# Basics of Alopecia

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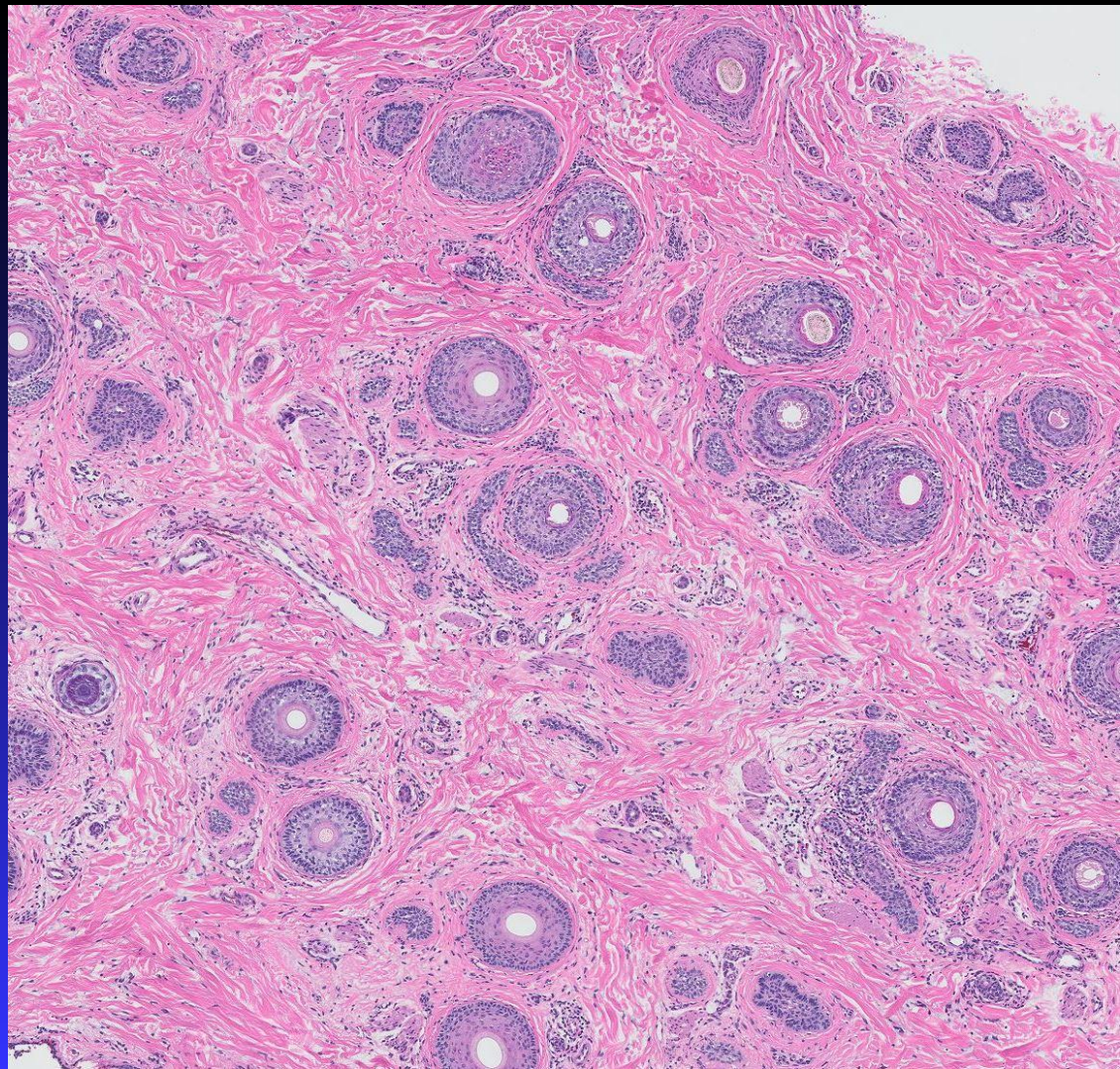
# Case 1



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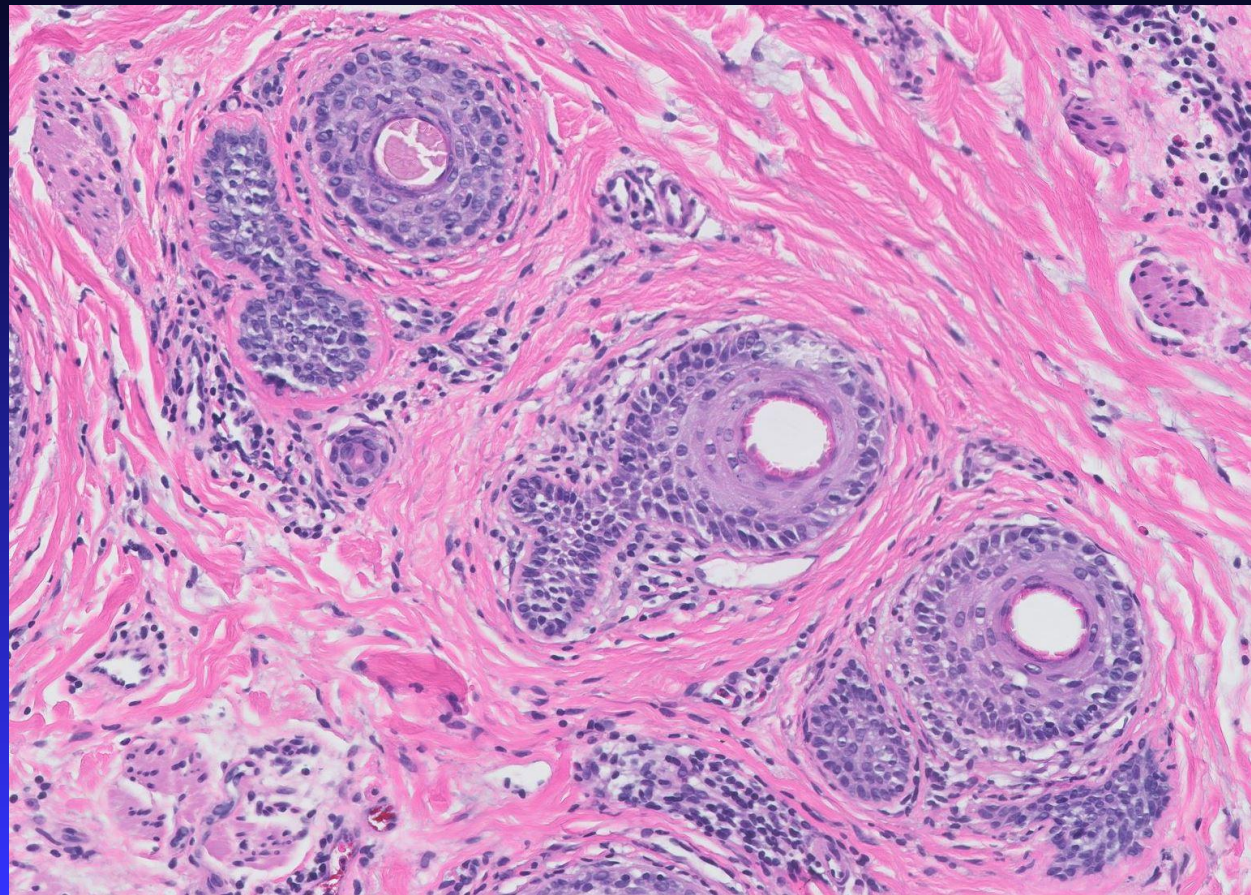

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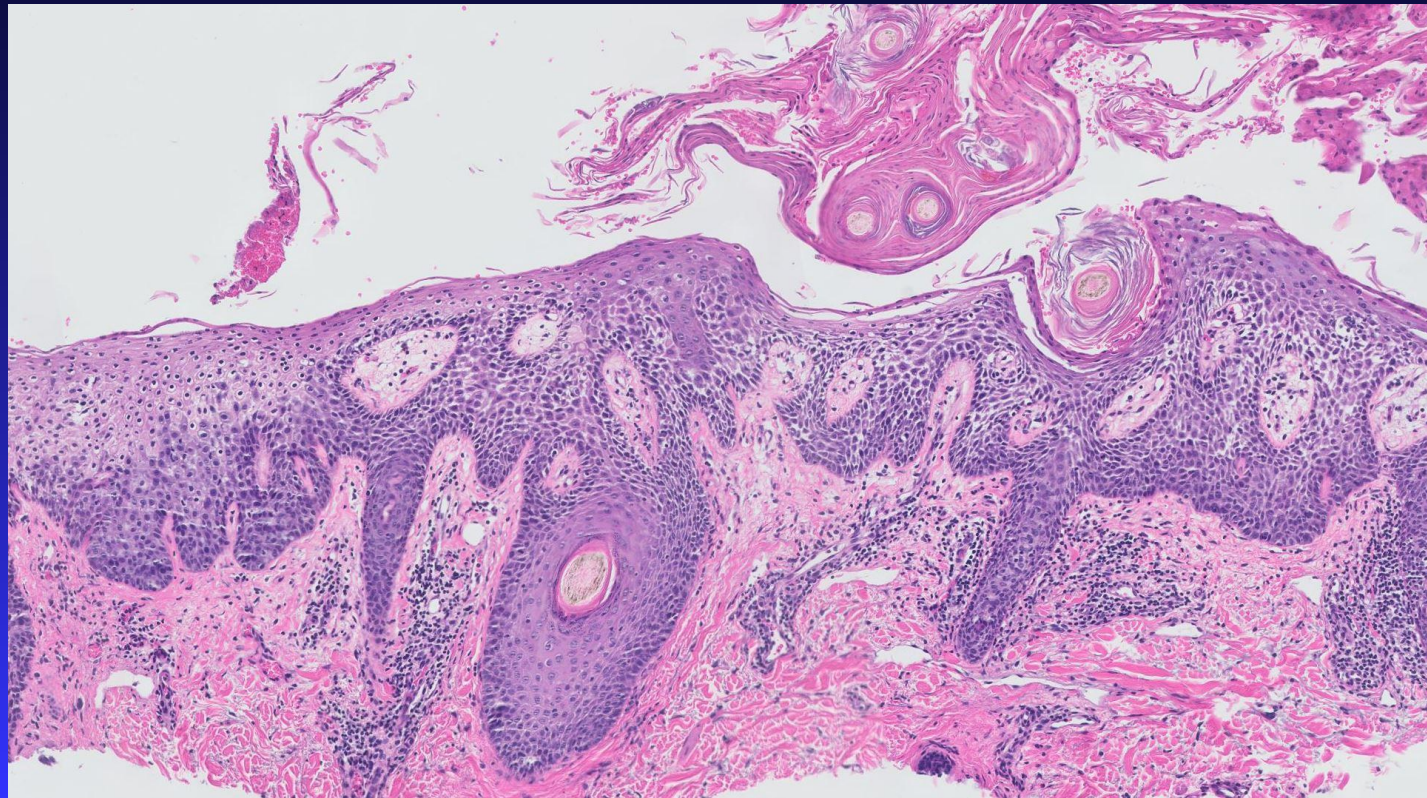
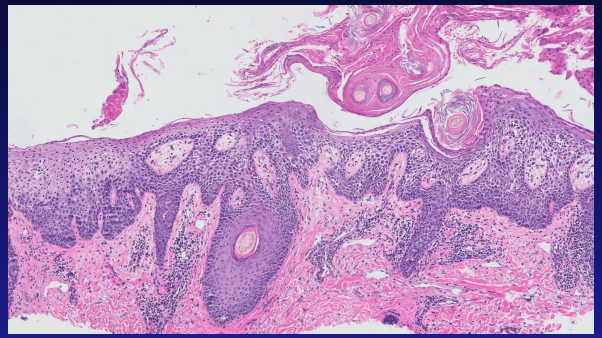
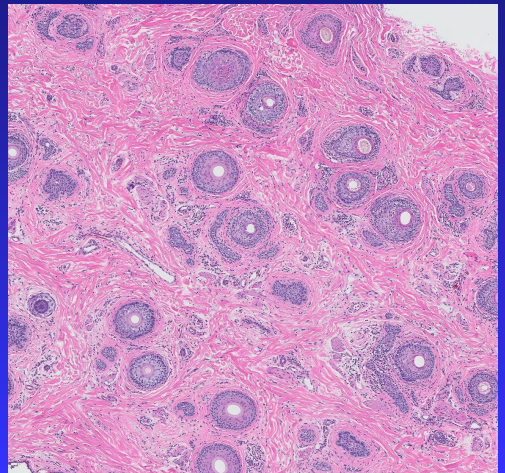


# Case 1 Psoriatic Alopecia





# Case 1  Psoriatic Alopecia

- Scaly patch—with or without hair loss
- Often with diagnosis of psoriasis
- Regrowth may or may not occur
- TNF-αinhibitor identical

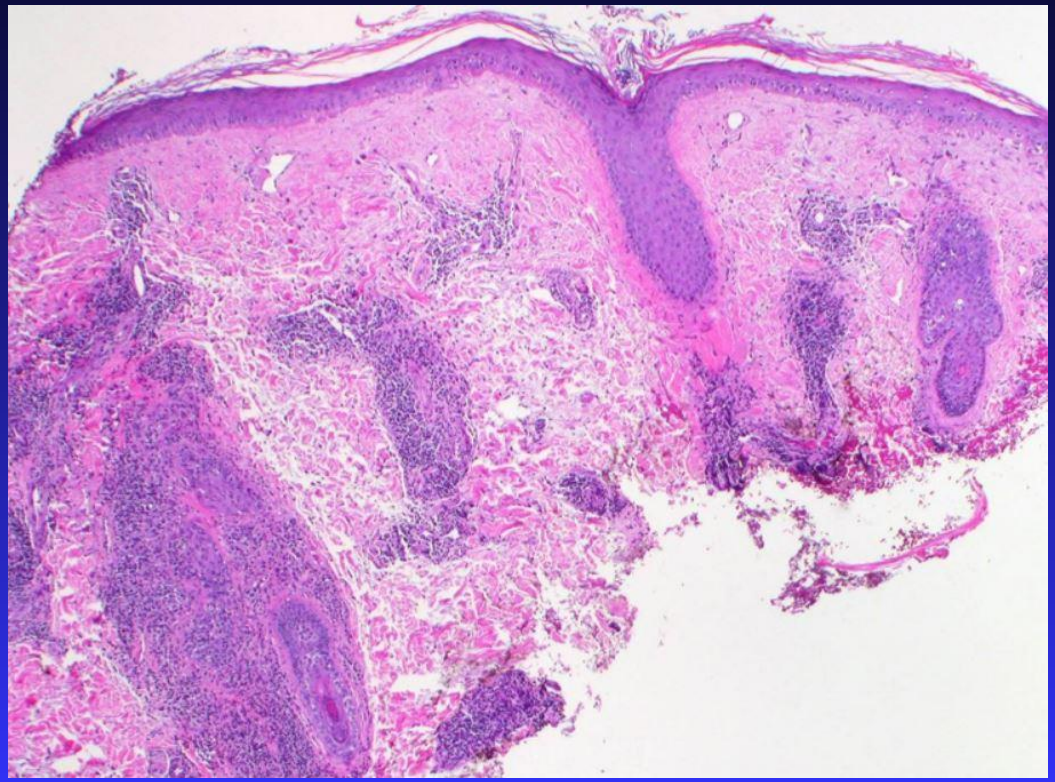
# Case 1 Psoriatic alopecia

- Differential
  - Trichotillomania
    - Broken hairs, melanin casts
    - No miniaturization
- Site of sampling
  - Edge of hairline—more vellus
- Alopecia areata-like pattern

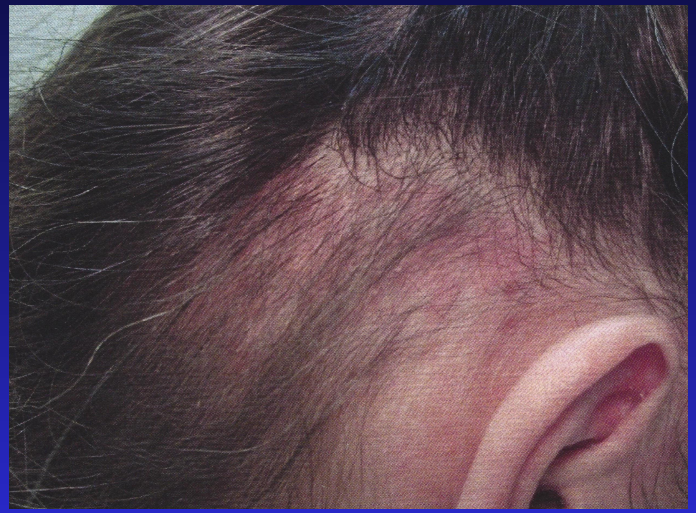
# Case 1 Alopecia areata-like pattern

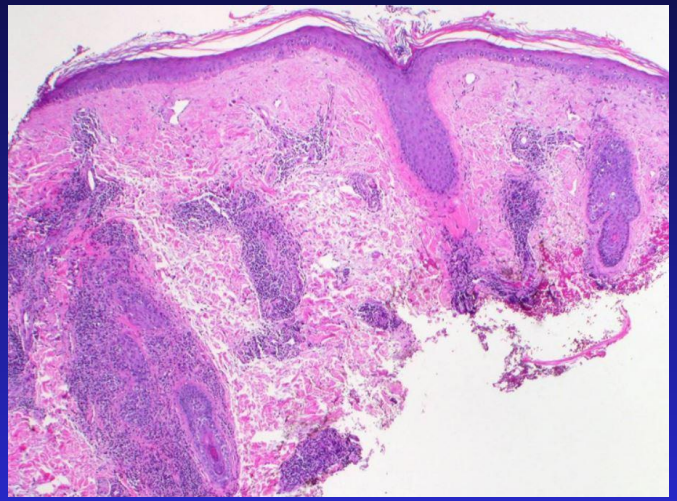
- Reports of alopecia areata (AA) in psoriasis or with TNF-αinhibitor are likely not AA

# Alopecia areata-like pattern



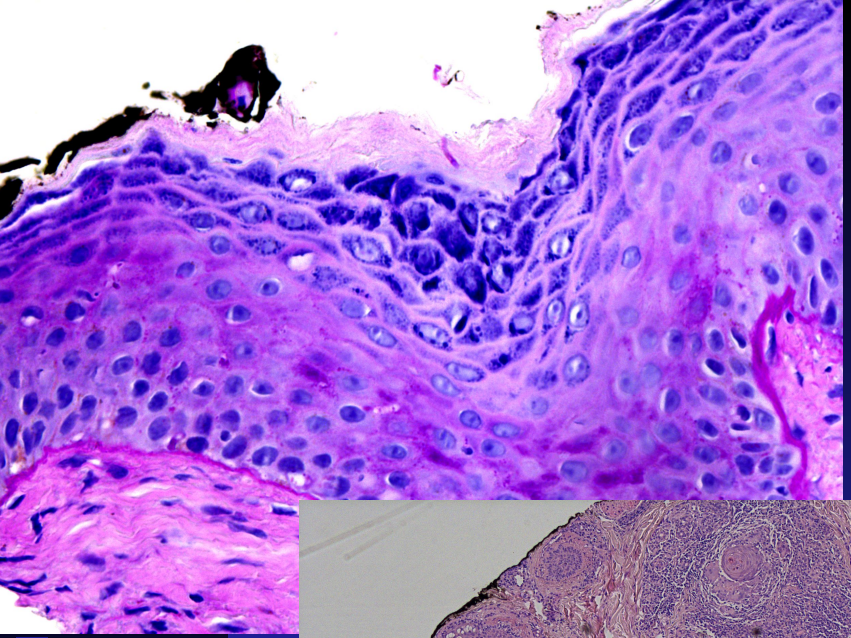
# Systemic lupus erythematosus
# AA-like pattern

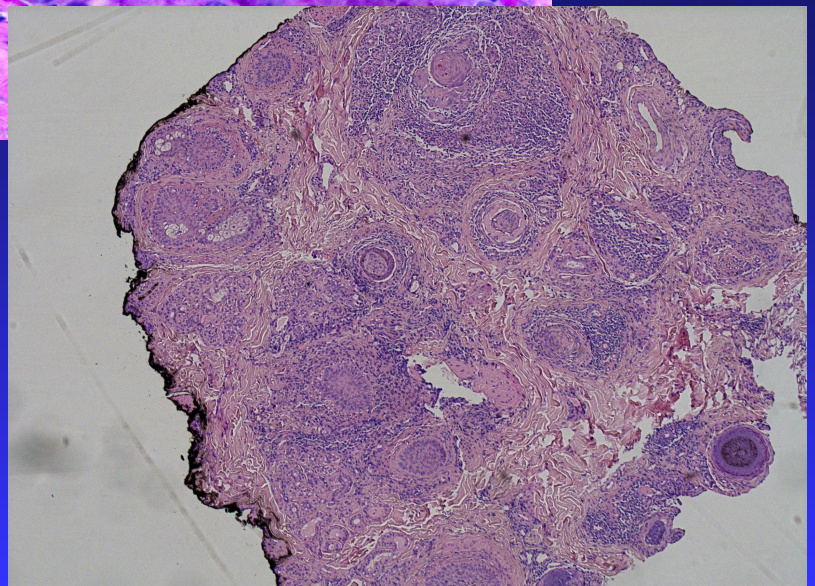


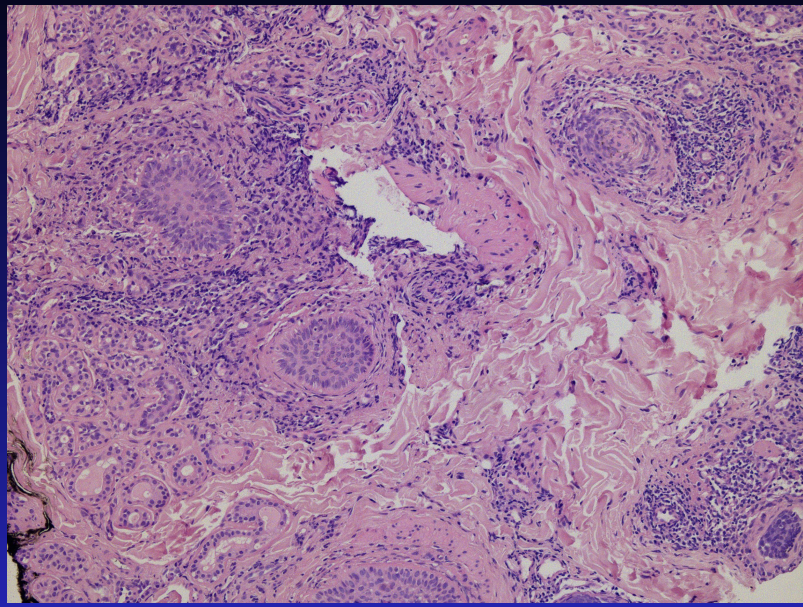


Journal of American Academy of Dermatology 2010; 63: 333-6

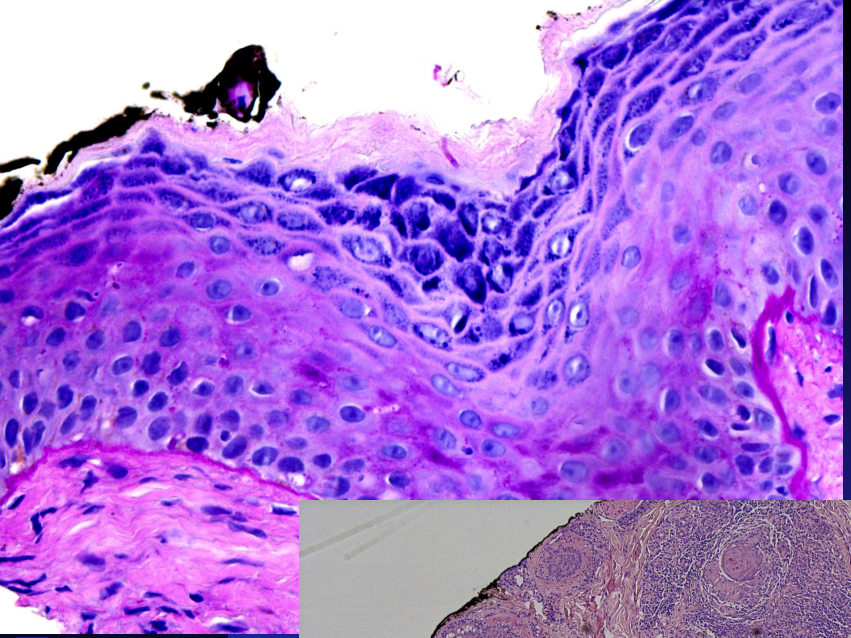
Sperling LC, Cowper SE, Knopp EA. An Atlas of Hair Pathology with Clinical Correlations. 2nd ed. Boca Raton (FL): Taylor and Francis Group, 2012.

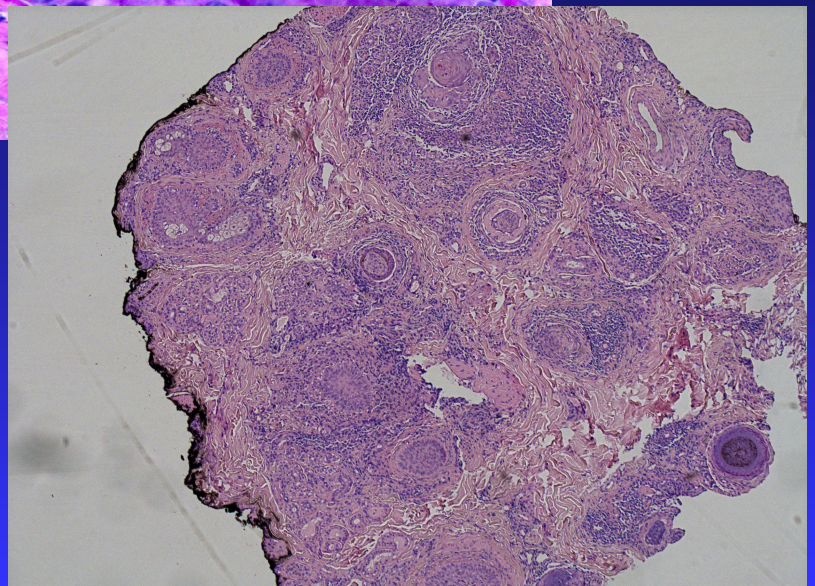


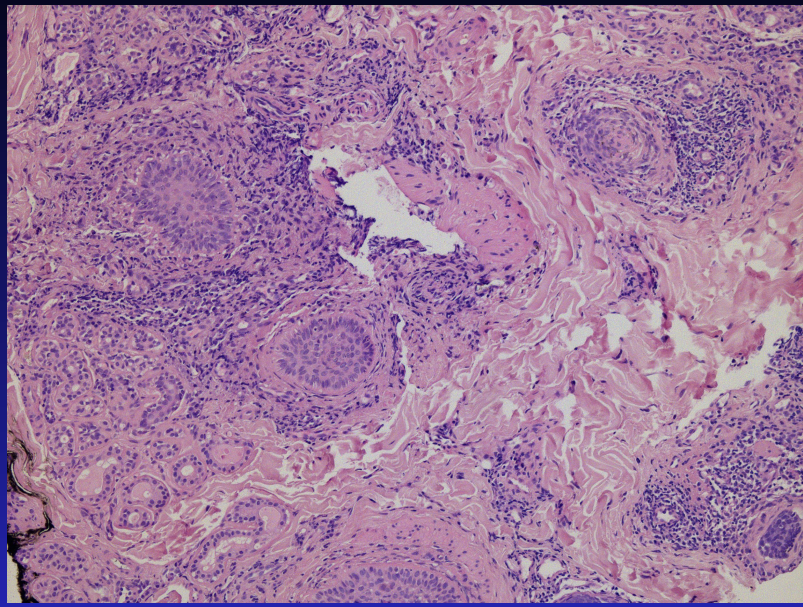




# DIAGNOSIS?





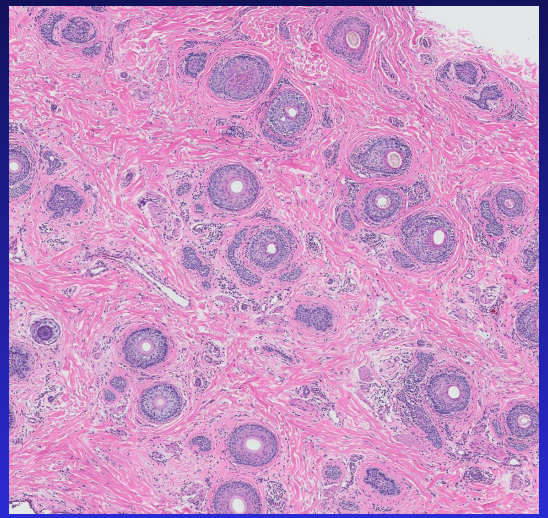


*Trichophyton violaceum*

# Alopecia Areata–like Pattern

Marked miniaturization with reduced anagen phase:

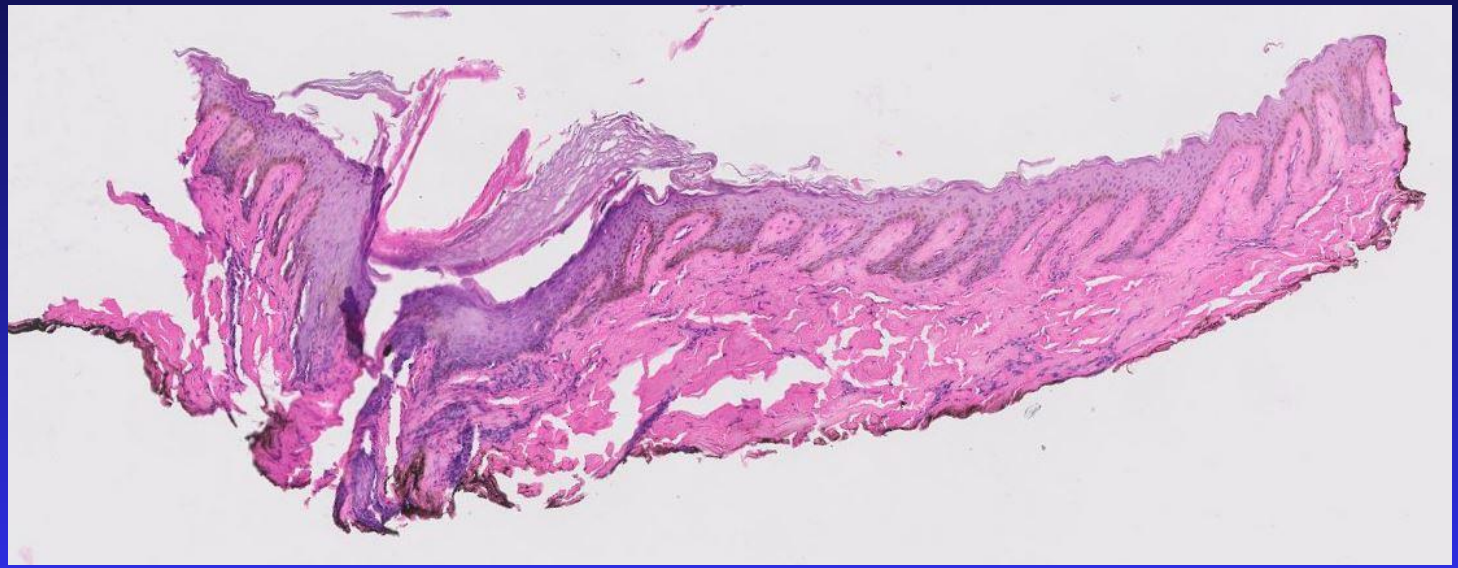
- Alopecia areata
- Psoriatic alopecia
- TNF-alpha inhibitor induced psoriasiform alopecia
- Syphilitic alopecia
- Non-scarring alopecia of systemic lupus erythematosus
- Dermatophytosis



# Case 2

- 53 y/o female of African descent with an alopecic patch on crown of head

# Case 2



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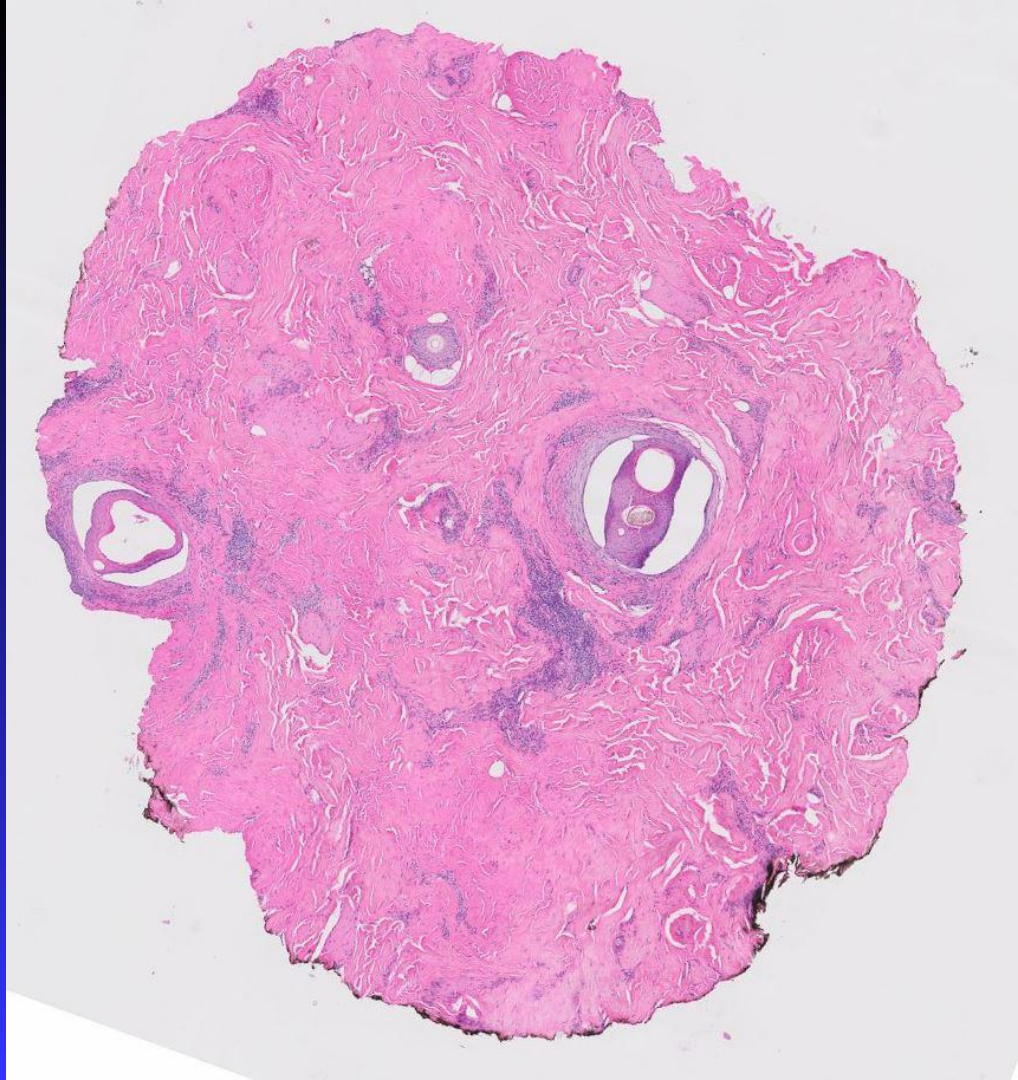

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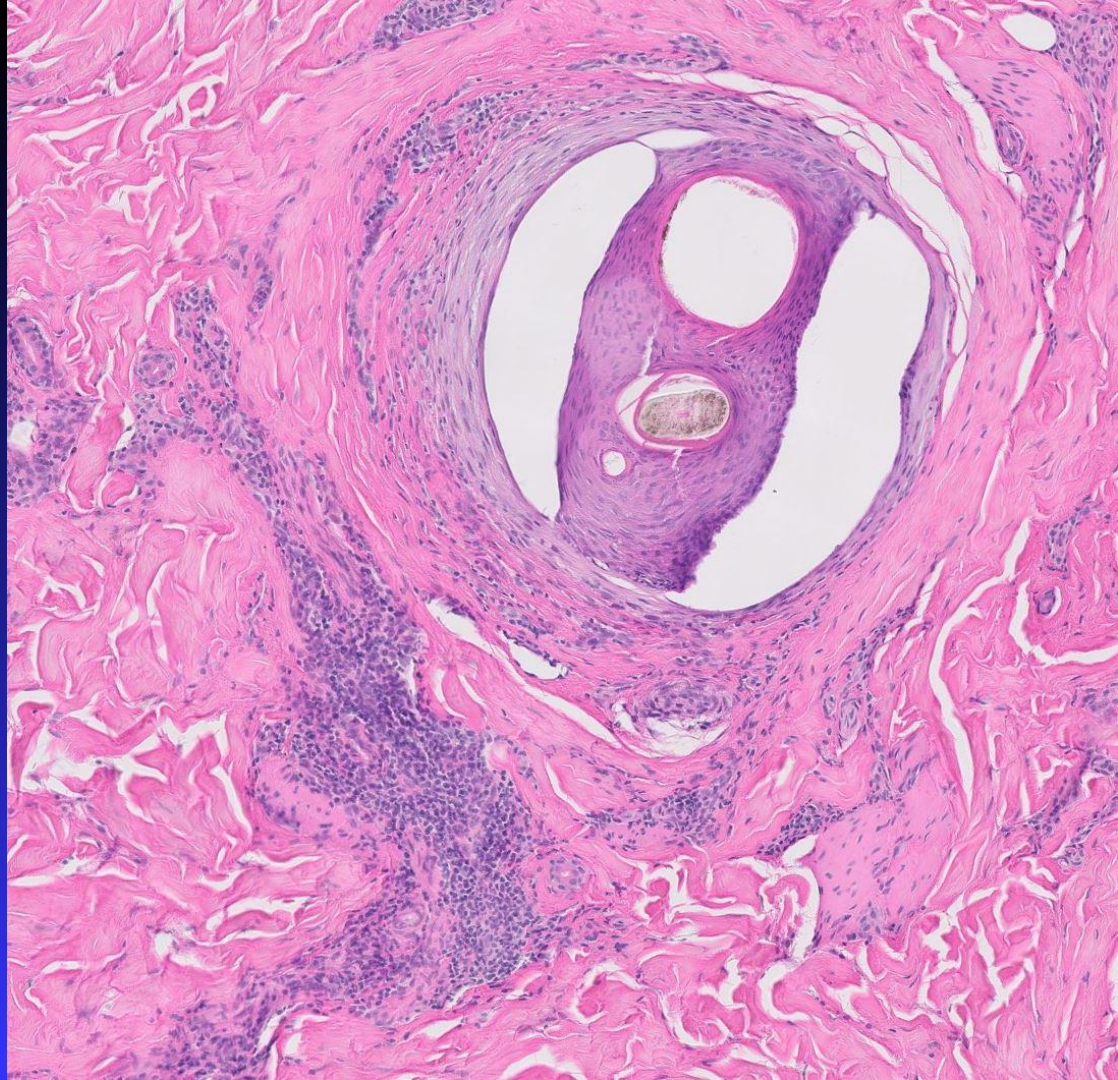

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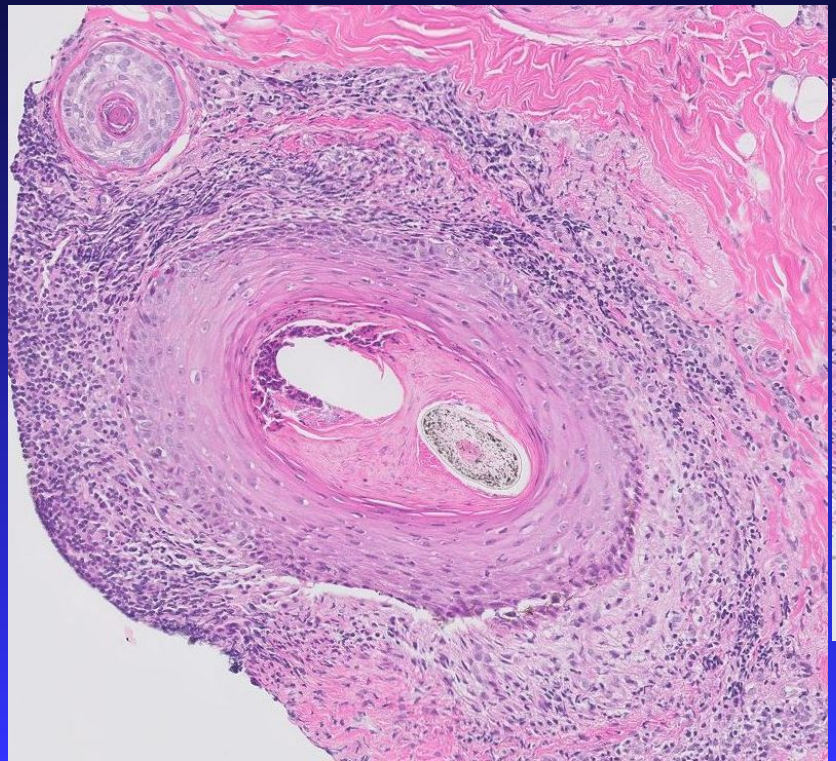

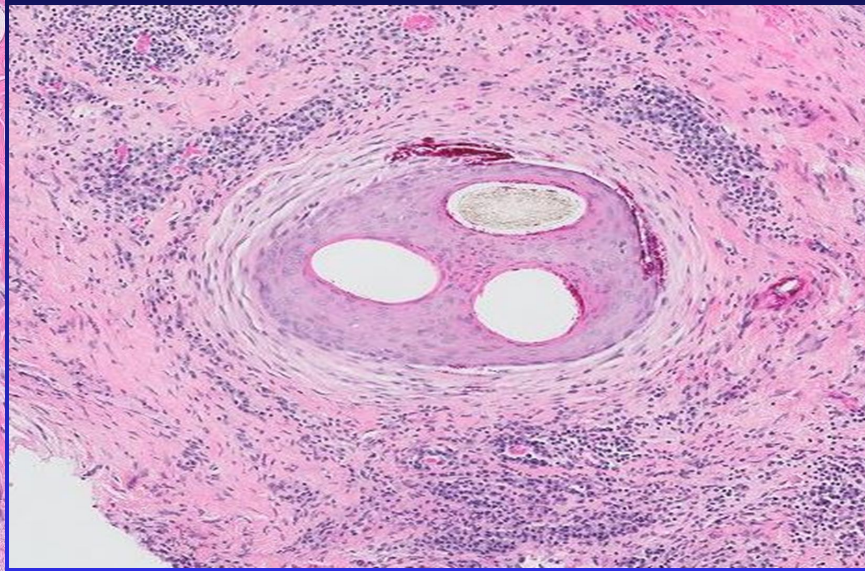

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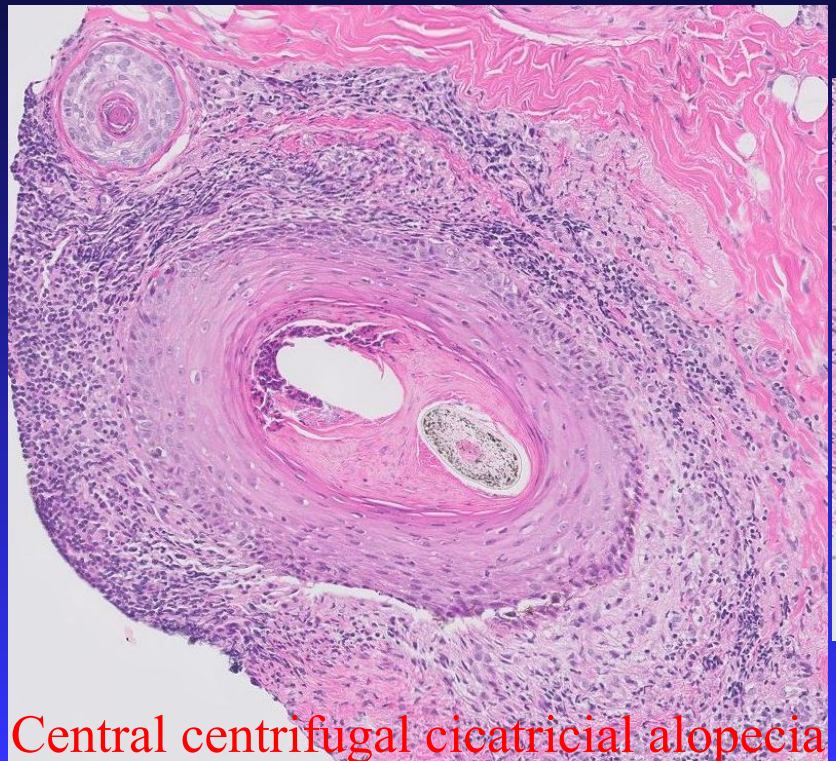
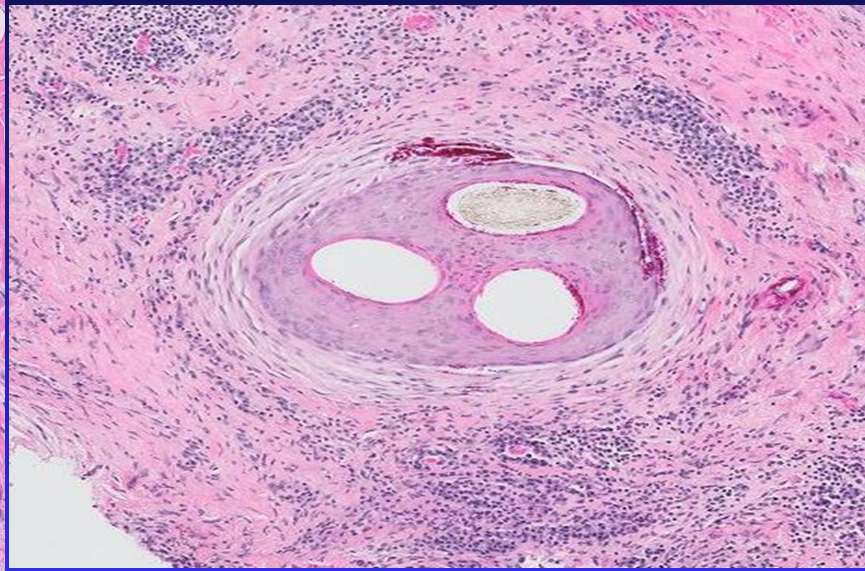


Central centrifugal cicatricial alopecia



Lichen planopilaris

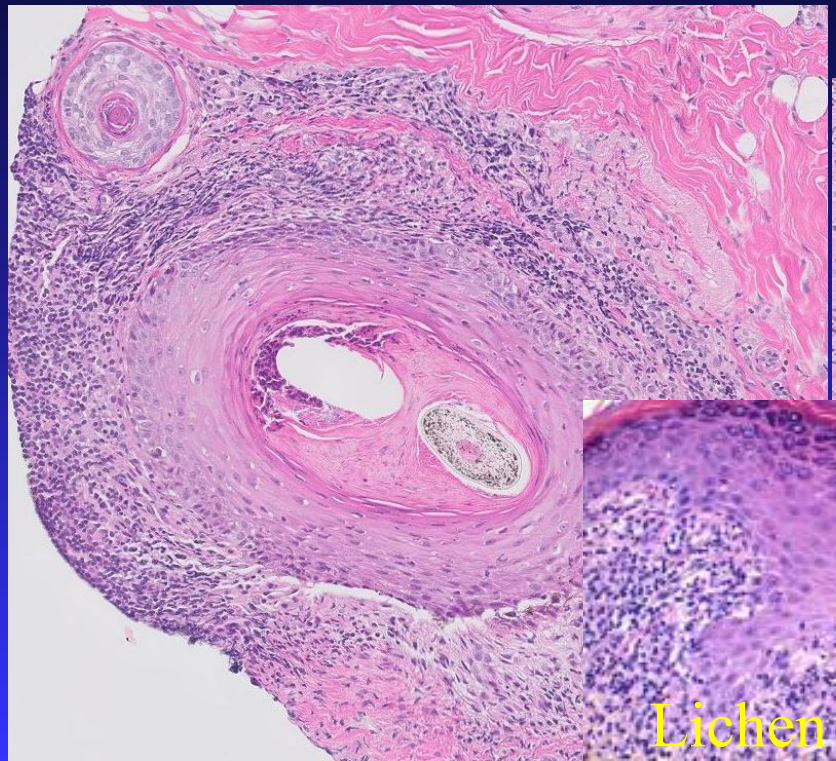
# Case 2

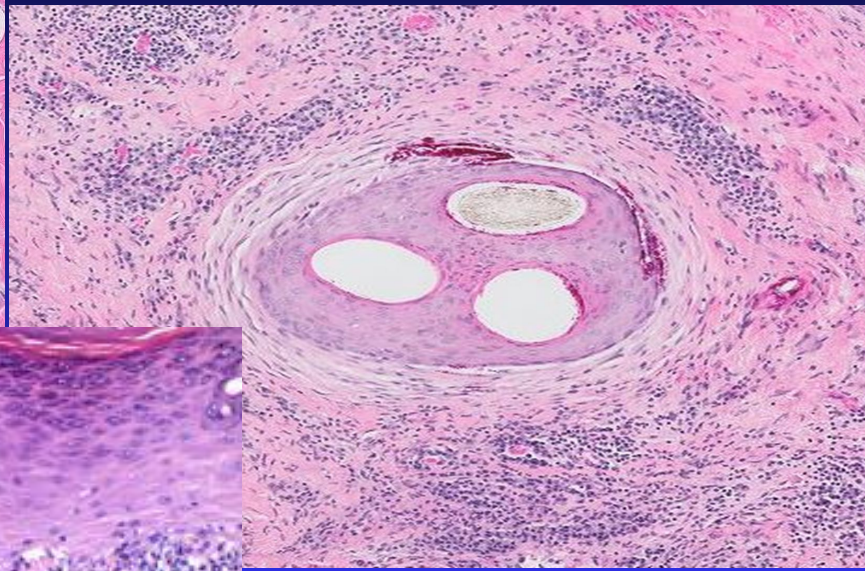
- **Central centrifugal cicatricial alopecia-variant of lichen planopilaris (CCCA)**

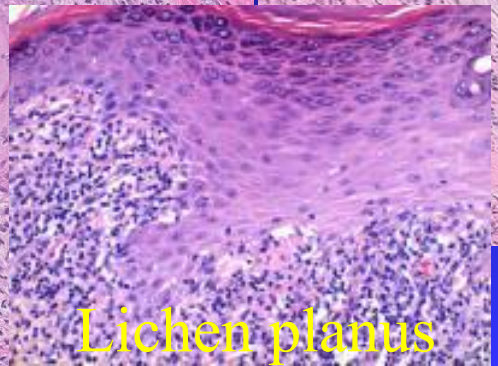
# Case 2 CCCA variant of LPP

- Elusive entity with no specific etiology
  - Hair care practices likely induces disease
    - Heat
    - Traction
    - Chemicals

# Case 2 CCCA variant of LPP



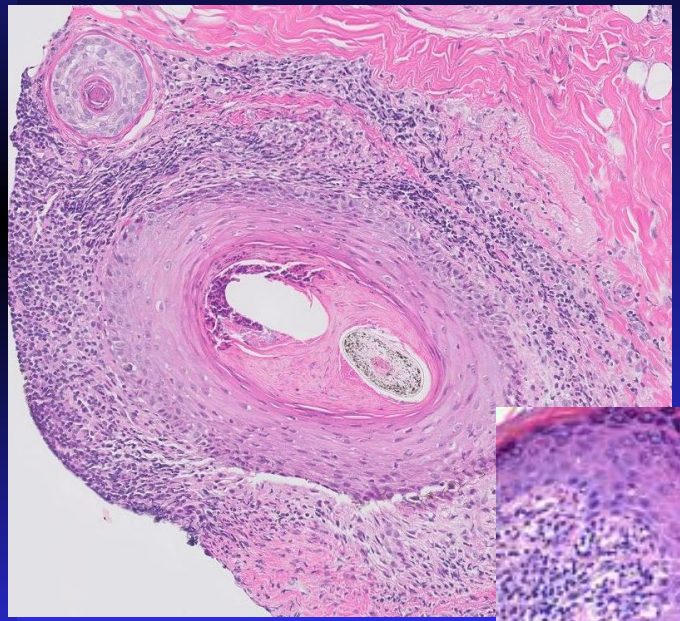


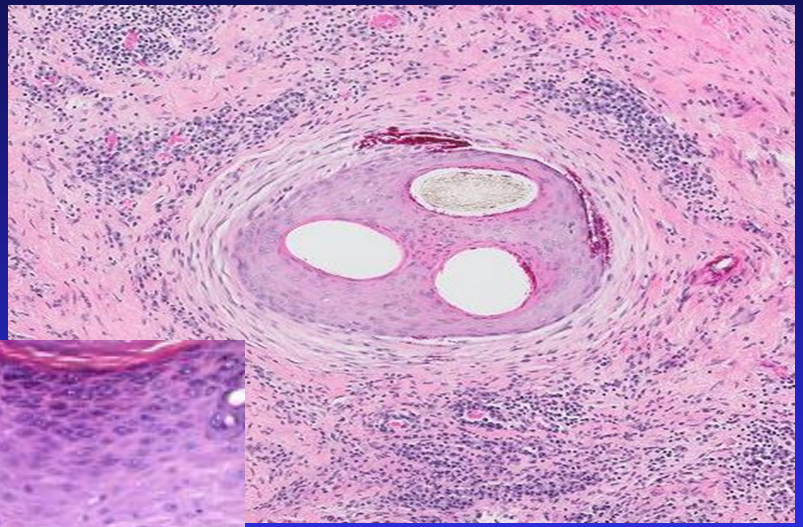


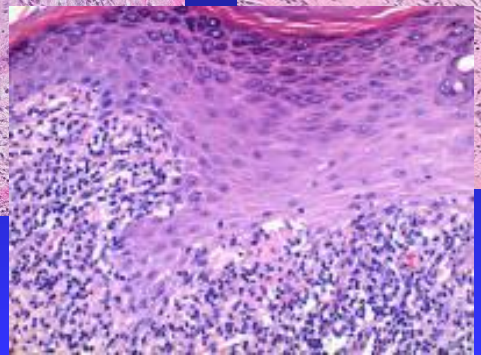
Premature desquamation of the inner root sheath

=

Squamatization of the follicular epithelium







# Case 2 CCCA variant of LPP

- Gray-staining, perifollicular fibrosis at the level of the superficial isthmus and infundibulum
- Perifollicular lymphocytes at the same level as the fibrosis which may scatter into the follicular epithelium
- Squamotization of the follicular epithelium, especially the basalis, in the area of inflammation with variable loss of the inner root sheath
- Compound follicles may or may not be present
- Near absence of catagen- and telogen-phase follicles

# Case 2 CCCA variant of LPP

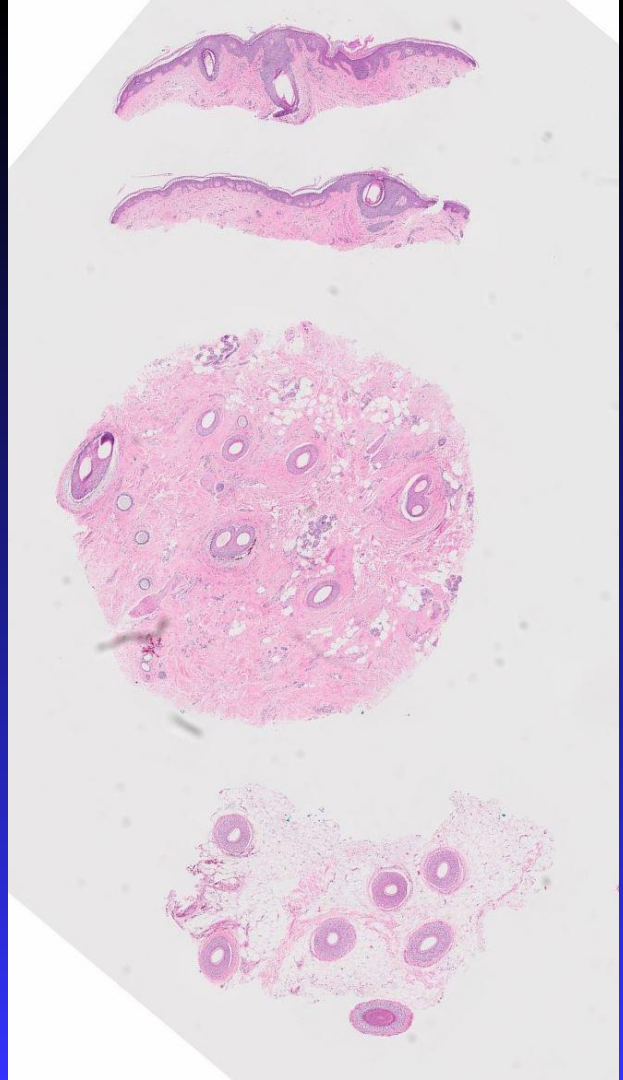
- Differential
  - Folliculitis decalvans
    - Mostly occurs in men whereas CCCA is in women
    - Interfollicular inflammation
    - Epidermal acanthosis

# Case 2 Subtypes of LPP

- Classic
- Graham Little Piccardi Lasseur syndrome
- Frontal fibrosing alopecia
- CCCA

# Case 3

# Case 3



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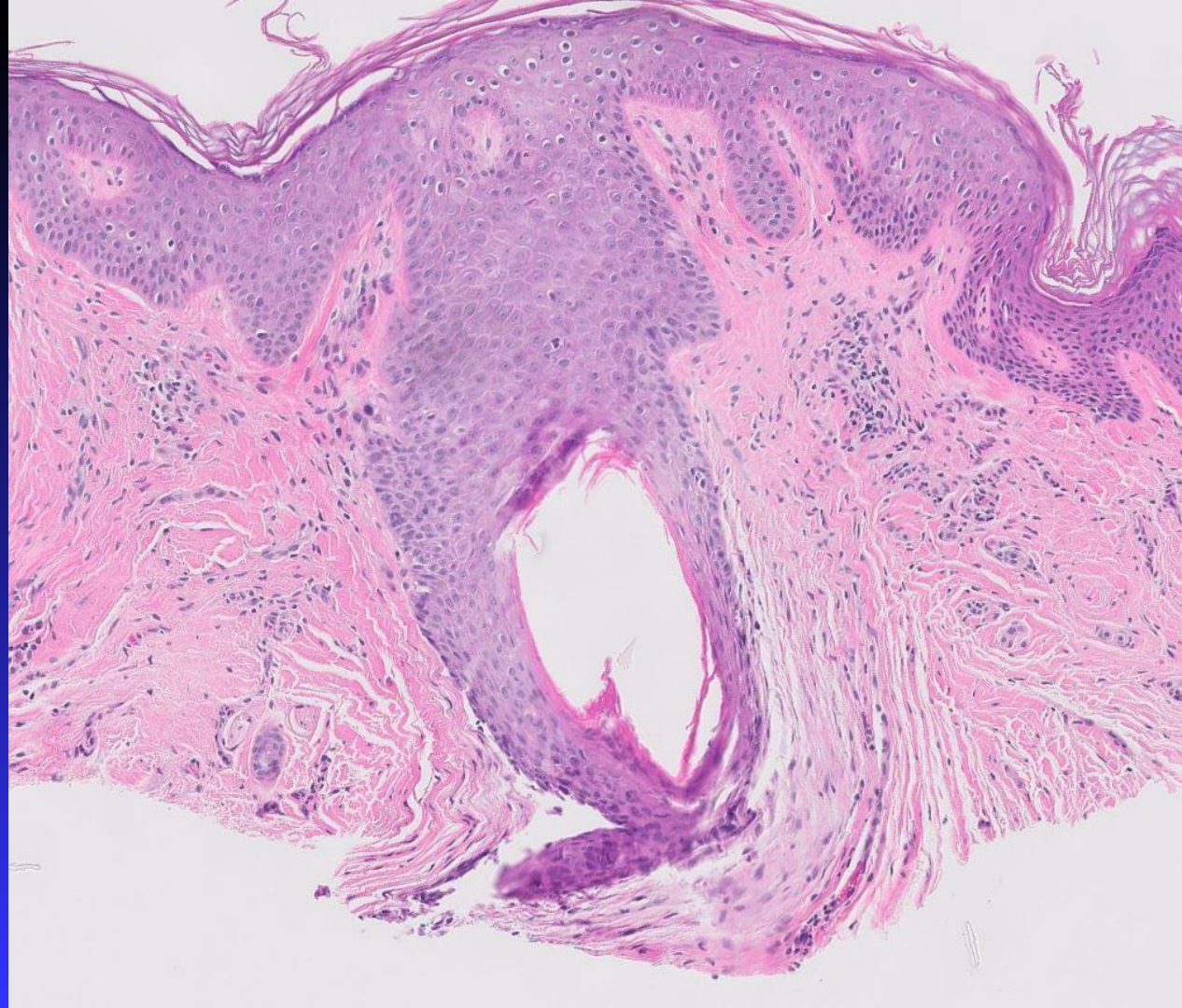

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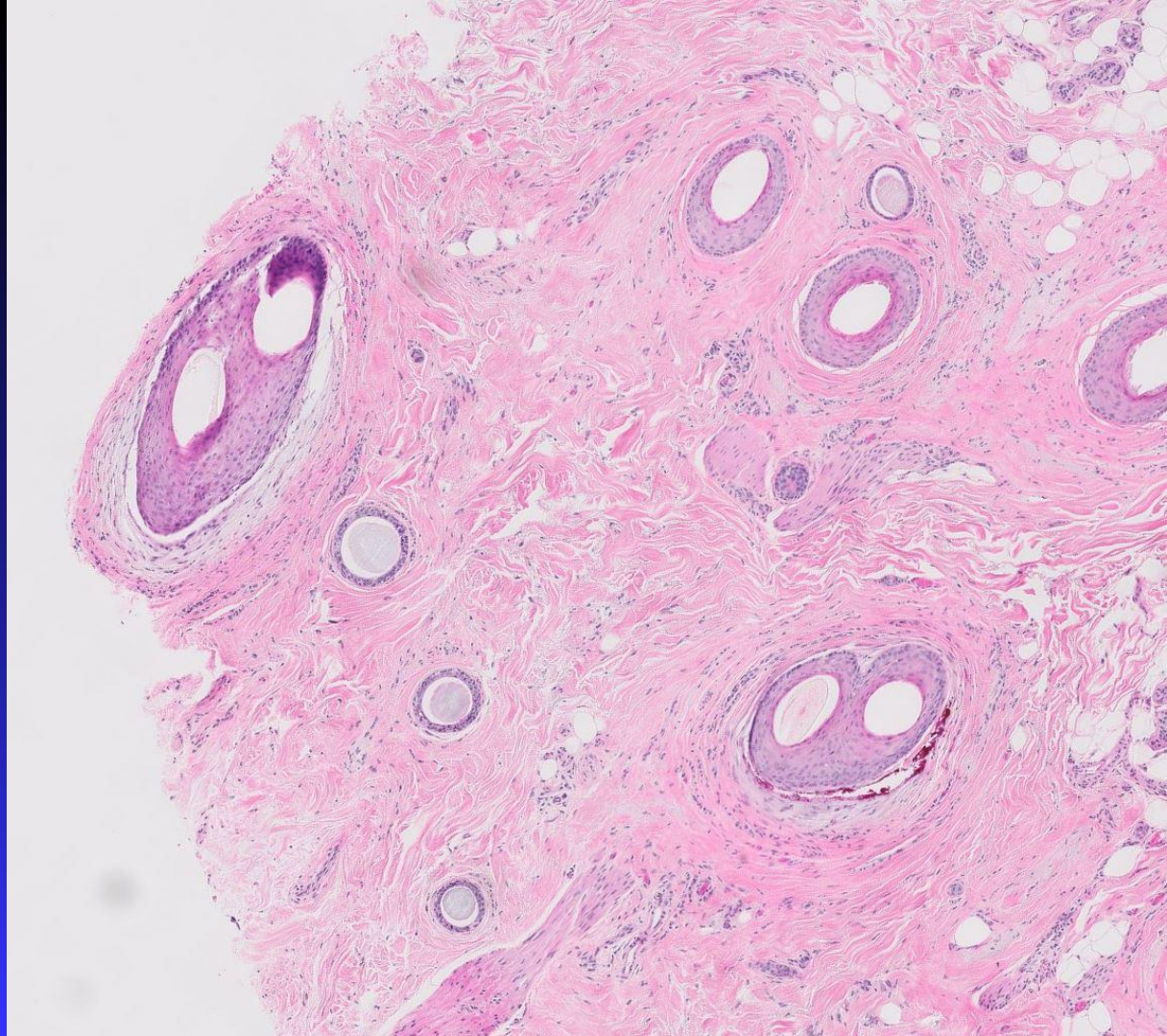


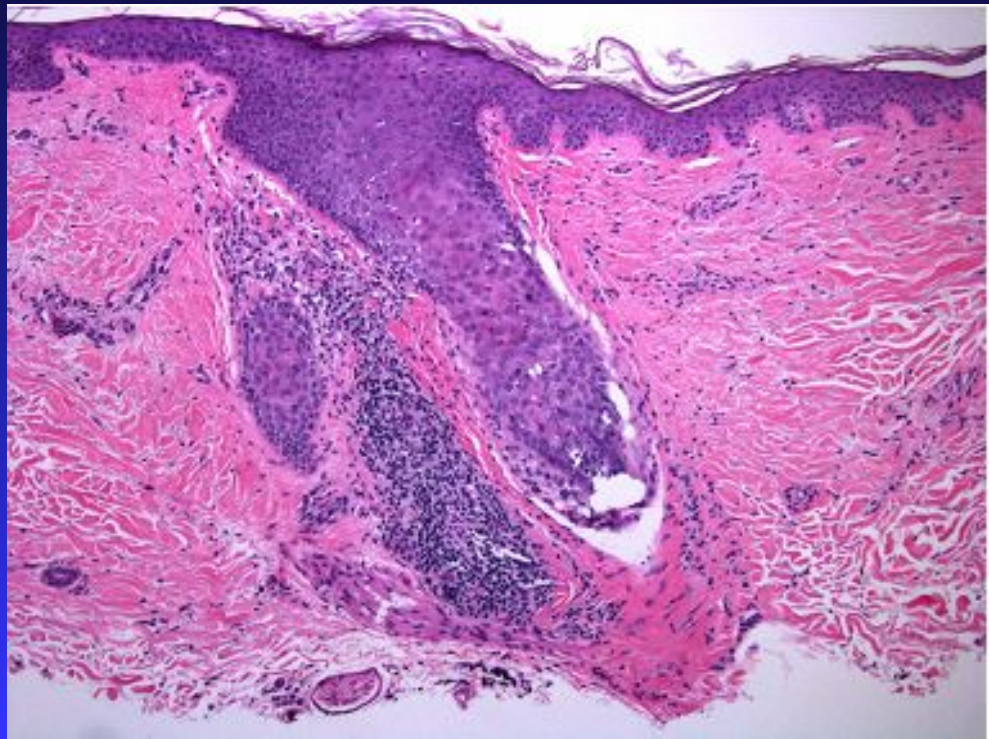
# Case 3

# Case 3 Frontal fibrosing variant of lichen planopilaris

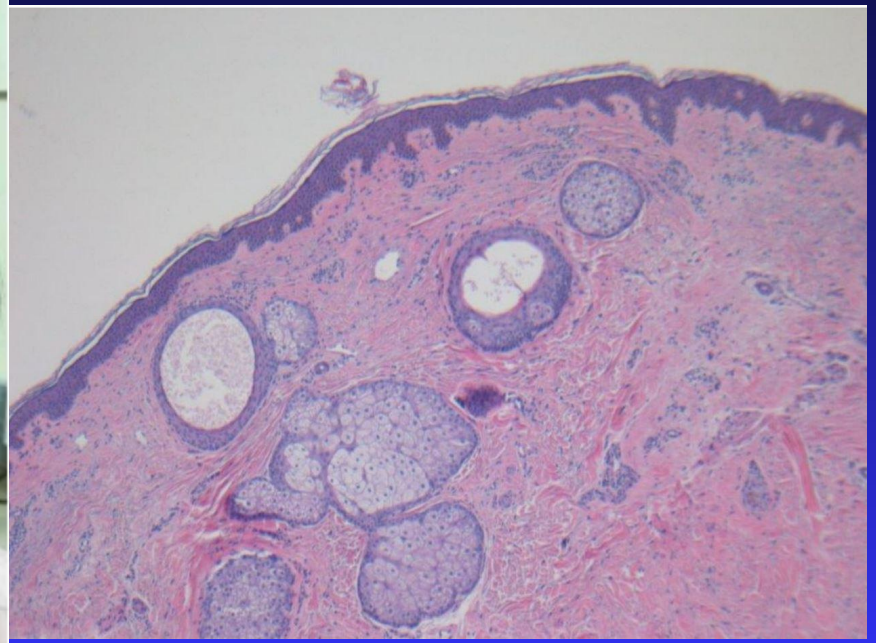
- Superficial perifollicular lymphocytes at the level of the infundibulum or isthmus
- Gray-staining, perifollicular fibrosis may or may not be present
- Follicular loss (low follicular density) is usually present. On the eyebrows, follicular epithelium may be entirely lost before any perifollicular fibrosis forms.

# Case 3 Frontal fibrosing variant of lichen planopilaris

- Fibrosis may be absent
- May require close clinical correlation
  - Hairline recession
  - ‘Lonely hairs’
  - Eyebrow loss
  - Facial papules



# Papular eruption in FFA



# Case 3 Frontal fibrosing variant of lichen planopilaris

For 2mm punches
of eyebrows

Embed skin surface down
Level through block with unstained

# Case 3 Frontal fibrosing variant of lichen planopilaris

- Differential
  - Female pattern hair loss (androgenetic alopecia) with superimposed seborrheic dermatitis
  - Alopecia areata

# Case 3 Frontal fibrosing variant of lichen planopilaris

- Incidence increased markedly in 1990s
- Most perimenopausal women but also younger and in men
- Targets smaller hairs of body (eyebrow, body hair)

Br J Dermatol. 2016 Oct;175(4):762-7. doi: 10.1111/bjd.14535. Epub 2016 Jun 30.

# Frontal fibrosing alopecia: possible association with leave-on facial skin care products and sunscreens; a questionnaire study.

Aldoori N[1], Dobson K[1], Holden CR[1], McDonagh AJ[1], Harries M[2], Messenger AG[3].

Author information

## Abstract

**BACKGROUND:** Since its first description in 1994, frontal fibrosing alopecia (FFA) has become increasingly common, suggesting that environmental factors are involved in the aetiology.

**OBJECTIVES:** To identify possible causative environmental factors in FFA.

**METHODS:** A questionnaire enquiring about exposure to a wide range of lifestyle, social and medical factors was completed by 105 women with FFA and 100 age- and sex-matched control subjects. A subcohort of women with FFA was patch tested to an extended British standard series of allergens.

**RESULTS:** The use of sunscreens was significantly greater in the FFA group compared with controls. Subjects with FFA also showed a trend towards more frequent use of facial moisturizers and foundations but, compared with controls, the difference in frequencies just failed to reach statistical significance. The frequency of hair shampooing, oral contraceptive use, hair colouring and facial hair removal were significantly lower in the FFA group than in controls. Thyroid disease was more common in subjects with FFA than controls and there was a high frequency of positive patch tests in women with FFA, mainly to fragrances.

**CONCLUSIONS:** Our findings suggest an association between FFA and the use of facial skin care products. The high frequency of sunscreen use in patients with FFA, and the fact that many facial skin care products now contain sunscreens, raises the possibility of a causative role for sunscreen chemicals. The high frequency of positive patch tests in women with FFA and the association with thyroid disease may indicate a predisposition to immune-mediated disease.

## Frontal fibrosing alopecia in men: an association with facial moisturizers and sunscreens

DOI: 10.1111/bjd.15311

Dear Editor, Frontal fibrosing alopecia (FFA) was first described by Kossard in 1994 in six postmenopausal women.[1] FFA remained rare during the 1990s, but in the last 10–15 years it has become increasingly common, a phenomenon observed worldwide. The recent onset and apparently rising incidence of FFA suggest involvement of environmental factors in the aetiology. We previously reported a questionnaire study in women with FFA that asked about a wide range of medical, social and environmental exposures. The results suggested an association between FFA and leave-on facial products, including moisturizers and sunscreens.[2] However, although the regular use of moisturizers was greater in women with FFA, these products are used by most women and we were unable to show a significant difference in their use between women with FFA and similarly aged controls. The use of primary sunscreens was significantly greater among women with FFA than in controls, but we were not able to assess whether patients were also exposed to sunscreens from other sources.

We have therefore repeated our questionnaire study in men with FFA, as we anticipated that their use of leave-on facial skincare products would be lower than in women.

As FFA is rare in men, patients were recruited from across the U.K. and one case was recruited from Belgium. In all cases the diagnosis was made by a clinician with special expertise in hair disease, and it was supported by histology in most cases. The clinical diagnosis was based on scarring alopecia affecting the frontal hairline causing recession of the hairline. Additional features included loss of eyebrows, follicular erythema of the frontal hairline and loss of sideburn and beard hair. Male controls aged 35–80 years were recruited from three sites (Sheffield, Salford and Glasgow). The patients completed a questionnaire similar to that used in our female study, but inviting more detailed information on the use of facial skincare and hair care products. Male patients with FFA were asked about the timing and distribution of hair loss, but otherwise the questionnaires completed by both groups were identical.

Seventeen men with FFA and 73 controls were recruited. The mean age of onset of hair loss in the patients with FFA was 54·5 years (range 35–77). All had loss of hair from the frontal hairline, and 16 (94%) had lost eyebrows. Twelve men (71%) reported loss of hair from the beard and 13 (76%) reported loss of hair from the limbs. All men with FFA reported using facial moisturizers, compared with 40% in the control group. Facial moisturizers were used at least twice a week by 94% of patients with FFA, but by only 32% of controls ($P < 0·001$) (Table 1). Sixteen patients reported using moisturizers for a period consistent with their use prior to the onset of FFA. The use of primary sunscreens by men with FFA was significantly more common than by controls. Overall 35% of men with FFA reported using a sunscreen at least twice a week all year round, compared with 4% of controls ($P = 0·0012$).

When moisturizers containing sunscreen chemicals were included in the analysis, at least 71% of men with FFA applied a product containing a sunscreen at least twice a week all year

**Table 1** Reported use of skincare and hair care products by patients with frontal fibrosing alopecia (FFA) and controls

| | Patients with FFA | Controls | P-value |
|---|---|---|---|
| Number of patients | 17 | 73 | |
| Age (years), mean (range) | 63·1 (42–80) | 59·1 (37–79) | |
| Age at onset of hair loss (years), mean (range) | 54·5 (35–77) | | |
| Facial moisturizer[a] | 16 (94) | 23 (32) | < 0·001 |
| Primary sunscreen[b] | 6 (35) | 3 (4) | 0·0012 |
| Sunscreen[b] | 12 (71) | 8 (11) | < 0·001 |
| Facial cleanser[a] | 4 (24) | 5 (7) | 0·066 |
| Facial scrub[a] | 0 | 0 | |
| Facial mask[a] | 0 | 0 | |
| Aftershave[a] | 7 (41) | 28 (39) | 1·00 |
| Shampoo[a] | 13 (76) | 62 (85) | 0·27 |
| Conditioner[a] | 4 (24) | 13 (18) | 0·73 |
| Hair spray[a] | 1 (6) | 2 (3) | 0·48 |
| Hair mousse[a] | 0 | 0 | |
| Hair gel[a] | 2 (12) | 10 (14) | 1·00 |
| Hair dye[c] | 2 (12) | 3 (4) | 0·26 |

Values are n (%) unless stated otherwise. [a]Twice a week or more frequently. [b]Twice a week or more frequently all year round. [c]At least once a year. Sunscreen includes exposure to sunscreen chemicals in primary sunscreens and moisturizers. Analyses were performed after excluding subjects who failed to answer the question. Frequencies in the FFA and control groups were compared using Fisher's exact test.





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# Sunscreen in FFA

- Oxybenzone and Avobenzone introduced late 1980s
- Zinc oxide and titanium dioxide
  - Oral lichen planus associated with dental metal

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Values are n (%) unless stated otherwise. [a]Twice a week or more frequently. [b]Twice a week or more frequently all year round. [c]At least once a year. Sunscreen includes exposure to sunscreen

# Alopécie frontale fibrosante post ménopausique : une réaction lichénoïde aux nanoparticules de dioxyde de titane présentes dans les follicules pileux?

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## INTRODUCTION

L'alopécie frontale fibrosante (AFF) post ménopausique est une pathologie émergente dont l'incidence augmente dans l'ensemble des pays. Son origine reste inconnue. Nous rapportons la présence de dioxyde de titane dans les cheveux d'une patiente atteinte d'AFF.

## OBSERVATION

Une patiente âgée de 79 ans était suivie en consultation depuis 2010 pour une alopécie progressive évoluant au moins depuis 12 ans soit depuis l'âge de 69 ans prédominant au niveau fronto-temporo-pariétal avec recul progressif de la ligne d'implantation des cheveux. Elle s'associait à une alopécie des sourcils. A l'examen la peau du front était scléreuse. Les cheveux présentaient à leur ostium folliculaire un léger érythème avec hyperkératose. Le tableau clinique était typique d'une AFF (Fig. 1 ). Une biopsie cutanée était réalisée confirmant le diagnostic d'alopécie cicatricielle lymphocytaire. Cette patient avait par ailleurs une forte héliodermie témoignant d'une exposition solaire importante tout au long de sa vie.

Figure 1

LAURÉAT PRIX BIODERMA

## MÉTHODES ET RÉSULTATS

Une recherche de nanoparticules a été réalisée sur des follicules pileux extraits en zone atteinte par microscopie électronique à balayage par effet de champs combinée à une spectroscopie à dispersion énergétique.
Un jeu de clichés de microscopie électronique à balayage sur un microscope de dernière génération a été collecté sur un ensemble de cheveux mettant en évidence des dépôts anormaux de nanoparticules (Fig 2A, 2B).
En complément, les expériences de fluorescence X induites par des électrons sur le microscope électronique à balayage montraient distinctement un signal attribuable aux atomes de titane (Fig. 2C, 2D).

Cette observation met ainsi en évidence sans ambiguïté la présence de nanoparticules de dioxyde de titane au niveau des follicules pileux.

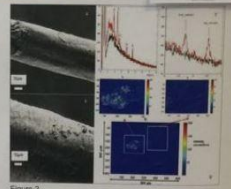

Figure 2

## DISCUSSION

L'AFF est considérée comme une forme particulière de lichen folliculaire avec histologiquement un infiltrat lymphocytaire périfolliculaire. Des études épidémiologiques récentes associent la présence de cette alopécie à l'utilisation de cosmétiques en particulier de crème solaire.
En reprenant l'interrogatoire de cette patiente signalait l'utilisation quotidienne depuis 15 ans d'écrans solaires contenant du dioxyde de titane.
Du fait des propriétés anti-UV, la présence de nanoparticules (dioxyde de titane et oxyde de zinc) s'est très largement répandue au cours de ces dernières années dans les produits cosmétiques, et l'impact dermatologique à long terme de ces particules n'est pas encore bien connu chez l'homme.
L'hypothèse formulée est que la présence de dioxyde de titane au sein du follicule pileux soit responsable d'une réaction lichénoïde. Des réactions lichénoïdes sont connues avec d'autres métaux tels que le Nickel.
Des explorations complémentaires sont en cours chez cette patiente (tests épicutanés et tests in vitro de prolifération lymphocytaire et ELISPOT en présence de titane).

## CONCLUSION

Nous présentons la première observation de présence de nanoparticules dans les follicules pileux d'une patiente atteinte d'AFF post-ménopausique.

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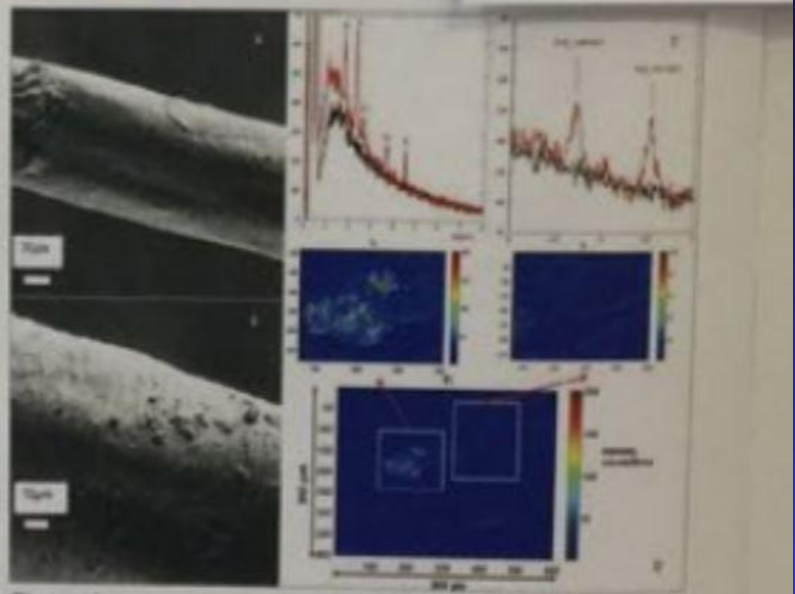
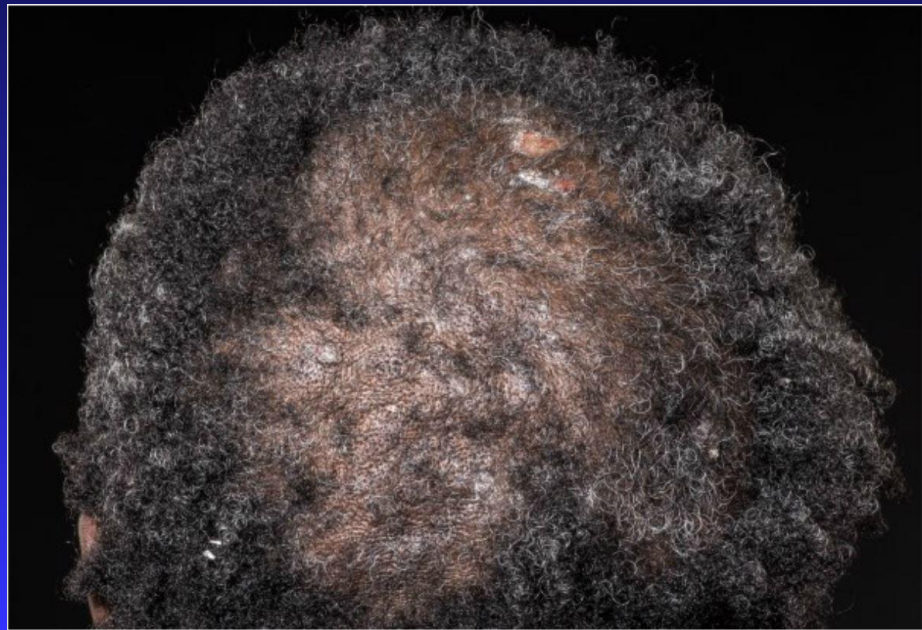


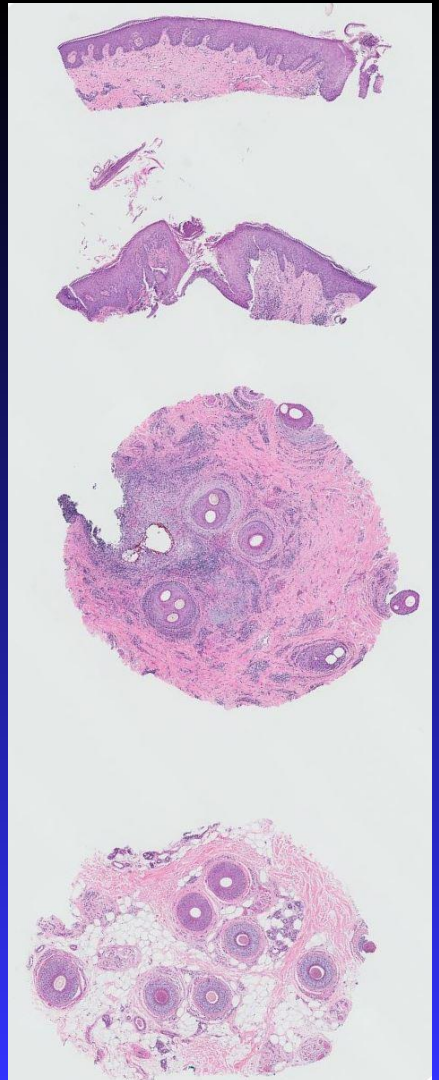
Figure 2

# Case 4

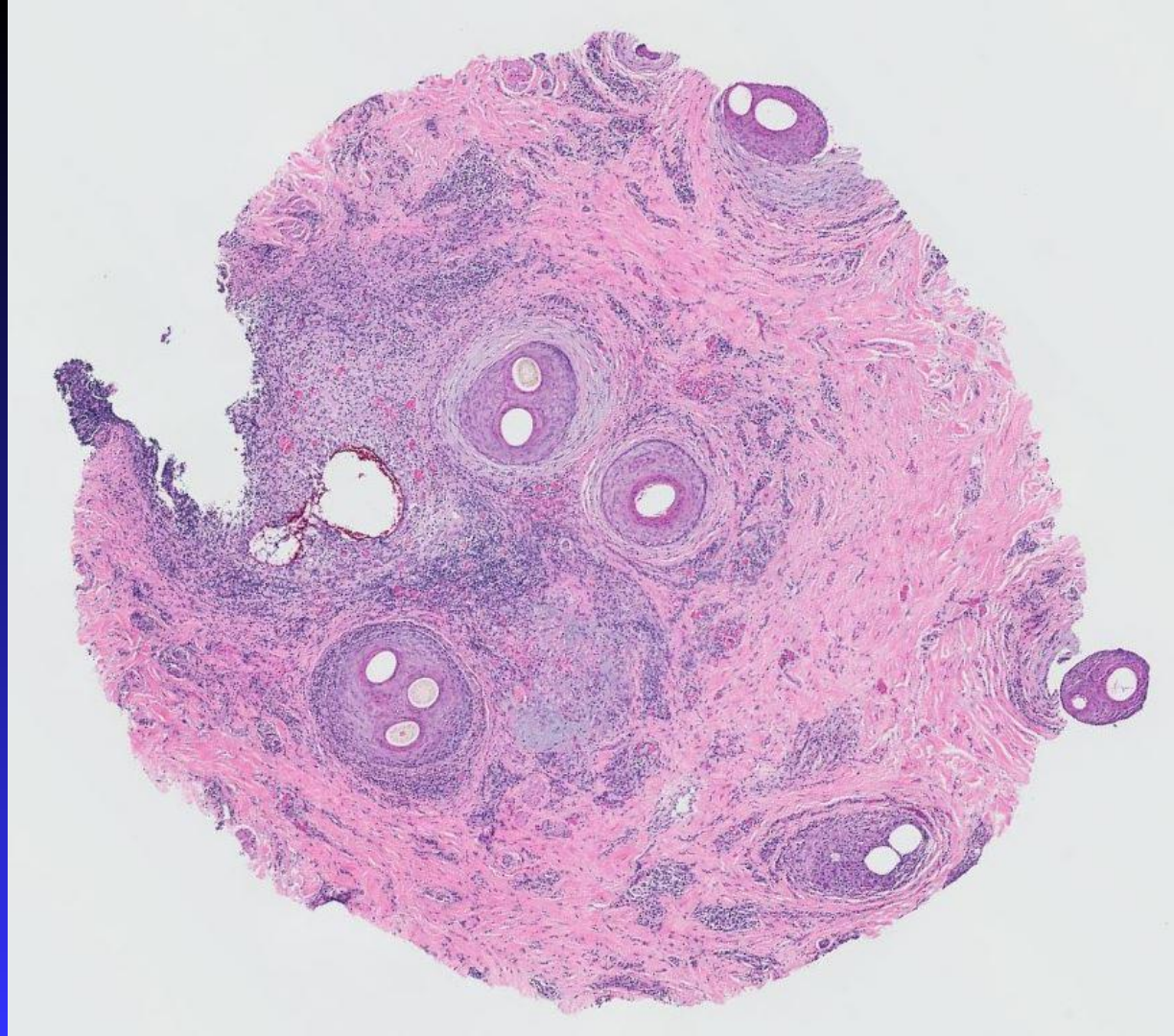
- 42 y/o man with pustular eruption on scalp and hair loss



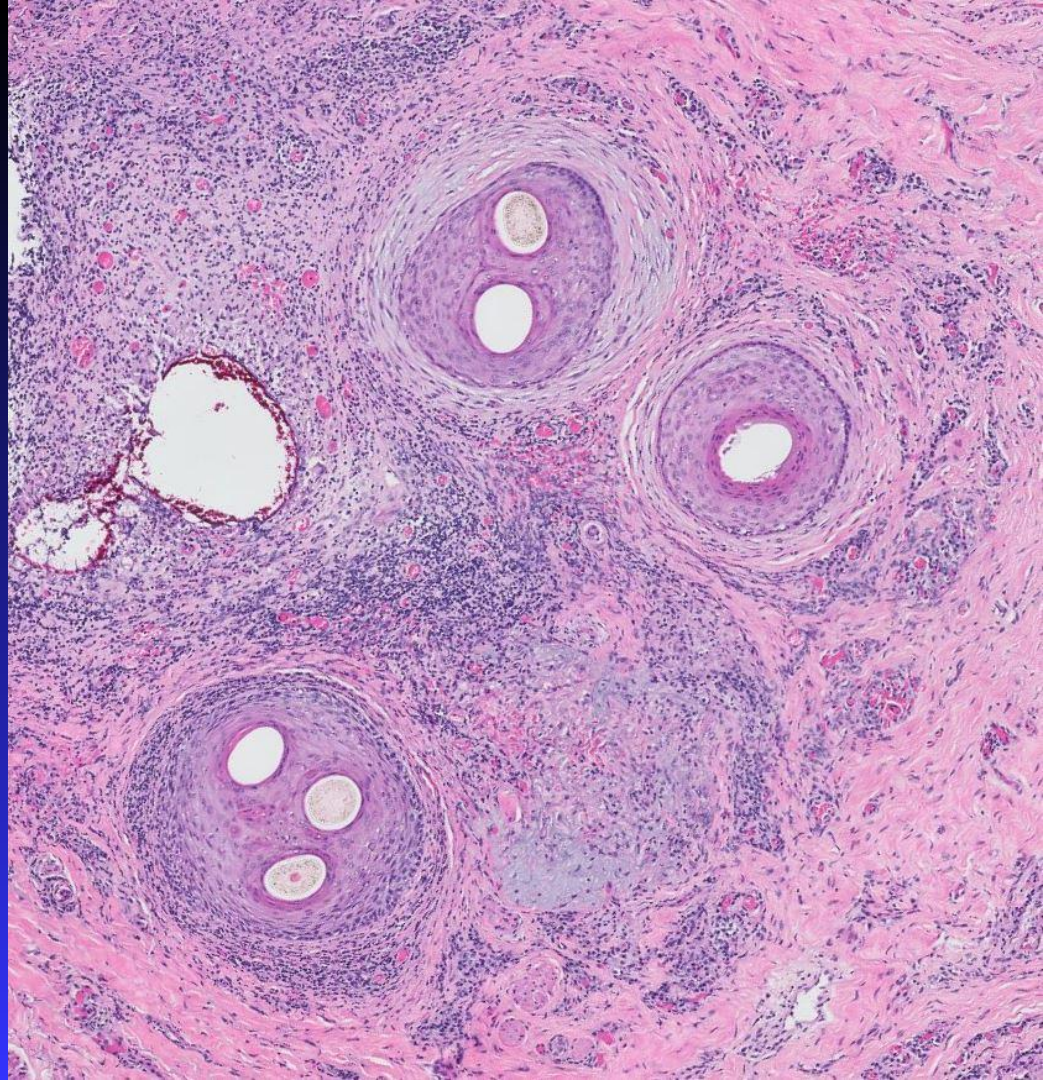
# Case 40



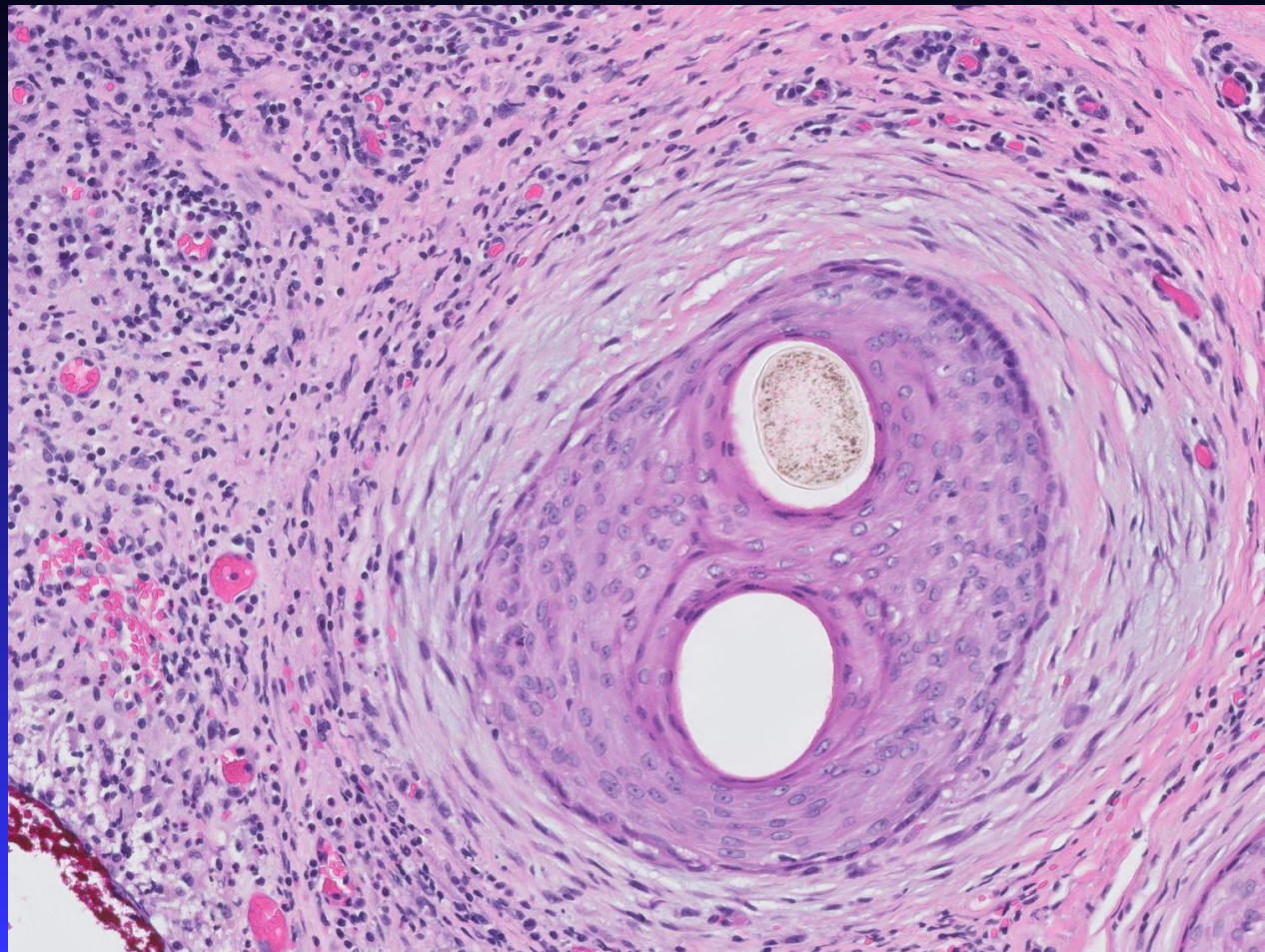
# Case 4



# Case 4



# Case 4



# Case 4 Neutrophil-poor Folliculitis decalvans

- Mostly in young men
- Pustules, redness, swelling, tufted follicles
- Staphylococcus aureus often identified
- Acne keloidalis nuchae is likely FD initiated and exacerbated by occlusive headware

# Case 4 Neutrophil-poor Folliculitis decalvans

- Classified in the “Neutrophilic” group in the North American Hairs Research Society (NAHRS) classification

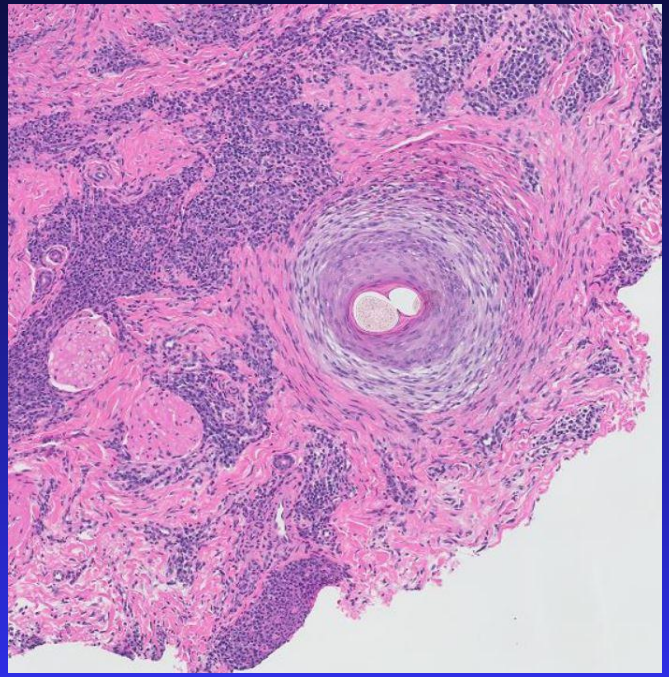
# Case 4 Neutrophil-poor Folliculitis decalvans

- Variable density, mixed-cell type inflammatory cell infiltrate with lymphocytes, plasma cells, macrophages and neutrophils, present in a perifollicular and interstitial distribution
- If neutrophils are not evident, a myeloperoxidase IHC study may be of utility
- Variable amount of perifollicular fibrosis—sometimes none is present

# Case 4 Neutrophil-poor Folliculitis decalvans

- Differential
  - Lichen planopilaris
  - Tinea capitis
  - Dissecting folliculitis/cellulitis

# LPP or the lymphocytic-variant of FD?



J Cutan Pathol. 2017 Apr;44(4):352-357. doi: 10.1111/cup.12892. Epub 2017 Jan 27.

# Epidermal psoriasiform hyperplasia, an unrecognized sign of folliculitis decalvans: A histological study of 26 patients.

Matard B[1], Cavelier-Balloy B[2], Reygagne P[1].

Author information

## Abstract

**BACKGROUND:** Follicular hyperkeratosis along with hyperplasia of the follicular and interfollicular epithelia are major histopathological characteristics of hidradenitis suppurativa (HS). The presence of an occasional thickening of lesional skin in some folliculitis decalvans (FD) patients and histological similarities between FD and HS led us to look for epidermal hyperplasia and follicular hyperkeratosis in FD patients.

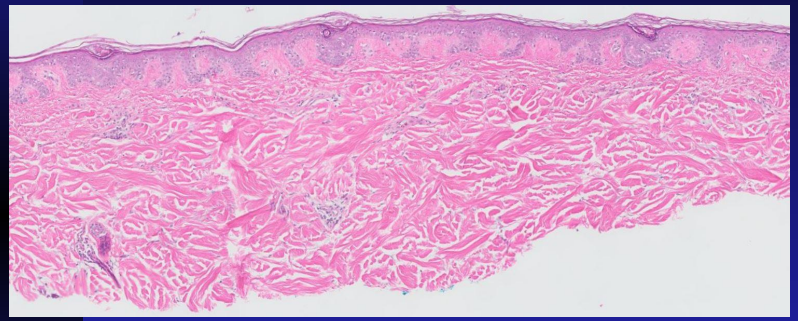
**PATIENTS AND METHOD:** We performed a retrospective histological analysis of 26 patients with FD.

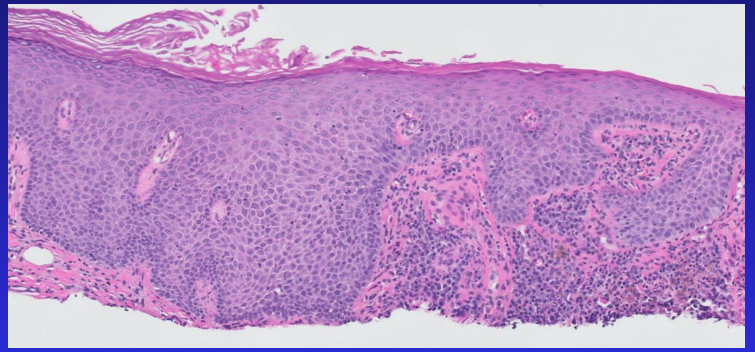
**OBJECTIVE:** We sought to find out whether the presence of hyperplasia of the interfollicular epidermis and of the follicular epithelia could be verified in FD, with reference to the work of von Laffert et al. concerning HS.

**RESULTS:** The main quantitative and qualitative data were: follicular hyperkeratosis (77%), hyperplasia of the interfollicular epidermis (92%) with a psoriasiform aspect (88%), atrophy of the follicular epithelia (85%), plasma cells in infiltrate (92%) in large quantities (42%), follicular microcysts (60%), atrophy of the sebaceous glands (85%) and polytrichia (54%).

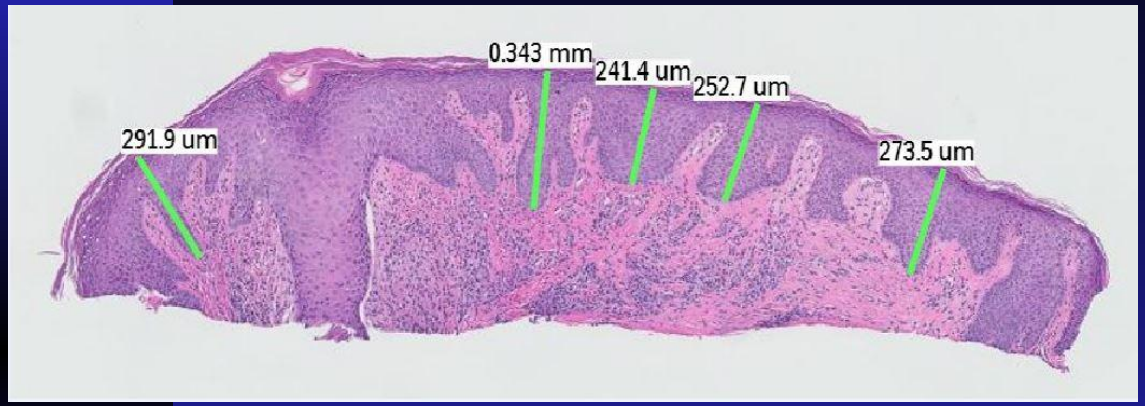
**CONCLUSION:** Epidermal hyperplasia, sometimes psoriasiform and follicular microcysts, are significant histological signs of FD, which have been ignored until now although they seem very common.

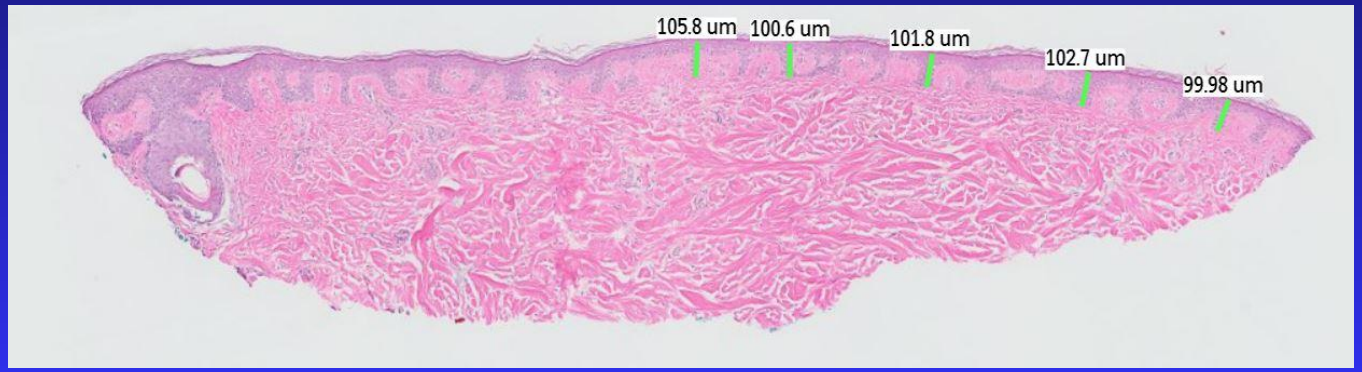
# Folliculitis decalvans or LPP?





# Folliculitis decalvans or LPP?



# Thanks!

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