvium

- Perform drug history
- Perform extensive history gathering related to any stressful events, life changes, diet changes, or medical issues in the months preceding onset of hair loss
- Consider ferritin and TSH testing



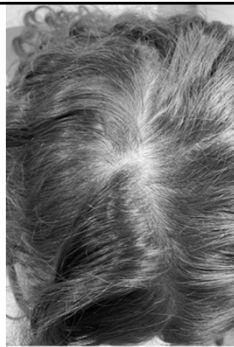
### Telogen effluvium

- Management:
  - Reassurance
  - Address any nutritional deficiencies
  - Address any culprit drugs, underlying medical problems, or persistent stressors



### Telogen effluvium

- Management:
  - Consider topical minoxidil 5% foam or solution
  - Severe or persistent cases may benefit from oral minoxidil



### Case 2

- 40 yo F presents with worsening hair loss for years
- Denies chronic medical history, denies taking prescription medications
- Reports mother with similar pattern of hair loss
- Reports history of chemical treatments to hair



### Case 2

- Exam reveals smooth complete alopecia primarily affecting vertex scalp
- Scalp appears shiny in areas of hair loss



### Central Centrifugal cicatricial alopecia (CCCA)

- Scarring alopecia
- Predominantly affects women of African descent



### Central Centrifugal cicatricial alopecia (CCCA)

- Exact pathogenesis is unknown
- Likely multifactorial



### Central Centrifugal cicatricial alopecia (CCCA)

- A genetic defect in the internal root sheath has been suggested
- Mutation in *PADI3* (encodes protein necessary for normal hair shaft formation)



**Central Centrifugal cicatricial alopecia (CCCA)**

- Additional factors thought to be implicated/worsen disease include hair practices that may cause trauma to the hair shafts including tight hair styles, excessive use of heat styling, and chemical hair relaxers



**Central Centrifugal cicatricial alopecia (CCCA)**

- When disease is active – can be symptomatic (burning, pruritis, etc.)



**Central Centrifugal cicatricial alopecia (CCCA)**

- Areas scarred will unlikely have regrowth
- Goal is to prevent worsening



**Central Centrifugal cicatricial alopecia (CCCA)**

- Management:
  - Topical steroids
  - Intralesional steroids
  - Topical minoxidil
  - Oral antibiotics
  - Antimalarials
  - Topical metformin



### Case 3

- 63 yo postmenopausal woman presents with itching scaling plaques on scalp
- Tenderness and burning also present
- Has areas of shiny hair loss on scalp
- Denies chronic medical problems



### Lichen planopilaris (LPP)

- Scarring hair loss
- Presents with erythema on scalp and perifollicular scaling
- Severe pruritis, scaling, burning, and tenderness may be present



### Lichen planopilaris (LPP)

- Thought to be caused by dysfunction in cell-mediated immunity
- May present in association with lichen planus
- Leads to scarring hair loss



### Lichen planopilaris (LPP)





### Lichen planopilaris (LPP)

- Biopsy can be helpful
- Management is challenging
- Goal is to halt inflammatory process and minimize the extent of scarring hair loss



### Lichen planopilaris (LPP)

- Management:
  - Topical steroids
  - Intralesional steroids
  - Hydroxychloroquine
  - antibiotics
  - immunosuppression



### Case 4

- 30 yo F presents with few circular patches of hair loss
- Reports similar episodes in past with spontaneous regrowth
- Denies symptoms
- Denies chronic medical problems



### Case 4

- Exam reveals several circular areas of complete hair loss
- Dermoscopic exam reveals retention of follicular ostia



### Alopecia areata

- Autoimmune disease
- Non-scarring hair loss
- Can affect any hair bearing area
- Sudden onset



### Alopecia areata

- T lymphocyte-mediated attack on hair follicle
- Course unpredictable



### Alopecia areata

- Presents as round patches of hair loss
- May affect eyebrows, eyelashes, body hair
- Hair regrowth usually as white or gray hairs



### Alopecia areata

- Consider obtaining TSH, ANA, RF, Ferritin, TTG, HbA1c



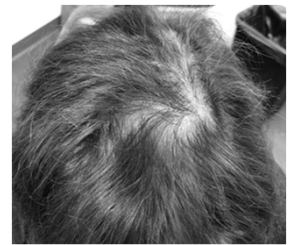
### Alopecia areata

- Management
  - Topical steroids
  - Intralesional steroids
  - Oral steroids
  - Topical immunotherapy
  - Immunosuppressants
  - Janus kinase (JAK) inhibitors



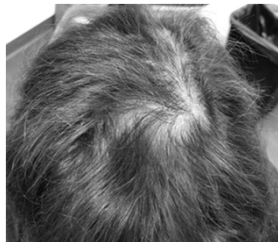
### Case 5

- 65 yo F presents with 10 year history of widening of her hair part
- Denies symptoms on the scalp
- Reports frontal hair line has maintained about the same
- Reports history of hypertension



### Case 5

- Exam reveals diffuse thinning of the scalp vertex and mid scalp
- Frontal hairline is retained
- No erythema or areas of scarring are noted



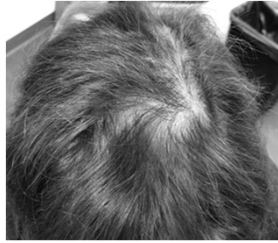
### Androgenetic alopecia (female pattern alopecia)

- Most commonly noted in postmenopausal women
- Can present earlier in life



**Androgenetic alopecia (female pattern alopecia)**

- Hereditary – many genes involved
- Dihydrotestosterone (DHT) binds to the androgen receptor
- Hormone-receptor complex --> turns on genes --> transformation of large terminal follicles to miniaturized follicles



**Androgenetic alopecia (female pattern alopecia)**

- Presents as diffuse thinning of the crown and widening of the part
- Nonscarring
- Bitemporal recession



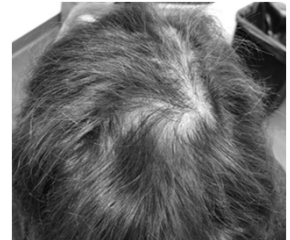
**Androgenetic alopecia (female pattern alopecia)**

- Younger women presenting with AGA --> workup for underlying endocrine disorders
  - Polycyclic ovary syndrome
  - Late-onset congenital adrenal hyperplasia



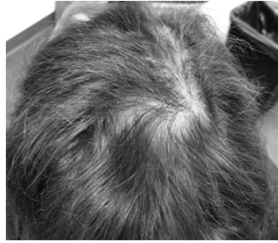
**Androgenetic alopecia (female pattern alopecia)**

- Lab testing often not necessary
- If features of hyperandrogenism
  - DHEA-S
  - Total testosterone



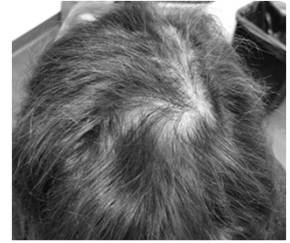
### Androgenetic alopecia (female pattern alopecia)

- Lab testing often not necessary
- Consider
  - Iron studies (ferritin)
  - Thyroid function tests



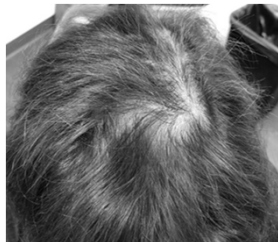
### Androgenetic alopecia (female pattern alopecia)

- Management
  - Establish realistic goals of treatment
  - Treat any underlying conditions of scalp such as seborrheic dermatitis



### Androgenetic alopecia (female pattern alopecia)

- Management
  - Topical minoxidil 5%
  - Spironolactone
  - Finasteride
  - Oral minoxidil
- Need to treat for at least 6-12 months before evaluating for efficacy



### Case 6

- 50 yo F presents with progressive loss of frontal hair line
- Notes some remaining hairs along edge of hairline



### Case 6

- Reports typically styles hair in braids or tight bun
- Denies symptoms on scalp



### Traction Alopecia

- Occurs after hair shaft is placed under tension for extended periods cumulatively
- Hair shaft becomes damaged



Source: DermNet - <https://dermnetnz.org/topics/traction-alopecia>  
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### Traction Alopecia

- Typically involves frontotemporal scalp, sometimes occipital scalp
- More common in women, especially black women



Source: DermNet - <https://dermnetnz.org/topics/traction-alopecia>  
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### Traction Alopecia

- Management
  - Avoid tight hair styles
  - If caught early – likely nonscarring
  - If later stages – likely scarring



Source: DermNet - <https://dermnetnz.org/topics/traction-alopecia>  
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## Traction Alopecia

- Management
  - Topical steroids
  - Topical 5% minoxidil
  - Oral antibiotics (anti-inflammatory)
  - Intralesional steroids



Source: DermNet - <https://dermnetz.org/topics/traction-alopecia>  
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## Case 7

- 40 yo M presents with thinning along scalp vertex and mid scalp
- Notes father has similar hair loss but started in his 60s
- Denies new medications



Source: DermNet - <https://dermnetz.org/topics/male-pattern-hair-loss>  
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## Case 7

- Exam reveals bitemporal recession with mid and vertex scalp thinning
- No evidence of scarring



Source: DermNet - <https://dermnetz.org/topics/male-pattern-hair-loss>  
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## Androgenetic alopecia (male pattern hair loss)

- Common pattern of hair loss in men
- Dihydrotestosterone induces miniaturization of select hair follicles
- Genetic pattern



Source: DermNet - <https://dermnetz.org/topics/male-pattern-hair-loss>  
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**Androgenetic alopecia  
(male pattern hair loss)**

- Management:
  - Realistic expectations
  - Topical minoxidil
  - Oral minoxidil
  - Oral finasteride



Source: DermNet - <https://dermnetz.org/topics/male-pattern-hair-loss>  
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**Benign Nail Disorders**

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**Objectives**

- Follow case-based discussion on patient nail complaints
- Identify benign nail disorders
- Discuss classic presentations and findings of benign nail disorders
- Evaluate treatment options
- Examine features that raise concern

**Case 1**

- 65 yo M presents with nail changes on several fingernails
- Employed as a mechanic and has dry hands



Source: DermNet - <https://dermnetz.org/topics/onycholysis>  
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### Case 1

- Exam reveals distal nail plate separated from nail bed on several fingernails. Toenails are spared



Source: DermNet - <https://dermnetz.org/topics/onycholysis>  
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### Onycholysis

- Presents of detachment of the nail plate from bed
- Most common cause is trauma
- Also seen in patients with eczema, psoriasis, contact dermatitis, lichen planus, and other skin conditions



Source: DermNet - <https://dermnetz.org/topics/onycholysis>  
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### Onycholysis

- Management:
  - Nails should be kept trim
  - Avoid trauma or chemical irritants
  - Gloves used for dishwashing
  - Avoid excessive wet work



Source: DermNet - <https://dermnetz.org/topics/onycholysis>  
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### Onycholysis

- Management:
  - Consider dilute vinegar soaks for prevention of secondary infection
  - If underlying medical condition identified, treatment may be helpful to nails



Source: DermNet - <https://dermnetz.org/topics/onycholysis>  
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### Case 3

- 55 yo M presents with thickening and yellowing of both great toenails
- Endorses being an avid runner
- Denies involvement of fingernails
- No new medications



Source:DermNet - <https://dermnetz.org/topics/fungal-nail-infections>  
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### Case 3

- Exam reveals thickened dystrophic great toenails



Source:DermNet - <https://dermnetz.org/topics/fungal-nail-infections>  
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### Onychomycosis

- Fungal infection of the nail caused by dermatophyte fungi most commonly
- Often associated with tinea pedis



Source:DermNet - <https://dermnetz.org/topics/fungal-nail-infections>  
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### Onychomycosis

- Personal history of tinea pedis or household contacts with onychomycosis = most common risk factors



Source:DermNet - <https://dermnetz.org/topics/fungal-nail-infections>  
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### Onychomycosis

- Typically involves toenails – fingernails rarely affected



Source:DermNet - <https://dermnetz.org/topics/fungal-nail-infections>  
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### Onychomycosis

- Nail clipping for periodic acid-Schiff (PAS) staining
- KOH prep of nail scrapings
- Fungal culture for identification of specific pathologic



Source:DermNet - <https://dermnetz.org/topics/fungal-nail-infections>  
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### Onychomycosis

- Management:
  - Most effective therapy: terbinafine 250 mg daily x 12 weeks for toenail infections
  - Baseline liver function tests and repeat testing



Source:DermNet - <https://dermnetz.org/topics/fungal-nail-infections>  
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### Onychomycosis

- Management:
  - Topical – less effective
    - Ciclopirox 8% nail lacquer



Source:DermNet - <https://dermnetz.org/topics/fungal-nail-infections>  
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### Case 3

- 30 yo M presents with transverse depression along multiple fingernails
- Reports infection of hand-foot-and-mouth disease that he acquired a few months prior from patient's toddler



Source: DermNet - <https://dermnetnz.org/topics/nail-terminology>  
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### Case 3

- Exam reveals transverse depression along several fingernails
- No other skin changes are noted



Source: DermNet - <https://dermnetnz.org/topics/nail-terminology>  
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### Beau lines

- Presents as transverse depression in nail plate
- Secondary to interruption of nail keratin synthesis
- Grow out with nail



Source: DermNet - <https://dermnetnz.org/topics/nail-terminology>  
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### Beau lines

- Numerous causes:
  - Trauma
  - Systemic causes such as myocardial infarction or rheumatic fever
  - Drug induced – most commonly secondary to chemotherapy
  - Systemic infections



Source: DermNet - <https://dermnetnz.org/topics/nail-terminology>  
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### Beau lines

- Management:
  - Resolves with nail growth
  - Address any culprit drugs if reasonable



Source: DermNet - <https://dermnetnz.org/topics/nail-terminology>  
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### Case 4

- 35 yo M presents with changes in both first fingernails
- Denies new medications
- Reports history of generalized anxiety



Source: DermNet - <https://dermnetnz.org/image-catalogue/hair-scalp-nail-and-sweat-images>  
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### Case 4

- Exam reveals central longitudinal grooves on bilateral first digits
- No other skin findings noted



Source: DermNet - <https://dermnetnz.org/image-catalogue/hair-scalp-nail-and-sweat-images>  
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### Onychotillomania

- Caused by trauma to nail by frequent rubbing of nail fold
- Patient may or may not have insight into habit



Source: DermNet - <https://dermnetnz.org/image-catalogue/hair-scalp-nail-and-sweat-images>  
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## Onychotillomania

- Associated with psychiatric disorders
- Most commonly affects first digits



Source: DermNet - <https://dermnetnz.org/image-catalogue/hair-scalp-nail-and-sweat-images>  
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## Onychotillomania

- Management:
  - Physical barriers (i.e. bandaging nails)
  - Consider referral to behavioral therapy and/or psychiatry if appropriate



Source: DermNet - <https://dermnetnz.org/image-catalogue/hair-scalp-nail-and-sweat-images>  
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## Resources

- [Dermatology images | DermNet \(dermnetnz.org\)](https://dermnetnz.org)
- [Visualex.com](https://www.visualex.com)