

New Classification of Primary Cicatricial Alopecia

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Lecture Focus

- Utility and Need for Updating of the Proposed Working Classification of Primary Cicatricial Alopecia (2001)
- Histopathologic clues to the diagnosis of primary cicatricial alopecia

SPECIAL REPORT

Summary of North American Hair Research Society (NAHRS)–sponsored Workshop on Cicatricial Alopecia, Duke University Medical Center, February 10 and 11, 2001

Elise A. Olsen, MD,^a Wilma F. Bergfeld, MD,^b George Cotsarelis, MD,^c Vera H. Price, MD,^d Jerry Shapiro, MD,^e Rodney Sinclair, MD,^f Alvin Solomon, MD,^g Leonard Sperling, MD,^h Kurt Stenn, MD,ⁱ David A. Whiting, MD,^j and the members of the Workshop on Cicatricial Alopecia* *Durham, North Carolina; Cleveland, Ohio; Philadelphia, Pennsylvania; San Francisco, California; Vancouver, British Columbia; Melbourne, Australia; Atlanta, Georgia; Bethesda, Maryland; Skillman, New Jersey; and Dallas, Texas*

2001 Proposed Working Classification

“The following classification is considered a working classification to facilitate discussion and sharing of clinical information.”

Olson EA et al. J Am Acad Dermatol 48:103-10, 2003

2001 Proposed Working Classification

“It is based first on pathologic interpretation and second on typical clinical features.”

Olson EA et al. J Am Acad Dermatol 48:103-10, 2003

Should classification be based upon inflammatory cell type?

- Lymphocytic
- Neutrophilic
- Mixed

Lymphocytic

Chronic cutaneous lupus erythematosus

Lichen planopilaris (LPP)⁴

Classic LPP

Frontal fibrosing alopecia⁵

Graham-Little syndrome³

Classic pseudopelade (Brocq)^{6,7}

Central centrifugal cicatricial alopecia⁸

Alopecia mucinosa³

Keratosis follicularis spinulosa decalvans⁹

Issue #1

Alopecic CCLE (discoid)
has very little histopathologic
resemblance to LPP

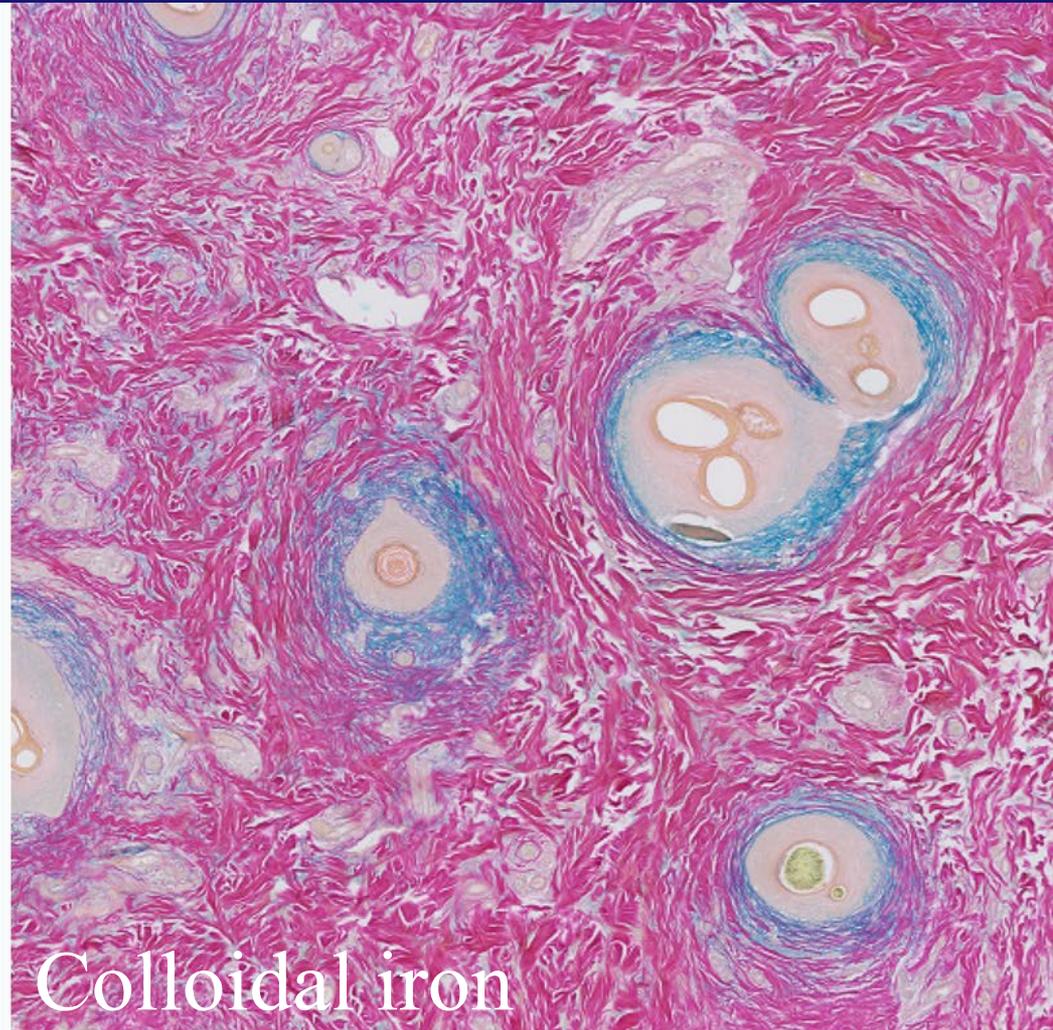
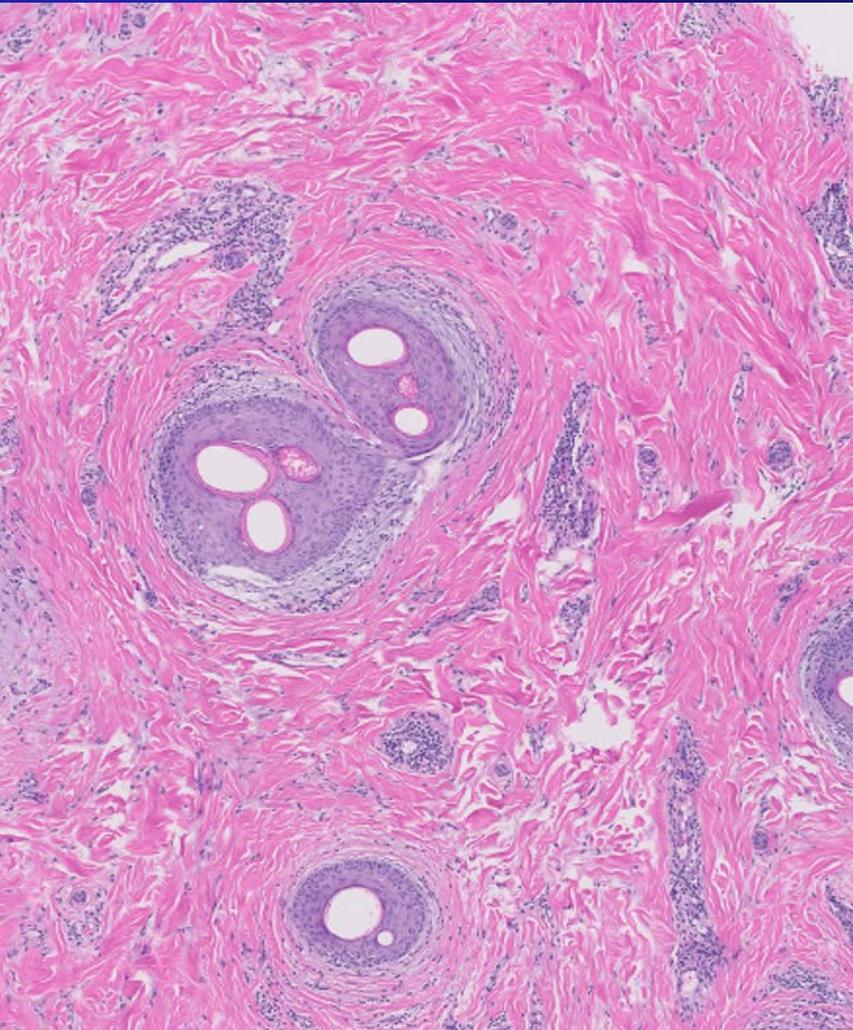
Lymphocytic

Chronic cutaneous lupus erythematosus
Lichen planopilaris (LPP)⁴

Lichen Planopilaris

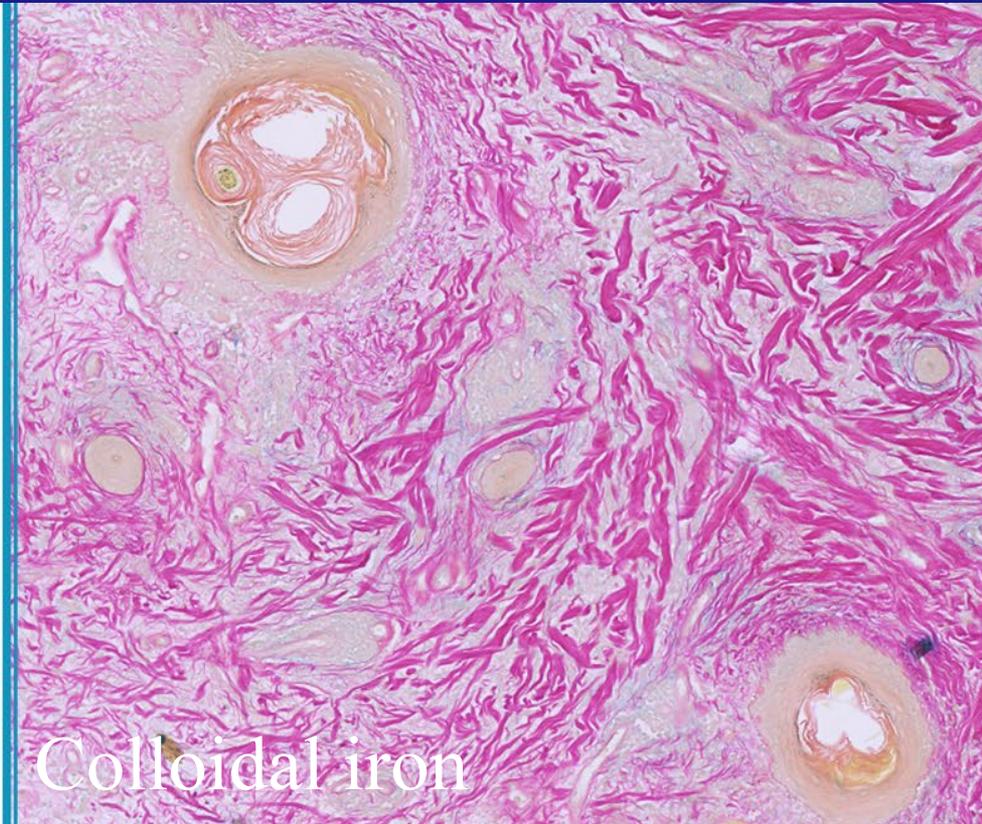
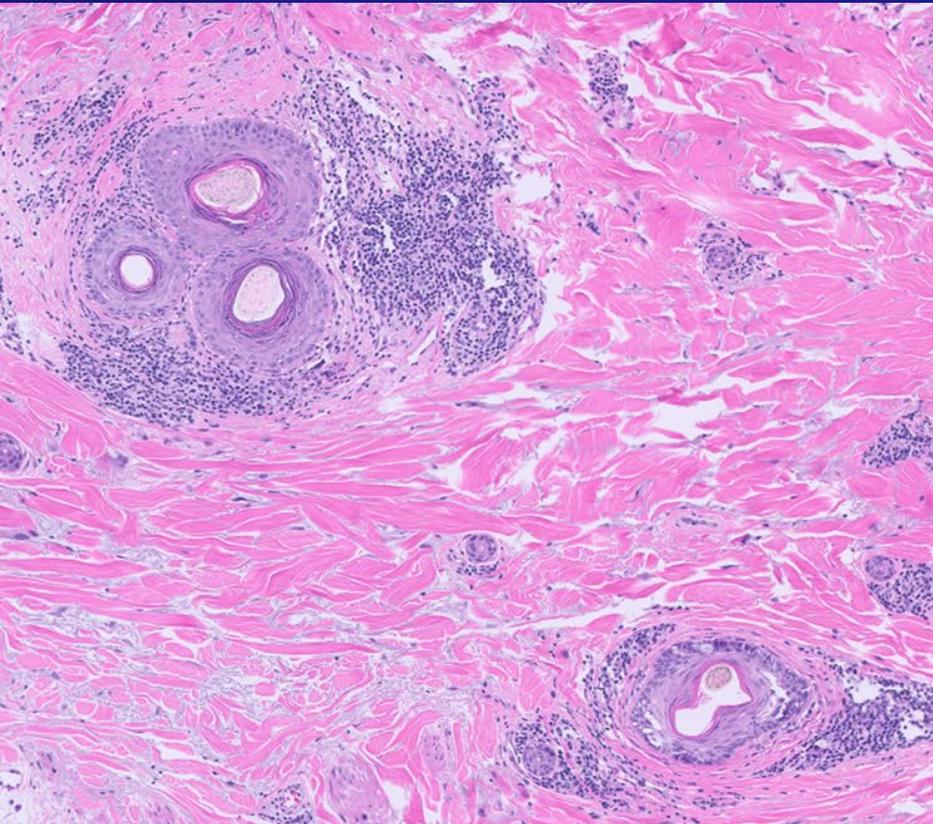
Prominent

Perifollicular mucinous fibroplasia (PMF)



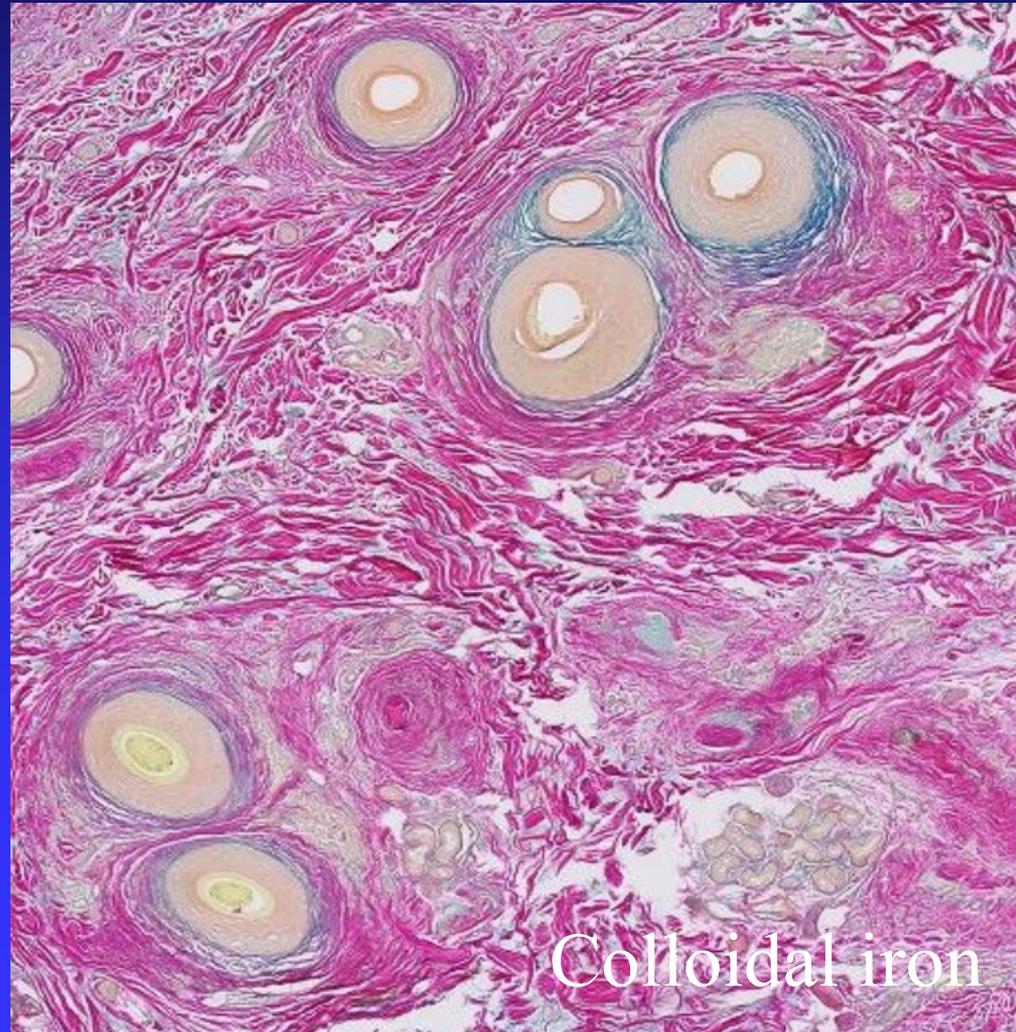
Alopecic CCLE (discoid)

Little superficial dermal mucin

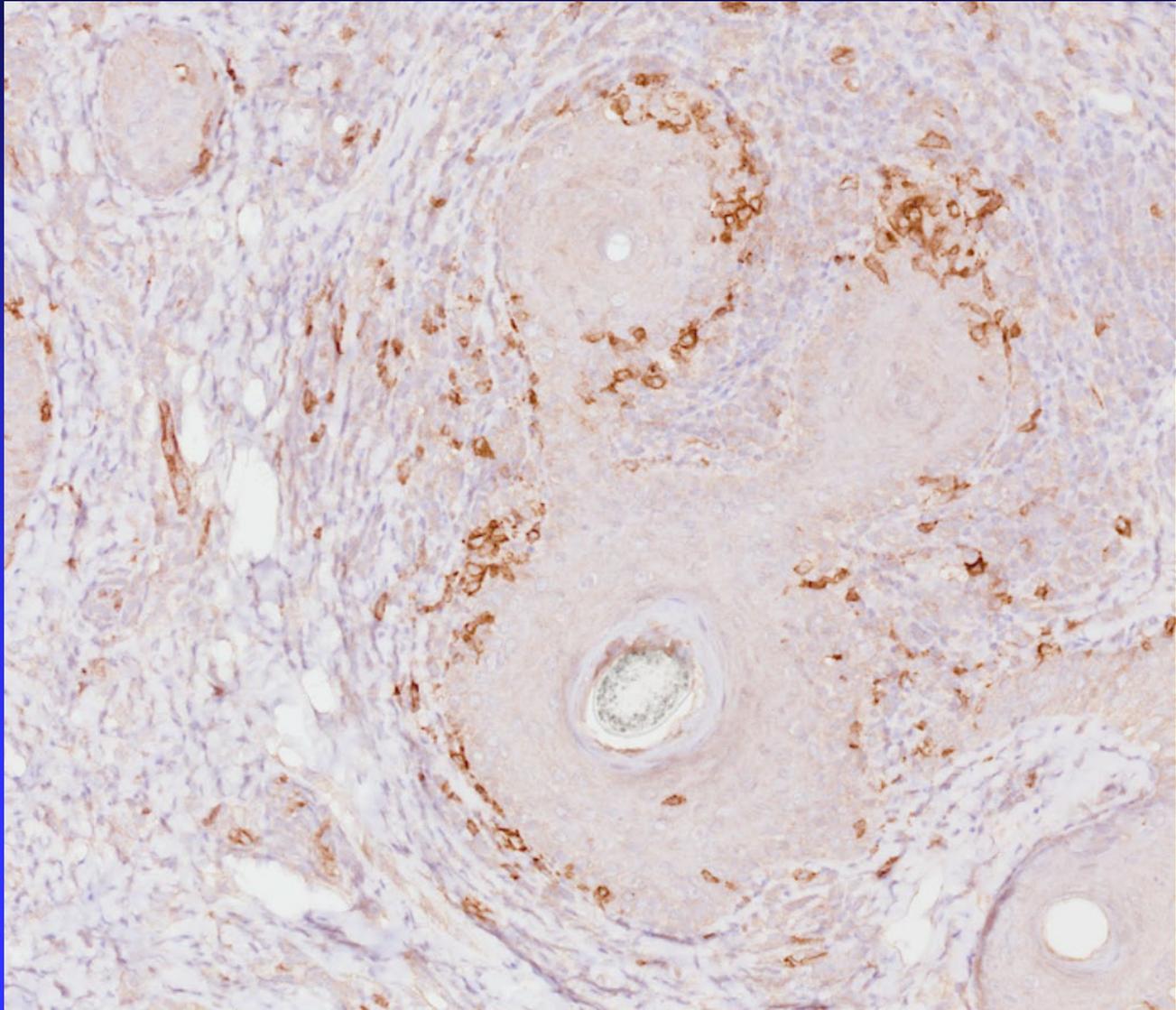


Alopecic CCLE (discoid)

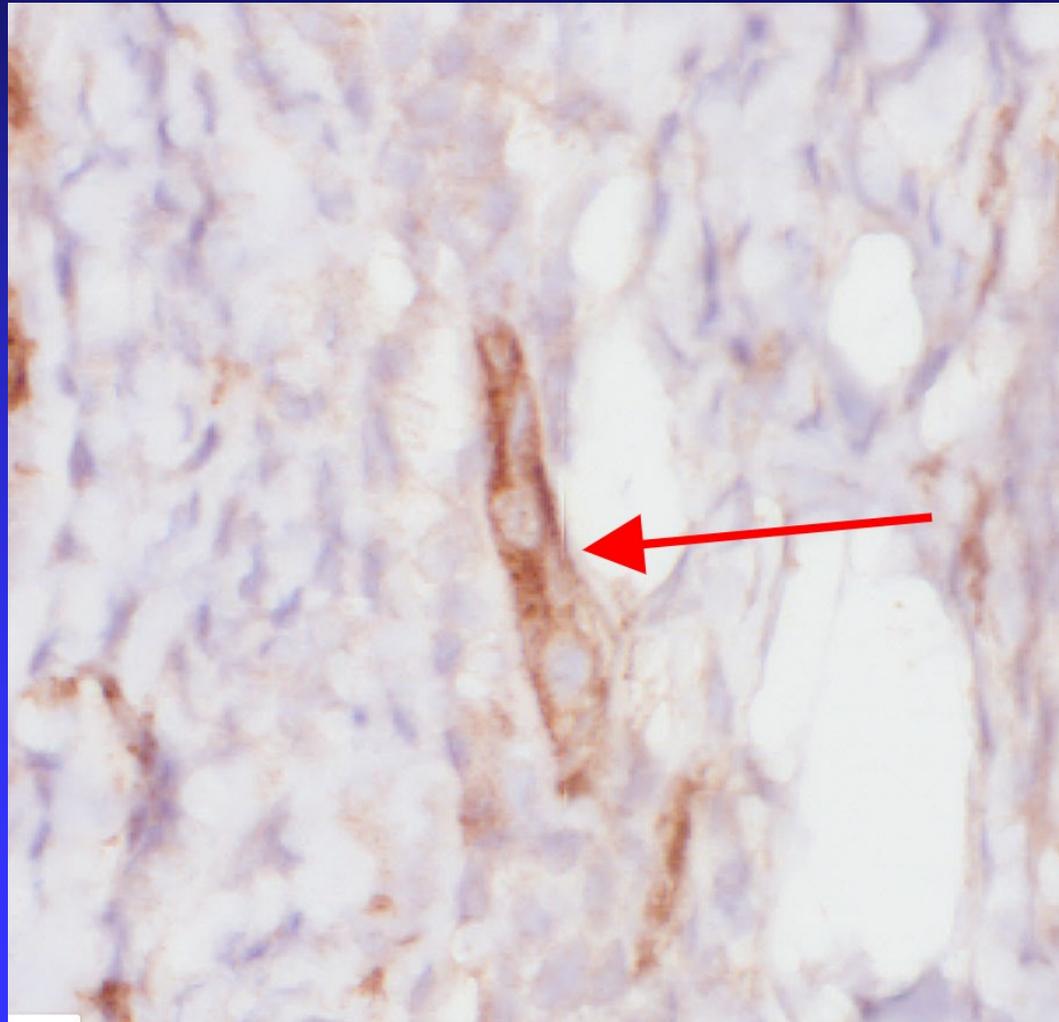
Little superficial dermal mucin



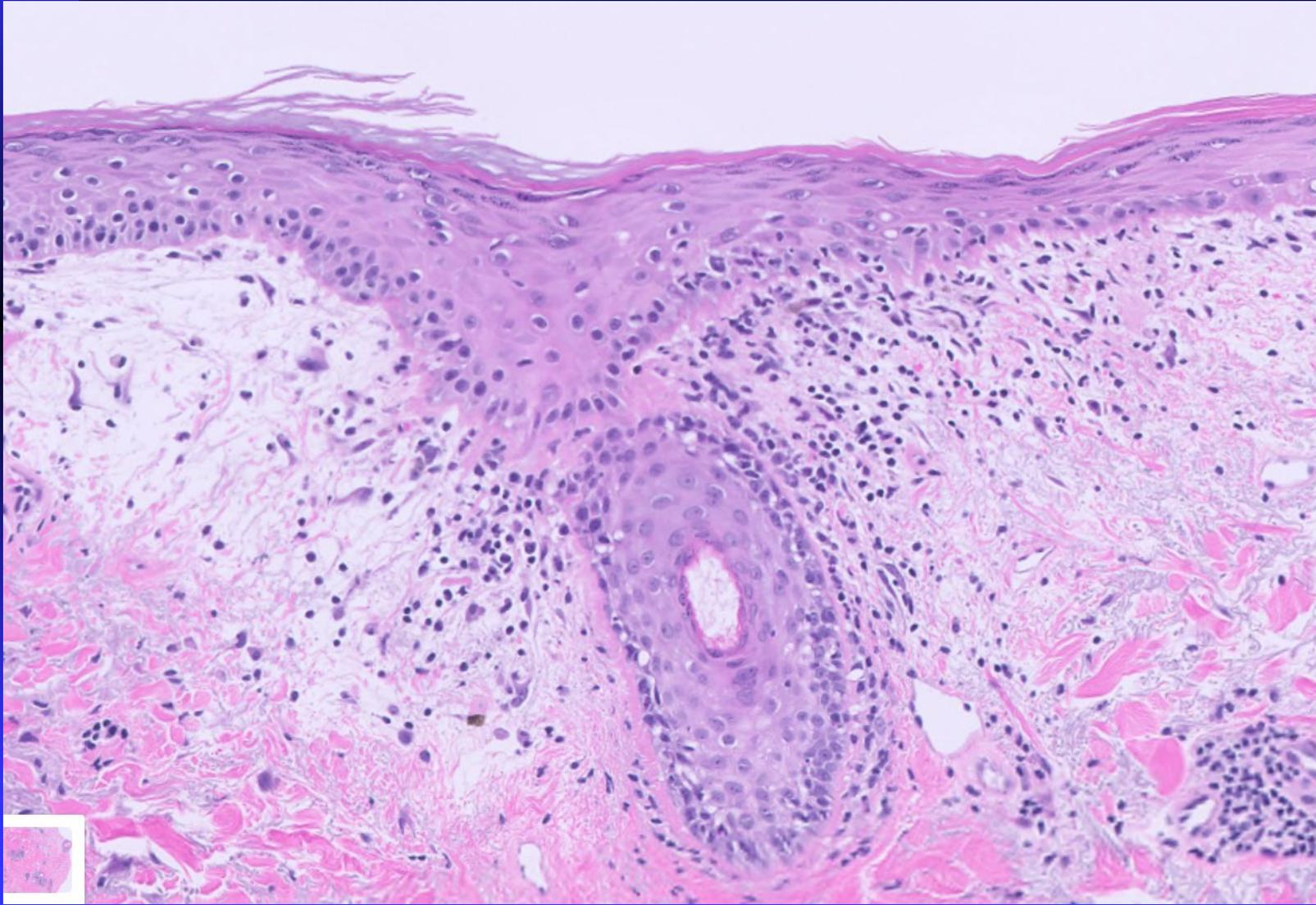
Alopecic CCLE (discoid) CD123 very useful



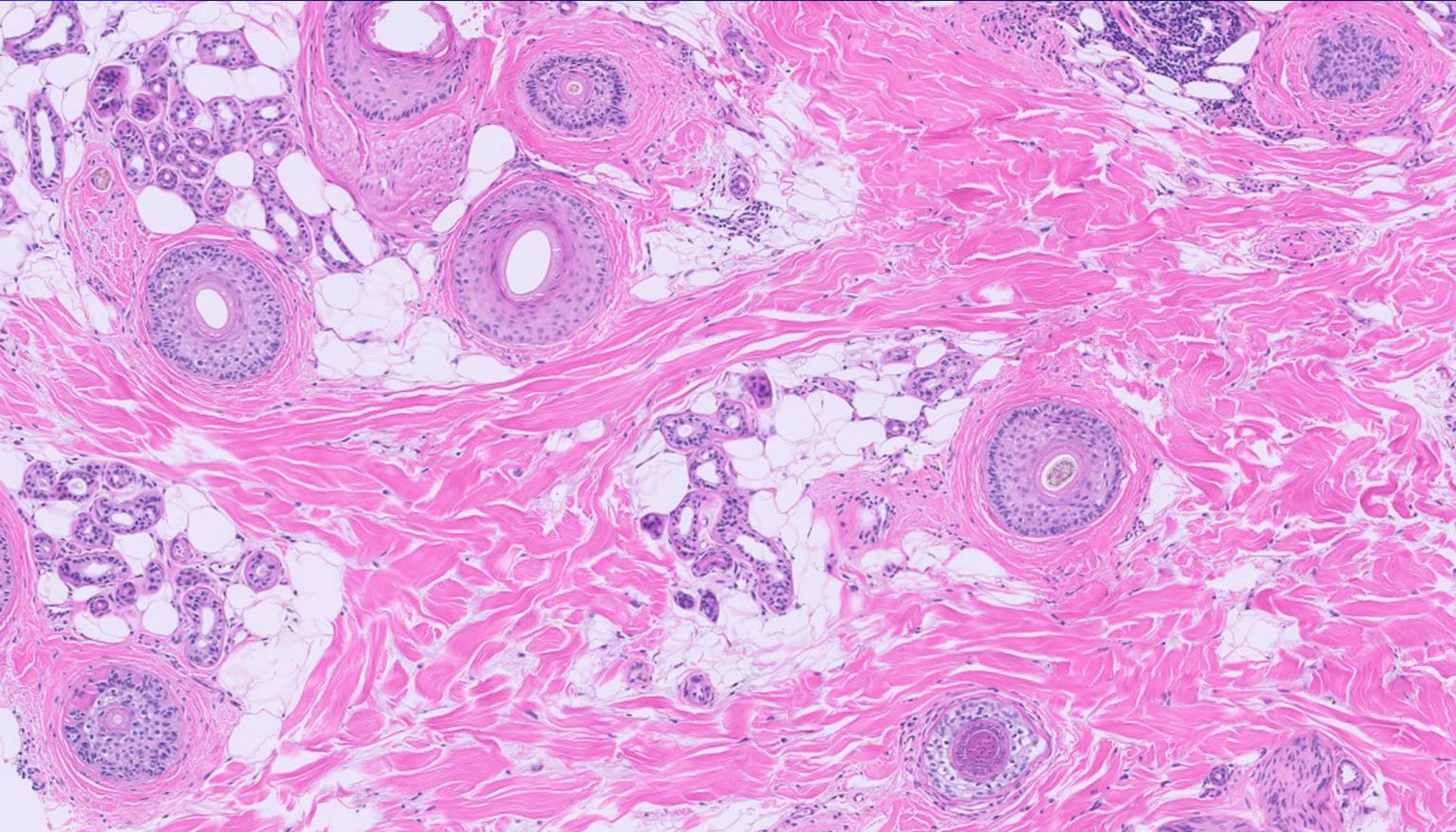
CD123 warning—endothelial+



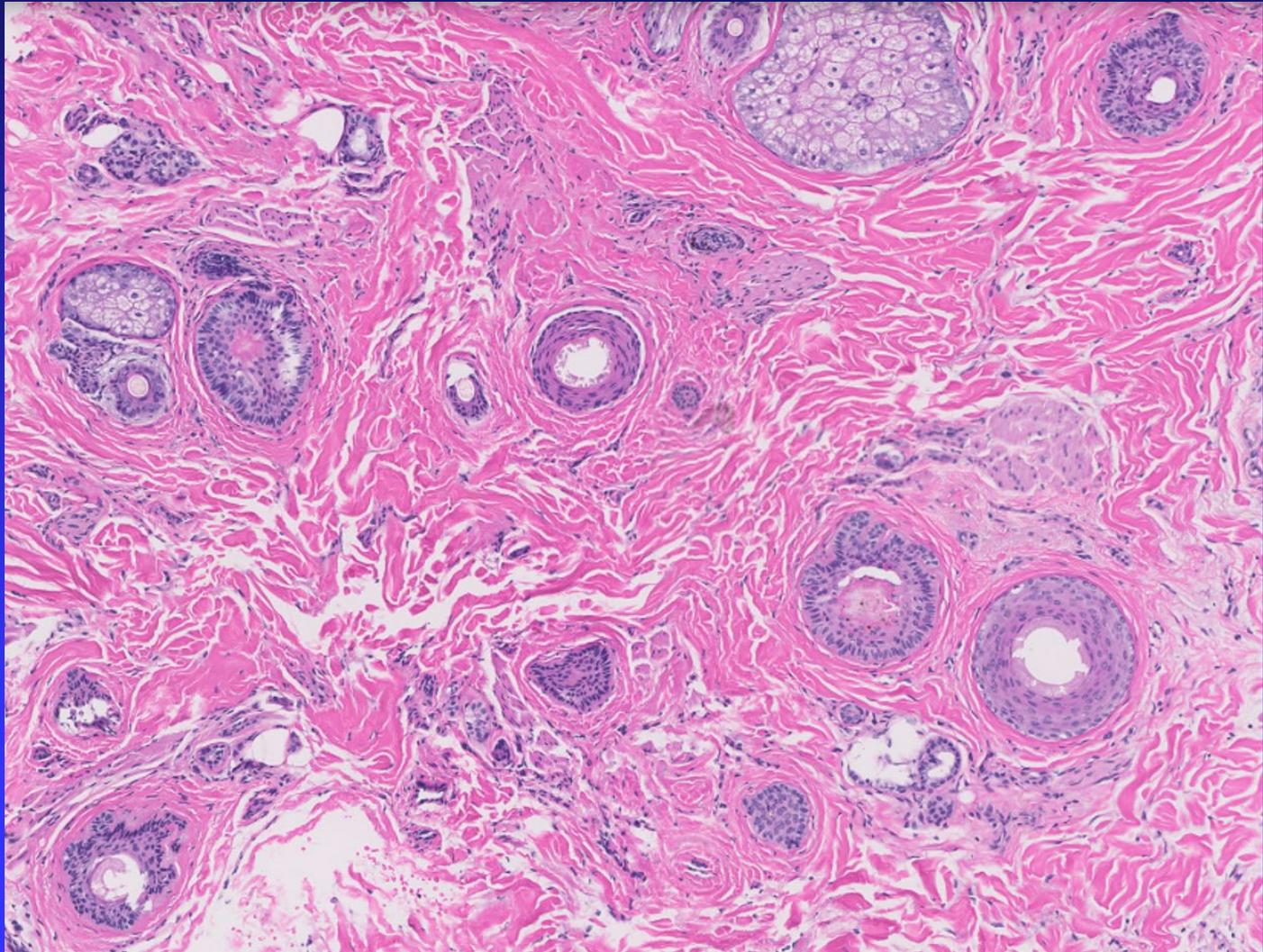
Alopecic CCLE (discoid)



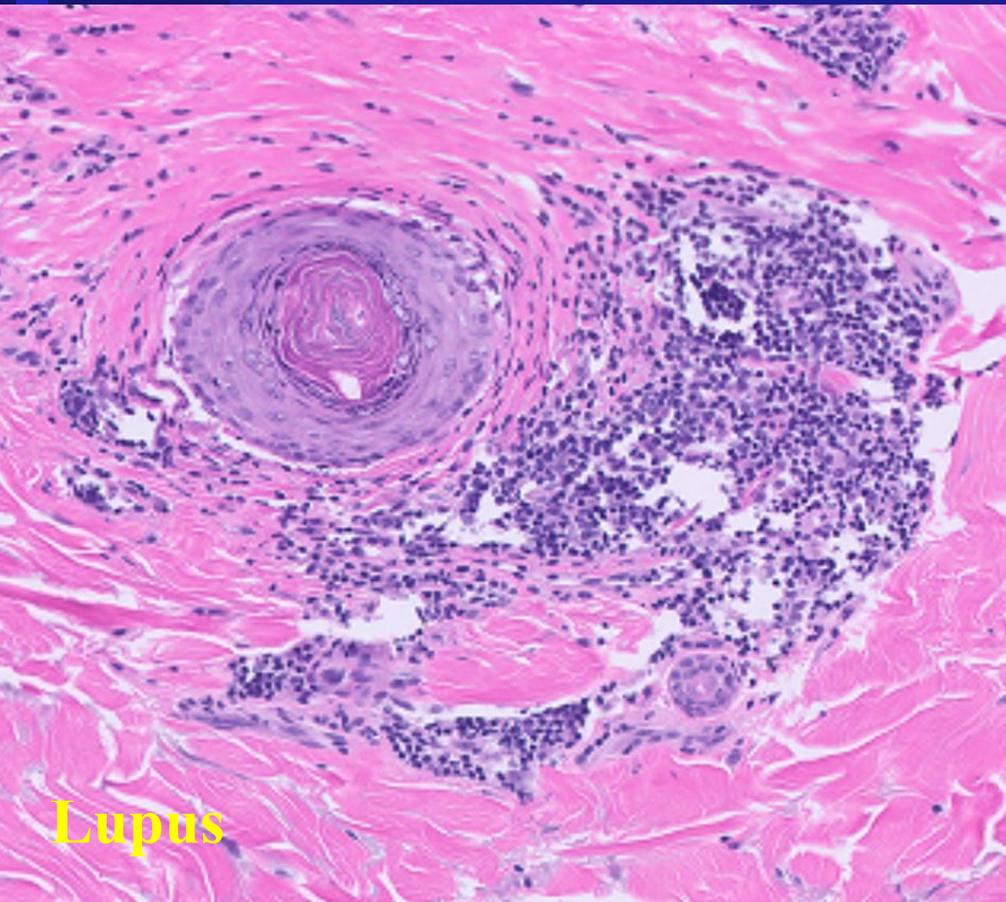
Alopecic CCLE (discoid)



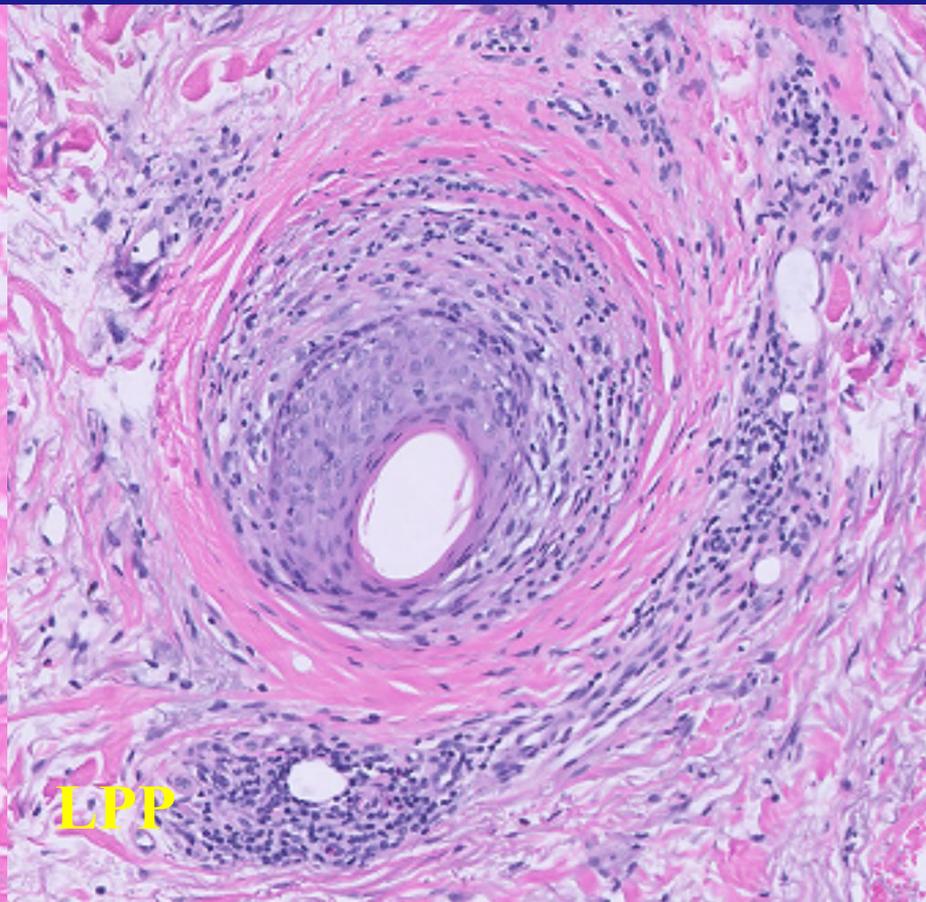
Alopecic CCLE (discoid) resembles subacute AA



Should such histologically disparate entities be grouped together simply because they have a lymphocytic infiltrate?



Lupus

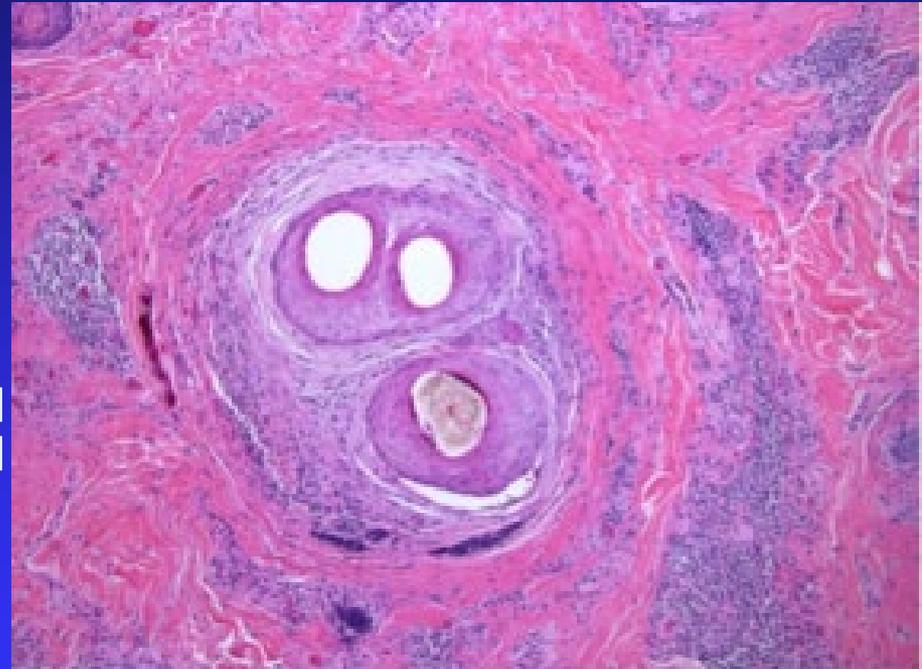


LPP

Normal ostium vs Compound follicle

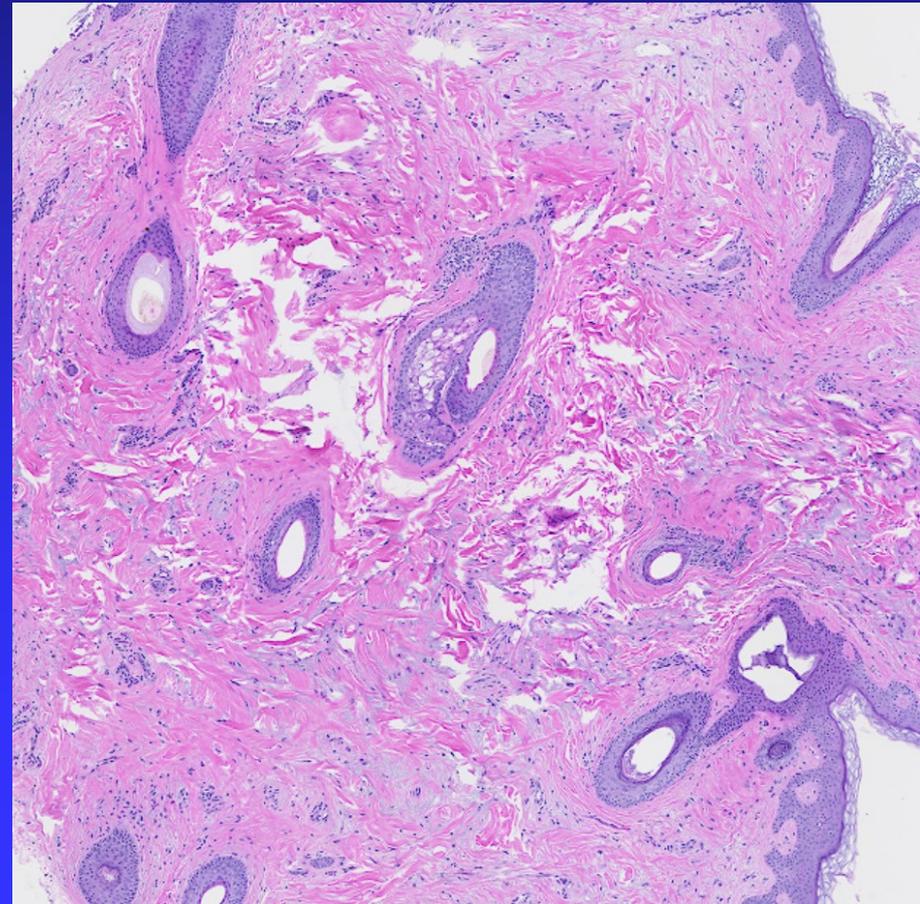


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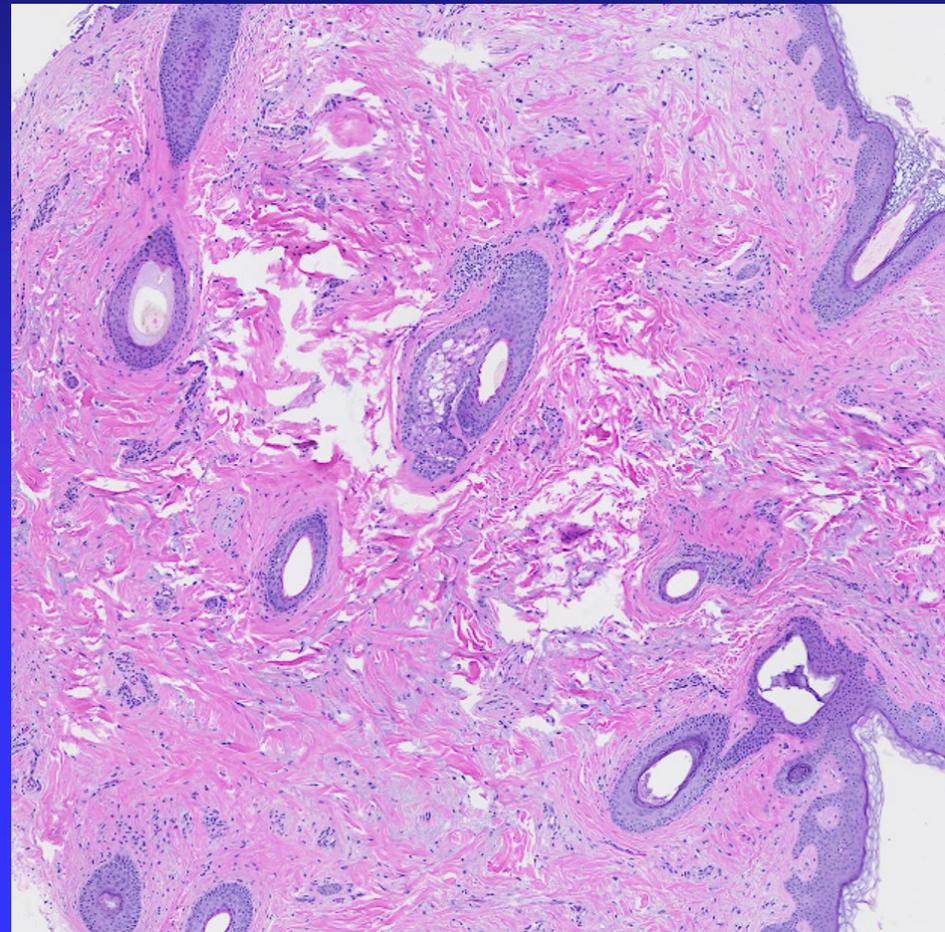
Issue #2

- Frontal fibrosing alopecia often has minimal perifollicular scarring

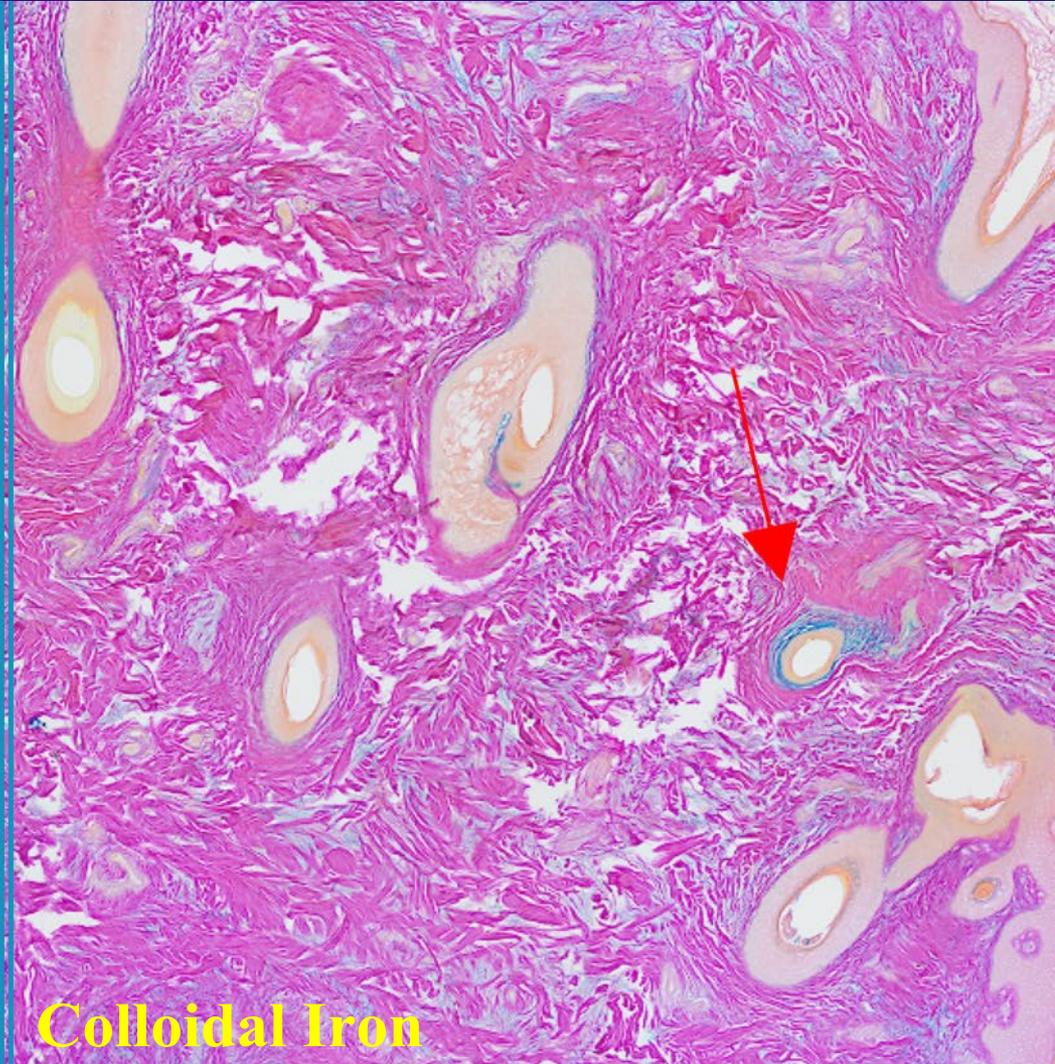
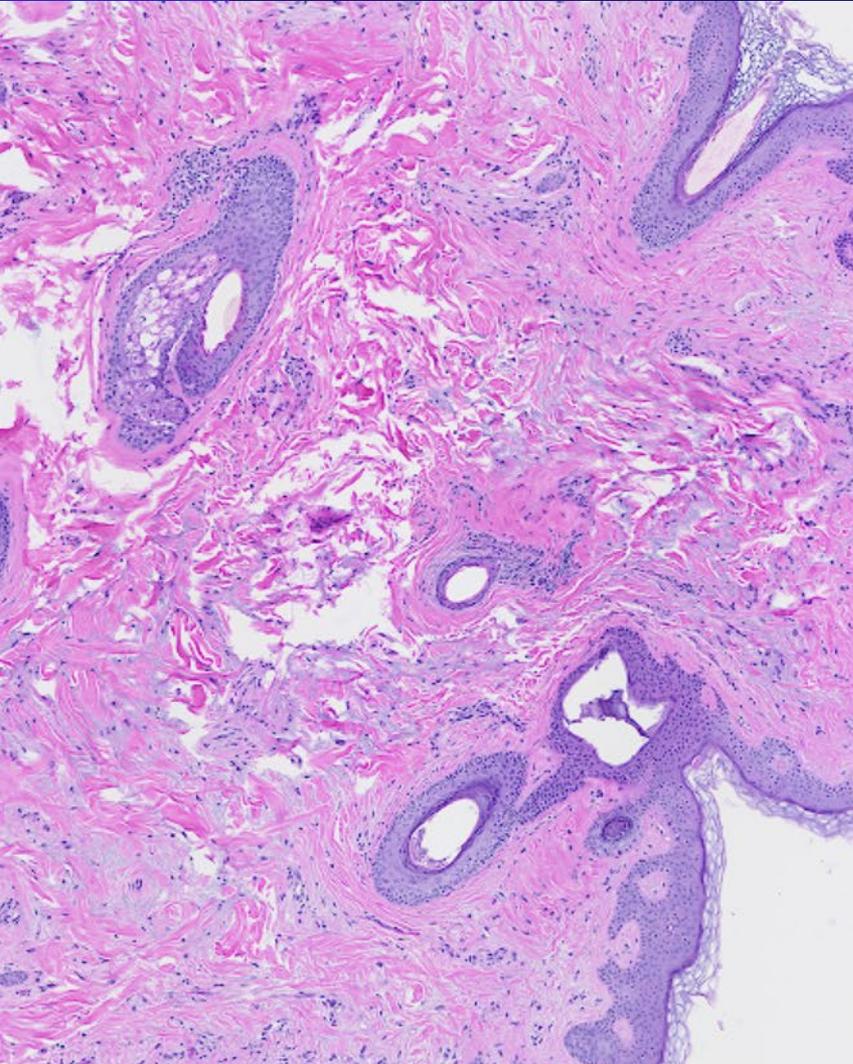


Frontal Fibrosing Alopecia

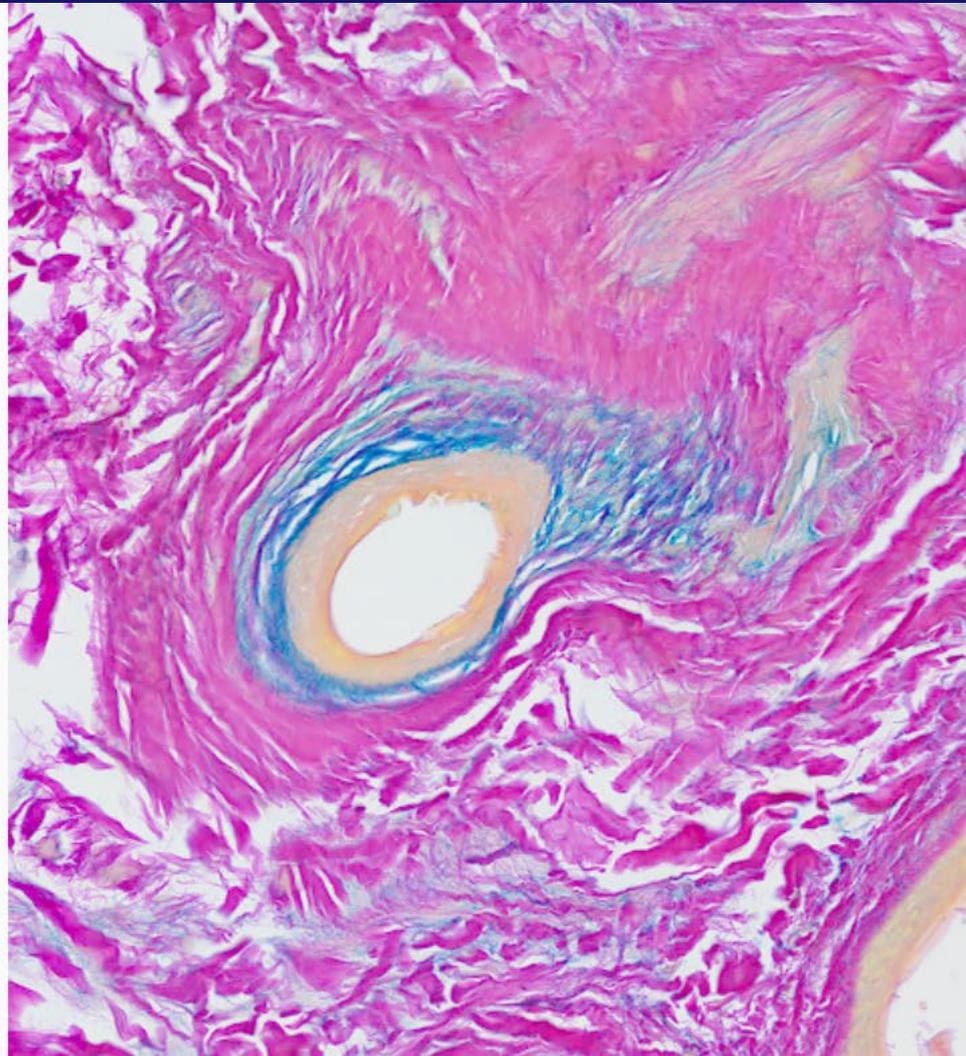
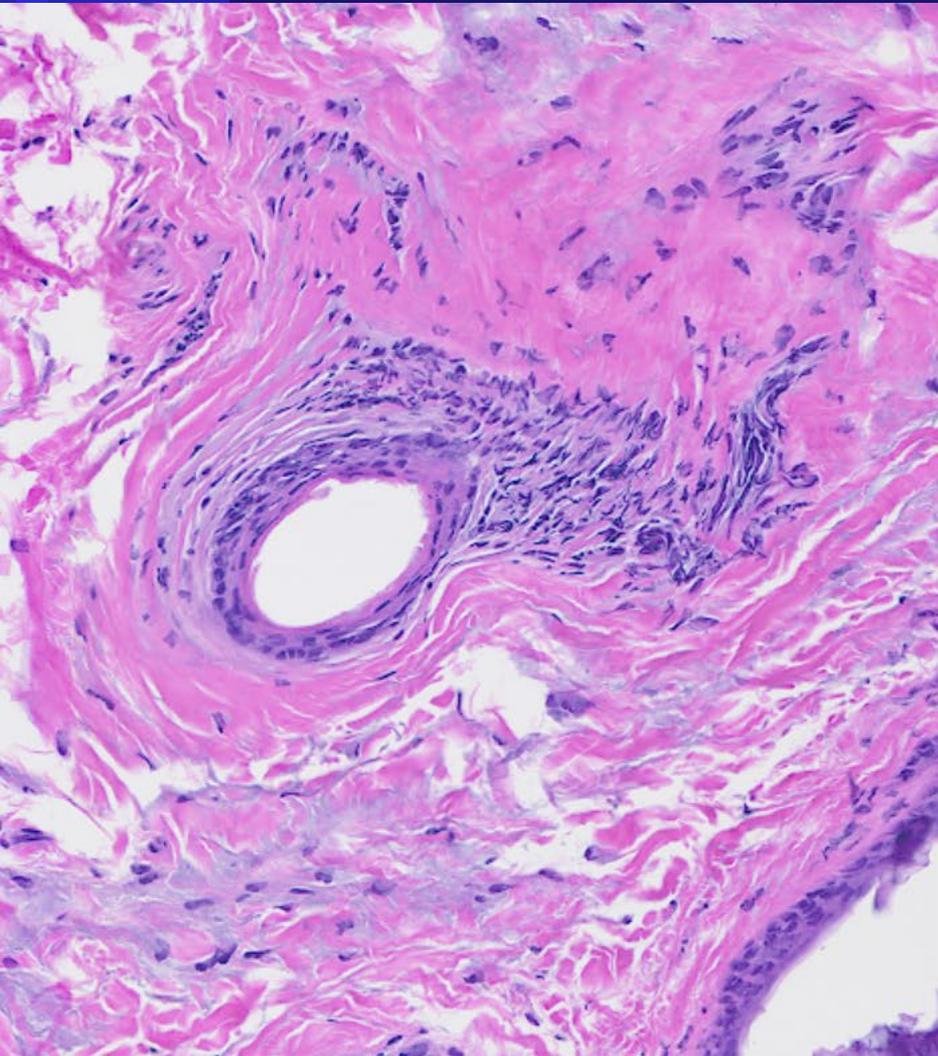
- Minimal perifollicular mucinous fibroplasia
- Resembles seborrheic dermatitis histopathologically



Frontal Fibrosing Alopecia



Colloidal Iron of great utility in subtle LPP/FFA



Frontal Fibrosing Alopecia

Yeast usually absent

RESEARCH LETTER

Histologic absence of yeast as a clue for classic lichen planopilaris, fibrosing alopecia in a pattern distribution, and frontal fibrosing alopecia: A cross-sectional observational study

Williams K, Tosti A, Thompson CT. Histologic absence of yeast as a clue for classic lichen planopilaris, fibrosing alopecia in a pattern distribution, and frontal fibrosing alopecia: A cross-sectional observational study. JAAD Int. 2024 Dec 19;19:10-11..

Frontal Fibrosing Alopecia

Yeast usually absent

There was a distinct difference between the absence and presence of yeast between cases of LPP/FAPD/FFA and FPHL. In LPP/FAPD/FFA, 98.5% (68/69) of cases had no identifiable yeast. In contrast, in FPHL 50% (34/68) of cases had identifiable yeast ($P < .001$).

Williams K, Tosti A, Thompson CT. Histologic absence of yeast as a clue for classic lichen planopilaris, fibrosing alopecia in a pattern distribution, and frontal fibrosing alopecia: A cross-sectional observational study. JAAD Int. 2024 Dec 19;19:10-11..

Issue #3

Are LPP and CCCA
histopathologically identical?

LPP versus CCCA

Jordan CS, Chapman C, Kolivras A, Roberts JL, Thompson NB, Thompson CT. Clinicopathologic and immunophenotypic characterization of lichen planopilaris and central centrifugal cicatricial alopecia: A comparative study of 51 cases. *J Cutan Pathol.* 2020;47(2):128-134.

No difference between LPP and CCCA

Premature Desquamation of the Inner Root Sheath in Noninflamed Hair Follicles as a Specific Marker for Central Centrifugal Cicatricial Alopecia

Timothy Tan, DO,* Joan Guitart, MD,†‡ Pedram Gerami, MD,†‡ and Pedram Yazdan, MD†

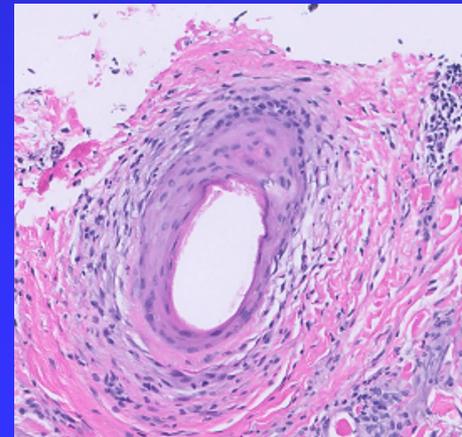
TABLE 2. Cases of PDIRS in Inflamed and Noninflamed Hair Follicles

Type of Alopecia	Total Cases With PDIRS, n	Cases With PDIRS in Inflamed Follicles, n (%)	Cases with PDIRS in Noninflamed Follicles, n (%)
Cicatricial alopecia			
CCCA	111	30 (27)	81 (73)
LPP	44	44 (100)	0 (0)
DLE	3	3 (100)	0 (0)
AKN	1	1 (100)	0 (0)
FD	24	21 (87)	3 (13)
Noncicatricial alopecia			
AGA	1	0 (0)	1 (100)
AA	1	1 (100)	0 (0)
PsA	2	0 (0)	2 (100)

Tan T, Guitart J, Gerami P, Yazdan P. Premature Desquamation of the Inner Root Sheath in Noninflamed Hair Follicles as a Specific Marker for Central Centrifugal Cicatricial Alopecia. *Am J Dermatopathol*. 2019 May;41(5):350-354..

LPP versus CCCA

- In general, CCCA is histologically:
 - ◆ *Premature desquamation of the inner root sheath (PDIRS) (uninflamed follicles)
 - ◆ Less inflammatory
 - ◆ More end-stage
 - ◆ Eccentric follicular atrophy



LPP versus CCCA

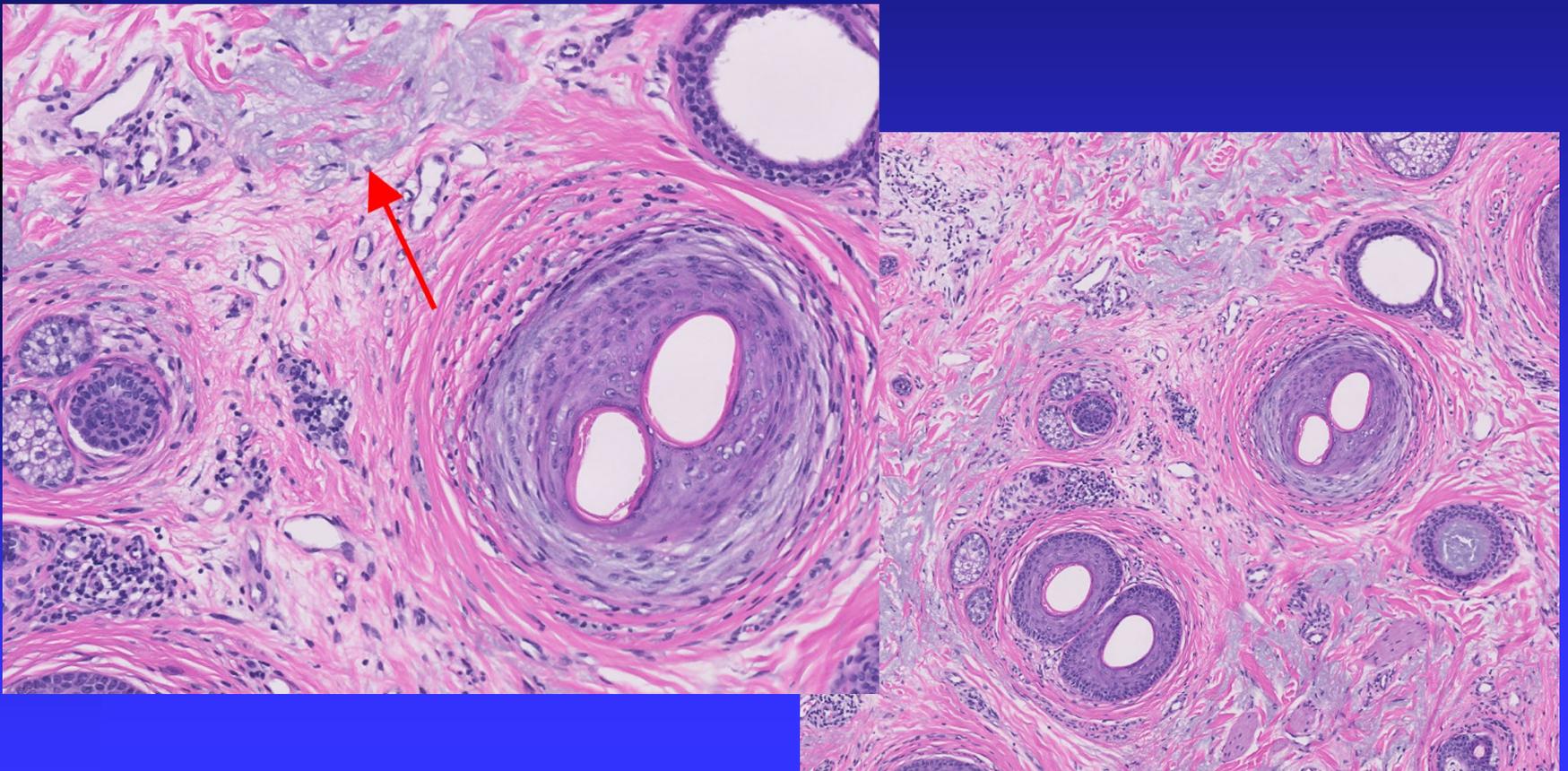
- Clinicians who specialize in hair loss in women of African descent:
 - ◆ Confirm primary cicatricial disease
 - ◆ Clinical presentations:
 - ◆ CCCA
 - ◆ LPP
 - ◆ CCCA/LPP Indeterminate

Issue #4

- Fibrosing Alopecia in a Pattern Distribution (FAPD)
 - ◆ Is this diffuse LPP in patients with FPHL (senescence)?

Issue #4

- FAPD—LPP with solar elastosis



Diffuse LPP (FAPD) etiology?



Issue #5

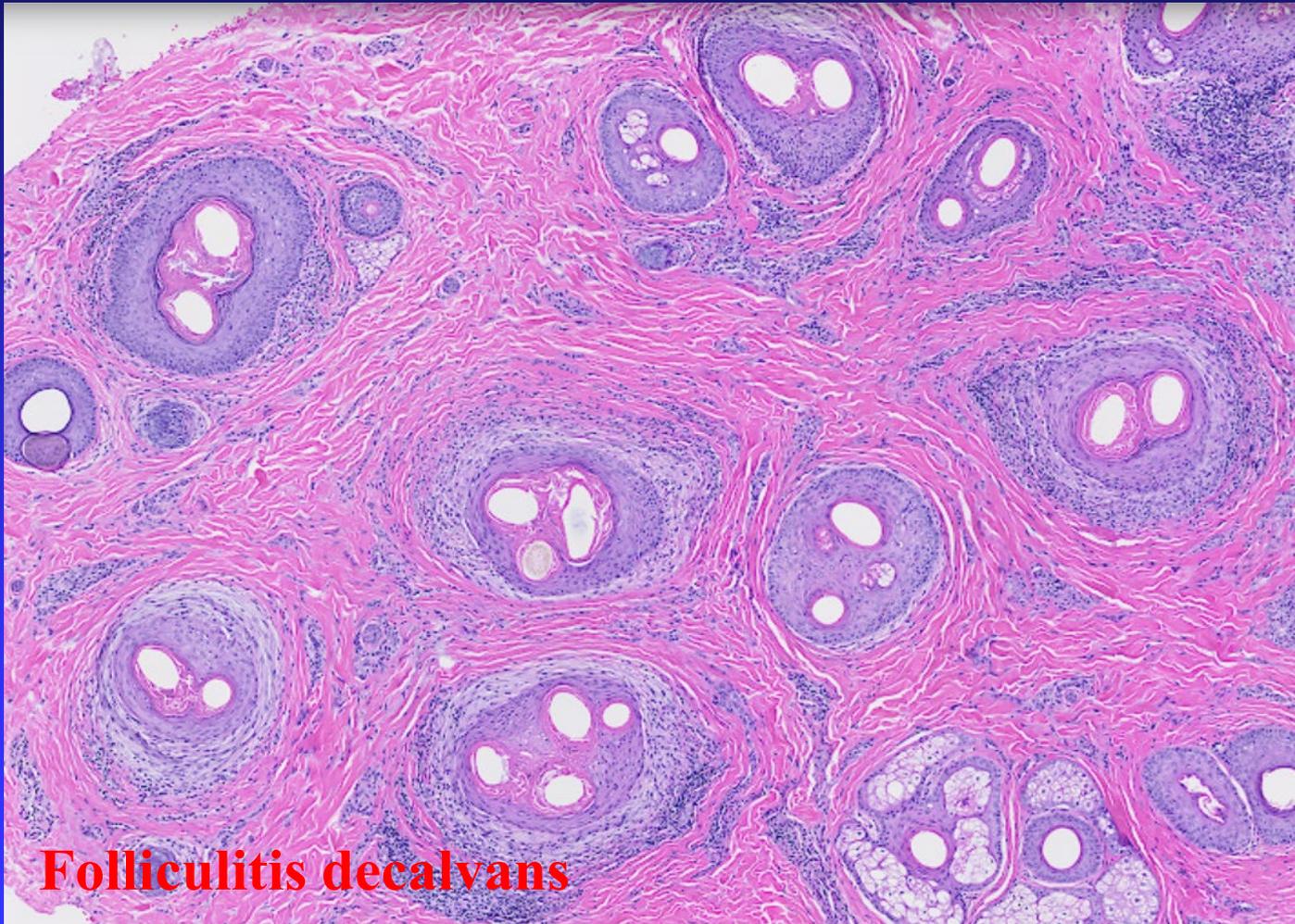
Folliculitis decalvans often has few to no neutrophils and looks like LPP

Neutrophilic

Folliculitis decalvans³

Dissecting cellulitis/folliculitis³ (*perifolliculitis abscedens et suffodiens*)

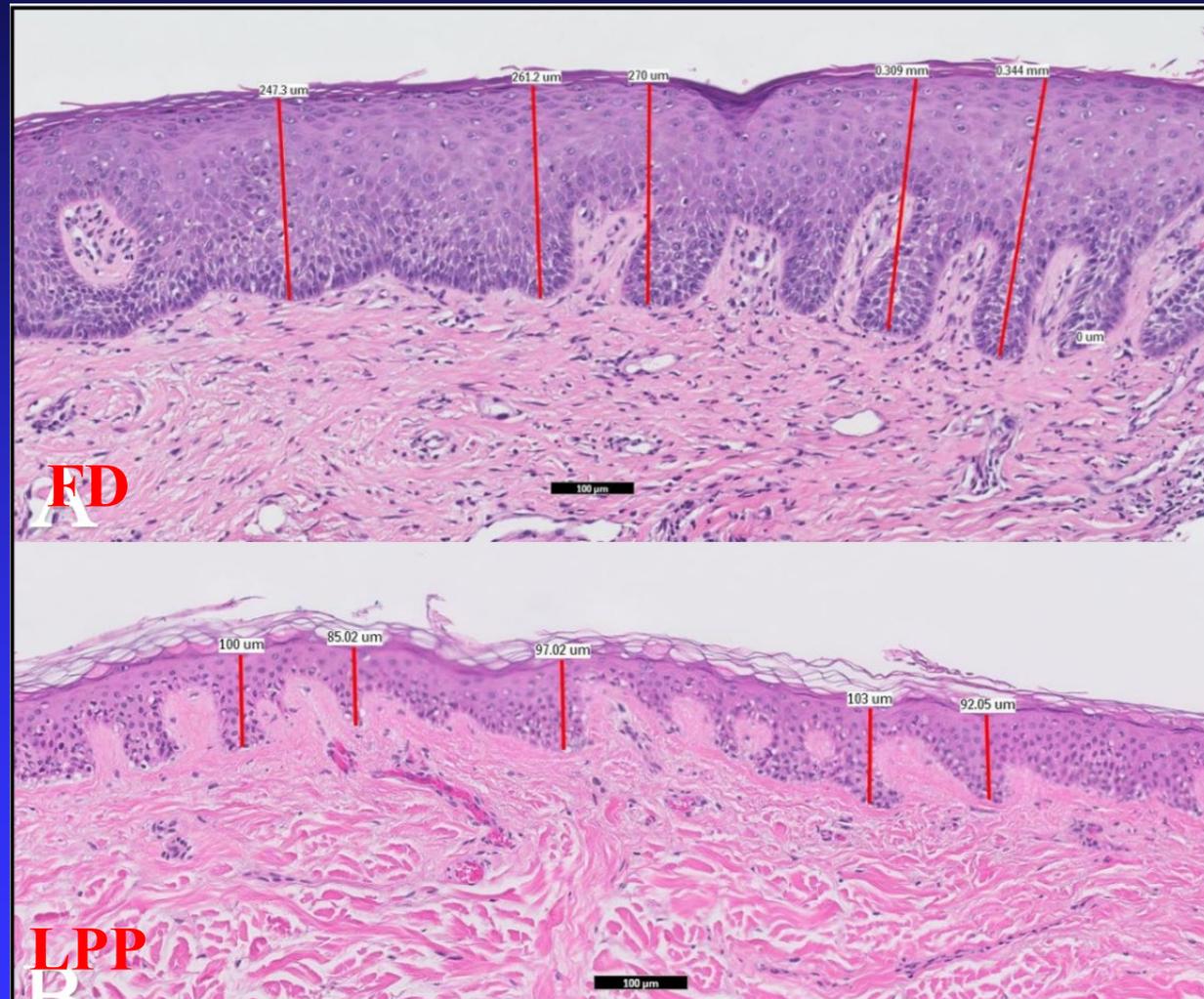
Issue #5



Folliculitis decalvans

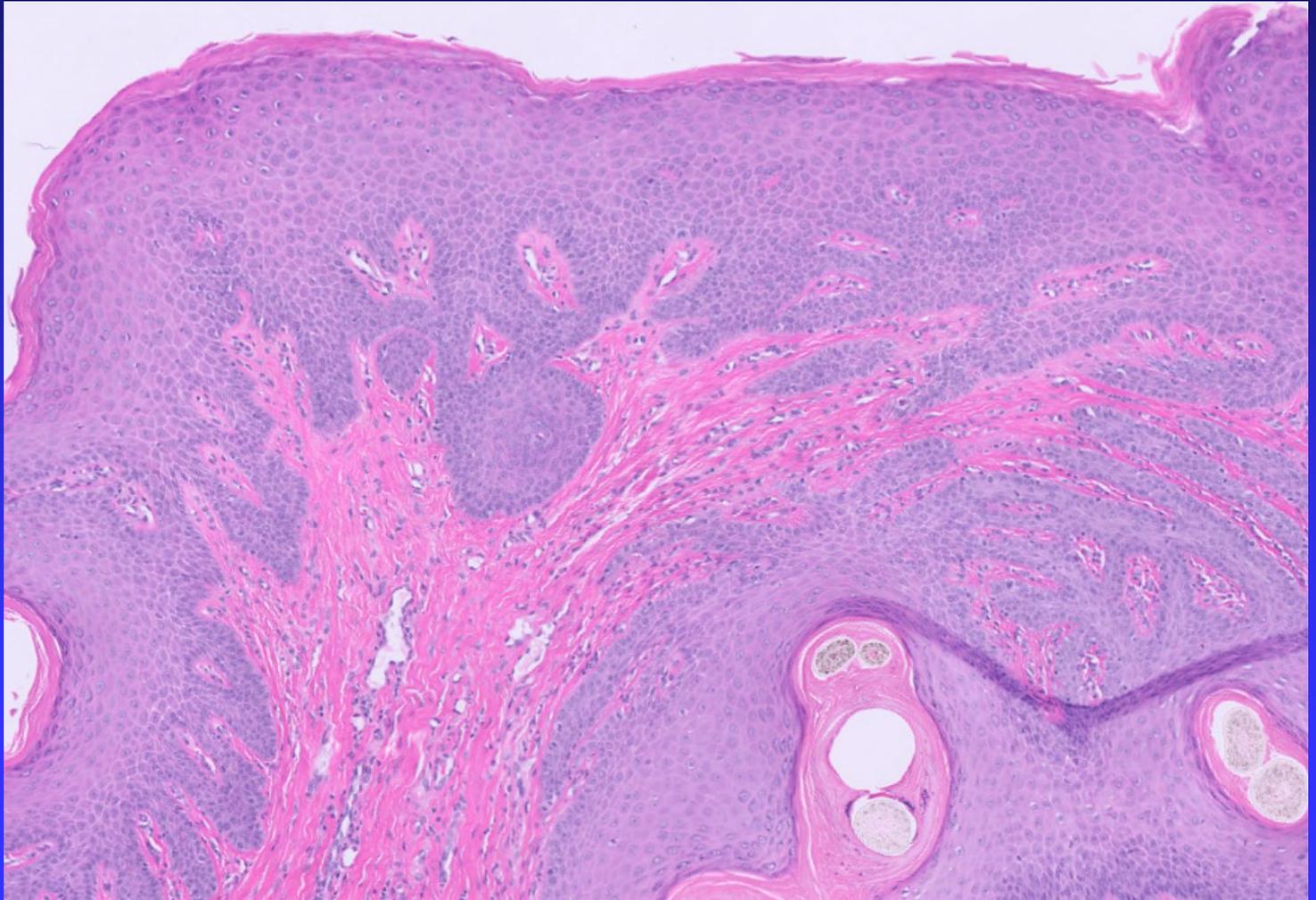
Epidermal Thickness

Folliculitis decalvans vs LPP



Epidermal Thickness

Folliculitis decalvans



2001

Proposed working classification of primary cicatricial alopecia

Lymphocytic

- Chronic cutaneous lupus erythematosus
- Lichen planopilaris (LPP)⁴
 - Classic LPP
 - Frontal fibrosing alopecia⁵
 - Graham-Little syndrome³
- Classic pseudopelade (Brocq)^{6,7}
- Central centrifugal cicatricial alopecia⁸
- Alopecia mucinosa³
- Keratinosis follicularis spinulosa decalvans⁹

Neutrophilic

- Folliculitis decalvans³
- Dissecting cellulitis/folliculitis³ (*perifolliculitis abscedens et suffodiens*)

Mixed

- Folliculitis (acne) keloidalis⁹
- Folliculitis (acne) necrotica³
- Erosive pustular dermatosis¹⁰

Nonspecific

Removal of entities that are not primary cicatricial (scarring)

- Congenital/genetic (many types)
 - ◆ Keratosis follicularis spinulosa decalvans
- Aging/sun damage
 - ◆ Erosive pustular dermatosis of the scalp
- Acneiform
 - ◆ Folliculitis (acne) necrotica
- Lymphoproliferative?
 - ◆ Alopecia mucinosa (follicular mucinosis)
- Pseudopelade of Brocq

2026 Classification?

- Present a draft and then collaborate internationally--single classification
- No cell-type categories (lymphocytic, etc)
- Describe single entities
- Early- and late-stage
- Retain CCCA as a distinct entity
- Remove entities that are not primary cicatricial (scarring)

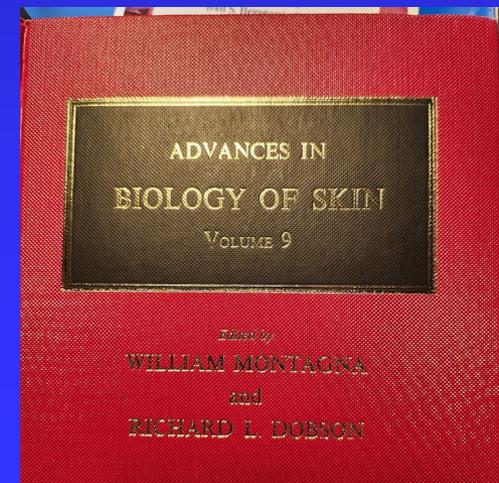
Enkosi!
¡Gracias!
Merci!



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Follicular Ageing

- Sebaceous gland atrophy
- 'Stranded' arrector pili
- Rate of hair slow/fast/slow



ADVANCES IN
BIOLOGY OF SKIN
VOLUME 9

Edited by
WILLIAM MONTAGNA
and
RICHARD L. DOBSON

Concept:
Is Androgenetic Alopecia
(AGA) an unintended
consequence of evolution?

Evolution to hairlessness



Credit: BRAD WILSON Getty Images



https://www.gilberq.com/index.php?main_page=product_info&products_id=738818

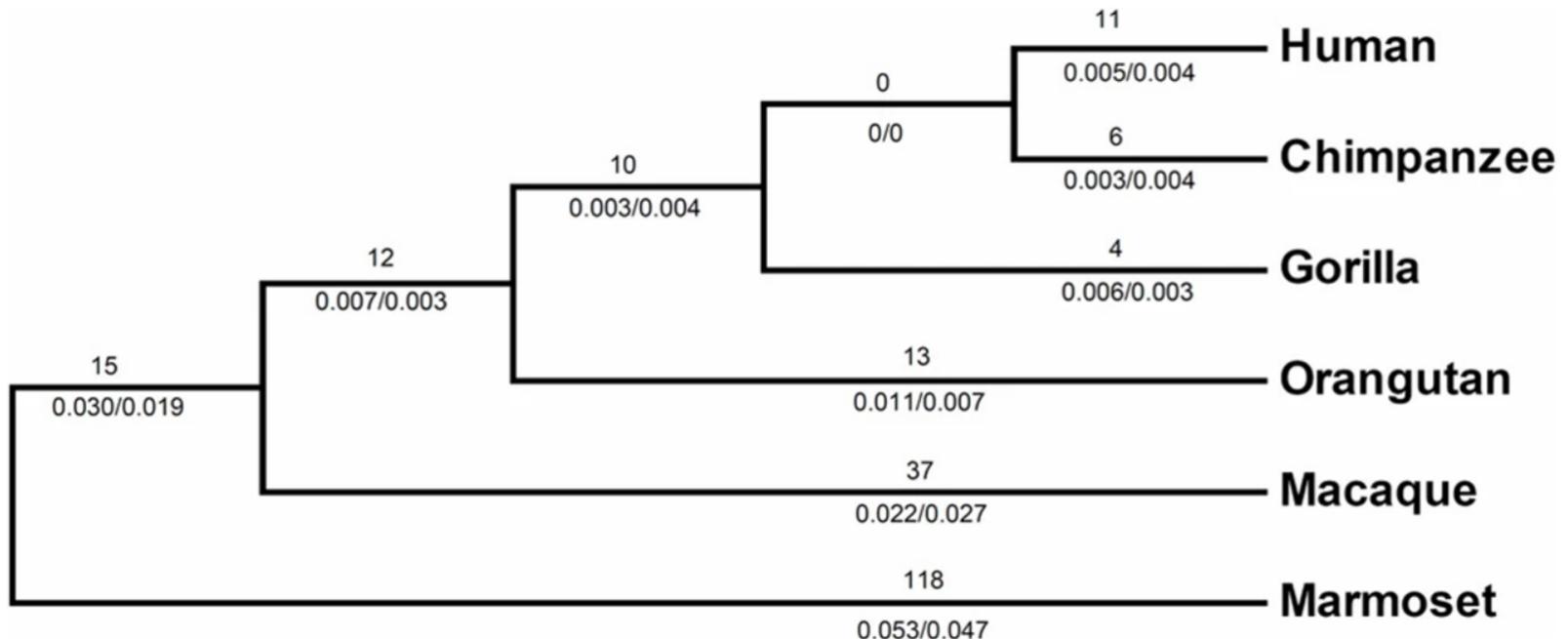
Why evolve to less hair cover?

- Temperature Regulation
 - ◆ Changing behavior
 - ◆ Hunting in the day—safer
 - ◆ Fire—temperature control better
 - ◆ Clothing
 - ◆ Infestation prevention (lice)

Human Hairless Gene

Figure 2

From: [Molecular evolution of *HR*, a gene that regulates the postnatal cycle of the hair follicle](#)



Molecular evolution of *HR* in primates.

Ka and *Ks* values were estimated for each branch of the *HR* tree with the reconstructed sequences at ancestral nodes. Number above the lineage indicates the minimum number of amino acid replacements to explain differences among reconstructed sequences. *Ka*/*Ks* ratios are shown below branches. Branch lengths are drawn arbitrarily and do not reflect evolutionary time.

➤ Science. 1998 Jan 30;279(5351):720-4. doi: 10.1126/science.279.5351.720.

Alopecia universalis associated with a mutation in the human hairless gene

W Ahmad¹, M Faiyaz ul Haque, V Brancolini, H C Tsou, S ul Haque, H Lam, V M Aita, J Owen, M deBlaquiere, J Frank, P B Cserhalmi-Friedman, A Leask, J A McGrath, M Peacocke, M Ahmad, J Ott, A M Christiano

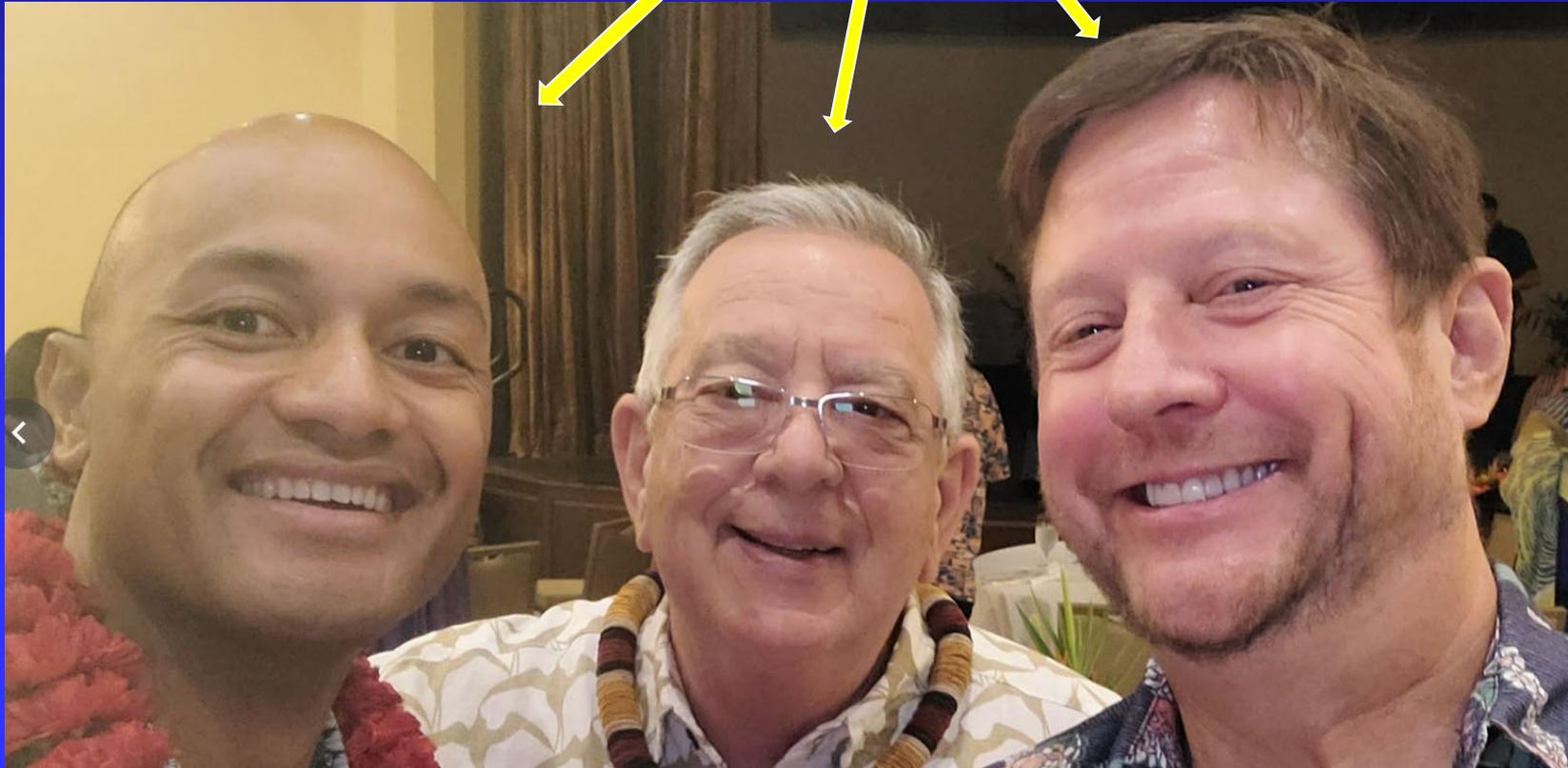
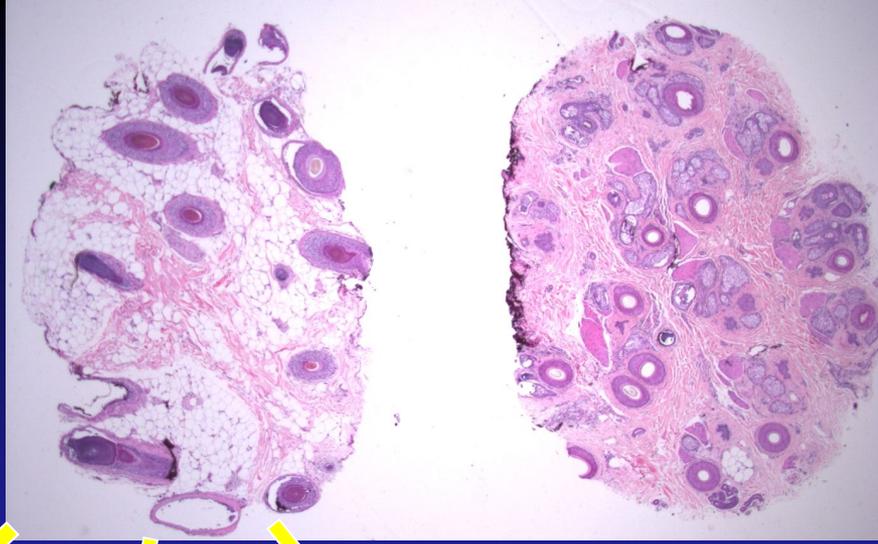


Pathologic Miniaturization



Zhou, C., Li, X., Wang, C. *et al.* Alopecia Areata: an Update on Etiopathogenesis, Diagnosis, and Management. *Clinic Rev Allerg Immunol* **61**, 403–423 (2021). <https://doi.org/10.1007/s12016-021-08883-0>

Miniaturization
?Pathologic?



Unintended consequence of evolution?



Enkosi!
¡Gracias!
Merci!



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