

Hair and Nail Disorders

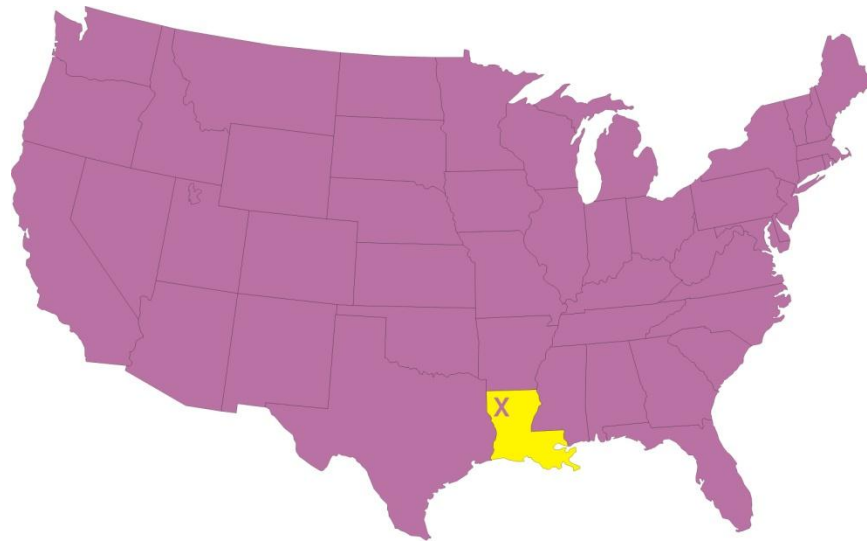
E.J. Mayeaux, Jr., M.D., FAAFP

Professor of Family Medicine

Professor of Obstetrics/Gynecology

Louisiana State University Health Sciences Center

Shreveport, LA



Hair Classification

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



Courtesy of Dr. E.J. Mayeaux, Jr., M.D.

Hair Classification

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



Life cycle of a hair

- Hair grows at 0.35 mm/day
- Cycle is typically as follows:
 - Anagen phase (active growth) - 3 years
 - Catagen (transitional) - 2-3 weeks
 - Telogen (preshedding or rest) about 3 Mon.
- > 85% of hairs of the scalp are in Anagen
 - Lose 75 – 100 hairs a day
- Each hair follicle's cycle is usually **asynchronous** with others around it

Alopecia Definition

- Defined as **partial or complete loss of hair** from where it would normally grow
- Can be total, diffuse, patchy, or localized



Courtesy of E.J. Mayeaux, Jr., M.D.



Courtesy of the Color Atlas of Family Medicine

Classification of Alopecia

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

General Evaluation of Hair Loss

- Hx is still most important aspect
 - Shedding vs. thinning
 - Duration of problem
 - Pertinent family illness
 - Grooming practices
 - Medications
 - Serious past or current illnesses

Evaluation

- PE: Focus is on **pattern of hair loss**
 - Patchy or localized = confined to several areas of the scalp leaving some areas unaffected
 - Diffuse implies uniform density decrease
- Gauge **hair fragility**
 - Squeeze and roll hair within a gauze pad
 - If fragile, short fragments remain on the pad

Evaluation

- **Examine the scalp** looking for erythema, scale, pustules, bogginess, edema, loss of follicle openings, scarring or sinus tract formations
- Not all scalp changes relate to alopecia nor alopecia cause all scalp changes
- 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

- RPR or 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
- Hair pull test
 - Lock of hair is grasped firmly in thumb and forefinger and steady traction applied as fingers dragged along the lengths of hairs
 - Examine hairs microscopically

Androgenic Alopecia

- AKA as male pattern baldness
- Complain of thinning vs. shedding
- 30-40% adults



Courtesy of Dr. E.J. Mayeaux, Jr., M.D.

Androgenic Alopecia

- **Multi-allelic trait:** obtain history of baldness in grandparents and 1st degree relatives on both maternal and paternal sides of family



Courtesy of Dr. E.J. Mayeaux, Jr.

Androgenic Alopecia

- Usually **crown** with sparing of occipital and lower parietal fringe of hair
- In **women** may need to **consider androgenic excess**



Courtesy of Dr. E.J. Mayeaux, Jr.

Androgenic Alopecia Treatment

- Topical Minoxidil or Oral finasteride
 - ♂ Finasteride 1mg orally = \$60/month*
 - ♂ Minoxidil 5% 1ml BID = \$17/month*
 - ♀ Minoxidil 2% 1ml BID = \$30/month*
- * www.drugstore.com, accessed 4/5/10
- Surgical restoration or excision does not slow or reverse hair loss
- No head to head comparisons
 - Both beneficial compared to placebo

Alopecia Areata

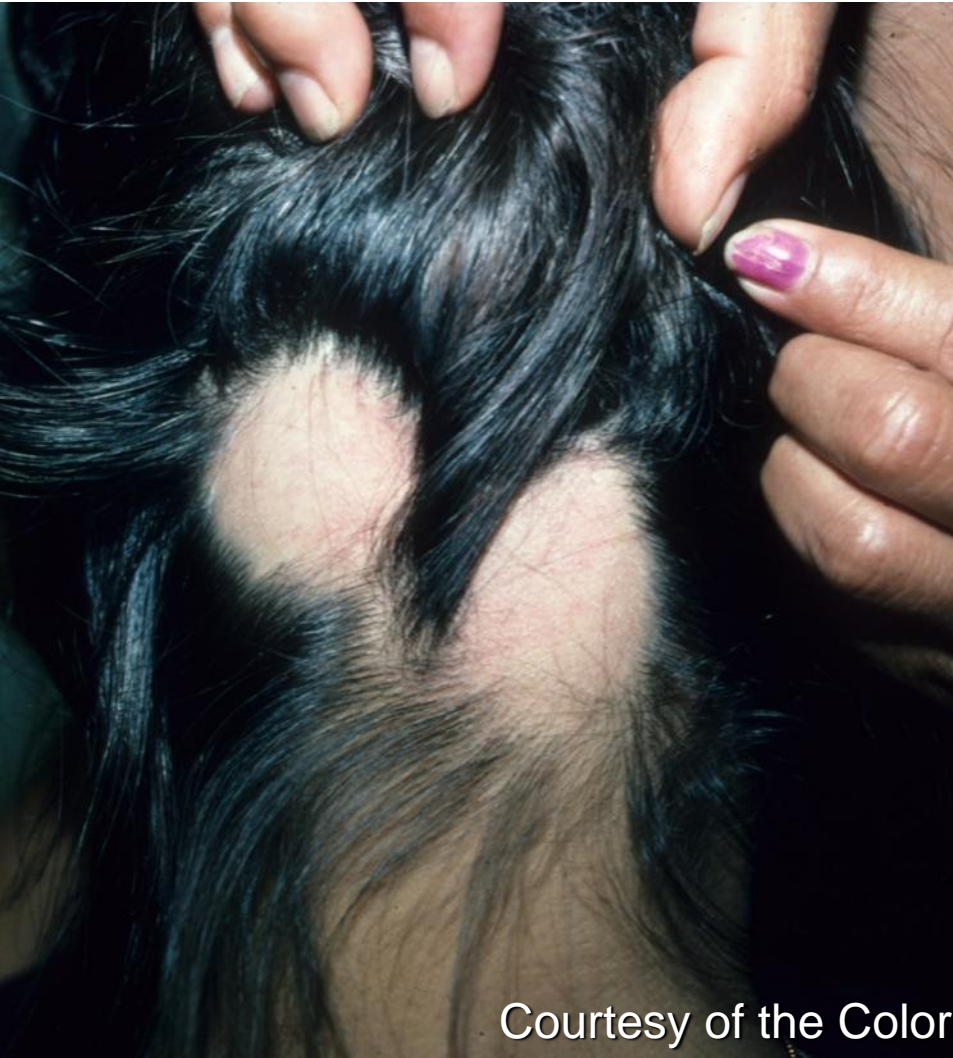
- Usually **circumscribed patches**
 - Total scalp (**Totalis**)
 - Entire body (**Universalis**)



Alopecia Areata

- Scalp may be slightly red or edematous
- Exclamation mark hairs characteristic
 - Short hairs that taper as they approach the scalp surface, then root.
- Poor prognosis
 - Severe disease (esp. Totalis/Universalis)
 - Nail or peripheral scalp disease
 - Onset before puberty
 - Duration >1 yr

Alopecia Areata



Courtesy of the Color Atlas of Family Medicine

Alopecia Areata Treatment

- **Reassurance** – 80% limited cases regrow
 - May ask for tx even for a small patch
- Mild cases (<10% scalp) - **intralesional steroids** to decreasing inflammation around the follicle
 - May pretreated with topical anesthetic cream
- **Potent topical steroids** – little evidence
- Severe forms hard to treat (referral)

Alopecia Areata Treatment

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



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Alopecia Areata Treatment

- **Systemic steroids** for larger areas
 - May lose hair when tapered or D/C
- **Minoxidil** topically with steroids but success is varied and is slow
- PUVA, but 1993 study by Healy, et al noted it was not an effective treatment
- **Anthralin** applied to induce erythema has been tried to induce hair growth and may be tried in combination for refractory cases

Telogen Effluvium

- Acute hair loss (up to 20% at peak)
- Occurs 3-4 months after a trigger
 - Pregnancy, severe wt loss, major illness or Sx, traumatic psych events
- Women > men
- Anagen hairs precipitated into catagen
- As reach the telogen phase, new anagen hairs develop and cause the hair to abruptly fall out

Telogen Effluvium

- Patient complains that the hair comes out “in **handfuls**” or pillowcase is covered in the morning with hair



Telogen Effluvium

- Patients often do not associate with precipitating illness due to time interval
- **Drugs** can cause telogen effluvium
 - PTU, Tapazol, heparin, and coumadin
 - Hypervitaminosis A
- Pull test: > **5 blub (telogen) hairs**
- Lab: TSH, Iron studies, RPR or VDRL
- **No specific treatment**

Trichotillomania

- First identified 1889 by Hallopeau
- **Obsession with hair** - pt pulls and plucks hair =
bald patches
or diffuse
hair loss
- **2-3%** of all
people with
hair loss



Trichotillomania

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



Trichotillomania

- Broken hairs on physical exam



Courtesy of the Color Atlas of Family Medicine

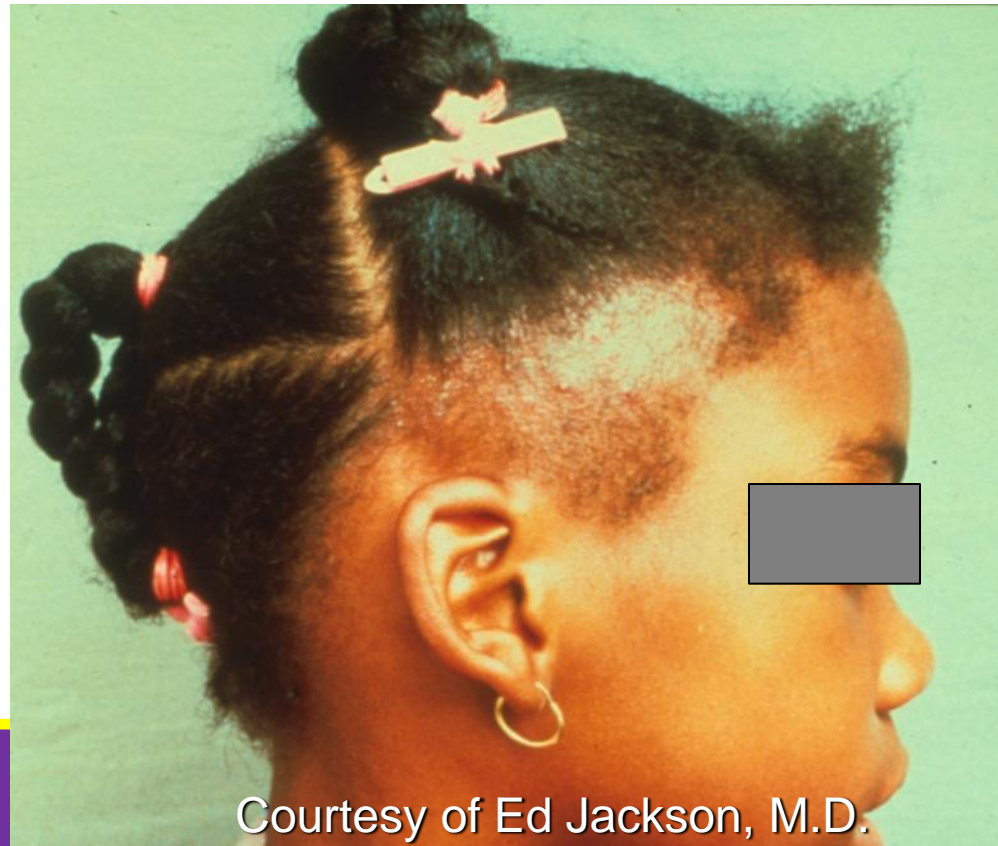
Trichotillomania

- Usually not scarring, but plucking over years may result in immune cell infiltrate
- RPR, TSH
- Behavioral tx
- Wear gloves - difficult to pluck



Traction Alopecia

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



Courtesy of Ed Jackson, M.D.

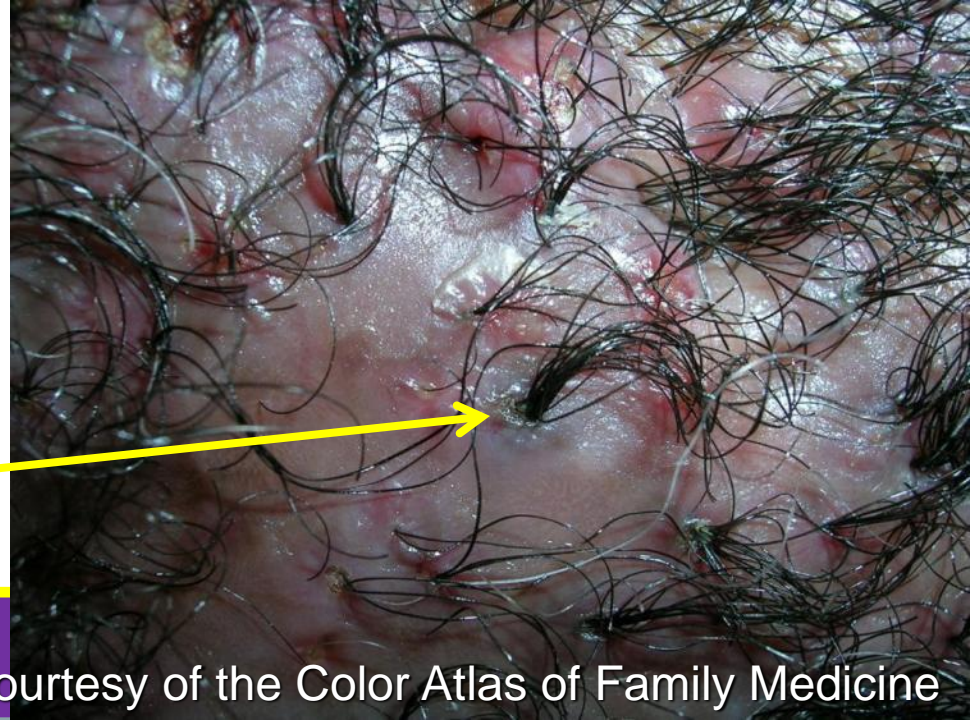
Traction Alopecia

- Usually seen in temporal, frontal and periauricular regions of scalp
- Rx would be hair restoration techniques



Scarring Alopecias

- Very **heterogeneous** group
- Trend for **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



Courtesy of E.J. Mayeaux, Jr., M.D.



Courtesy of Dr. E.J. Mayeaux, Jr., M.D.

Nail Disorders - Introduction

- **May be intrinsic to the nail unit, due to infection, or systemic disease**
- **Need careful history and exam**
- **Laboratory examination**
 - **Biopsies**
 - **Slide examination**
 - **Cultures**

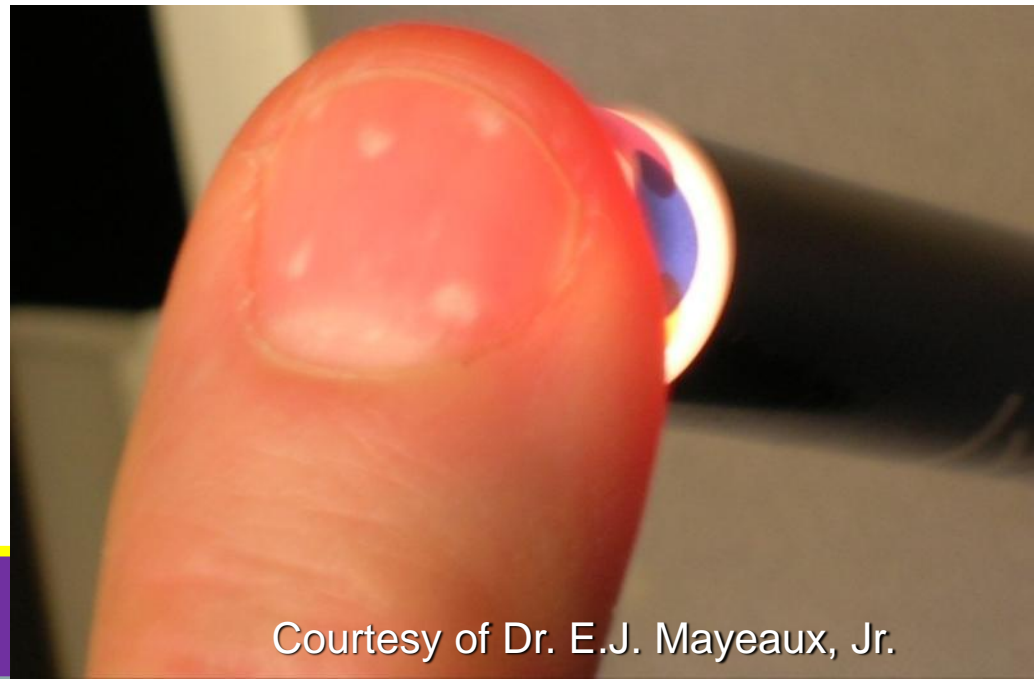


Examining the Nail

- **Remove polish**
- **Examine all 20 nails**
- **Digits relaxed**
 - **Note shape, contour, and color**
 - **Observe obliquely for superficial plate changes**
 - **Distal groove, folds, or eponychium**

Examining the Nail

- **Examine lunula**
- **Squeeze the digit tip**
 - **Assess lesion color changes**
 - **Assess refill**
- **Transilluminate**
- **Make simple drawings**



Examining the Nail

- **3mm per month**
 - 6 months to regenerate a nail
 - Toenails grow at 1/2 to 1/3 that rate
- **Changes from matrix are concave**
 - Mimic shape of lunula
- **Changes from cuticle are convex**
 - Mimic shape of cuticle

Normal Variants

- **Longitudinal ridging**
 - Benign, parallel, elevated nail ridges
 - More common with aging



Courtesy of Dr. E.J. Mayeaux, Jr.

Normal Variants

- **Leukonychia punctata and transverse striate leukonychia**
 - Benign, white spots or lines in the nails
 - Typically don't extend width of nail



Courtesy of Dr. E.J. Mayeaux, Jr.

Normal Variants

- **May result from minor trauma**
- **Most common childhood nail condition**
- **Reassure no Tx is necessary**
- **Behavior modification helpful**



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Habit Tic Deformity



Courtesy of the Color Atlas of Family Medicine

Onychogryphosis



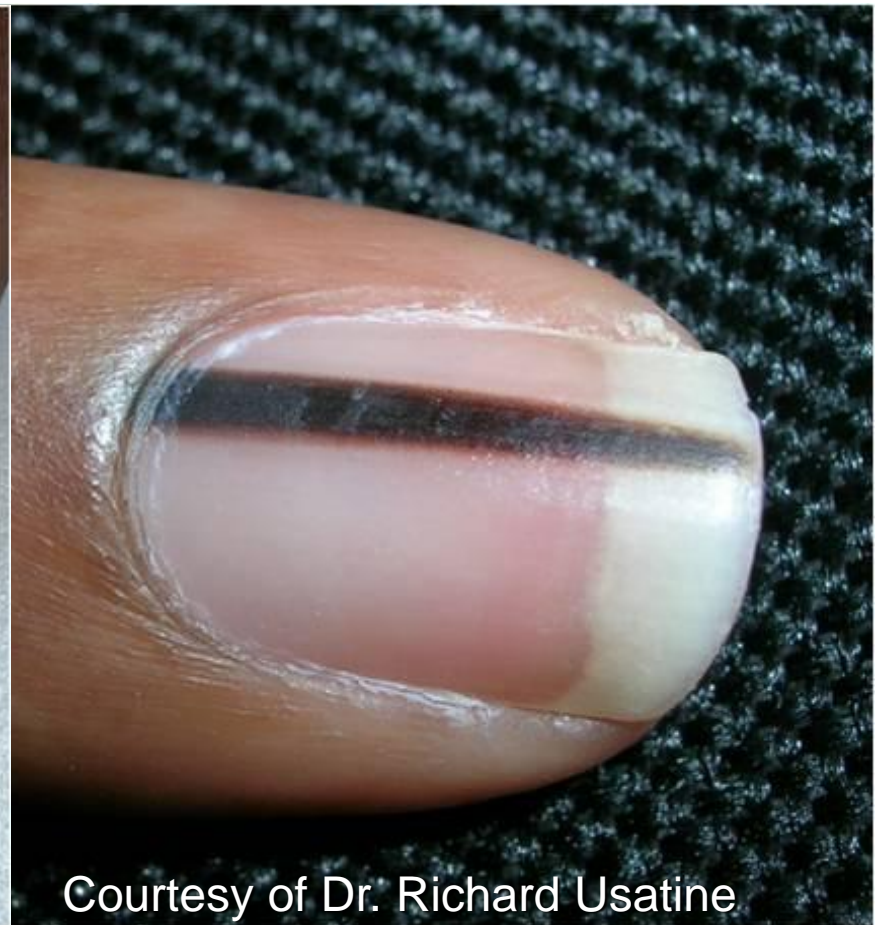
Courtesy of Dr. Richard Usatine

Longitudinal Melanonychia

- **Tan, brown, or black stripe**
 - **Runs longitudinally through nail**



Courtesy of Dr. E.J. Mayeaux, Jr.



Courtesy of Dr. Richard Usatine

Longitudinal Melanonychia

- **Increased nail melanin deposition**
 - **Simulated by deposition of other chromagens in or under nail**
- **Melanoma must be considered**
 - **Bx if cause not apparent**



Courtesy of Dr. E.J. Mayeaux, Jr.

Longitudinal Melanonychia

- **More common with darker skin**
 - **77% of African Americans >20 years and ~100% >50 years**
 - **10% to 20% of Japanese descent**
 - **Common in Hispanics**
 - **Unusual among whites**
- **More common in frequently used fingers and thumb**

Subungual Melanoma

- **Small number of patients with LM have subungual melanoma**
- **Separating benign from malignant lesions is often difficult**



Courtesy of Dr. Richard Usatine

Subungual Melanoma

- **45% to 60% arise on hand**
 - Most in the thumb
- **On foot, occurs on great toe**
- **Median age = 60s and 70s**
- **Males = females**



Subungual Melanoma

- **Hutchinson's sign**
 - Periungual spread of pigment into the proximal or lateral nail folds
 - Presumes melanoma
- **Pseudo-Hutchinson's sign**
 - Benign LM visible through nail fold



Courtesy of the Color Atlas of Family Medicine

Subungual Melanoma

- **Biopsy if etiology uncertain**
- **Provide adequate tissue**
- **No single bx method best**
 - **Dystrophy less with distal matrix bx**
 - **Appearance less crucial in the toes**
 - **Bx more aggressively in older patients**



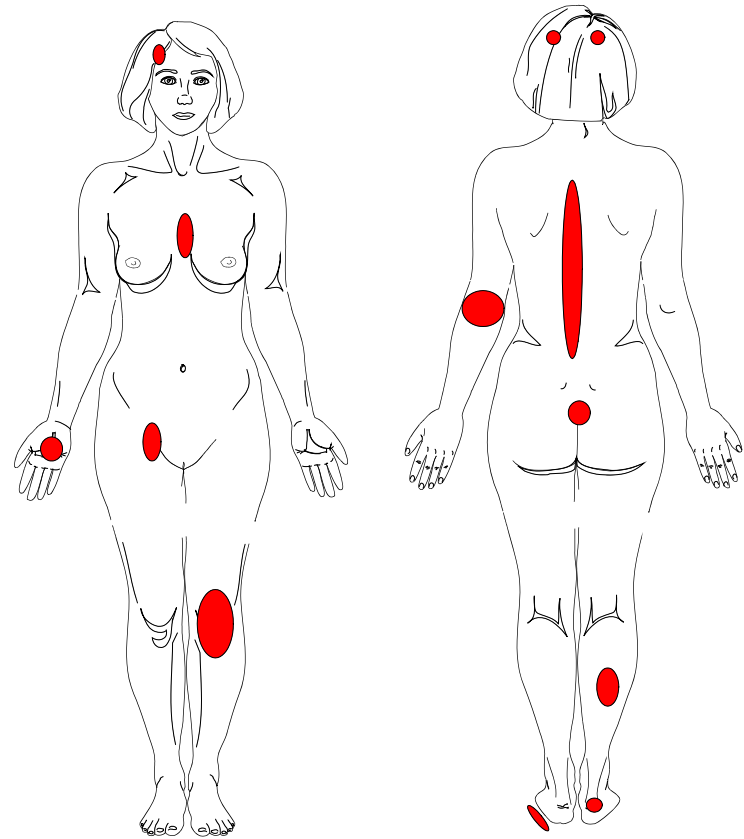
Psoriasis

- **Hereditary skin disorder**
 - **Affects 2% to 3% of U.S. population**
 - **Prevalence increases with age**



Psoriasis

- **Chronic scaling papules and plaques are most common and characteristic findings**



Psoriasis



Courtesy of Dr. E.J. Mayeaux, Jr., M.D.



Courtesy of Dr. Richard Usatine

Psoriasis

- **Nail involvement - 10% to 50%**
- **Usually coexists with skin psoriasis**
- **Nail involvement = higher incidence of arthritis**
- **Nail plate pitting**
 - **Proximal matrix forms superficial plate**
 - **Pinpoints to punched out lesions**
 - **Not specific for psoriasis**

Psoriasis - Nail Plate Pitting



Courtesy of Dr. E.J. Mayeaux, Jr., M.D.



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Psoriasis - Nail Plate Pitting



Courtesy of Dr. Richard Usatine

es Center – USA

Psoriasis

- **Longitudinal matrix involvement produces ridging or splitting**
- **Transverse produces Beau's lines**
- **Intermediate produces leukonychia and diminished integrity**



Courtesy of Dr. Richard Usatine

Psoriasis – Onycholysis/Onychorrhexis

Courtesy of Dr. Richard Usatine



Psoriasis

- **Bed psoriasis = local onycholysis**
 - Oil drop sign
 - Salmon patch sign



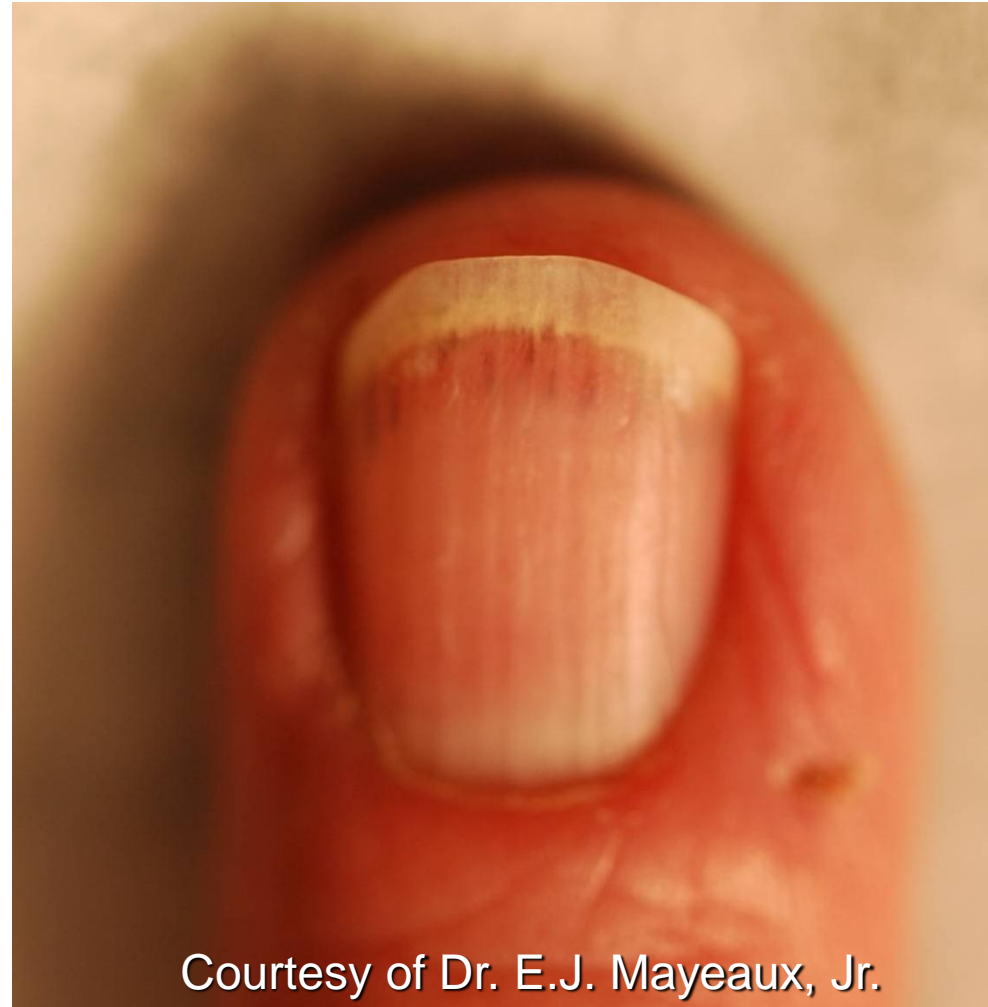
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Psoriasis

- **Vascular dilatation & tortuosity**
- **Splinter hemorrhages of bed**



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Psoriasis

- **Distal onycholysis enhances microbial colonization**
 - **Greenish-blue discoloration suggests Candida or Pseudomonas**



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Psoriasis Diagnosis

- **Must DDX from onychomycosis**
 - KOH prep and fungal culture
- **Nail biopsy may be necessary**
 - H&E and fungal staining
- **Withhold Tx until a specific diagnosis is confirmed**
 - Psoriasis and onychomycosis may occur concomitantly

Psoriasis Treatment

- **Nail disease often refractory**
- **Intralesional corticosteroid injection into the proximal nail fold**
 - Pain minimized by precooling or block
 - Nail bed ds = proximal injection
 - Matrix disease = fold injection



Psoriasis Treatment

- **Mid- to high-potency corticosteroid solution under edge of distal plate**
 - Don't force solution under the plate
 - Mechanical trauma increases uplifting
- **Oral and topical Psoralen (PUVA)**
 - UVB not effective
- **Oral etretinate, acitretin, and cyclosporine**

Lichen Planus

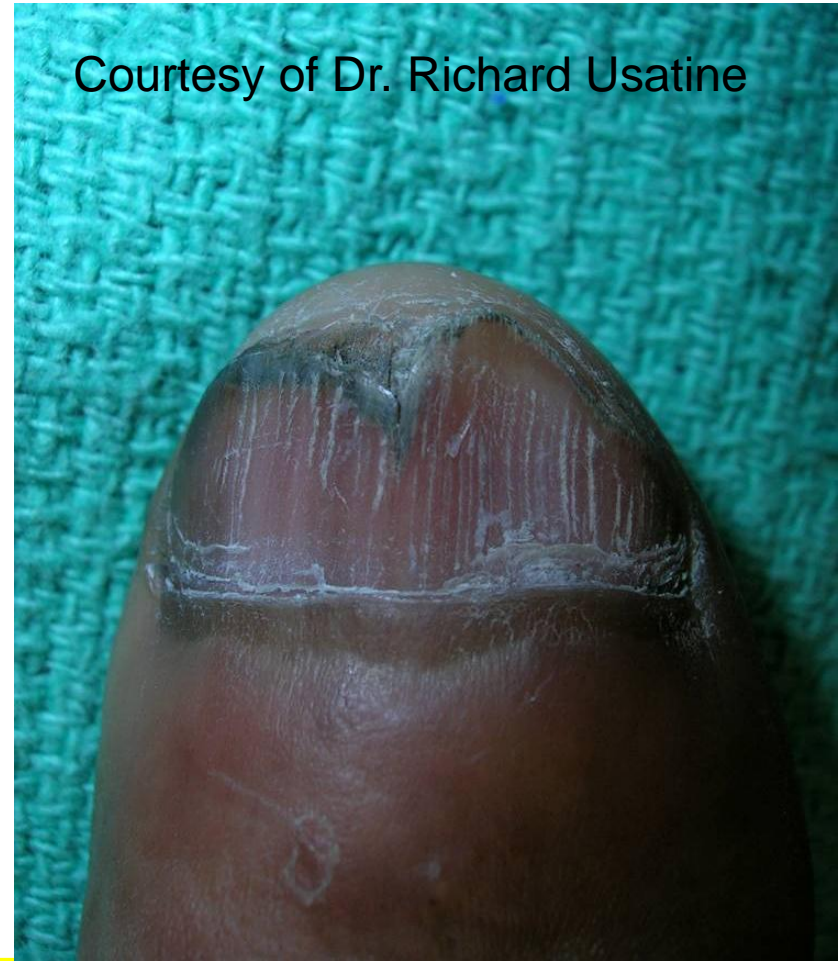
- **Uncertain etiology**



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Lichen Planus

- **Nail involvement in 10% of patients**
 - **Brittle, ridged nails most common**
 - **Onychorrhexis or splitting**



Lichen Planus

- **Proximal matrix ds produces onychorrhexis or splitting**



Courtesy of Dr. E.J. Mayeaux, Jr., M.D.

Lichen Planus

- **Diffuse matrix atrophy produces thinning of the plate**
- **Tends to predominate centrally, producing "angel wing" deformity**
- **Pterygium results of matrix scarring**
 - **Specific for lichen planus**
 - **Total matrix scarring - anonychia**

Lichen Planus - Pterygium



Courtesy of Dr. E.J. Mayeaux, Jr., M.D.

Lichen Planus

- **Onset at any age**
 - **Most common in fifth or sixth decade**
- **Fingernails and toenails affected**
- **Involvement of nail bed or hyponychium produces subungual hyperkeratosis or distal onycholysis**

Lichen Planus Diagnosis

- **Straightforward when the disorder coexists with cutaneous signs**
- **Mycologic studies to exclude onychomycosis**
- **If negative, a nail biopsy will likely be needed to confirm the diagnosis**
 - **Examination should include H&E and PAS staining**

Lichen Planus Treatment

- **Unless matrix scarring has occurred, the disease is treatable**
- **Intralesional corticosteroid**
- **If this fails, Prednisone 60mg daily for several weeks then slow tapering**
 - **Then alternate-day therapy**
- **Oral etretinate and topical PUVA**

Paronychia

- **Acute inflammation of the lateral and/or proximal nail folds**



Paronychia

- **Red, tender, throbbing, intensely painful**
- **Usually caused by infection**
 - **Staph aureus, Strep pyogenes, and Pseudomonas most common**
- **Small abscess forms**



Paronychia

- **Chronic paronychia by Candida**



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Paronychia I&D Technique

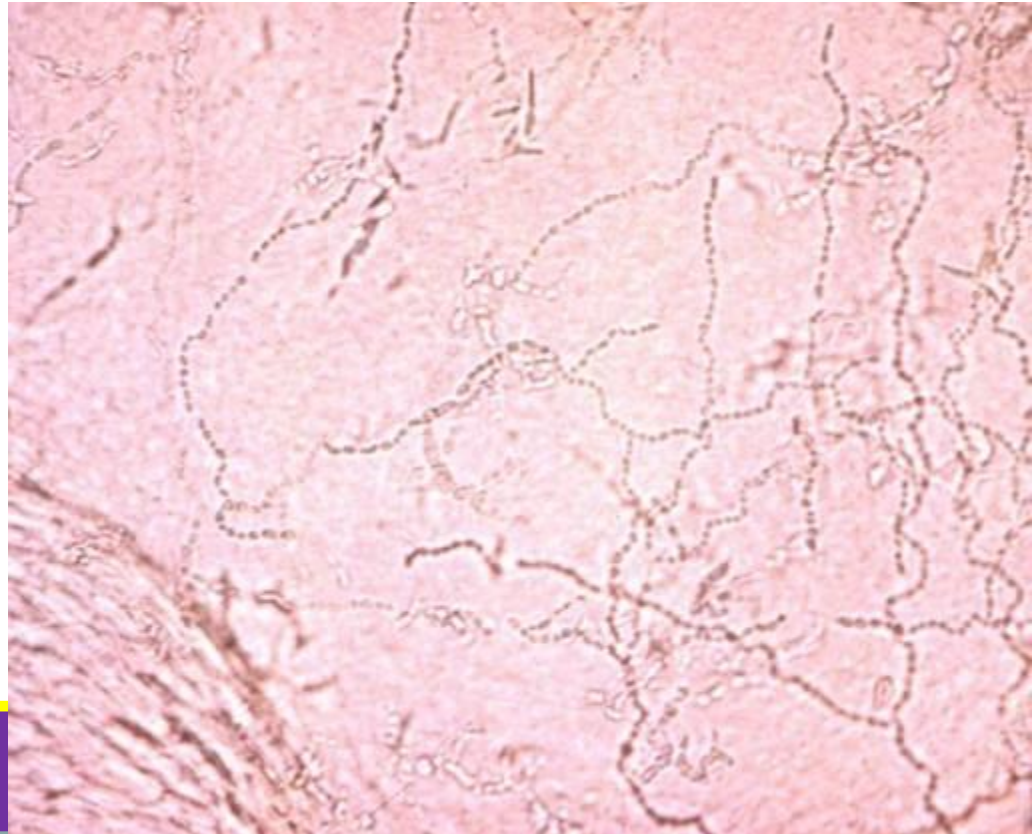


Onychomycosis

- **Fungal infection of the nails**
- **Dermatophytes most common**
 - May be other fungi and **Candida**
- **Single digit or multiple digits**
- **Very common in adults**
 - May also occur in children
- **Trauma predisposes to infection**

Onychomycosis

- **Trichophyton rubrum and T. mentagrophytes more frequent**
 - **T. violaceum, T. tonsurans, & Scytalidium species**



Distal Subungual Onychomycosis

- **Most common type**
 - **Discoloration**
 - **Debris build-up**



Courtesy of Dr. Richard Usatine

Distal Subungual Onychomycosis

- Plate crumbles
- Accumulation of hyperkeratotic debris



Courtesy of Dr. Richard Usatine

Onychomycosis Diagnosis

- **Tendency to label any process involving nail as a fungal infection**
- **Confirm species before treatment**
 - Sabouraud's medium
 - Trim excess nail before samples taken
- **Leukonychia and psoriasis may be confused with onychomycosis**
 - Also eczema or habitual picking

Onychomycosis Treatment

- **Treating onychomycosis difficult**
 - Topical meds ineffective
 - Reinfection when oral meds stopped
- **Oral therapy has best success**
 - Beware drug interactions
- **Ketconazole and griseofulvin can cause liver damage**

- A Cochrane review found no evidence of benefit for topical treatments compared with placebo
 - <http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD001434/frame.html>
- Terbinafine significantly increased the mycological cure rates compared with placebo, itraconazole and griseofulvin
 - <http://www.mrw.interscience.wiley.com/cochrane/cldare/articles/DARE-20021632/frame.html>

Oral Onychomycosis Tx

Drug	Dose	Course
Griseofulvin (Grifulvin V)	500mg PO qday or 15-20mg/kg/day	4-9 months (f), 6-12 months (t)
Terbinafine (Lamisil)	250mg PO qday or < 20kg: 62.5mg/day 20-40kg: 125 mg/day	6 weeks (f), 12 weeks (t)
Terbinafine (Lamisil) pulse (not FDA indicated)	500mg 1wk/mo x4mo (not thoroughly studied)	6 weeks (f), 12 weeks (t)
Itraconazole (Sporanox)	200mg daily	2 months (f), 3 months (t)
Itraconazole (Sporanox) pulse	200mg BiD or 5mg/kg/day capsules for 1 wk/month	2 months (f), 3 months (t)
Fluconazole (Diflucan) (not FDA indicated)	150mg or 3-6mg/kg once weekly (not thoroughly studied)	12-16 weeks (f), 18-26 weeks (t)
Ciclopirox 8% nail lacquer (Penlac)	Apply daily to nail and surrounding 5mm skin.	Up to 48 weeks.

Myxoid Cysts

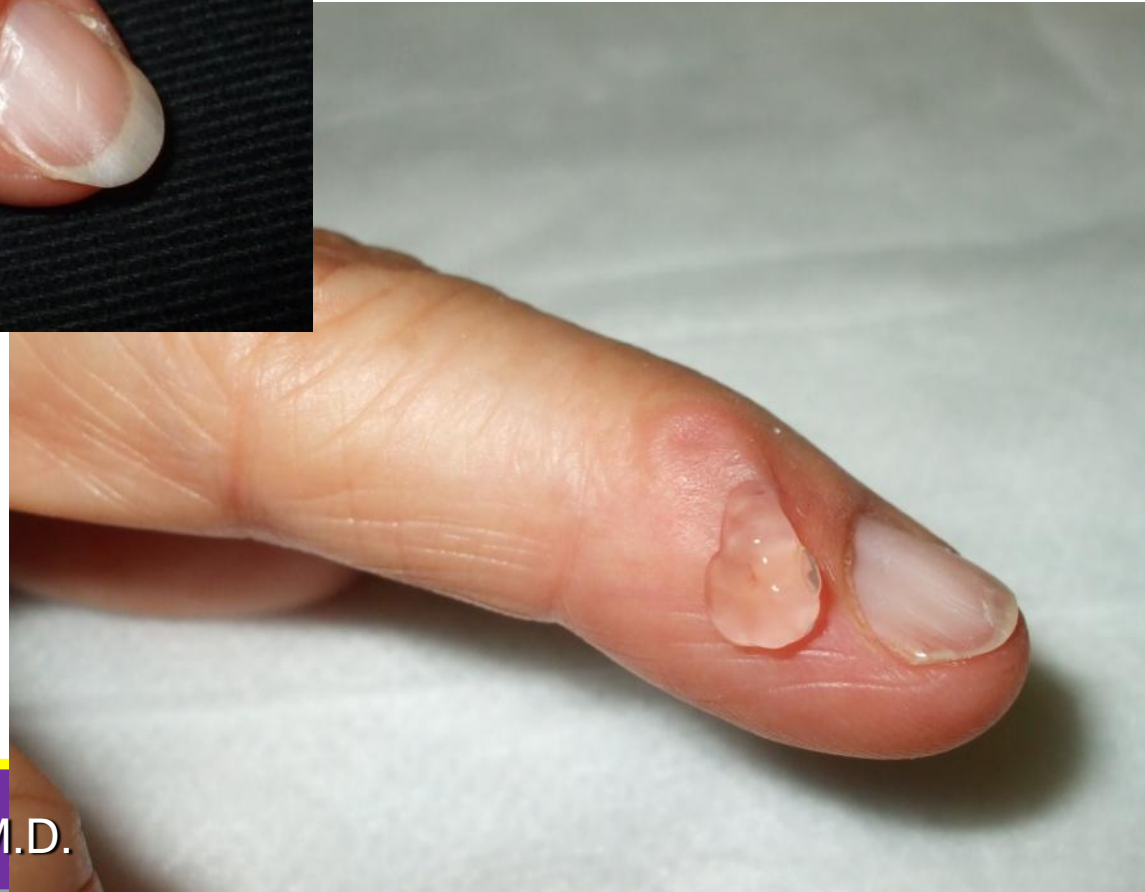
- **Most common unguinal tumor except for HPV lesions**
- **Dorsum of distal digit between DIP and proximal nail fold**
- **Sermitranslucent, flesh to pink, compressible nodules**



Myxoid Cysts

- **May be associated with evidence of osteoarthritis (Herberdon's nodes)**
- **Localized degenerative tissue reaction**
- **Connecting to joint, complete excision is required**
- **Impinges on nail matrix**
 - **Produces longitudinal grooves and thinning**

Myxoid Cyst Excision



Courtesy of Dr. E.J. Mayeaux, Jr., M.D.

Myxoid Cysts

- **Nonconnecting variety treated with repeated evacuation with a needle**
 - **Cavity and base injection with 0.1 to 0.2 mL triamcinolone acetonide, 5 mg/mL**
 - **15- to 20-sec cryotherapy (2 to 3 mm iceball) freeze-thaw-freeze pattern**
 - **Sclerosants (Na tetradecyl sulfate)**
 - **If unresponsive - excise proximal fold with 2nd intention healing**

Pincer Nails

- **Result of inward folding of the lateral edges of the nail**



Pincer Nails

- **Tube-shaped nail**
- **Nail bed may be painfully enclosed**
- **Lateral pressure from shoes is a likely etiology**
- **Nail removal or reconstruction may be necessary if pain is significant**

Changes Associated with Systemic Disease

- **Beau's lines**
 - **Transverse linear depressions**
 - **Suppressed nail growth secondary to local trauma or severe illness**
 - **Appear symmetrically in several or all nails**

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Changes Associated with Systemic Disease

- **Beau's lines**
 - **Grows out over several months**
 - **Time since onset of systemic illness**
 - **Nails grow 1mm every 6 to 10 days**



Changes Assoc. with Systemic Disease

- **Mees' lines**
 - Multiple white transverse lines
 - Historically arsenic intoxication
 - Begins in matrix & extends across nail
 - Usually single, but may be multiple
 - Move distally as the nail grows
 - Bx showed plate fragmented
 - Chemical analysis of nail or hair

