Hair Disorders – A Case Based Approach

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Some slides courtesy
EJ Mayeaux, M.D.

Disclosure Statement:

- Co-Author,
  - Dermatologic and Cosmetic Procedures in Office Practice. Elsevier, Inc., Philadelphia. 2012.
  - Cutaneous Cryosurgery Fourth Edition CRC press 2014

Objectives

- Recognize normal hair anatomy and physiologic changes in hair
- Evaluate the chief complaint of hair loss
- Utilize effective medical interventions for hair disorders, when appropriate

Life Cycle of a Hair

- Anagen phase (active growth) – 2-7 years
- Catagen (transitional/follicular regression) - 2-3 weeks
- Telogen (preshedding or rest) about 3 Months
- > 85% of hairs of the scalp are in anagen
- Hair released and shed at end of telogen
- Longer anagen phase = Longer hair

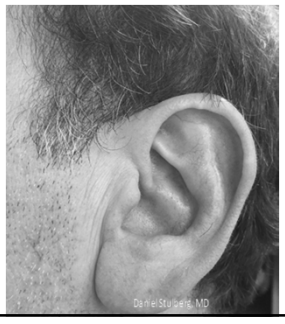
Life Cycle of a Hair

- We have all terminal hair follicles at birth
- Hair grows at 0.35 mm/day = 1 cm /month
- Each hair follicle's cycle is usually asynchronous with others around it
- We lose ~75-100 hairs a day
  - Same number of hairs enter anagen phase
  - Telogen hairs are characterized by a mature root sheath, or "club," at the proximal end

Price VH. Treatment of hair loss. N Engl J Med 1999; 341:964.

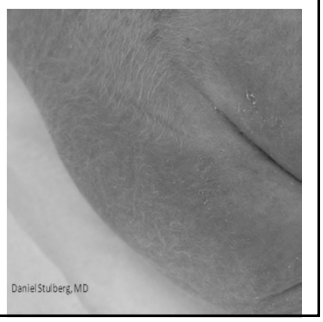
Hair Classification

- Terminal (large) hairs
  - Found on the head and beard
  - Larger diameters and roots that extend into sub q fat



Hair Classification

- Vellus hairs are smaller in length and diameter and have less pigment
- Intermediate hairs have mixed characteristics

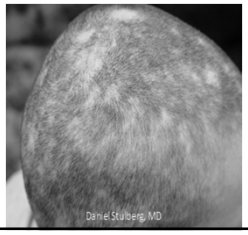


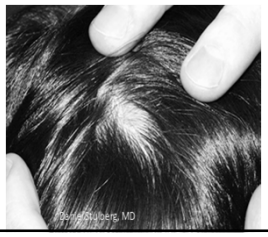
Alopecia Definition

- Partial or complete loss of hair from where it would normally grow

Celestino FS, Alopecia. In: Mengel MB, Schwiebert LP, eds Ambulatory Medicine. Stamford, Conn: Appleton & Lange; 1996:

- Can be total, diffuse, patchy, or localized





Classification of Alopecia

Scarring	Nonscarring
Neoplastic	Medications
Nevoid	Congenital
Injury such as burns	Infectious
Cicatricial – Inflammatory Systemic illnesses (LE)	Genetic (male pattern)
	Toxic (arsenic)
	Nutritional
Congenital	Traumatic
	Endocrine
	Immunologic
	Physiologic

General Evaluation of Hair Loss

- History
  - Shedding vs. thinning
  - Duration of problem
  - Pertinent family hx
  - Grooming practices
  - Medications
  - Serious past or current illnesses

Physical

- Pattern of hair loss
  - Patchy or localized = confined to several areas of the scalp leaving some areas unaffected
  - Diffuse implies uniform density decrease
- Examine the scalp for erythema, scale, pustules, bogginess, edema, loss of follicle openings, scarring or sinus tracts
- Check for follicular ostia and broken hairs
- Hair fragility
  - Squeeze and roll hair within a gauze pad
  - If fragile, short fragments remain on the pad

Evaluation

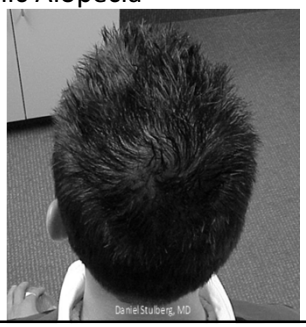
- Hair pull test
  - 50 - 60 hairs are grasped firmly in thumb & forefinger and steady traction applied as fingers dragged along the lengths of hairs
    >6 hairs = loss
  - Examine microscopically
- May consider scalp punch biopsy
  - Trim hair, inject 1-3 cc of lido with epi, use a 4mm punch, place single suture
  - Attempt to get both affected and normal

Laboratory Studies

- TPab or RPR/VDRL
- KOH prep or PAS for fungal elements
  - Use in patchy hair loss
  - Hair shaft stubs from periphery of lesion
  - Can obtain culture for fungi

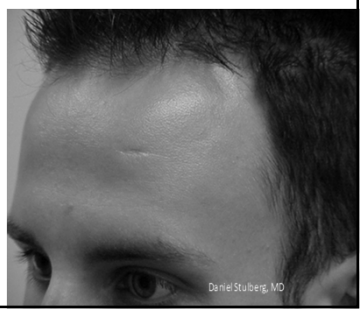
Androgenic Alopecia

- Male pattern baldness
- Complain of thinning vs. shedding
- Affects 30-40% of adults



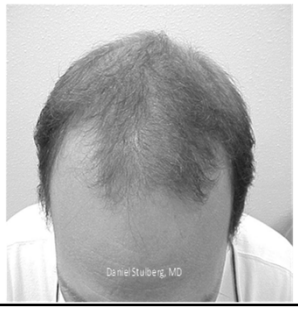
Androgenic Alopecia

- Crown
- Frontal
- Temples
- Sparing of occipital and lower parietal fringe of hair



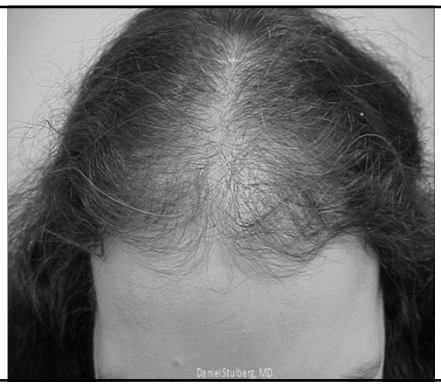
Androgenic Alopecia

- Multiallelic trait
- Obtain history of baldness in grandparents and 1st-degree relatives on both maternal and paternal sides of family



Hair Case

- 45 year old woman
- Progressive hair loss
- No PMH
- No virilization/acne/voice changes/clitoromegaly



Female Pattern Hair Loss

- Strong family history common
- Just like Male pattern baldness
- Follicular miniaturization
- No endocrine work up needed
- Finasteride (Propecia) 1mg PO Qday (5mg tab on $4 plan)
  - 5-Alpha reductase inhibitor – Blocks Testo to 5Alpha dihydrotestosterone
- Minoxidil 2% (Rogaine) 1ml BID
  - Prolongs anagen phase

Female Virilization

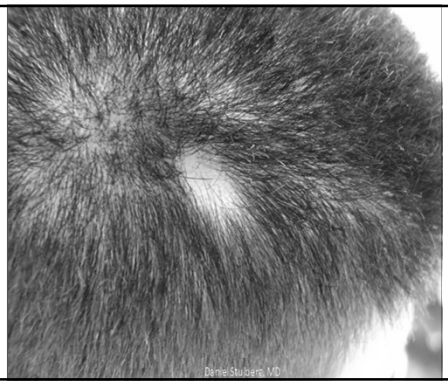
- Anabolic steroid use
- Ovarian
- Adrenal
- Hormone eval
- Consider imaging ovaries & adrenal glands

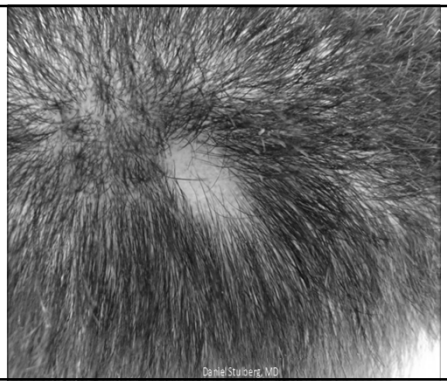
Androgenic Alopecia Treatment

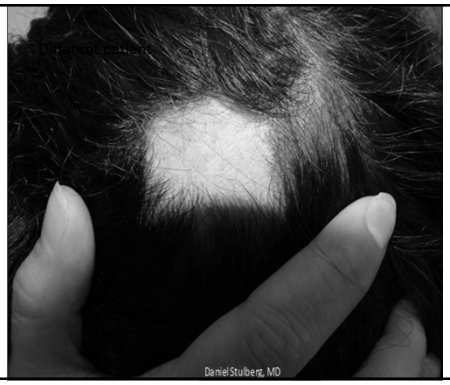
- Topical minoxidil or oral finasteride
  - ♂ Finasteride 1mg orally (5mg tab on $4 plans can use ¼ tab)
  - ♂ Minoxidil 5% 1ml BID
  - ♀ Finasteride 1mg orally (Propecia)
  - ♀ Minoxidil 2% 1ml BID (Rogaine)
- No head to head comparisons
  - Both beneficial compared to placebo
- Surgical treatment
  - Micrografting
  - Plugs
  - Scalp reduction

Hair loss Case

- 25 YO man no PMH
- Hair cut 1 week ago
- Noted patch of hair loss 3 days later
- No other sx



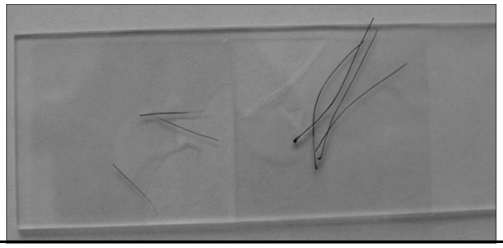


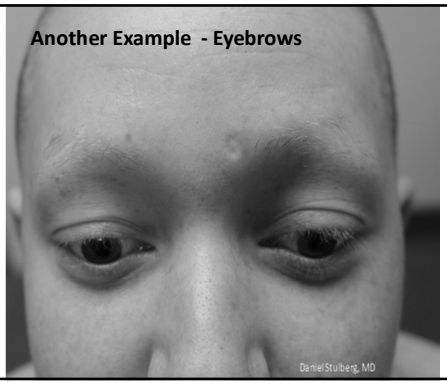


Pull Test

Exclamation point hairs

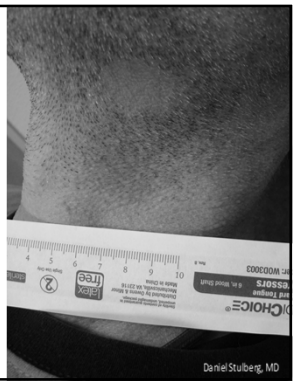
Normal Anagen phase





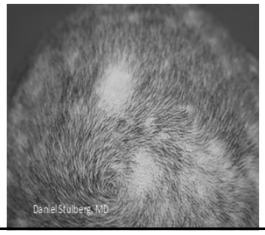
Alopecia Areata

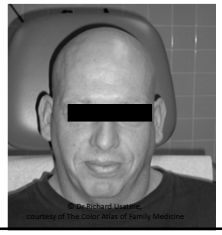
- Focal patches
- Smooth base
- Easily pulled hairs at margin
- Non scarring
- Poss auto-immune
- Poss correlation with Vitiligo, thyroid dz,?DM
- Often + Family HX
- Commonly starts in childhood



Alopecia Areata

- Usually circumscribed patches
  - Total scalp (Totalis)
  - Entire body (Universalis)





Alopecia Areata

- Poorer prognosis with
  - Severe disease (esp. Totalis/Universalis)
  - Nail pitting, splitting
  - Peripheral scalp disease
  - Onset before puberty
  - Duration >1 yr.

Alopecia Areata Treatment - EBM

- Few treatments for alopecia areata have been well evaluated in RTCs. We found no RCTs on the use of diphencyprone, DNCB, intralesional steroids or dithranol, although they are commonly used. Although topical steroids and minoxidil are widely prescribed and appear to be safe, there is no convincing evidence that they are beneficial in the long term. Considering the possibility of spontaneous remission especially in the early stages, the option of not being treated may be an alternative way of dealing with this condition

Cochrane Database of Systematic Reviews As of 4/2016 last updated 2008

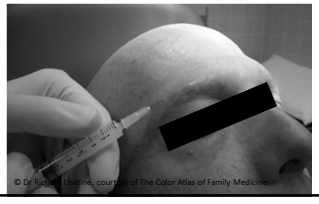
Alopecia Areata Treatment

- Reassurance – 50-80% limited cases regrow
  - May ask for tx even for a small patch
- Minoxidil 5%
- Mild cases (<10% scalp) - intralesional steroids to decrease inflammation around the follicle
  - May pretreat with topical anesthetic cream
- Potent topical steroids
  - Fluocinolone acetonide cream 0.2% (Synalar)
  - Betamethasone dipropionate 0.05% (Diprosone)
  - Less effective*
- Severe forms hard to treat - refer

*Devi M, Rashid A, Ghafoor R. Intralesional Triamcinolone Acetonide Versus Topical Betamethasone Valearate in the Management of Localized Alopecia Areata. *J Coll Physicians Surg Pak*. 2015 Dec. 25 (12):860-2

Alopecia Areata Treatment

- Intralesional steroids - triamcinolone acetonide (Kenalog) 2.5-10mg/ml
- Up to 4ml
- Inject while advancing needle using only enough to blanch the skin momentarily or 0.1 ml every 1cm
- Can repeat q 4-6 weeks
- Major side effect is skin atrophy



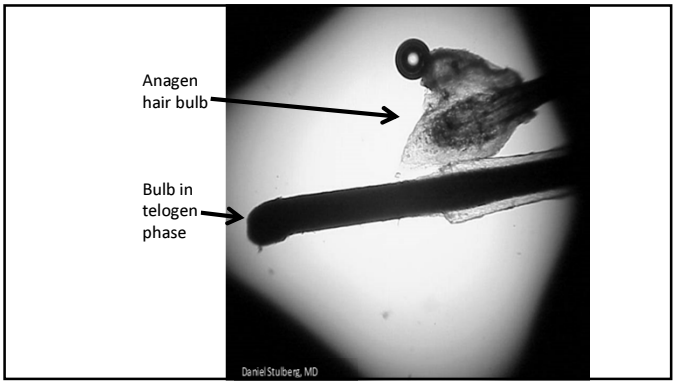
Alopecia Areata Treatment Adjuncts

- Systemic steroids for larger areas
  - May lose hair when tapered or D/C
- Minoxidil 5% topically BID w/without steroids but success is varied and is slow
  - 8-45% success rates*
  - 5% distant hypertrichosis
- Topical immunotherapy with diphenylcyclopropenone (DPCP), squaric acid dibutylester (SADBE), or dinitrochlorobenzene (DNCB) is probably the most effective treatment

*Bolduc, C E-Medicine 2016

Hair Loss Case

- 25 YO G1P1 5.5 months s/p NSVD uncomplicated
- Losing hair diffusely following preg
- Clumps of hair in shower



Telogen Effluvium

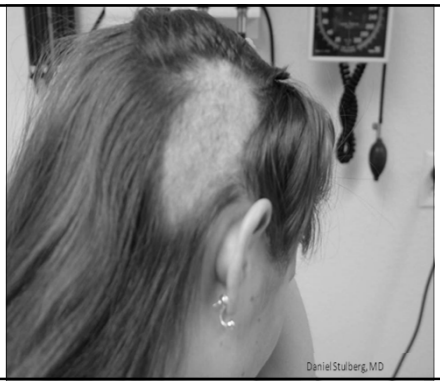
- Acute hair loss (up to 20% at peak)
- Most common cause of diffuse hair loss
- Occurs 3-4 months after a trigger
  - Pregnancy, severe wt. loss, major illness, traumatic, psych events
- Women > men
- Non focal
- Mild or no visible thinning
- Anagen hairs precipitated into catagen
- At telogen hairs abruptly fall out

Telogen Effluvium

- Patients often do not associate with precipitating illness due to time interval
- Drugs can cause telogen effluvium
  - PTU, Tapazole, heparin, and warfarin
  - Hypervitaminosis A
- Pull test: > 5-6 telogen hairs
- Lab: TSH, iron studies, Tpab, RPR or VDRL
- No specific treatment

Hair Loss Case

- 15 yo many years of hair loss
- PMH Depression O/W denies
- Asymptomatic



Trichotillomania

- 2-3% of all people with hair loss
- Strange pattern
- No inflammation
- Varying length of hair
- HX depression, anxiety, hair twirling
- Frequent trichophagia, sometimes bezoars

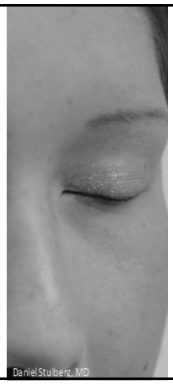
Trichotillomania

- Mean onset age 13
- Dx usually by the pattern of loss, sometimes with unusual shapes
- Women > men

Trichotillomania - Broken hairs

Trichotillomania

- Usually not scarring, but plucking over years may result in immune cell infiltrate
- Pluck test
  - Wear gloves if difficult to pluck
- Lab consider
  - TPab or RPR, TSH
- Treatment
  - Behavior modification
  - ? SSRI antidepressants



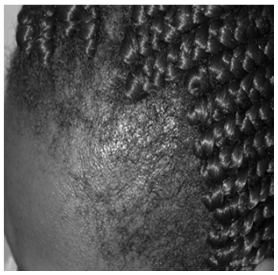
EBM Recommendation

- "No particular medication class definitively demonstrates efficacy in the treatment of trichotillomania. Preliminary evidence suggests treatment effects of clomipramine, NAC and olanzapine based on three individual trials, albeit with very small sample sizes."

- Cochrane review – Pharmacotherapy for trichotillomania Rothbart, R et al November 2013
- Deepmala et al Clinical trials of N-acetylcysteine in psychiatry and neuorology:A systematic review. Neurosci Biobehav Rev 2015 Aug;55:294-321

Traction Alopecia

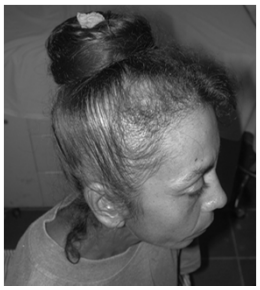
- Unintentional traumatic hair loss
- Often seen in athletes and African-Americans when hair is placed in tight braids / styles
  - Outermost hairs subjected to most tension
  - Given time, a zone of alopecia results between braids and along scalp margin



Mitchell Pratte, DO

Traction Alopecia

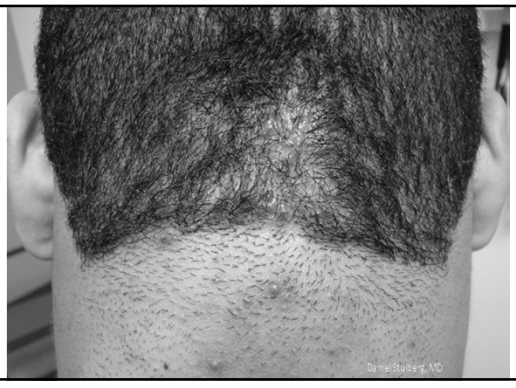
- Temporal, frontal and periauricular regions of scalp
- Rx = hair restoration techniques



© Dr Richard Usatine, courtesy of The Color Atlas of Family Medicine

Hair Loss Case

- 25-year-old African-American man
- Papular rash for 2 years following a short haircut
- Initially pustules, itching and inflammation
- Now slowly enlarging papules



Acne Keloidalis

- African descent
- Curly hair
- Papules/keloid
- Avoid razors, short hair
- Topical steroids
- Injected steroids

Madu P, Kundu RV. Follicular and scarring disorders in skin of color:presentation and management. Am J Clin Dermatol. 2014 Aug;15(4):307-21.

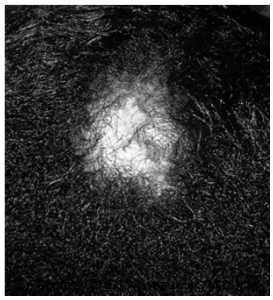
Scarring Alopecias

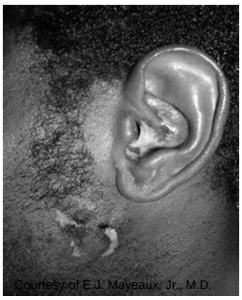
- Very heterogeneous group
- Trend to hair destruction in early or even mild stages of the disease
- Hair loss permanent
- Erythematous papules, pustules, scarring, loss of follicle openings
- Polytrichia

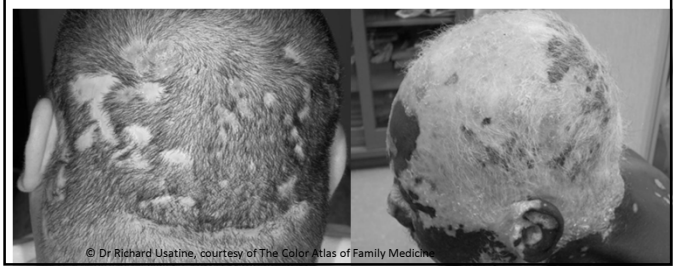
Lupus Alopecia

- Most common scarring alopecia
- Usually affects scalp
- Well circumscribed, erythematous infiltrated patches w/ follicular hyperkeratosis
- Later atrophic smooth depressed hypopigmented patches
- Bx = immune deposits
- Tx = treat lupus

Lupus Alopecia

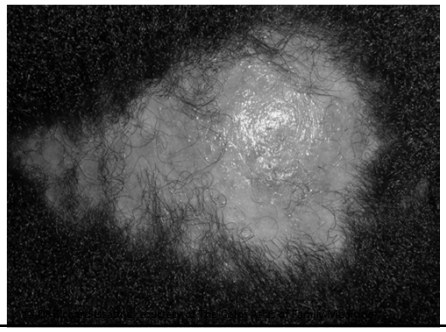






Child with patchy hair loss, scale and tender scalp

Broken Hairs and Inflammation



Tinea Capitis

- Patchy hair loss
- Scalp w/ scale
- Broken hair shafts
- Invasion of follicles and hair shaft
- Trichophyton Tonsurans – 90% in US – no fluorescence
- Less commonly Microsporum - fluoresces green
- Systemic antifungals griseofulvin plus selenium or ketoconazole
- Kerion –
  - Scarring
  - Steroids

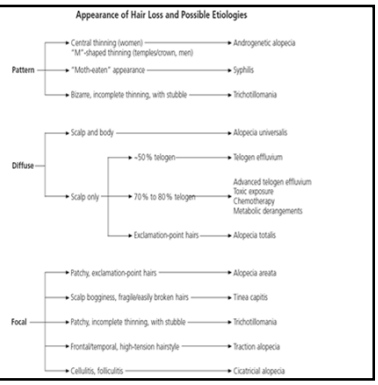
Fitzpatrick's General Dermatology

Tinea Capitis

- Systemic antifungals
- Plus selenium
- AVOID ketoconazole
- Kerion –
  - Scarring
  - Steroids
- Adults:
  - Griseofulvin, 20–25 mg/kg/day × 6–8 weeks
  - Terbinafine, 250 mg/day × 2–8 weeks
  - Itraconazole, 5 mg/kg/day × 2–4 weeks
  - Fluconazole, 6 mg/kg/day × 3 weeks
- Children:
  - Terbinafine, 3–6 mg/kg/day × 2–8 weeks all others are the same
    - Available as granules

Fitzpatrick's General Dermatology

Summary



Courtesy Springer, Brown and Stulberg American Family Physician 7/1/2003