

Nail Pathology Difficult Cases

Curtis T. Thompson, M.D.

CTA Pathology

and

Clinical (Affiliate) Professor of Dermatology and Pathology

Oregon Health and Sciences University

Portland, Oregon, USA

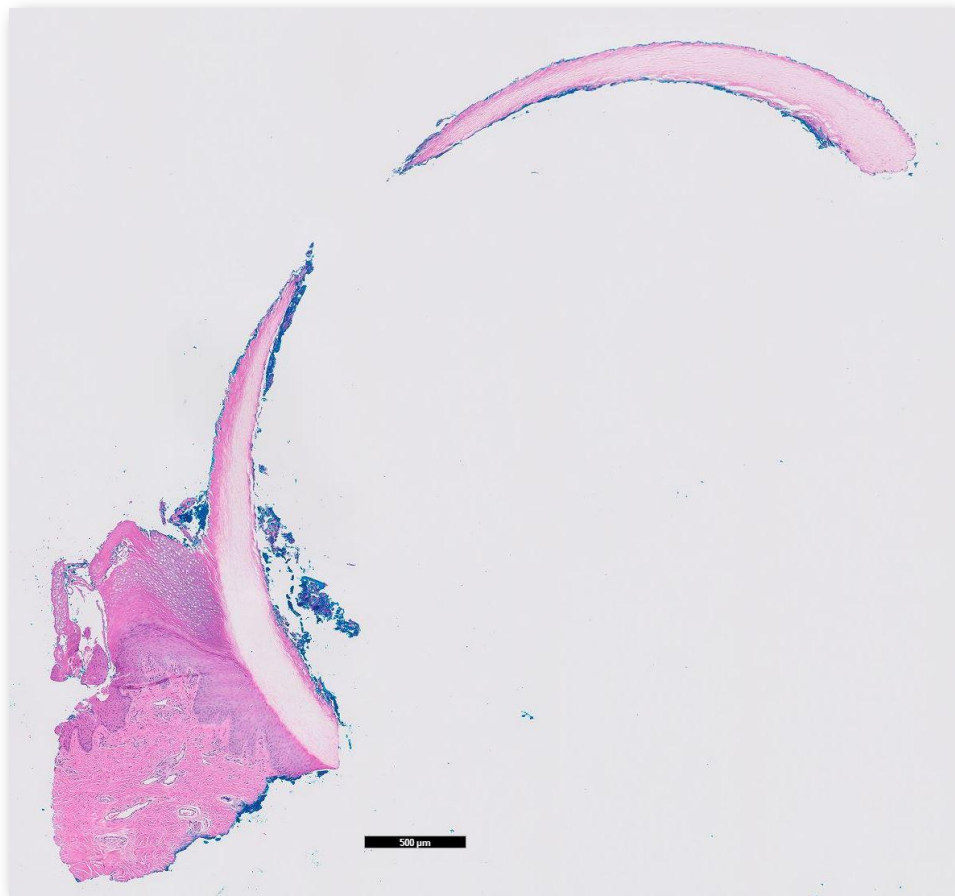
- Right index finger of 8 y/o male



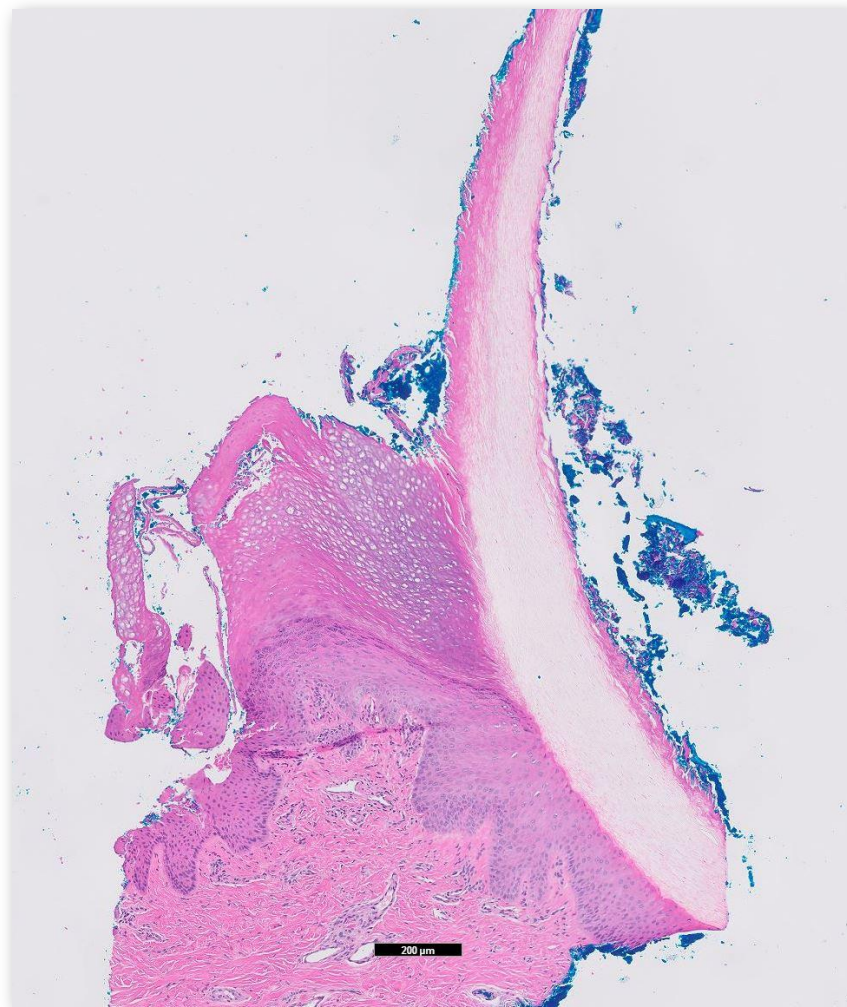
8 y/o index



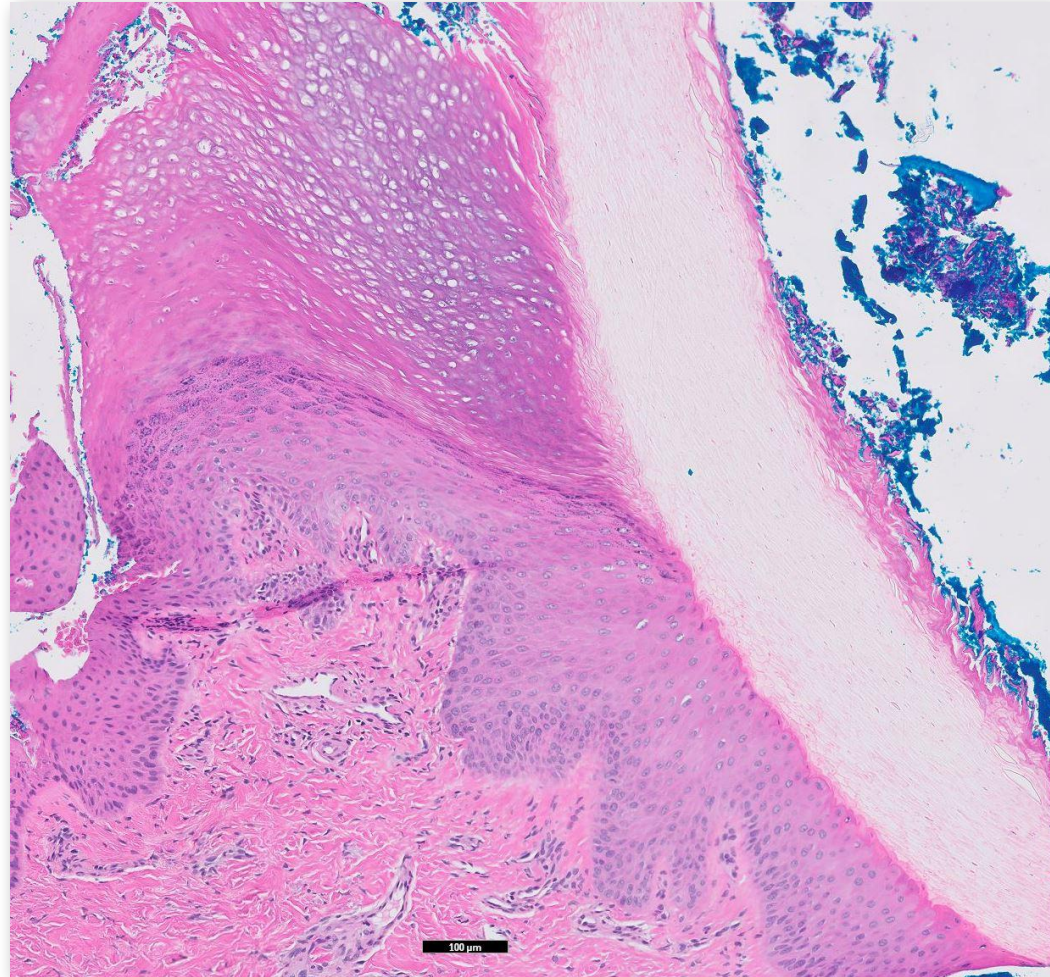
8 y/o index



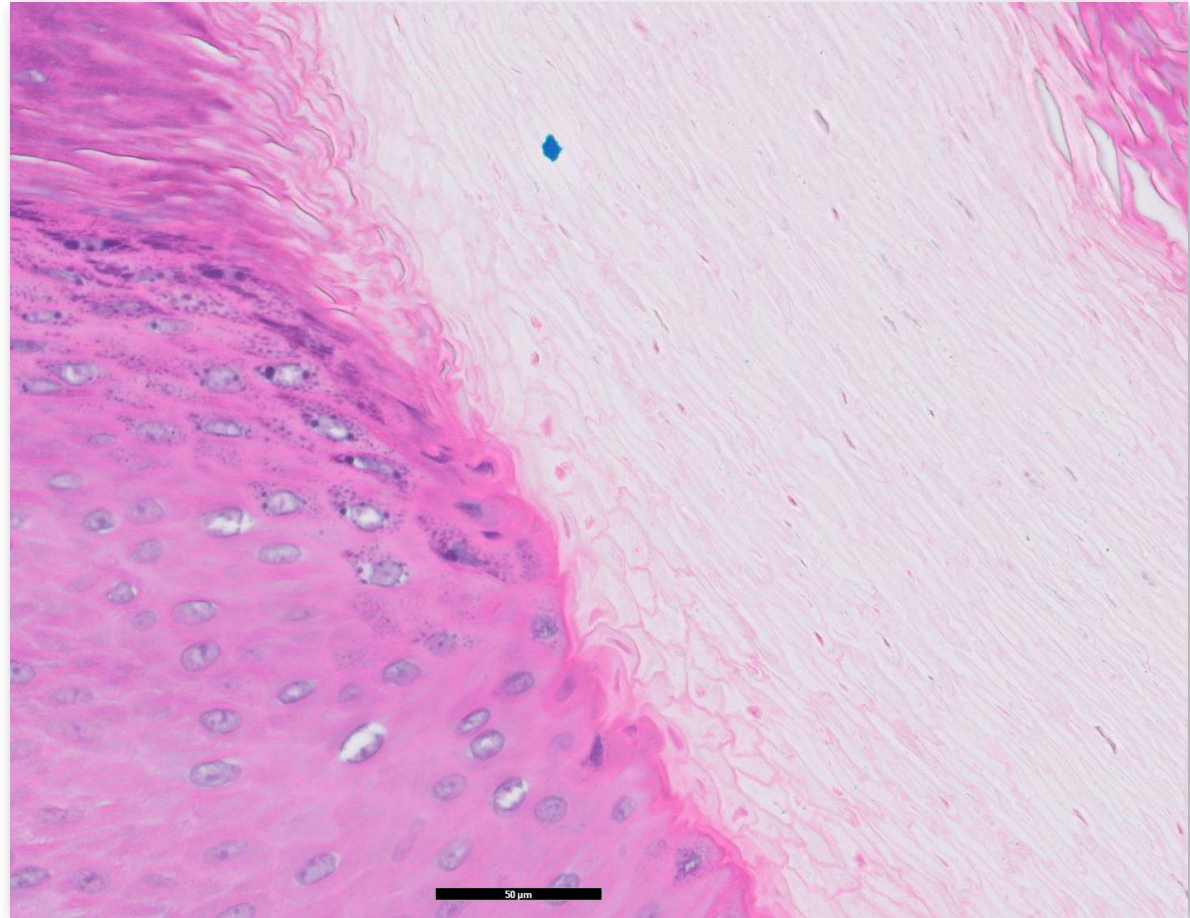
8 y/o index



8 y/o index



8 y/o index



Onychoheterotopia (Ectopic Nail)

- Nail is growth of nail unit tissue outside the usual anatomic area.
- Japan and India
- Congenital from syndromes such as Pierre-Robin Syndrome and Congenital Palmar Nail Syndrome.
- Trauma or chronic repetitive injury.

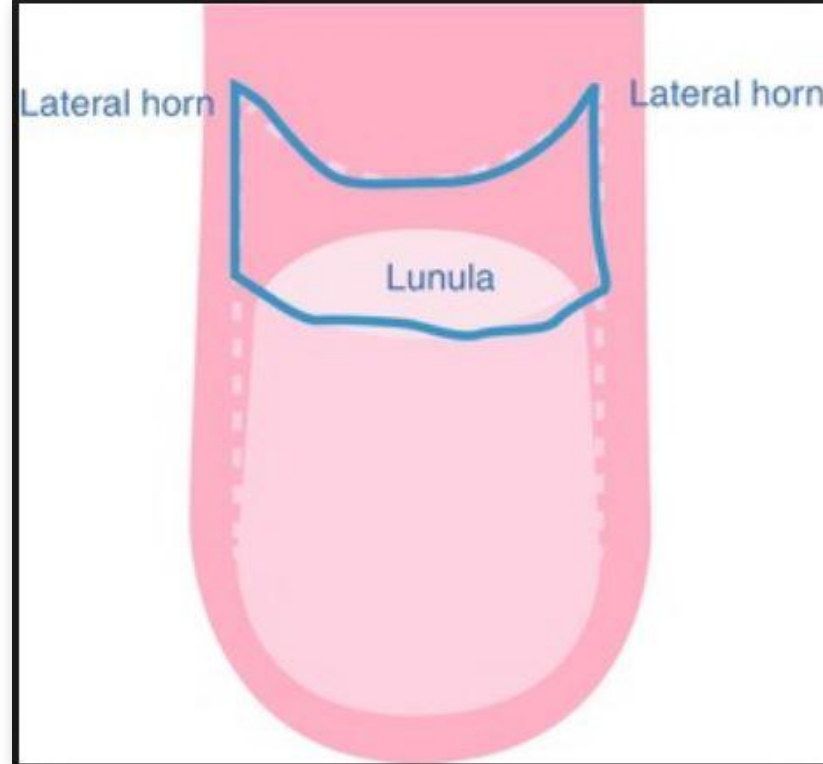
Onychoheterotopia (Ectopic Nail)

- Dorsal aspect of the hand.
- Osseous defects if matrix close to bone.

Traumatic ectopic nail



Matrix horns



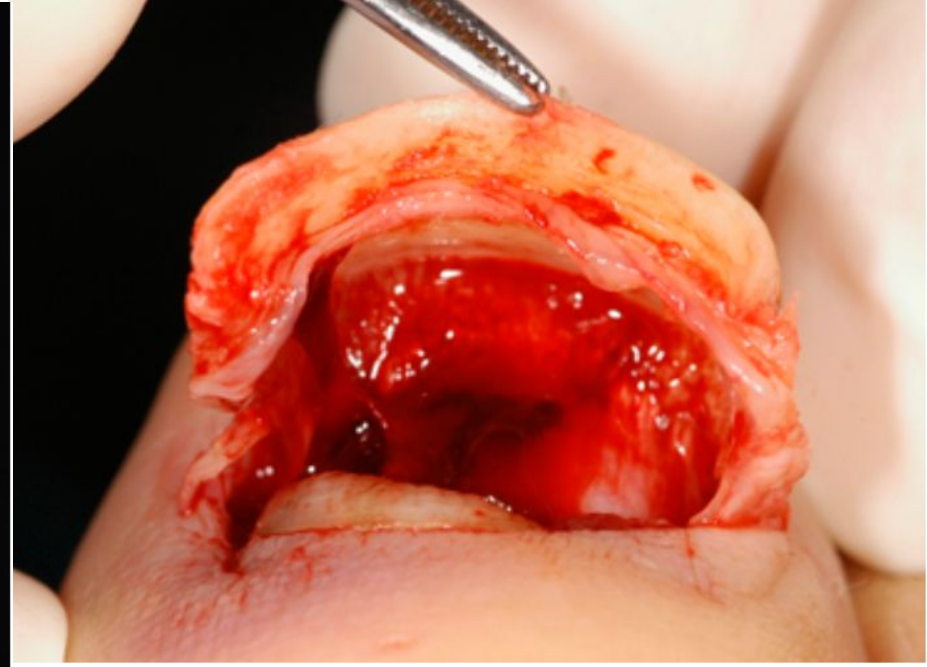
Onychoheterotopia (Ectopic Nail)

- All component of nail unit
 - Matrix
 - Place
 - Bed
 - Nail Fold

Onychoheterotopia (Ectopic Nail)

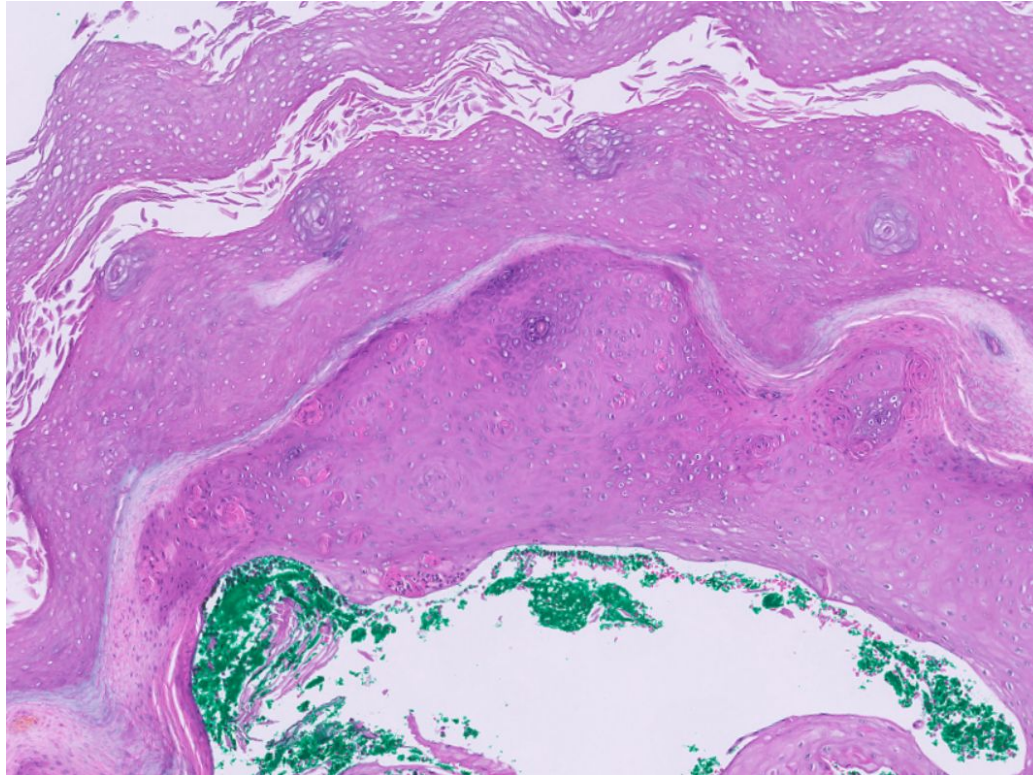
- Differential:
 - Retronychia
 - Residual nail unit after incomplete excision

Retrorychia

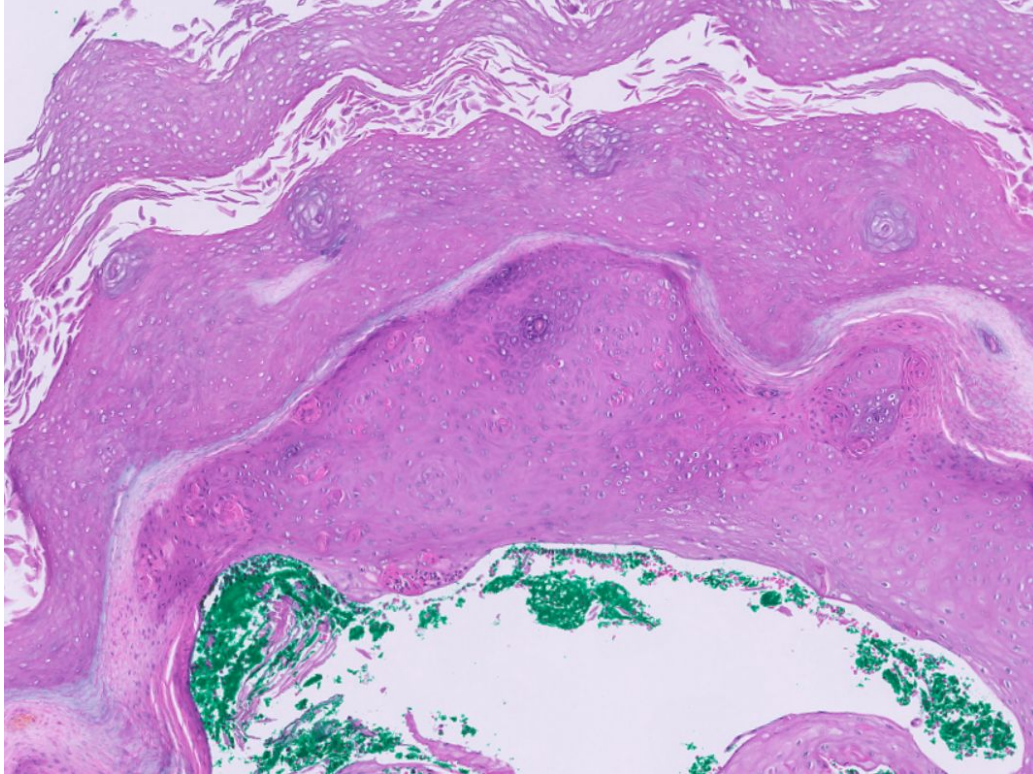


Baumgartner M and Haneke E. Retrorychia: Diagnosis and Treatment. Dermatologic Surgery 36(10):1610-4, 2010

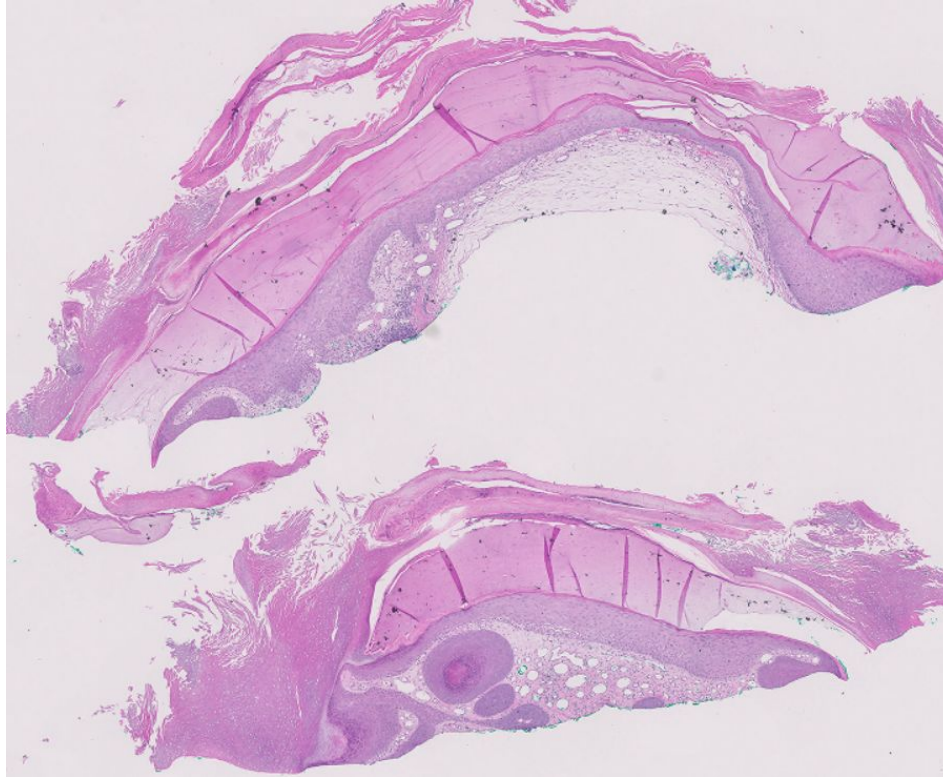
Case—73y/o F great toe—“keratotic papule”



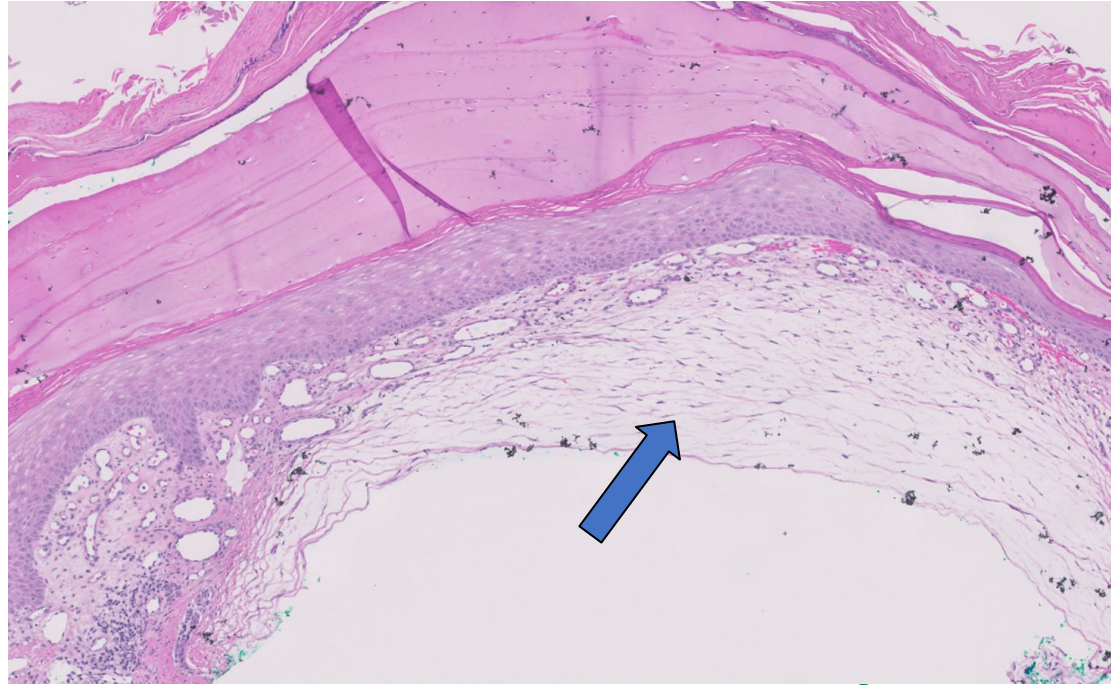
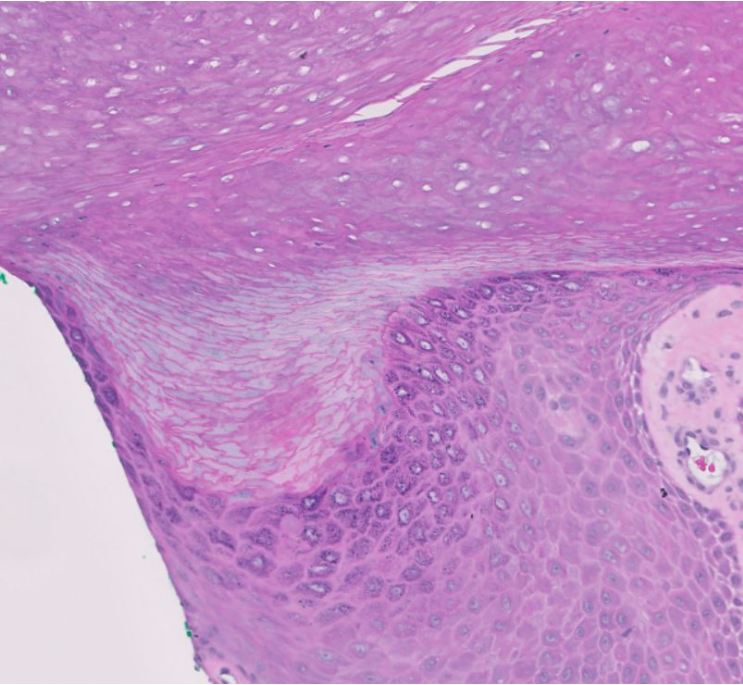
Case—Dx: Verruca (Wart)



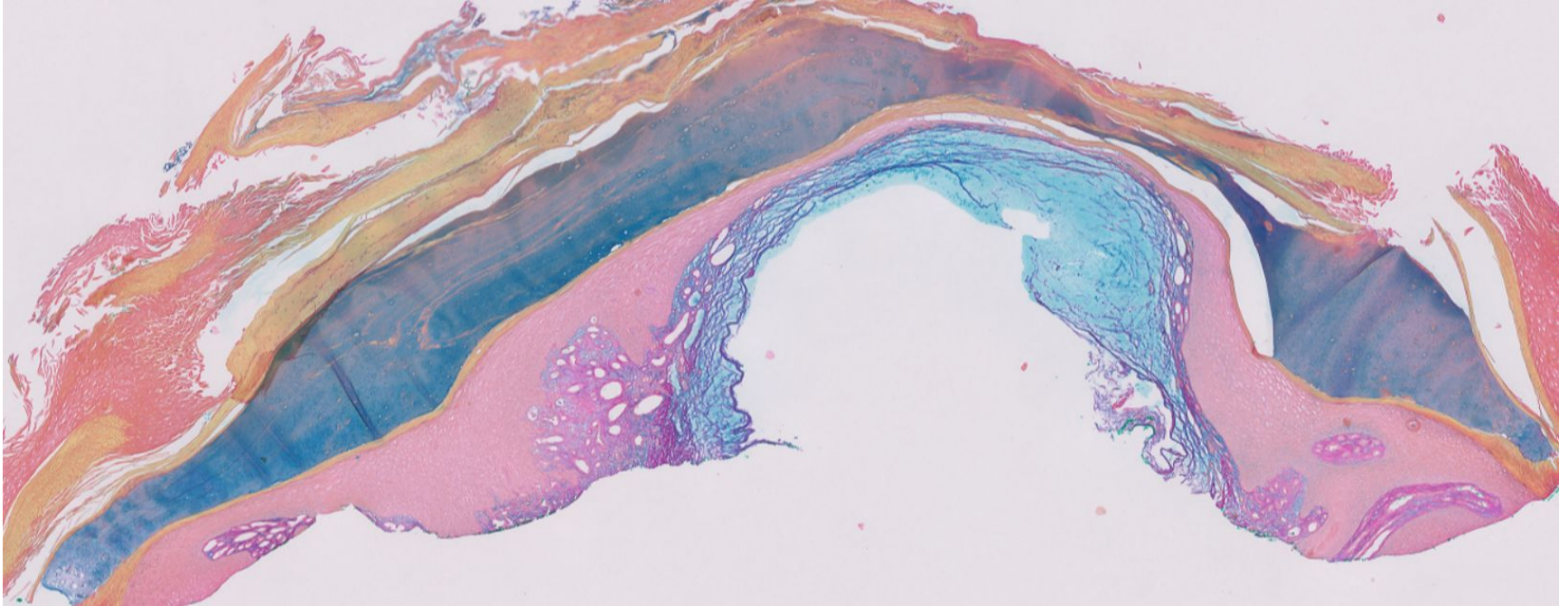
Case—Lesion persists—rebiopsy



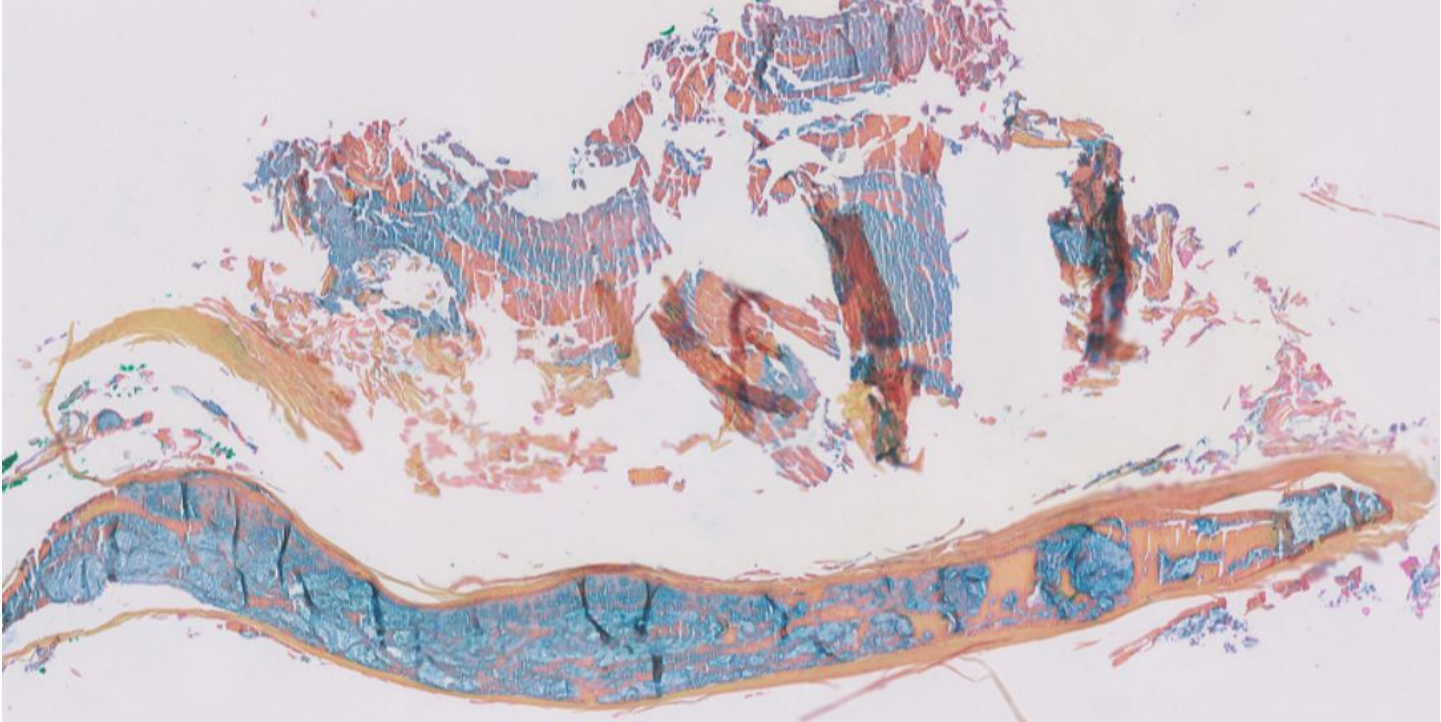
Case—Lesion persists—rebiopsy



Case—Dx: Digital mucous/myxoid cyst

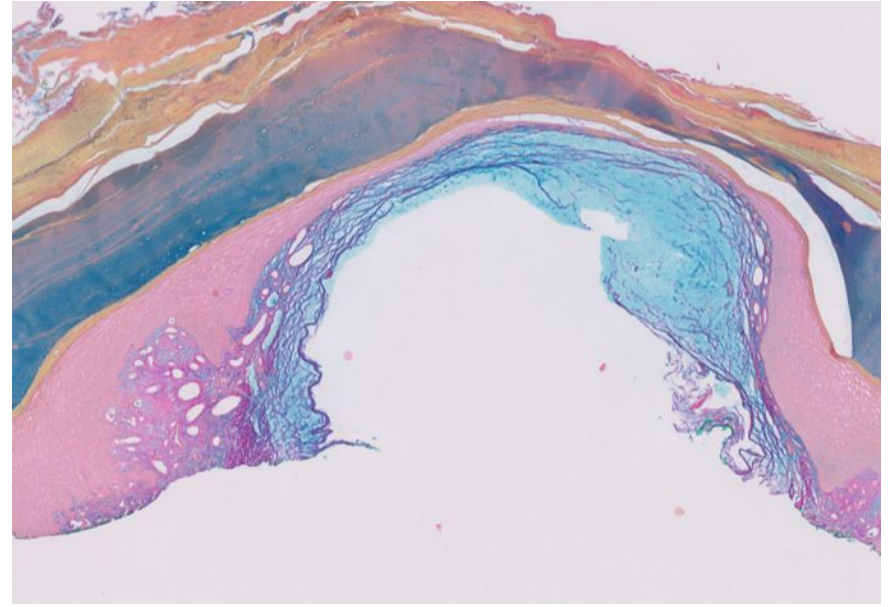
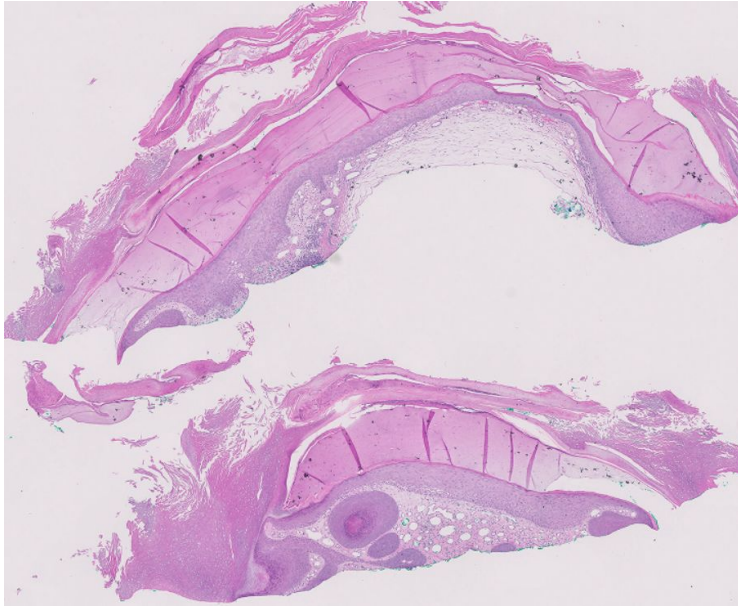


Case—Dx: Digital mucous/myxoid cyst



Digital mucous/myxyoid cyst

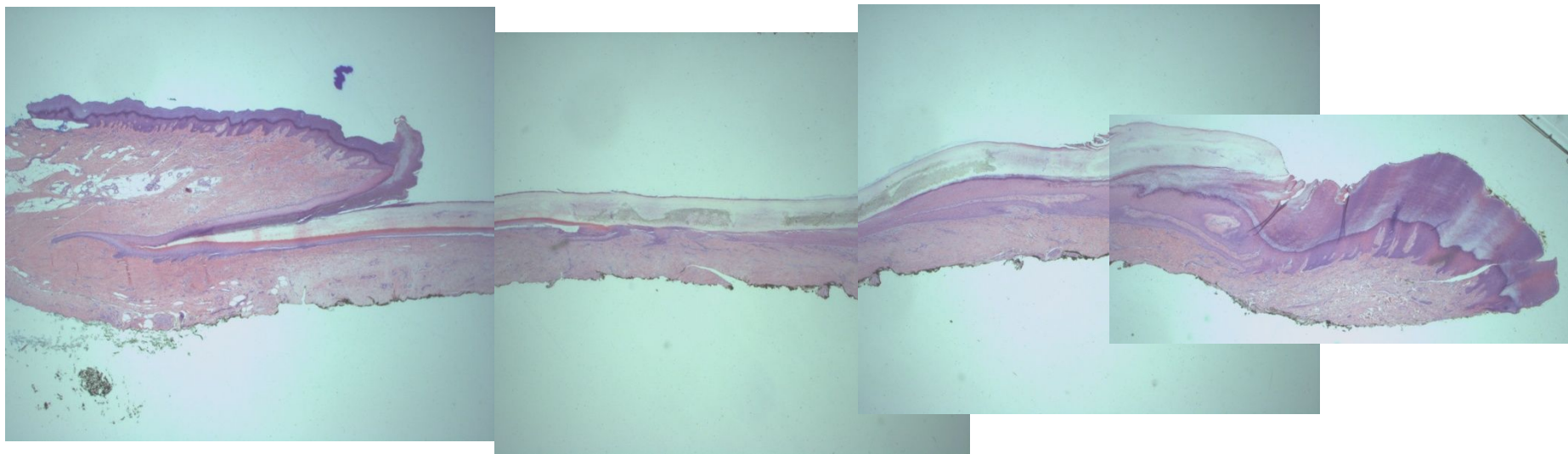
- Older lesions look like scar—required mucin stain



Hutchinson's Sign



Hutchinson's Sign



Hutchinson's Sign

- [J Am Acad Dermatol.](#) 2001 Feb;44(2):305-7.
- **Two kinds of Hutchinson's sign, benign and malignant.**
- [Kawabata Y](#), [Ohara K](#), [Hino H](#), Tamaki K.
- Department of Dermatology, Faculty of Medicine, University of Tokyo, Japan.
KAWABATA-der@h.u-tokyo.ac.jp
- We examined 6 subungual melanomas in situ and 18 melanocytic nevi and compared pigmentation of the nail plates and hyponychium with the use of a dermatoscope. Hutchinson's sign on the hyponychium was not always evidence of subungual melanoma because it can be seen in both diseases. However, there was a wide difference in their dermatoscopic features. We believe that observation of pigmentation on the hyponychium with the use of a dermatoscope contributes to the precise diagnosis of subungual melanoma.

Dr. Rich's Differential Diagnosis

- Trauma pigment
- Nevus
- Lentigo
- R/O Melanoma

Biopsy

- Matrix sampled
- Proximal nail fold sampled

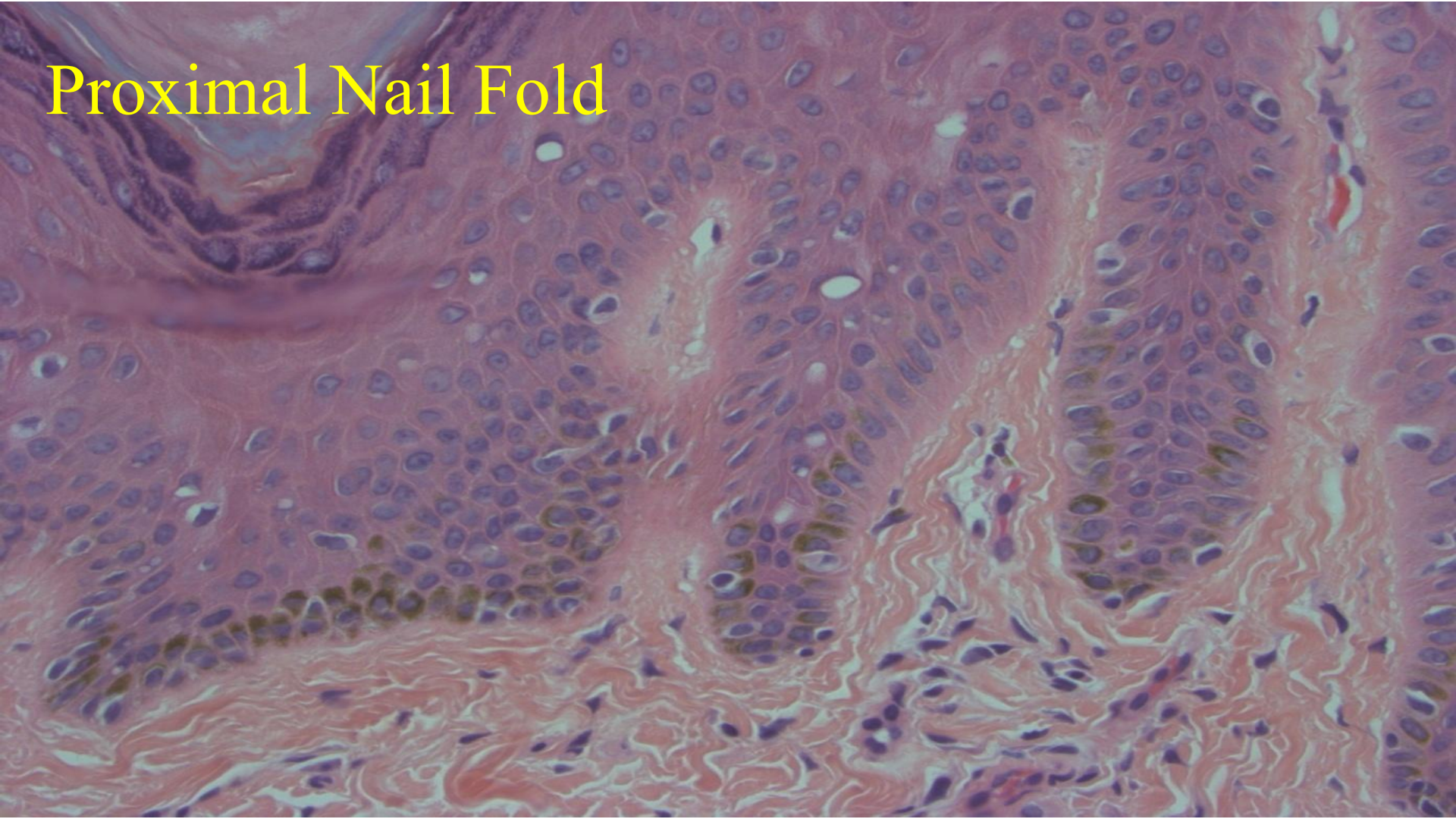


03/07/2011 14:53

Proximal Nail Fold

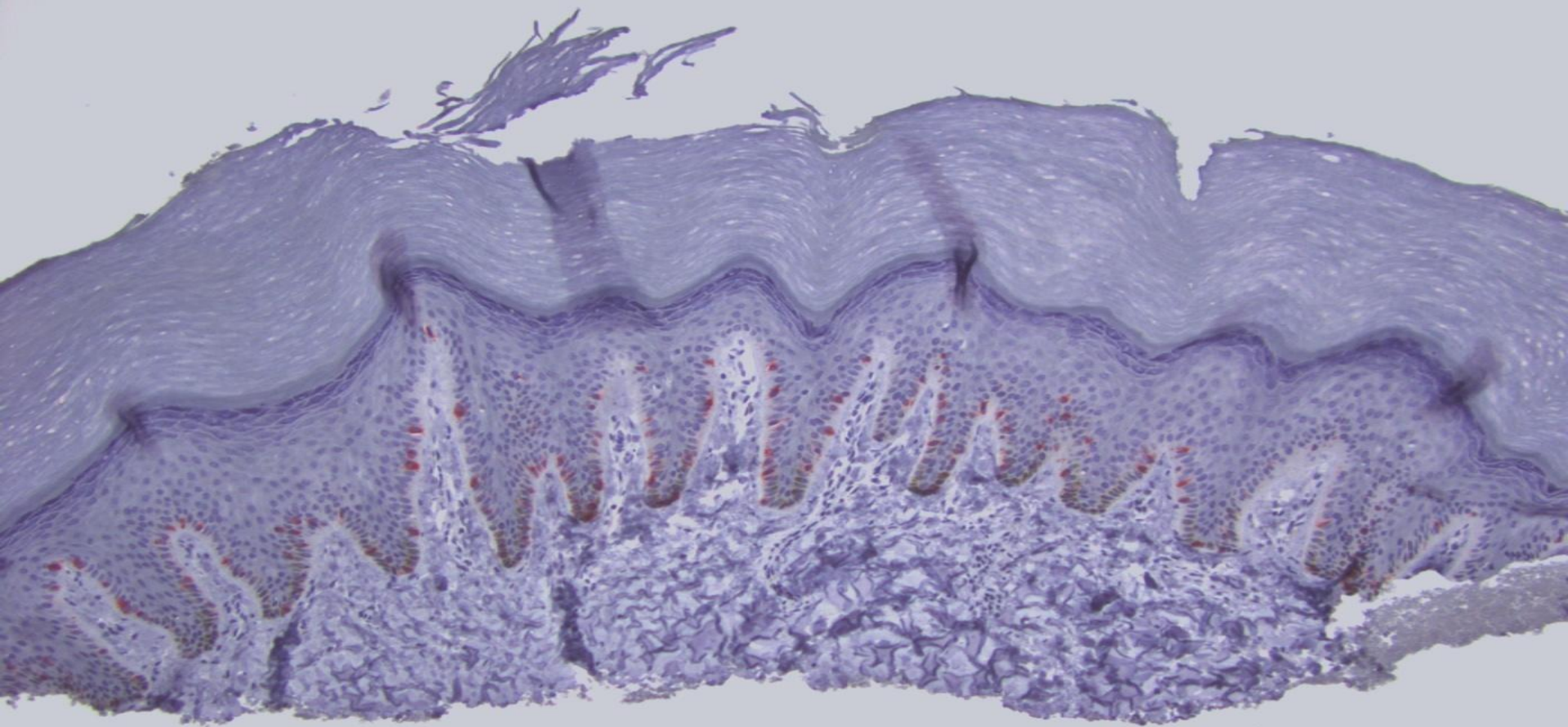


Proximal Nail Fold

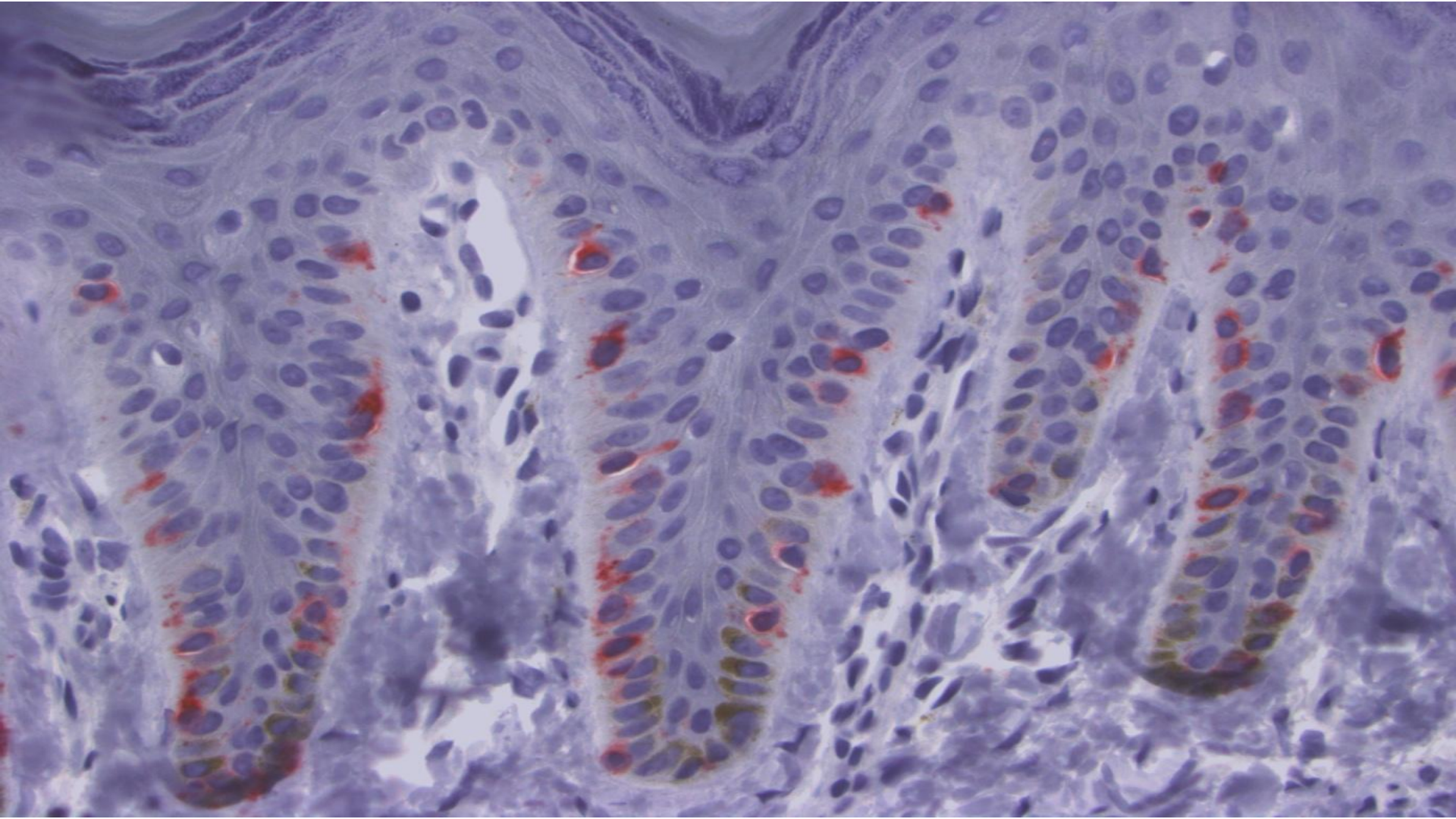




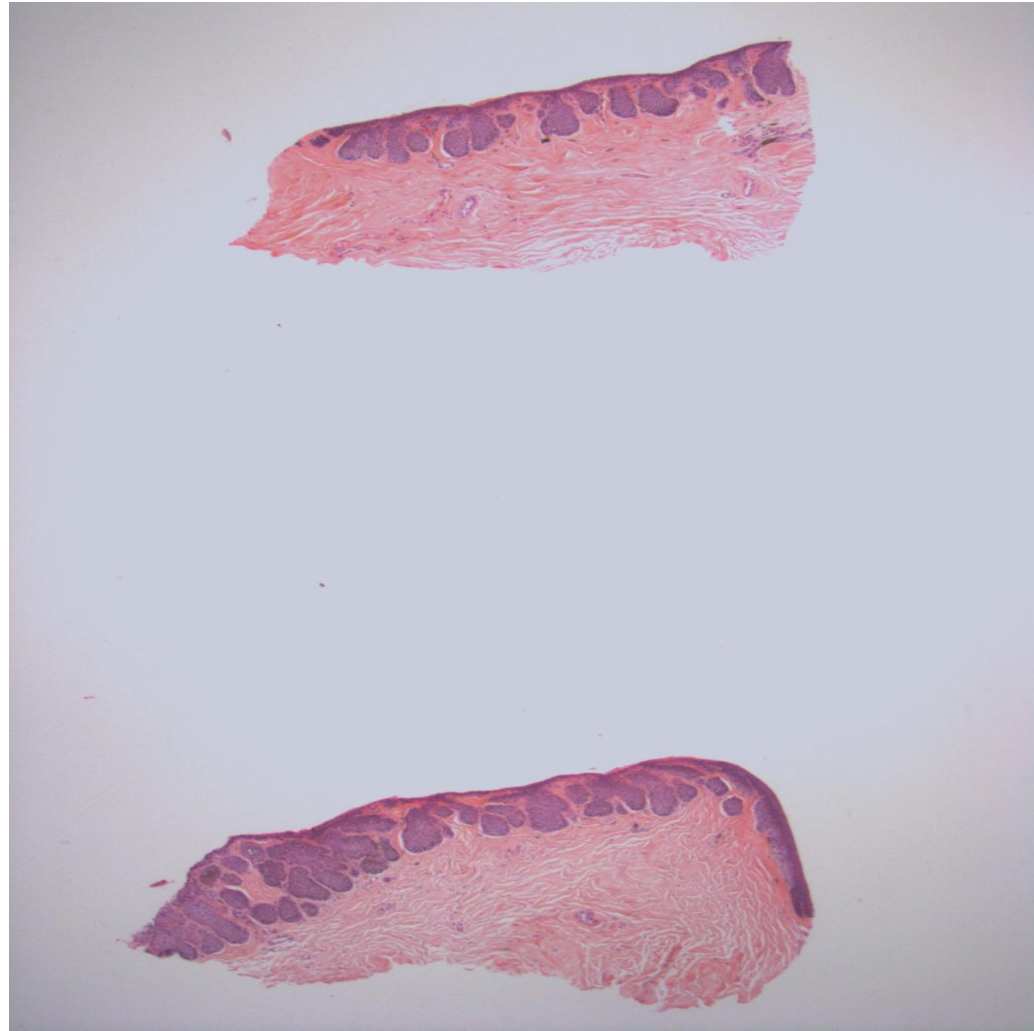
Fontana-Masson Stain

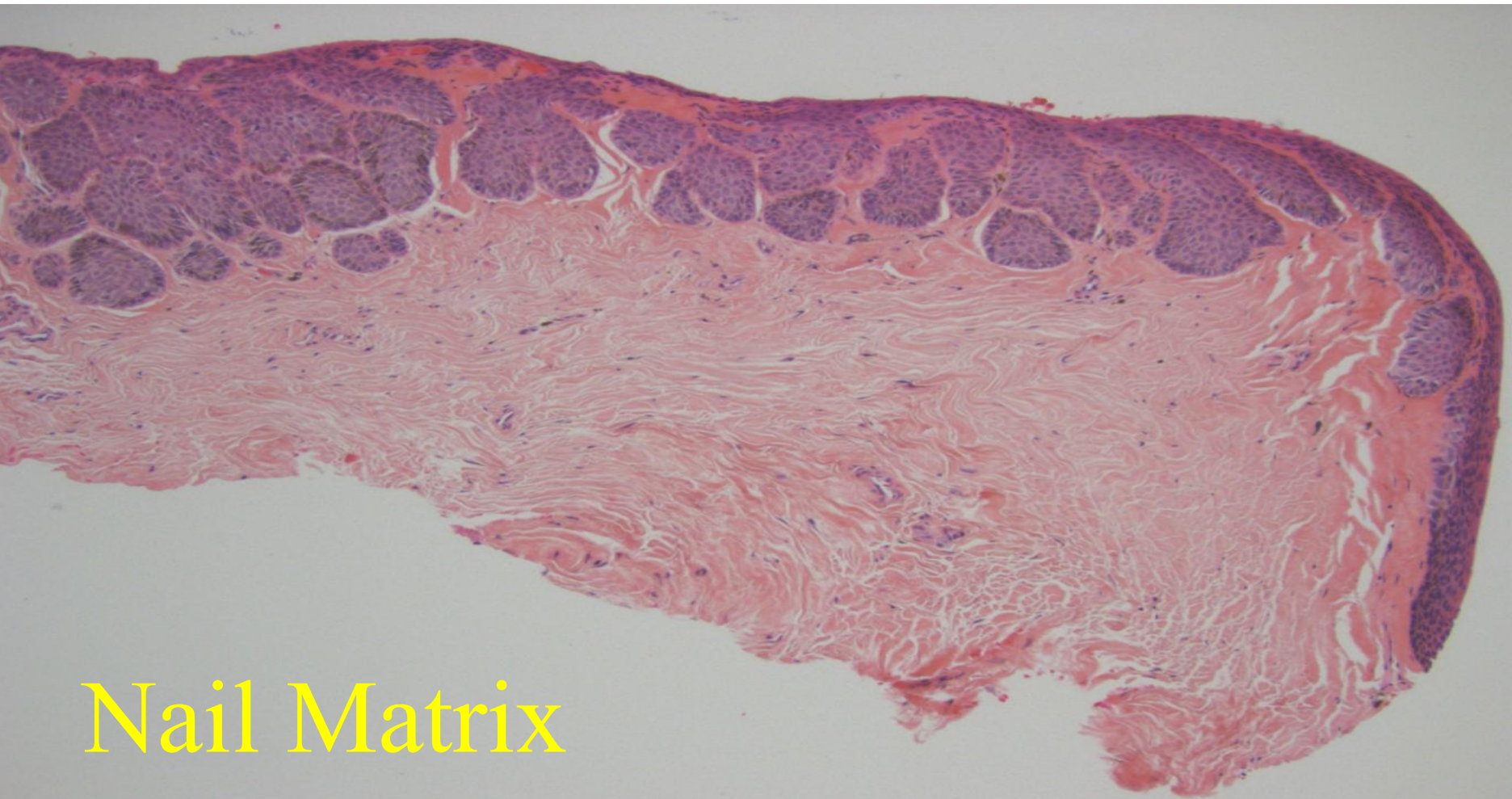


MelanA IHC Study



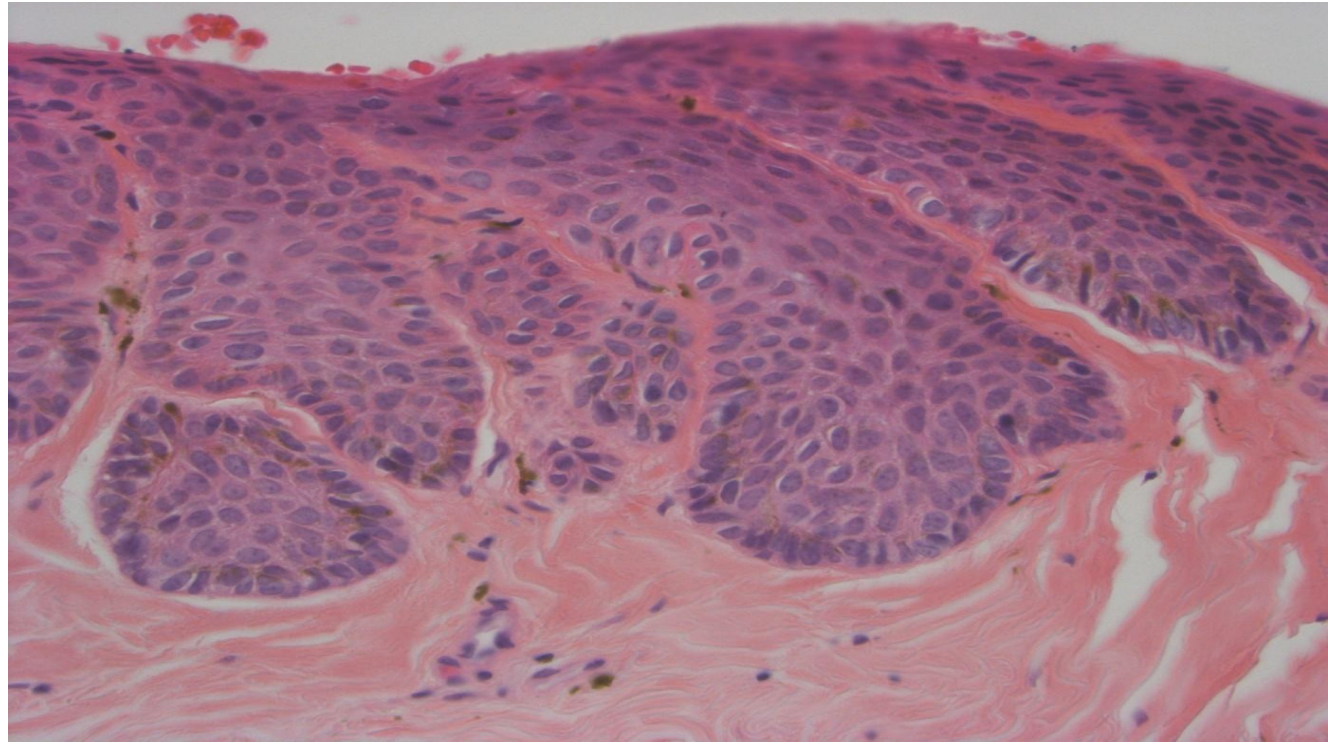
Nail Matrix

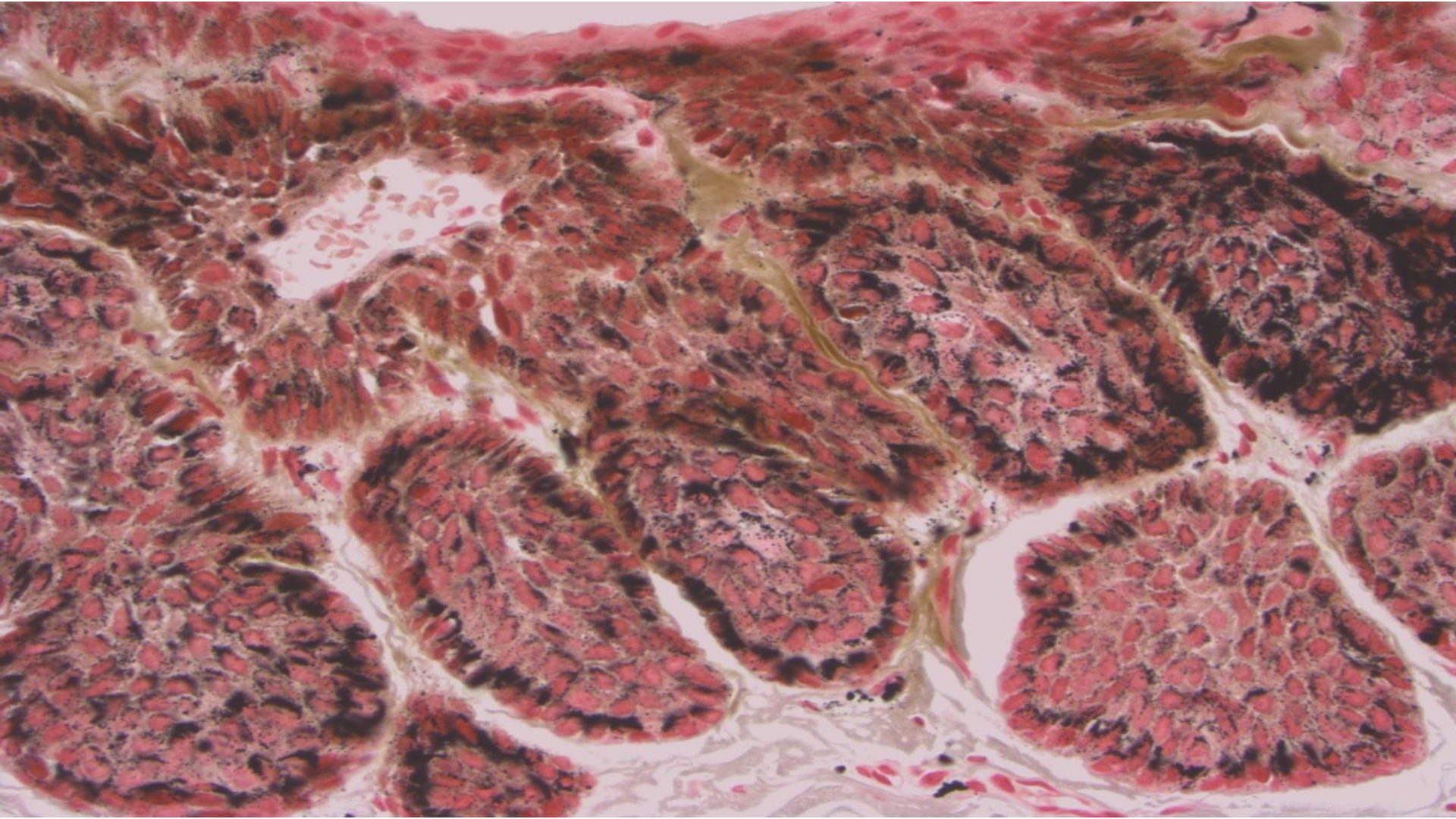


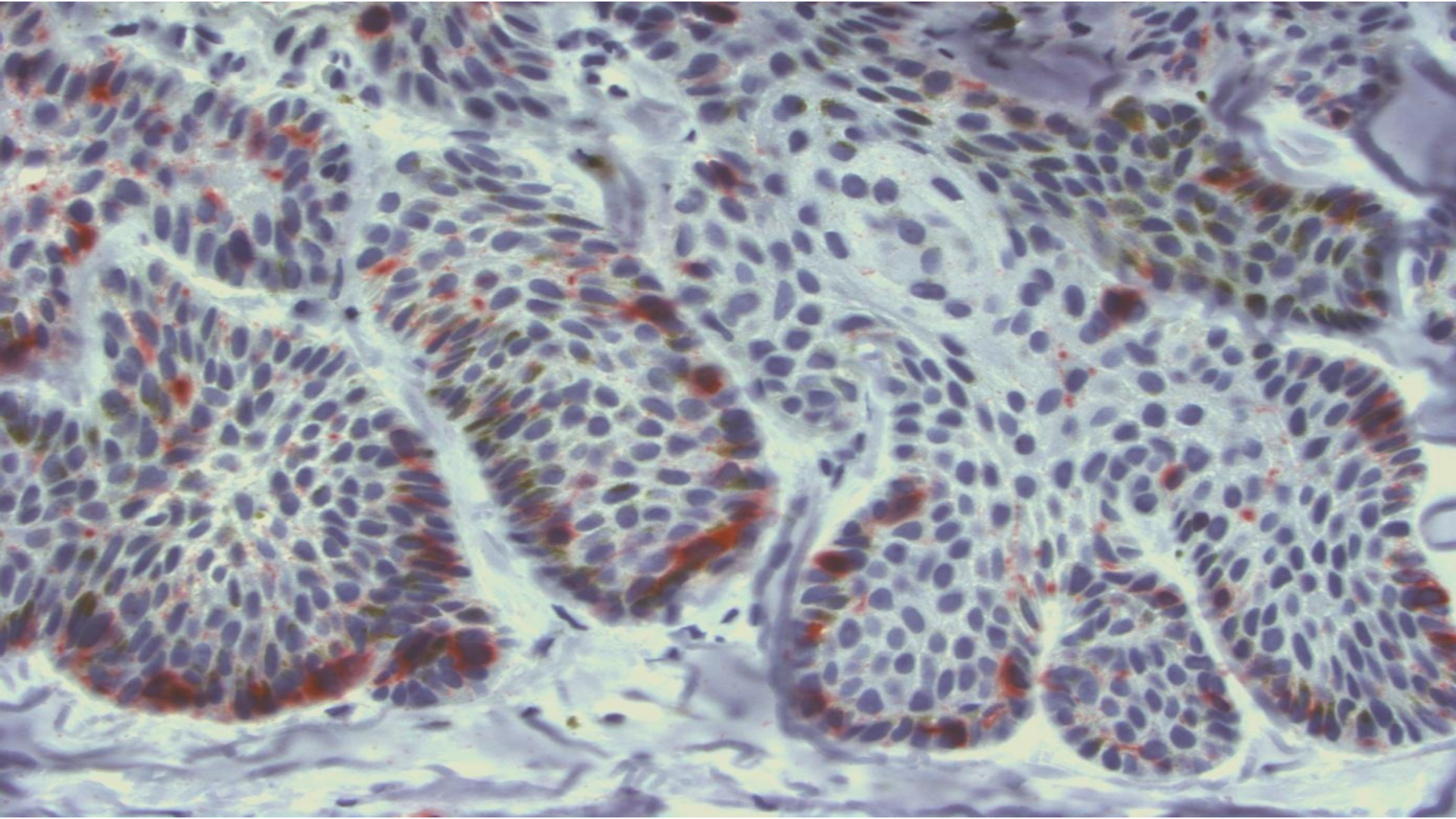


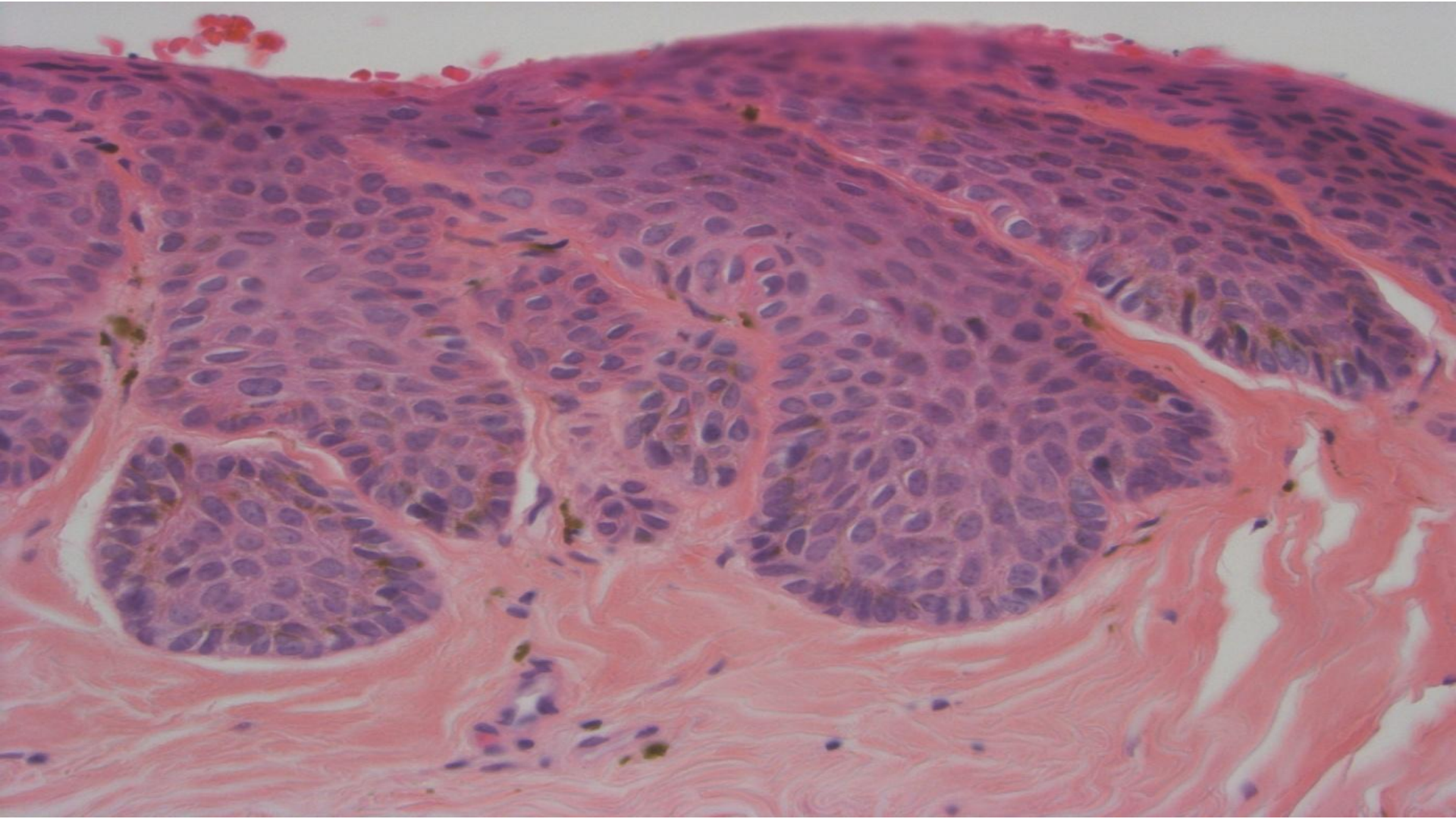
Nail Matrix

Onychocytic matricoma with a Hutchinson's sign









Onychocytic Matricoma

[Am J Dermatopathol](#). 2012 Feb;34(1):54-9. doi: 10.1097/DAD.0b013e31822c3d8b.

Onychocytic matricoma presenting as pachymelanonychia longitudinal. A new entity (report of five cases).

Perrin C¹, Cannata GE, Bossard C, Grill JM, Ambrossetti D, Michiels JF.

Author information

Abstract

Among the tumors of the epidermal appendages, only rare tumors have been proved as differentiating in the direction of the nail. Beside onychomatricoma, we report a new matrical tumor of the nail: onychocytic matricoma (acanthoma of the nail matrix producing onychocytes). The main differential diagnosis of onychocytic matricoma is seborrheic keratosis. However, if attention is paid to the nature of the different layers of the tumor and the peculiar microanatomy of the nail matrix, the differentiation is not difficult. Onychocytic matricoma is a localized (monodactylous) longitudinal melanonychia which is slightly raised. The term pachymelanonychia is used to define the 2 clinical features of the tumor. Pachyonychia indicate a localized thickening of the nail plate, and melanonychia indicate its longitudinal pigmented band. Onychocytic matricoma is composed of a basal compartment with a varying admixture of prekeratogenous cells and keratogenous cells. Endokeratinization originating in the deep portion of the tumor and nests of prekeratogenous and keratogenous cells in concentric arrangement are a characteristic feature. Three major patterns can be identified as follows: acanthotic, papillomatous, keratogenous type with retarded maturation. Given the peculiar thickening of the nail plate observed both in pigmented onychomatricoma and onychocytic matricoma, the term pachymelanonychia longitudinal could be proposed to specify clinically these 2 lesions, which the clinician sometimes mistakes for melanoma.

Onychocytic matricoma vs Nail unit seborrheic keratosis

- Semantic difference
- Seborrheic keratosis is very common
- More important is to make sure this is not subtle, pigmented squamous cell carcinoma
- Onychocytic matricoma is a difficult name

Thanks to
Dr. Eckart Haneke!

Melanonychia

When did it appear?

All recently developed melanonychias in adult fair-skinned individuals over 30 years are suspicious.

Exception: functional melanonychia!

Thanks to
Dr. Eckart Haneke!

Melanonychia of recent onset: Which age at onset?

Babies and children: benign

Adolescents: usually benign

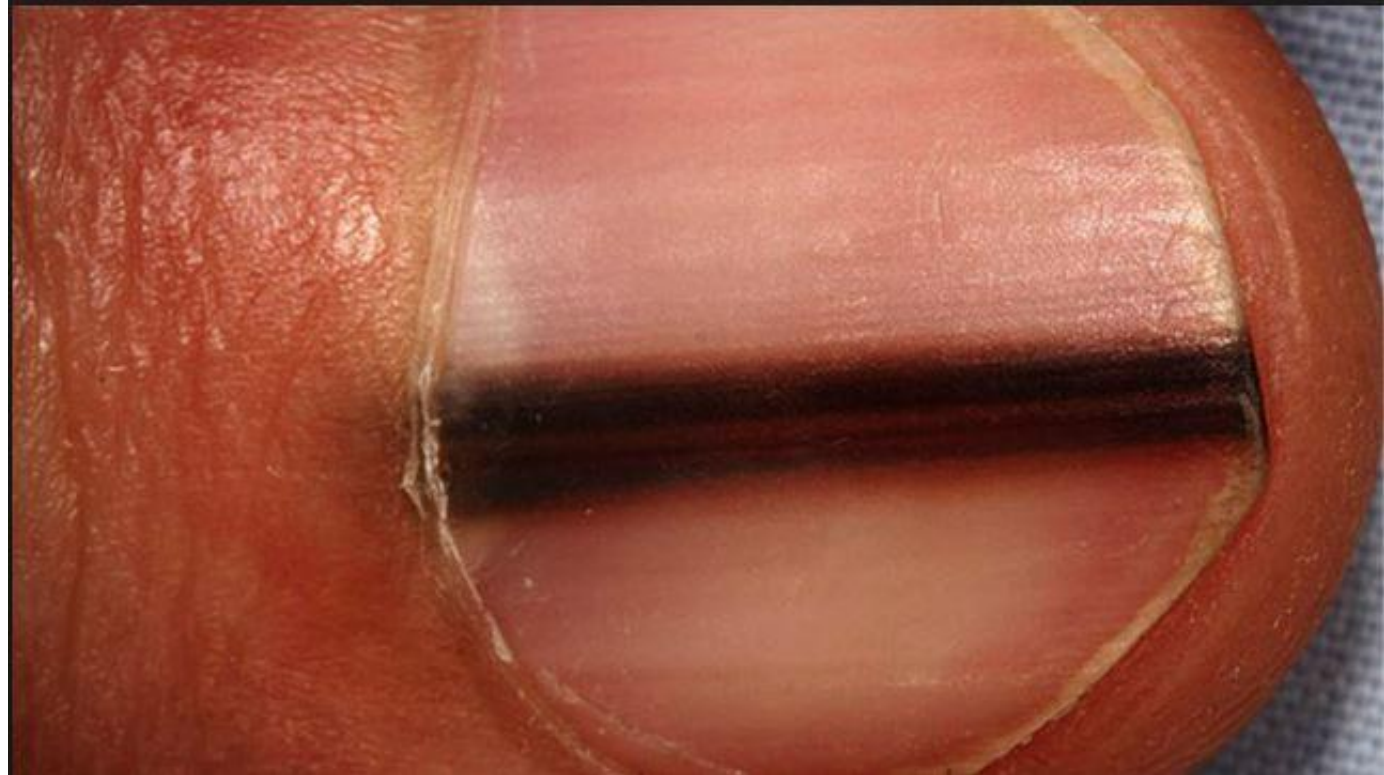
Adults < 30 years: probably benign

Adults > 30 years: suspicious

Adults > 40: probably malignant

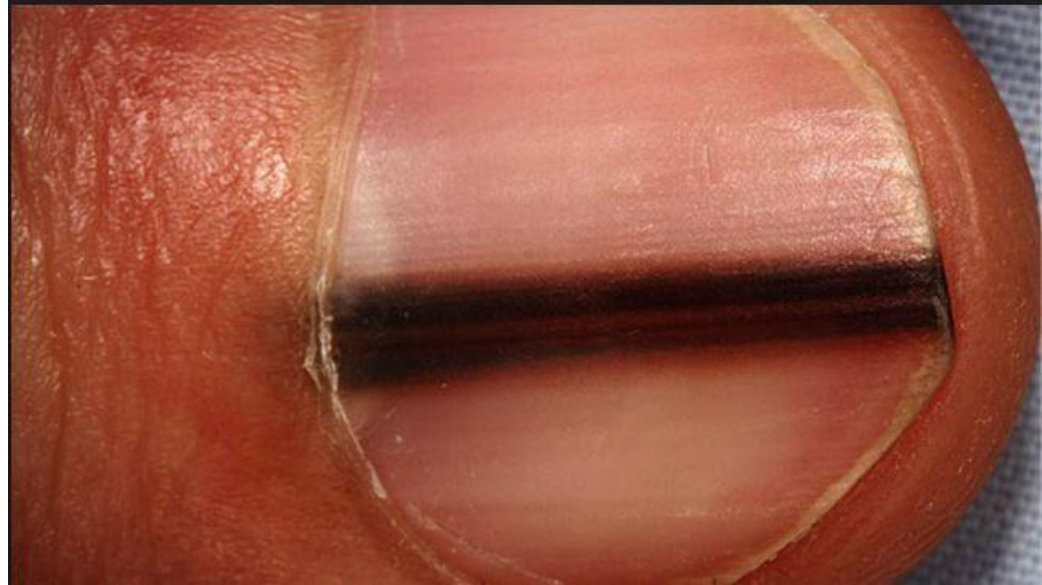
Adults > 50: usually malignant

60 y/o left thumbnail

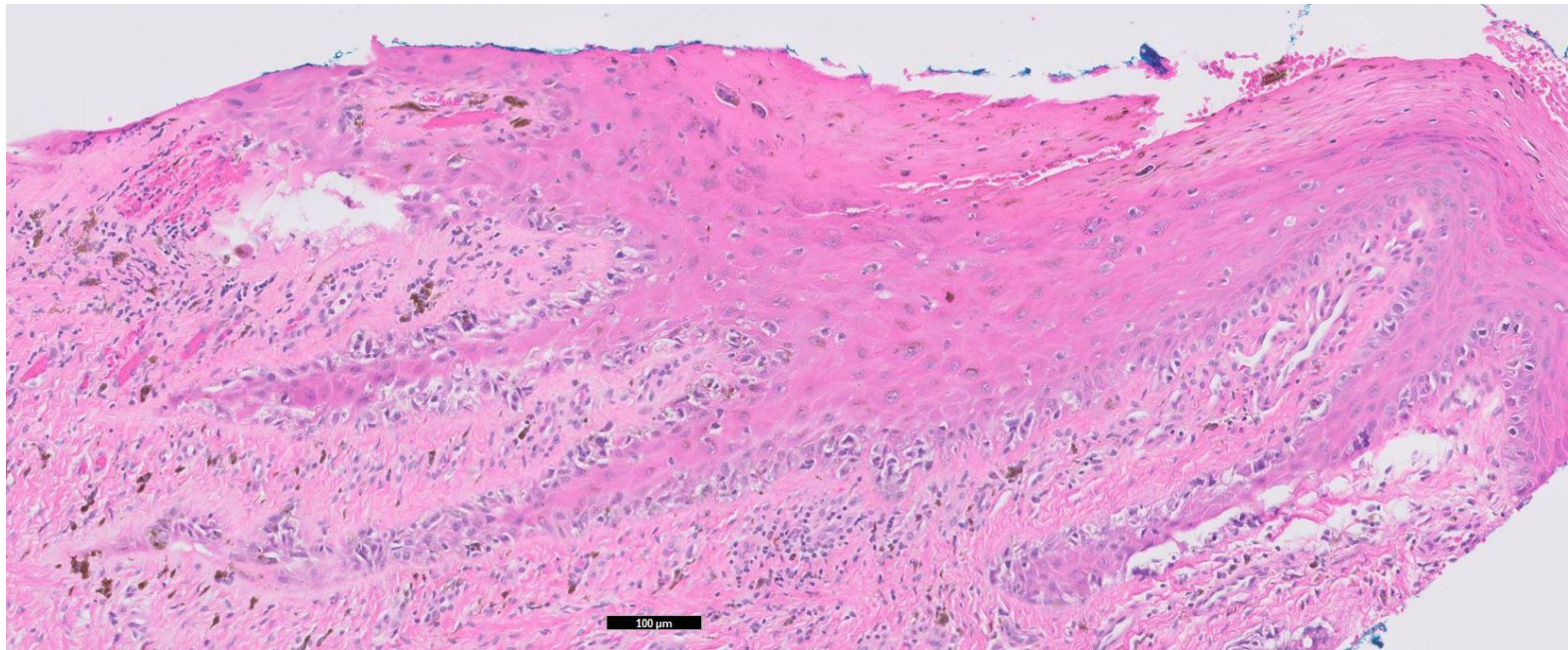


60 yo left thumbnail

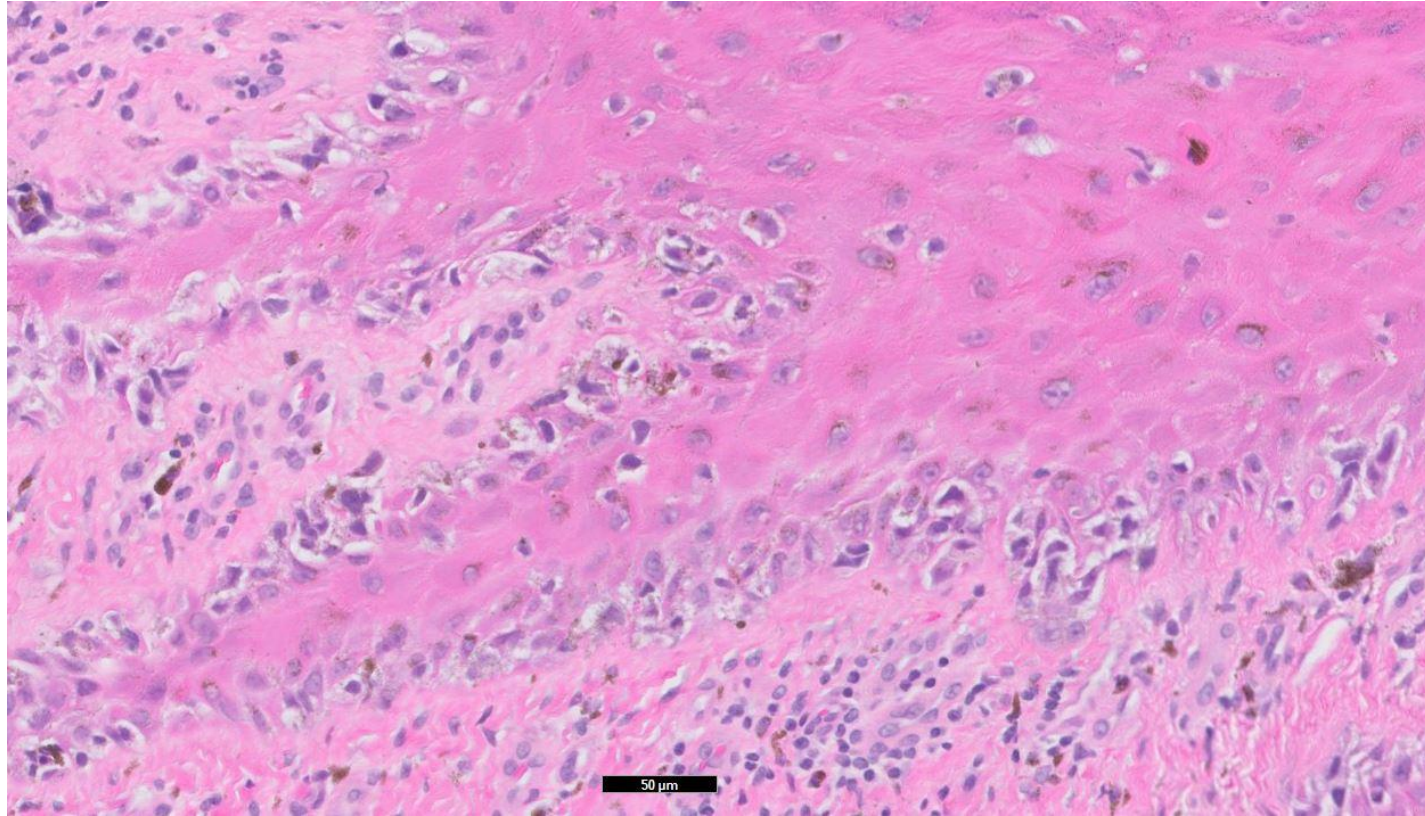
- New pigment
- Older age
- Skin type



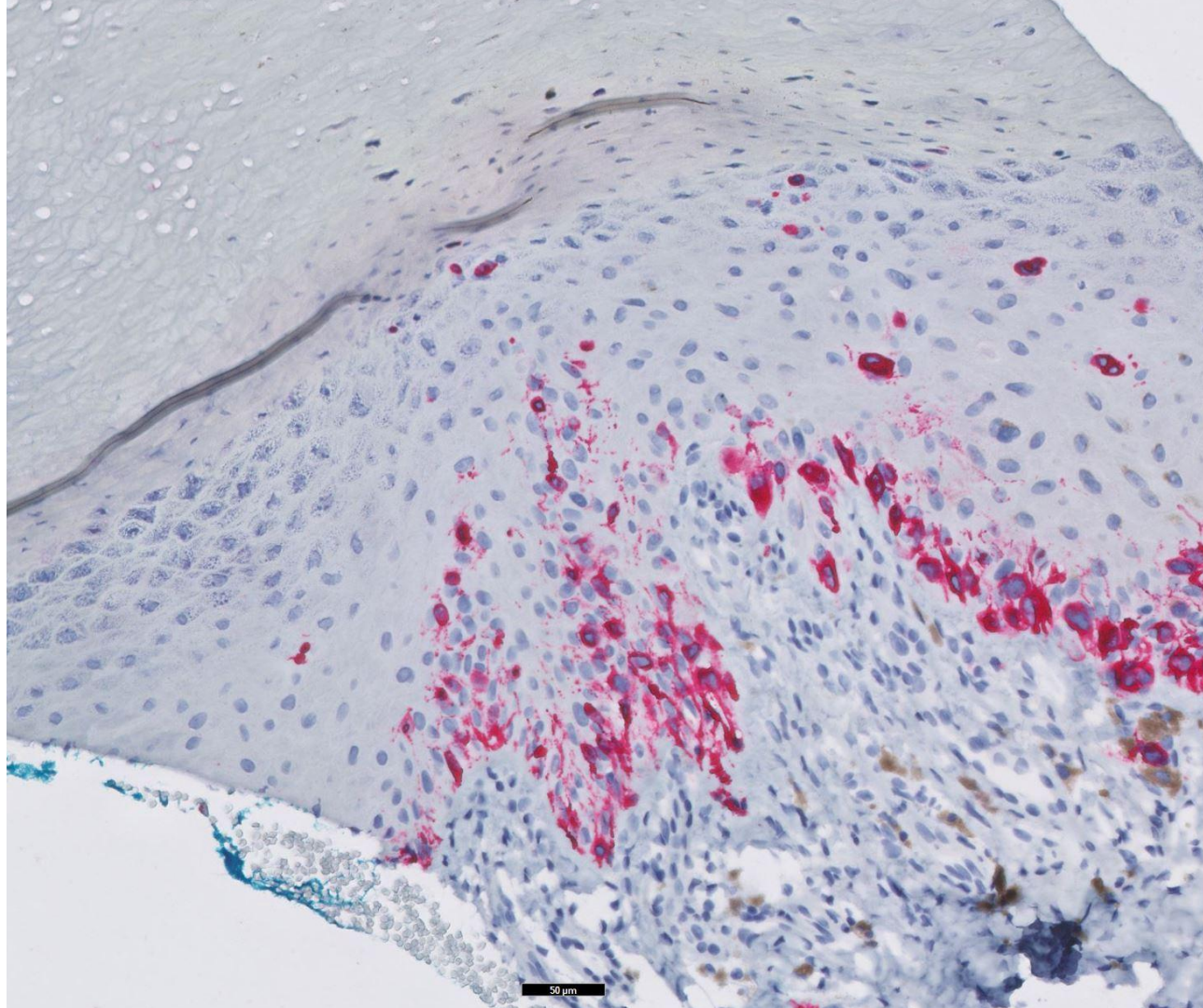
60 y/o left thumbnail



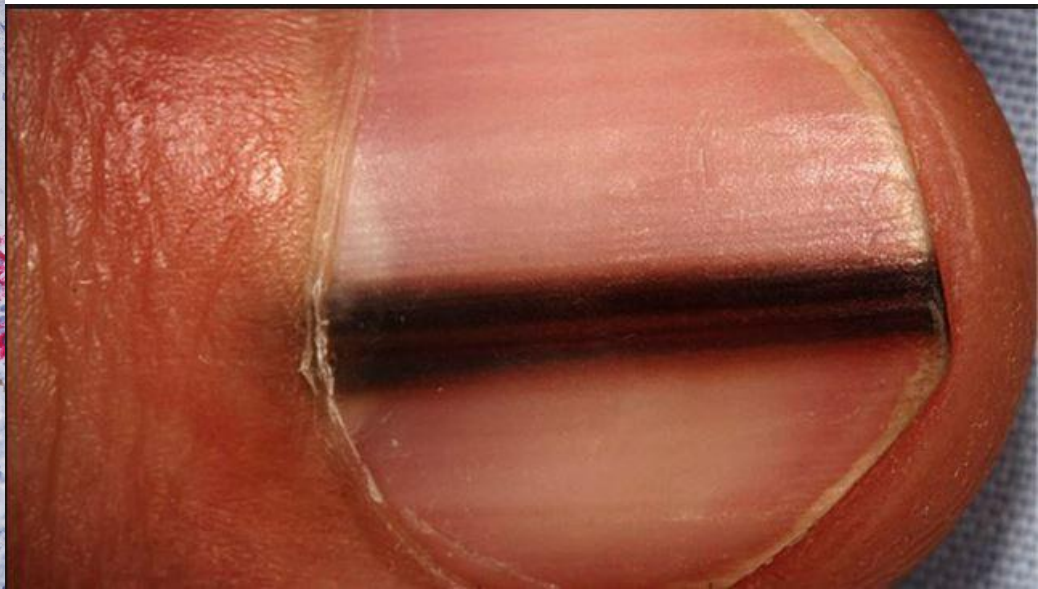
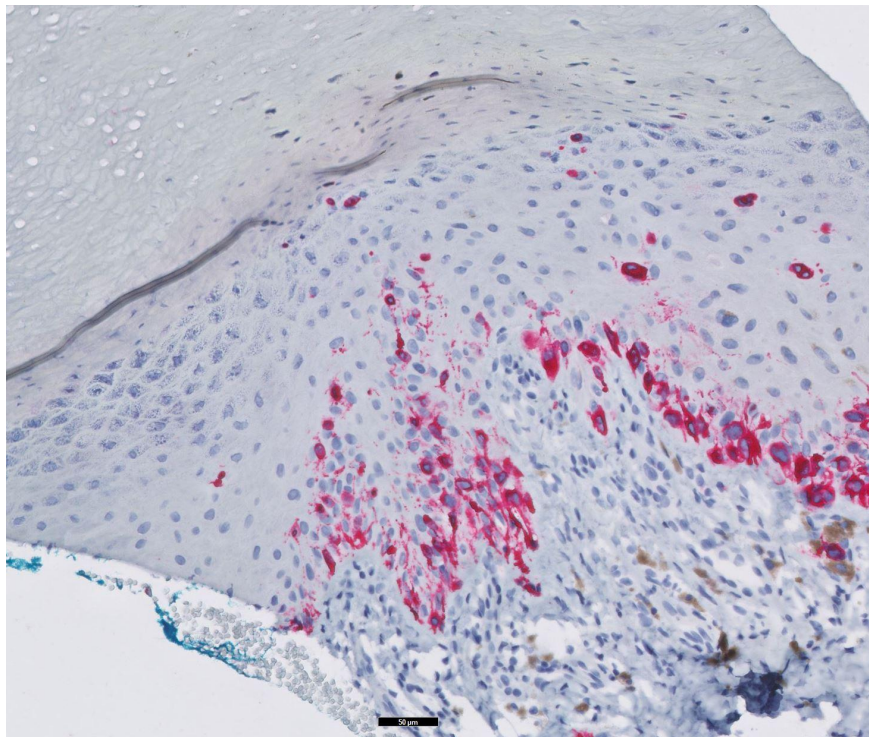
60 y/o left thumbnail



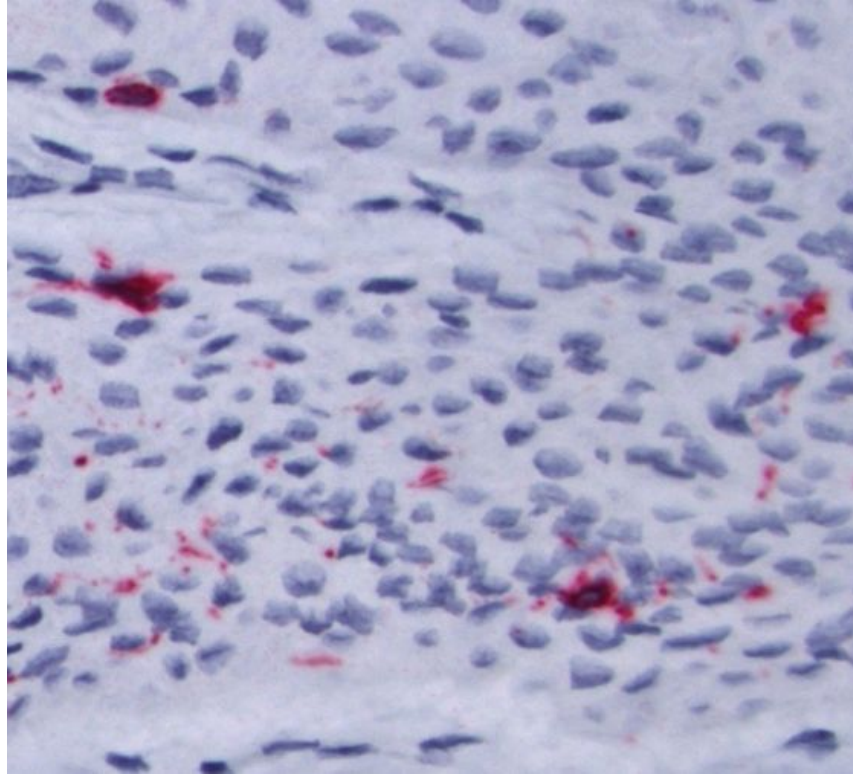
60 y/o



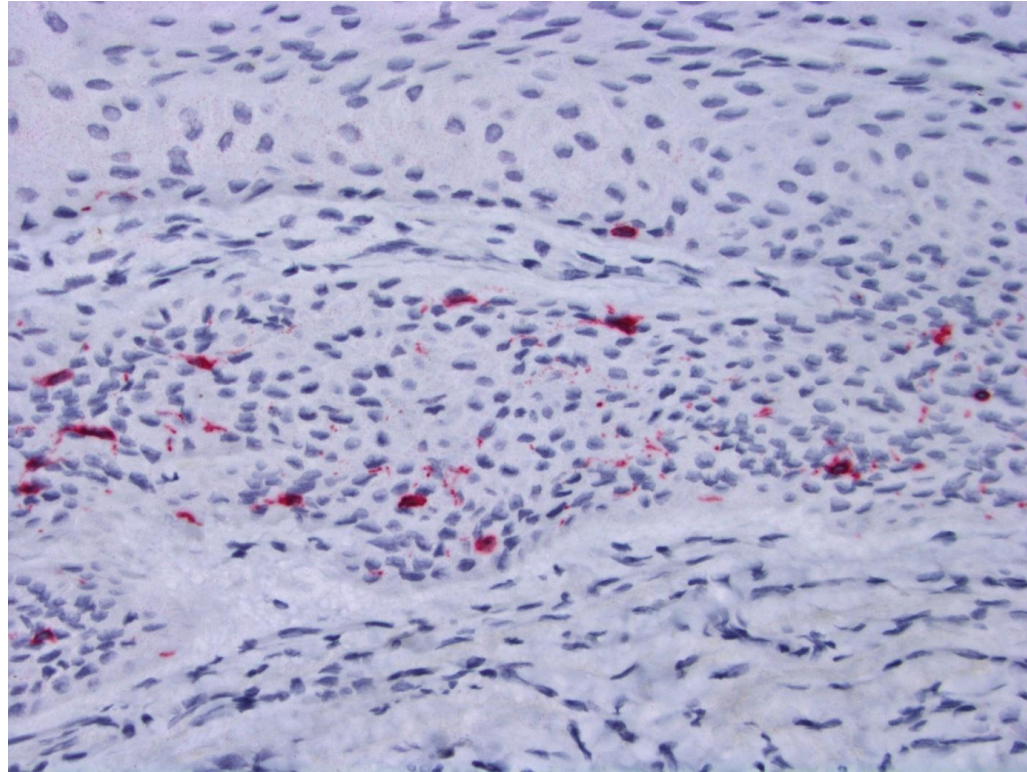
Melanoma in-situ



Dendritic melanocytes in B9 and malignant

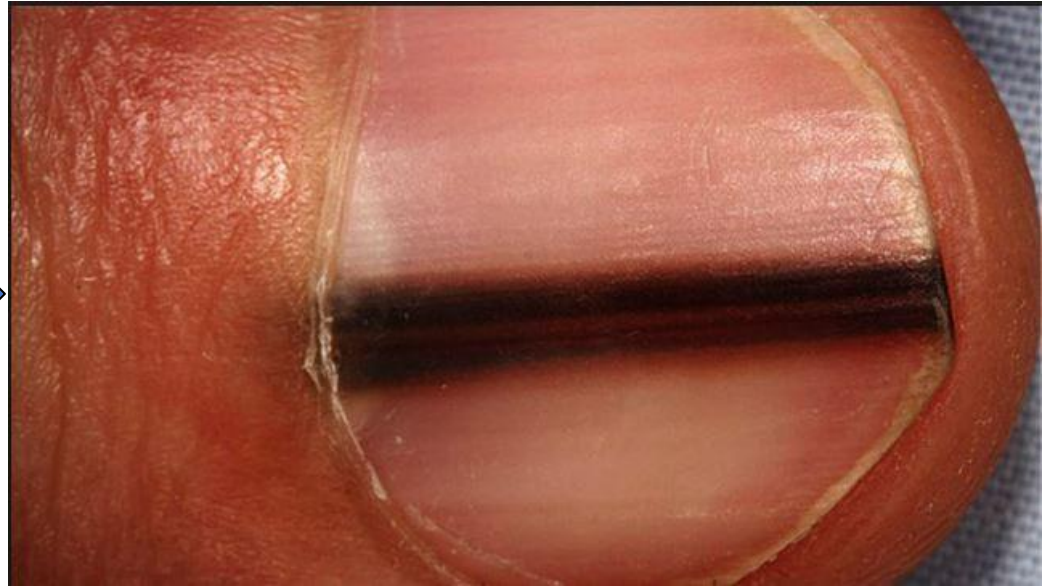
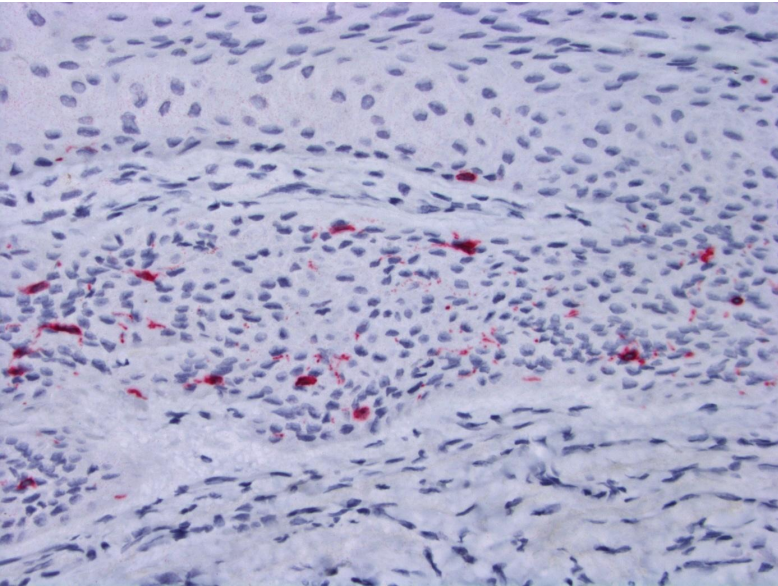


Margin assessment may be challenging



Clinical presentation important

- New lesion in older patient



Challenging Case

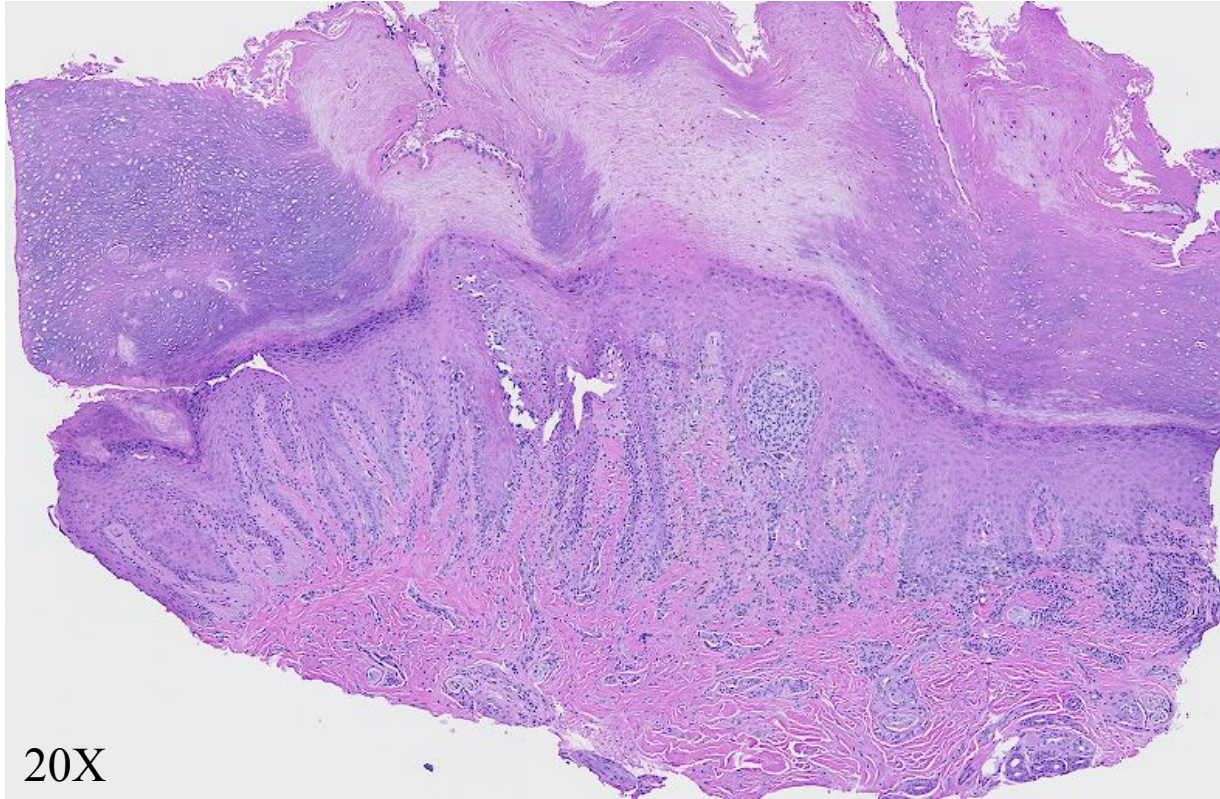
- 61 y/o female
- Right thumbnail
- Patient of Dr. Zaiac



Clinical Information

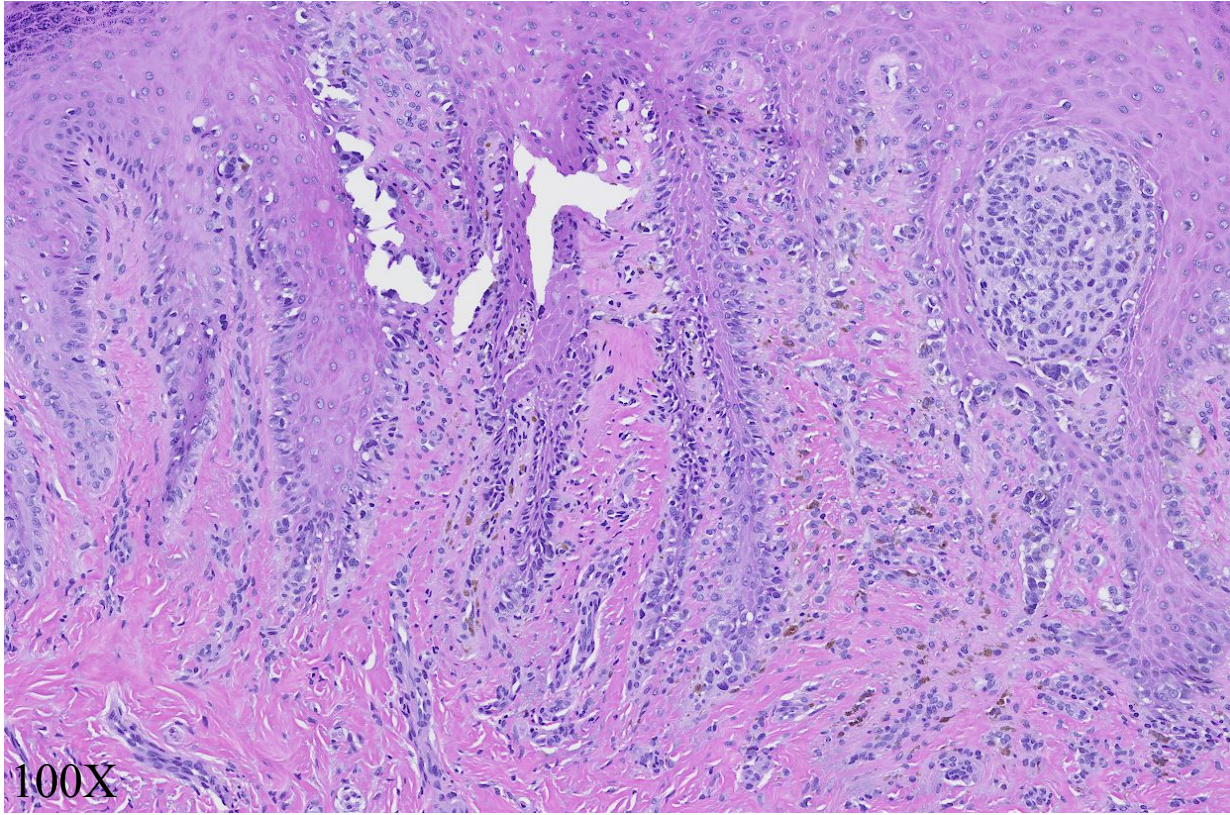
Morphology: irregular brown papule
DDX: Atypical Junctional Melanocytic Neoplasm

61 y/o female right thumbnail

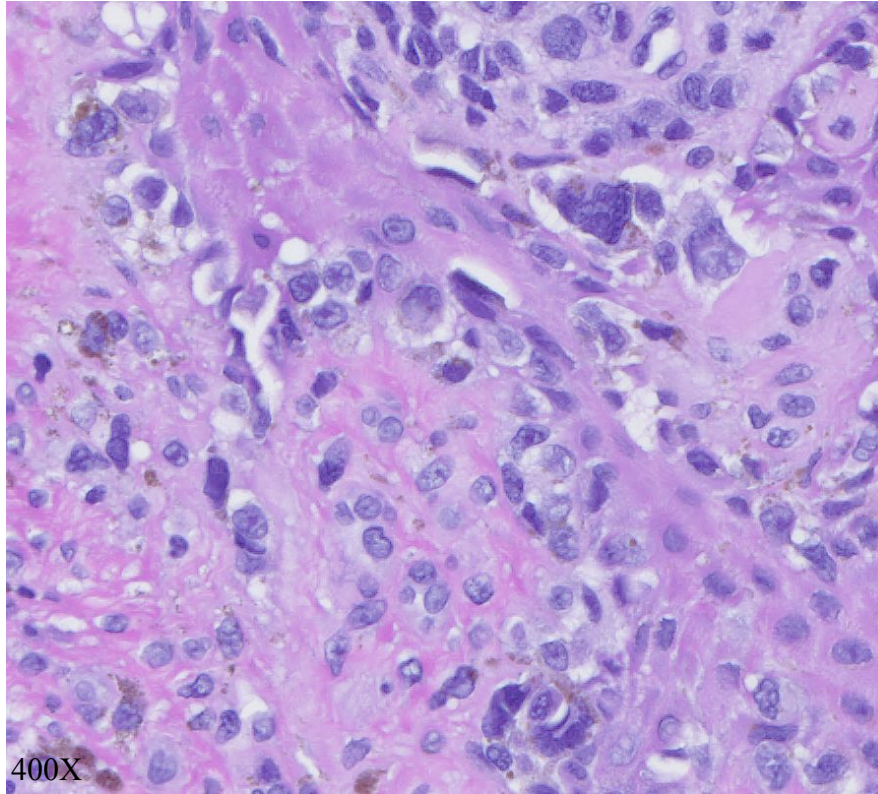


20X

61 y/o female right thumbnail

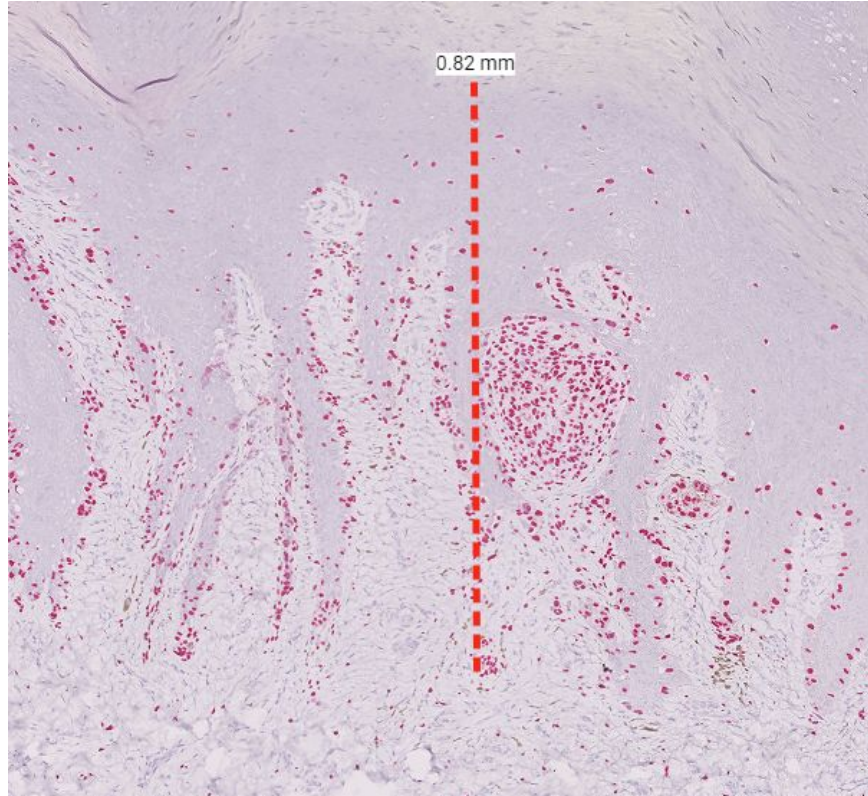


61 y/o female right thumbnail

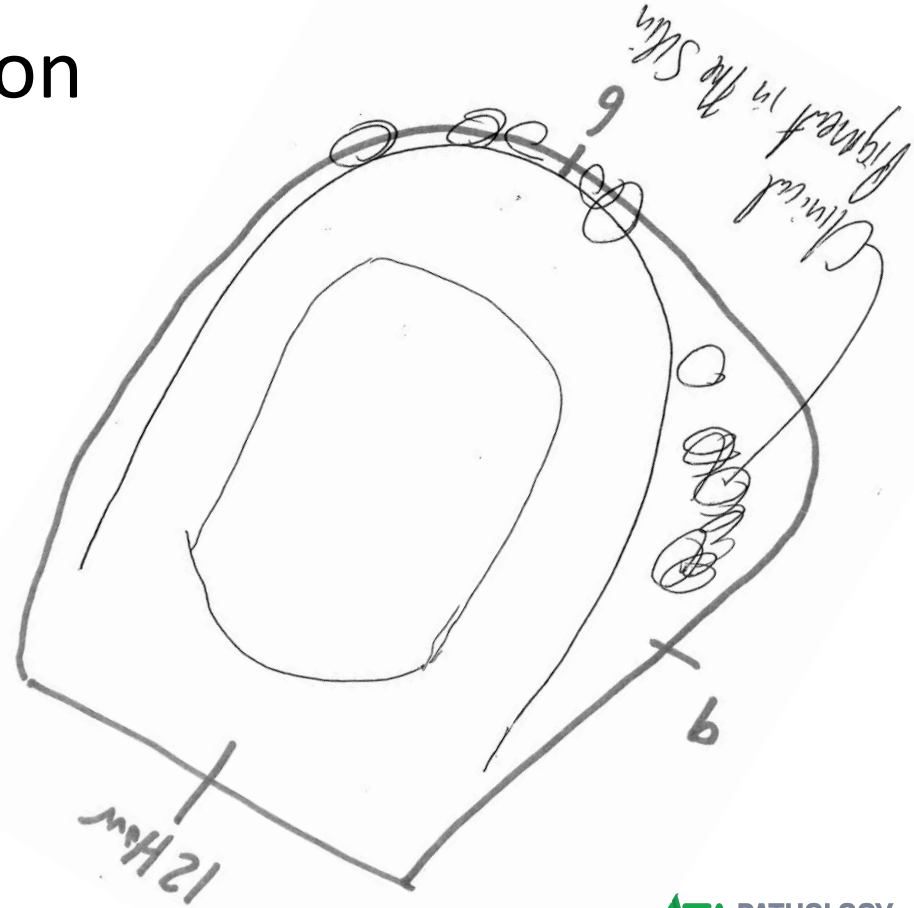


61 y/o female right thumbnail

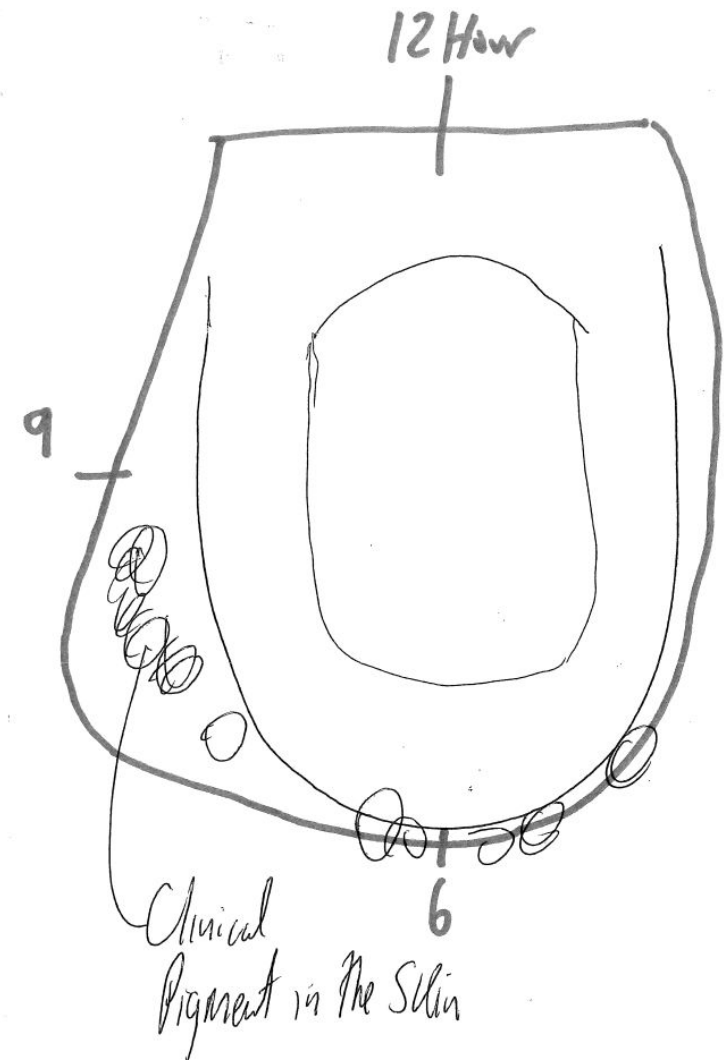
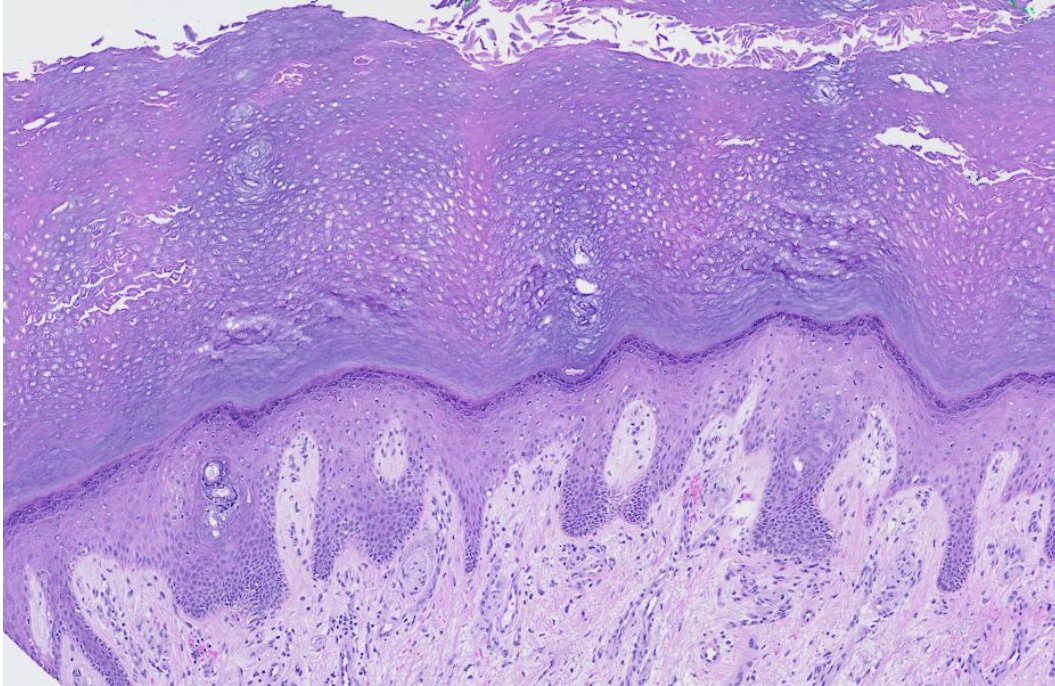
- Breslow 0.82mm
- Stage pT1a



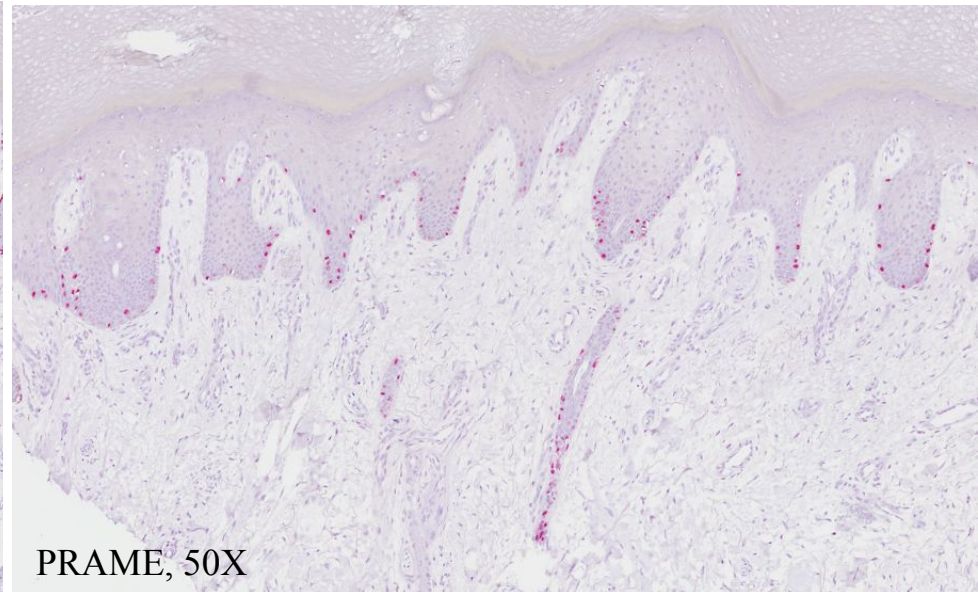
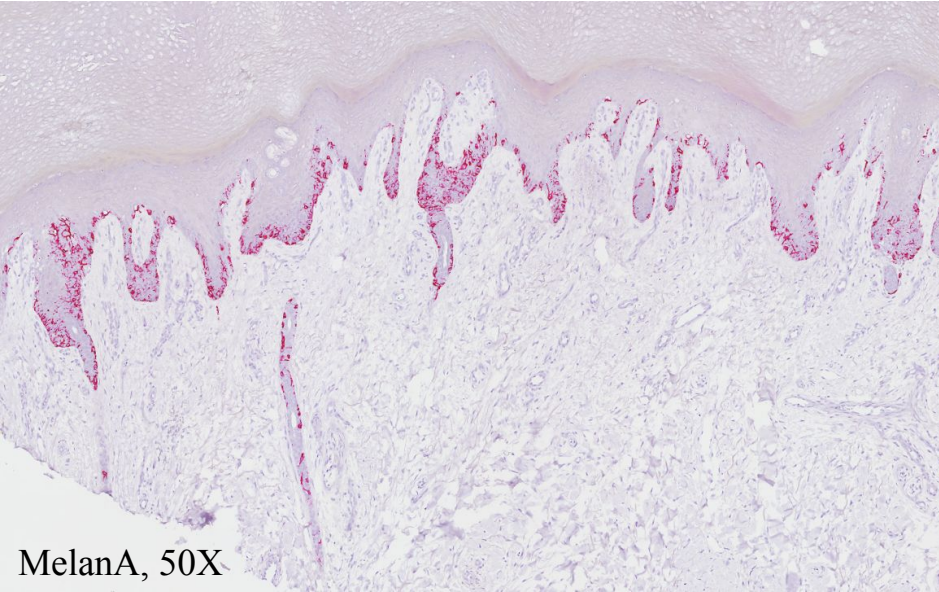
61 y/o female Re-Excision



61 y/o female Re-Excision



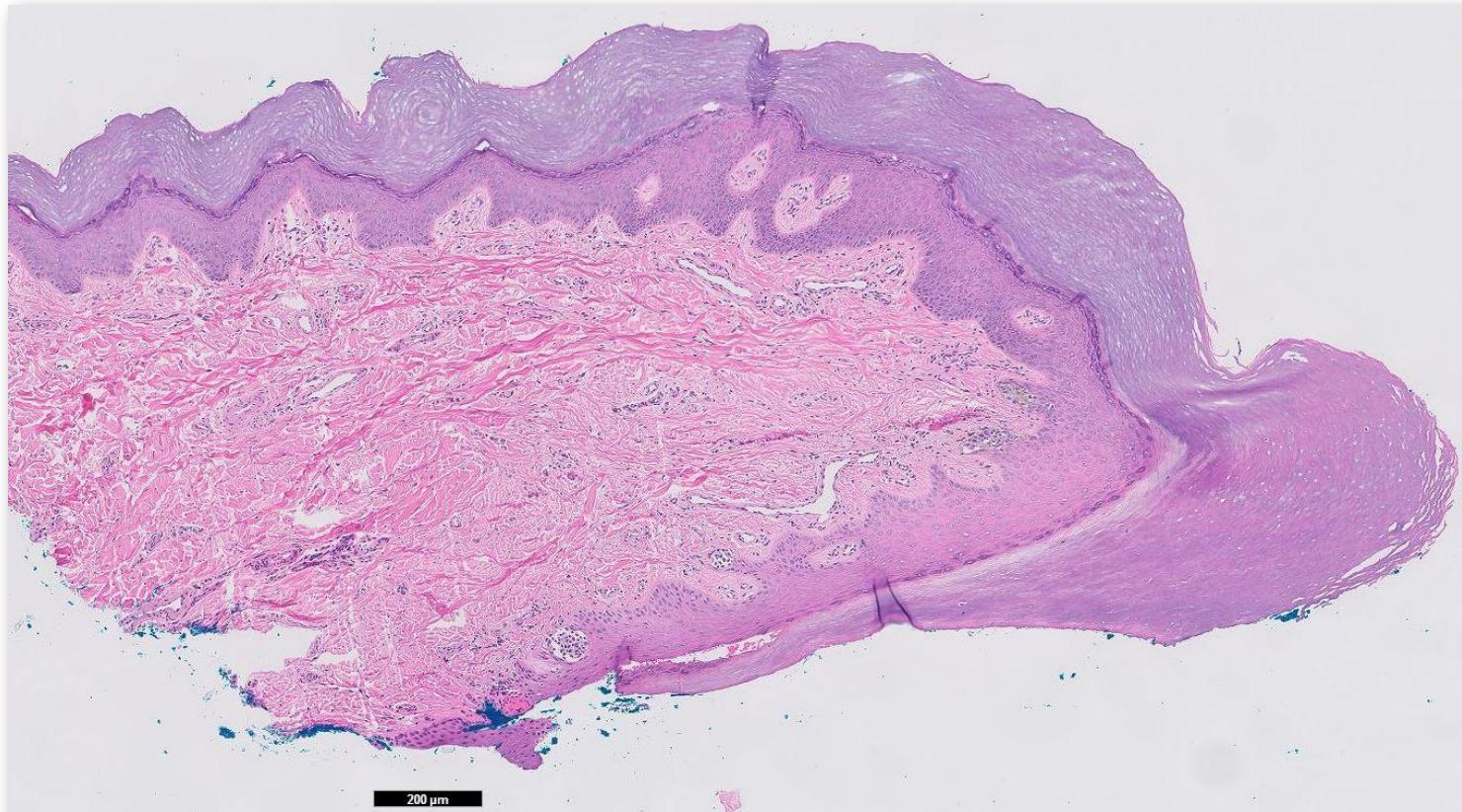
61 y/o female Re-Excision

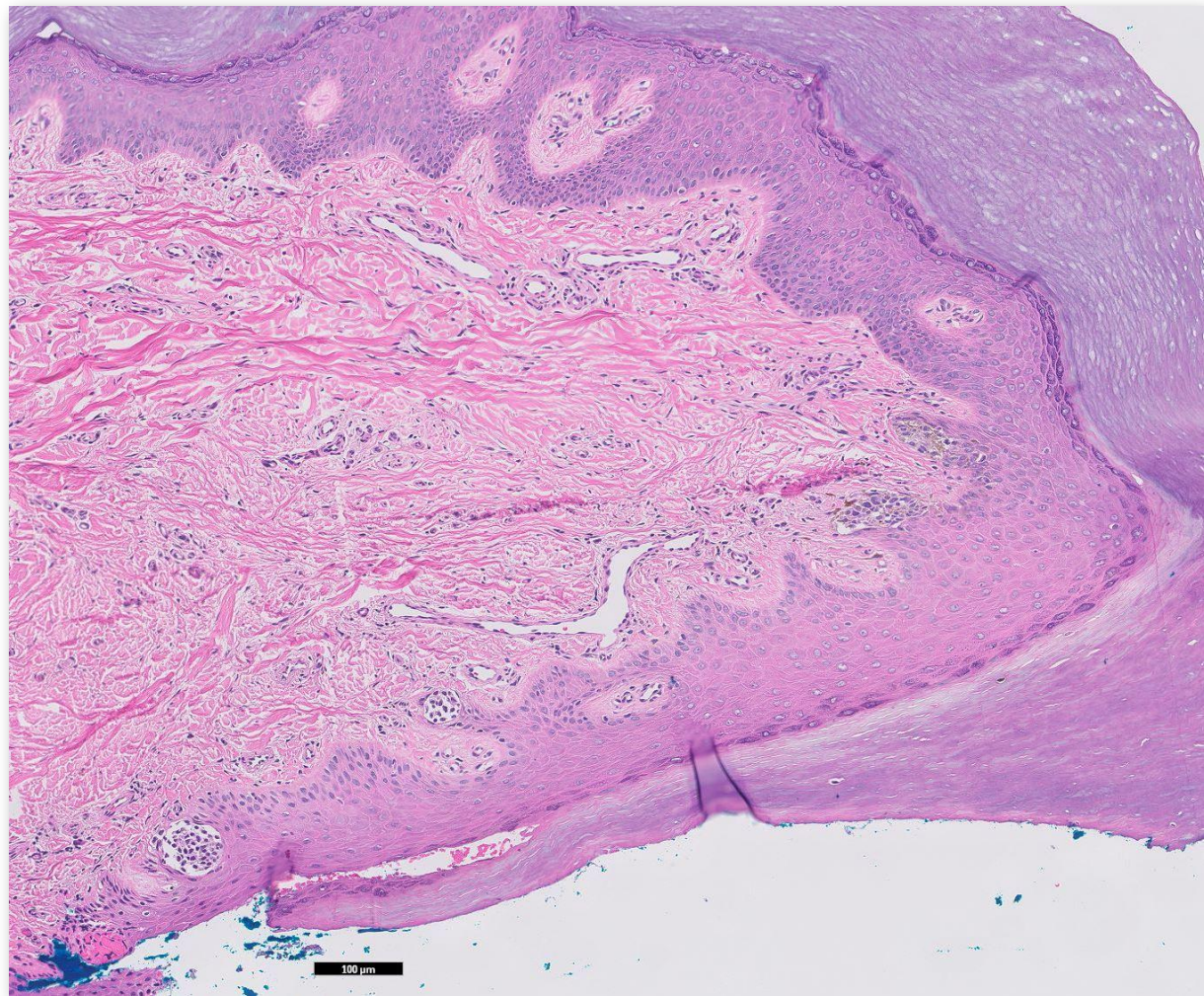


- 10 y/o male with pigmented nail of great toe. It appeared at age 3.

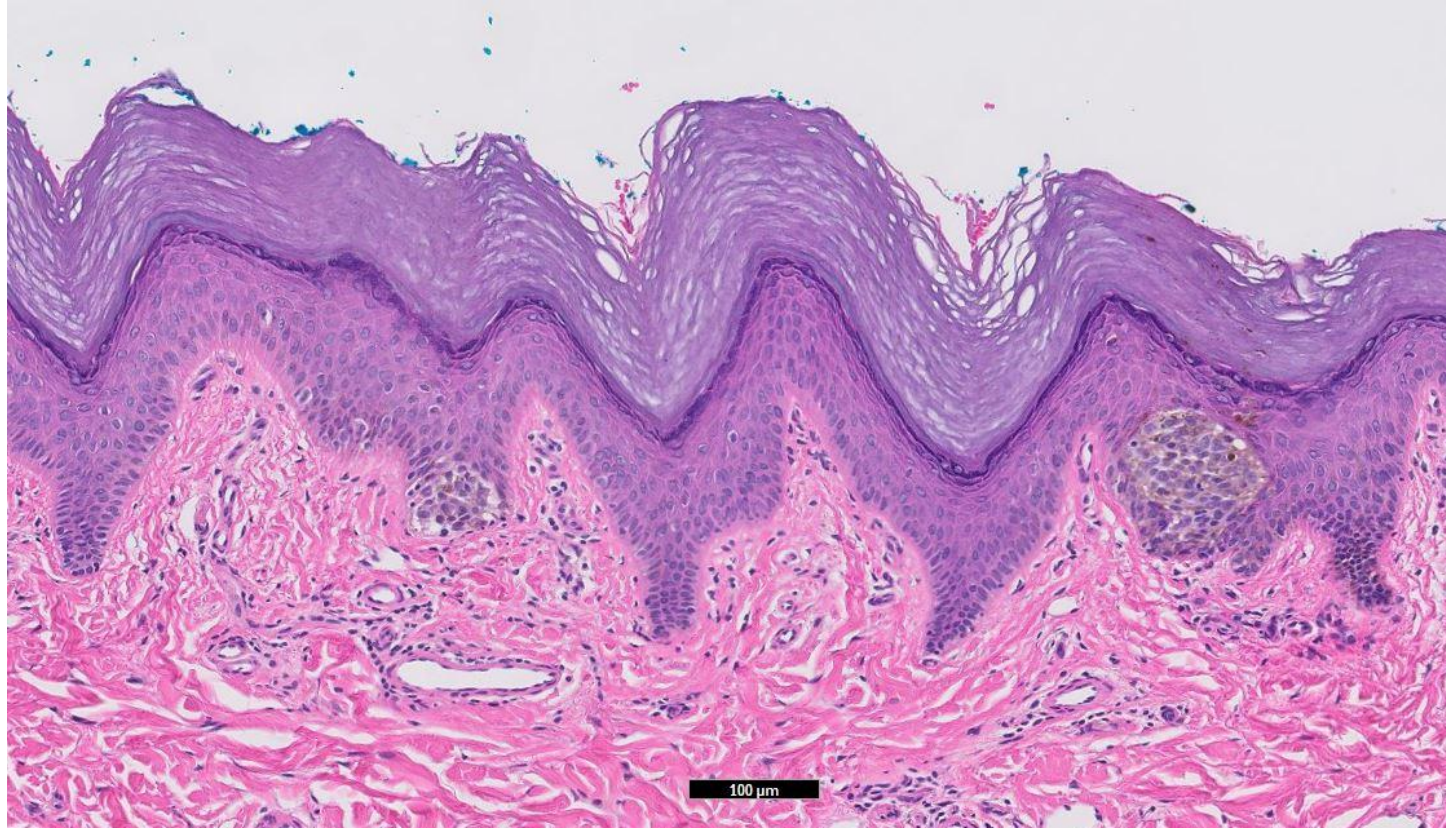


10 y/o boy

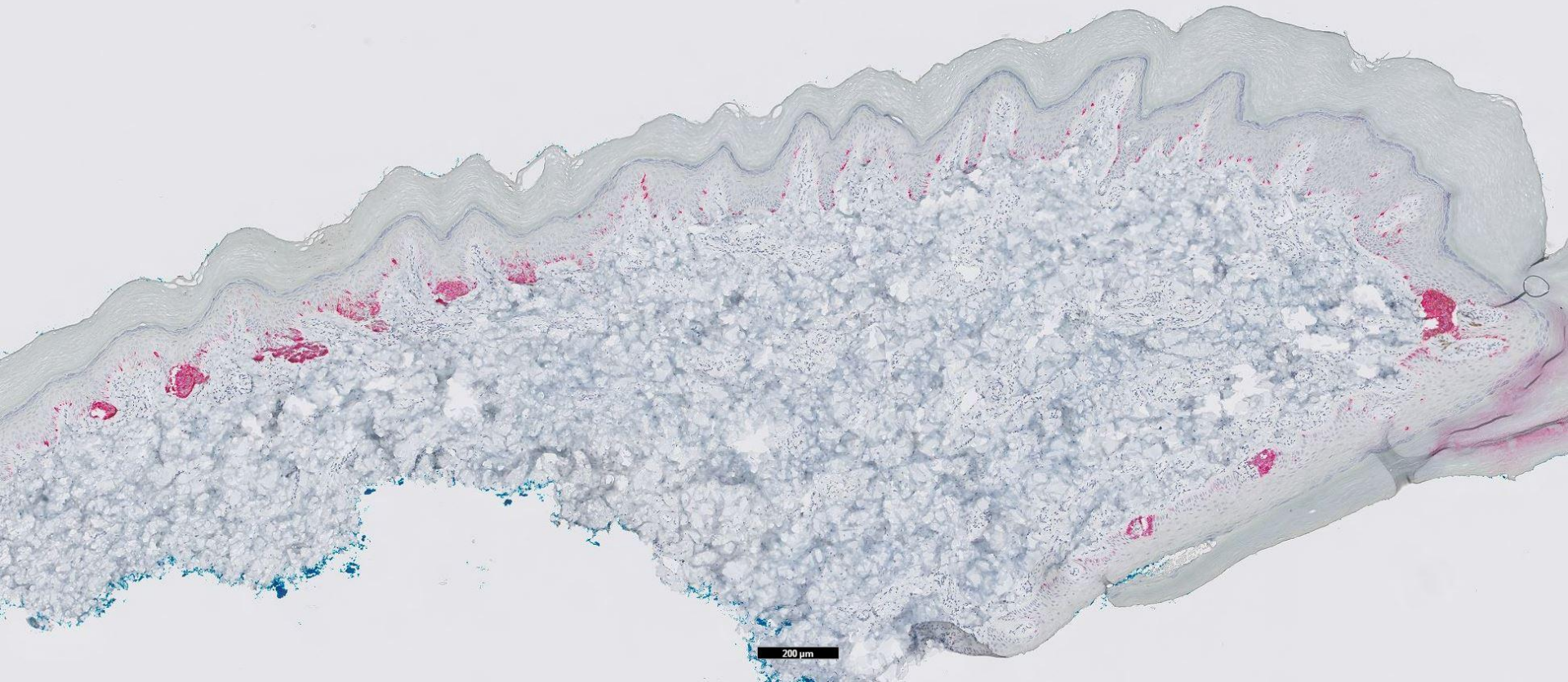




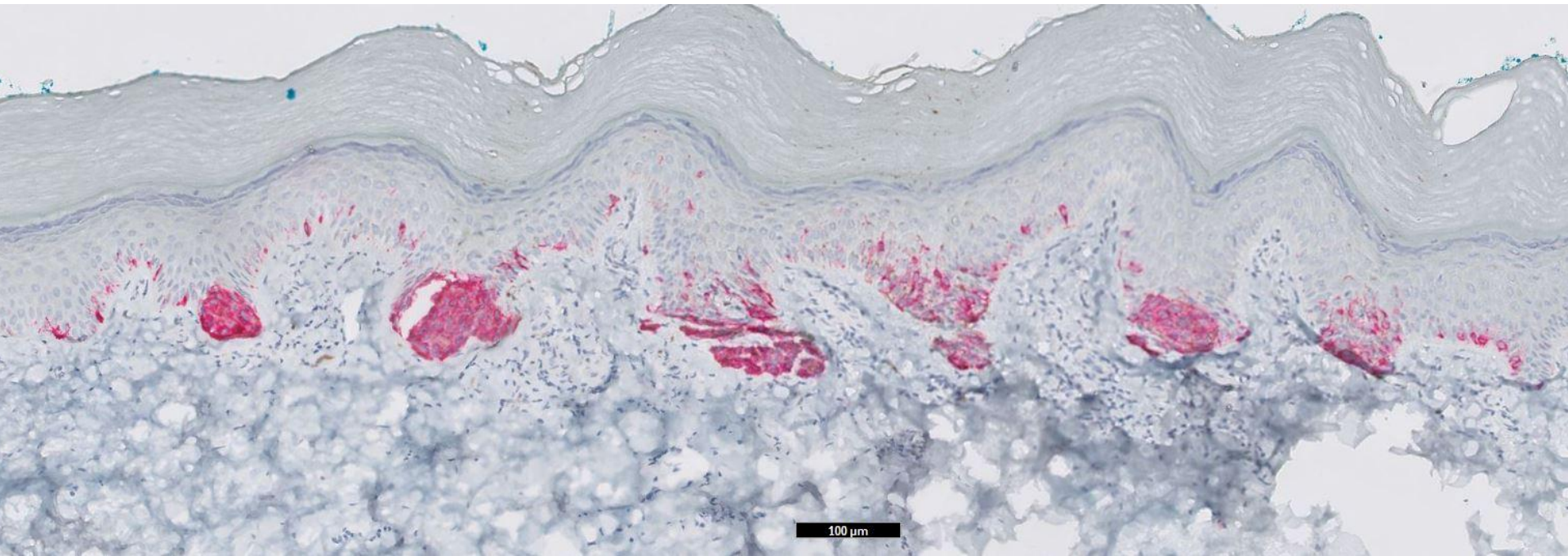
Proximal nail fold



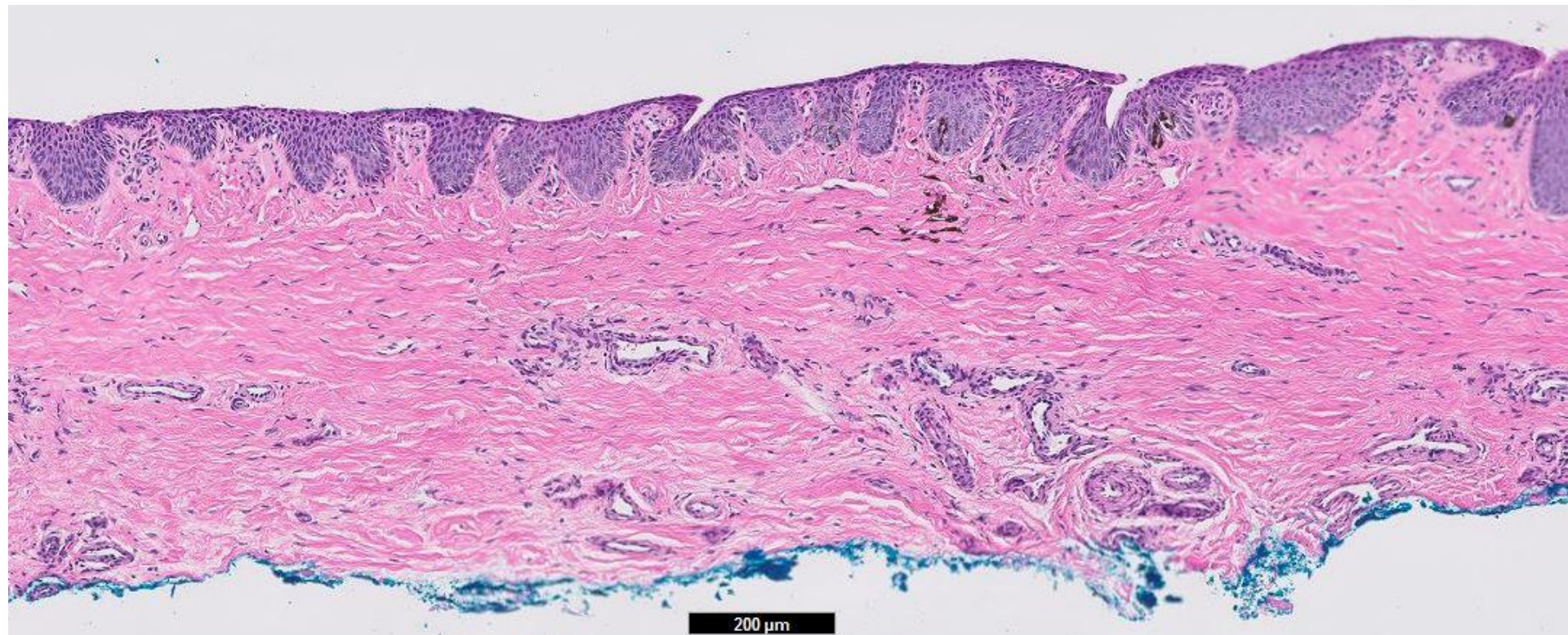
10 y/o



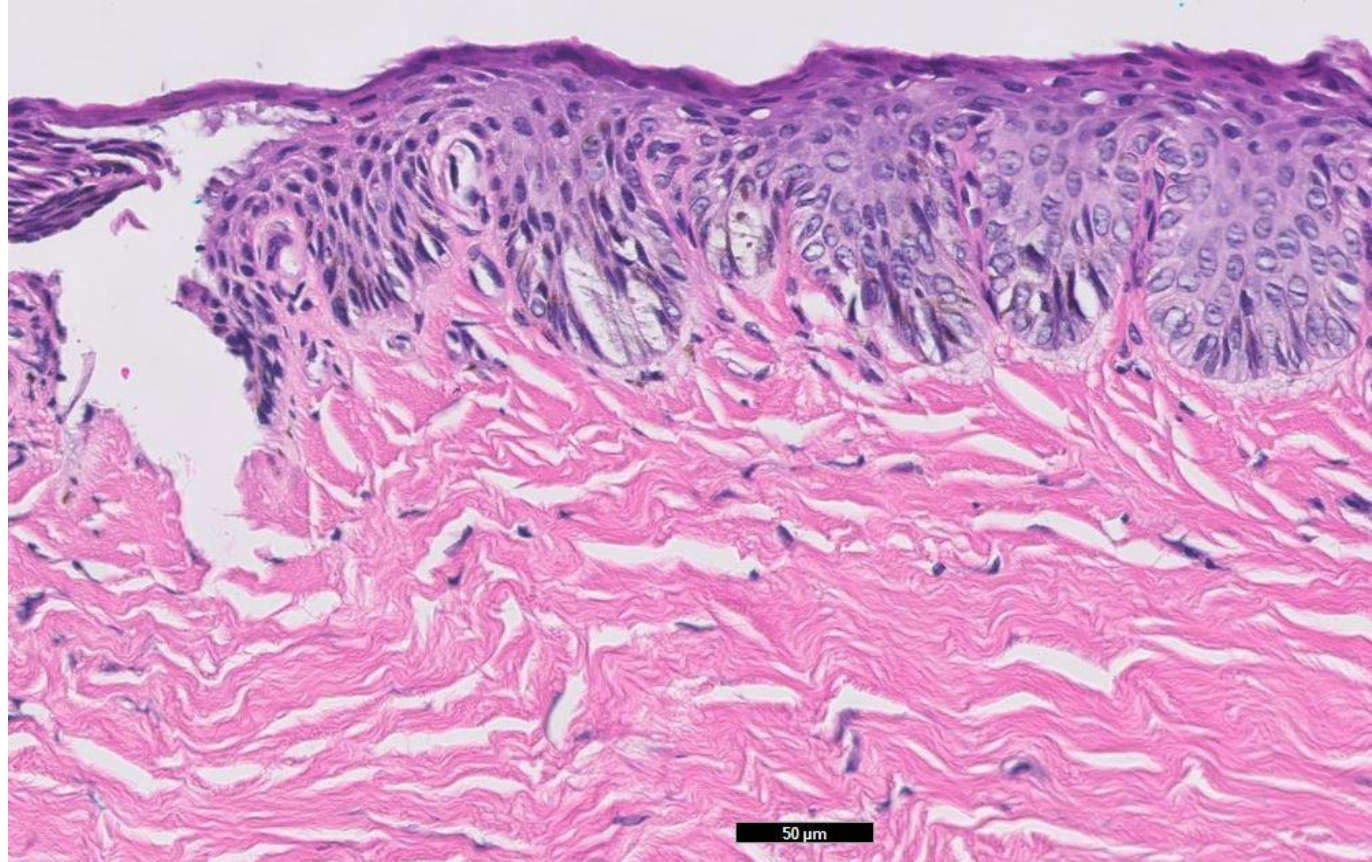
Proximal nail fold



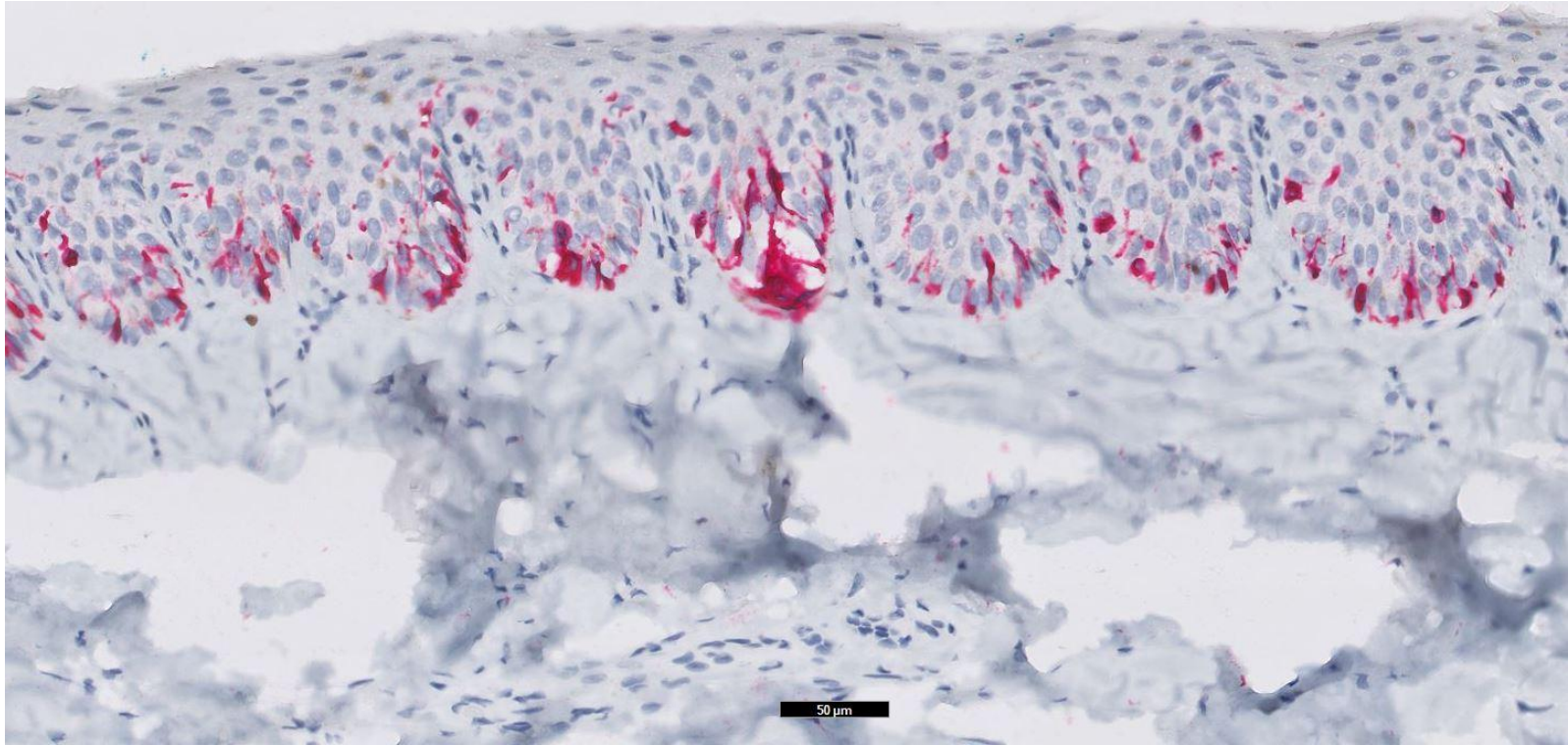
Nail bed/matrix



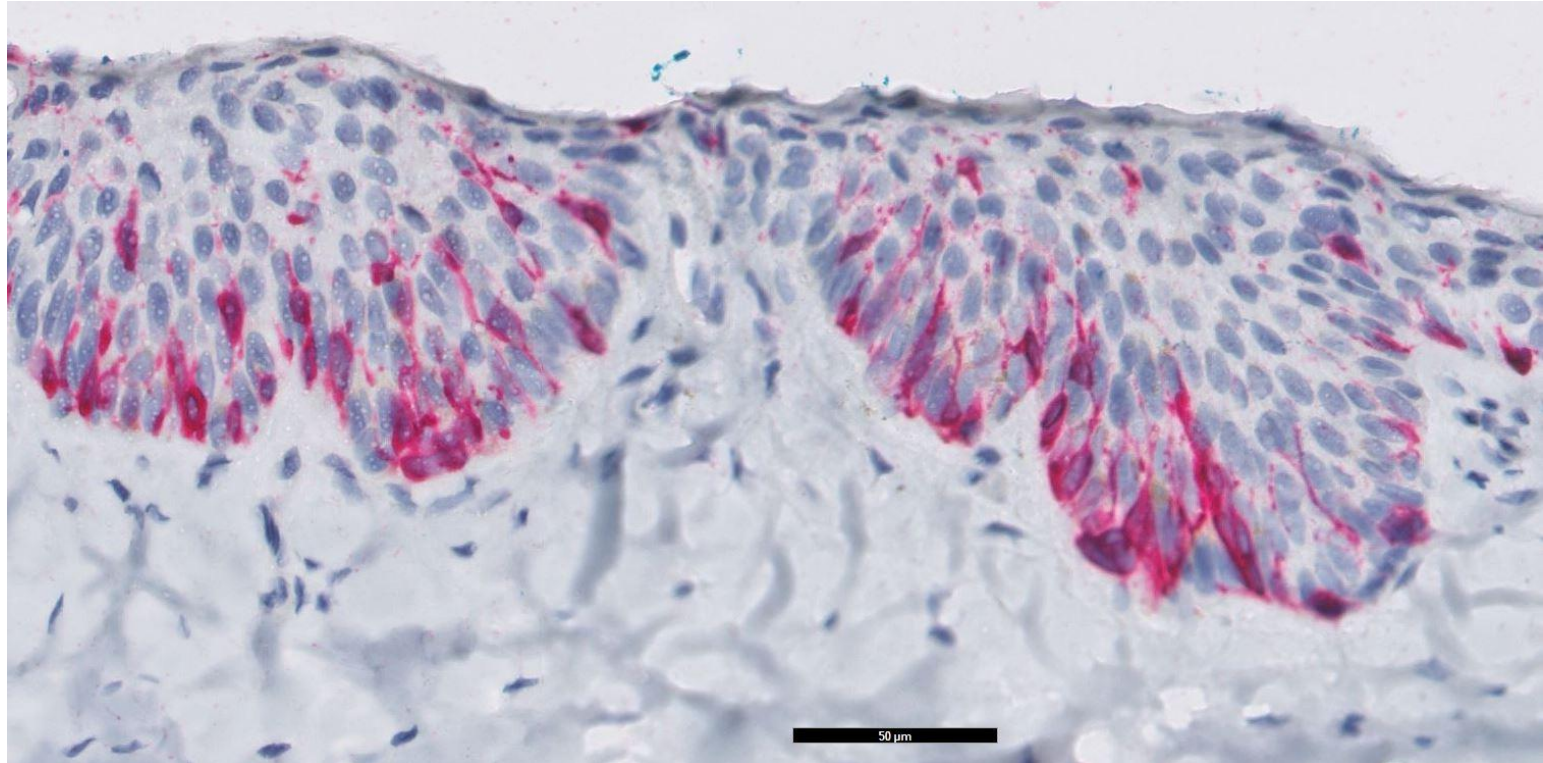
10 y/o nail bed/matrix



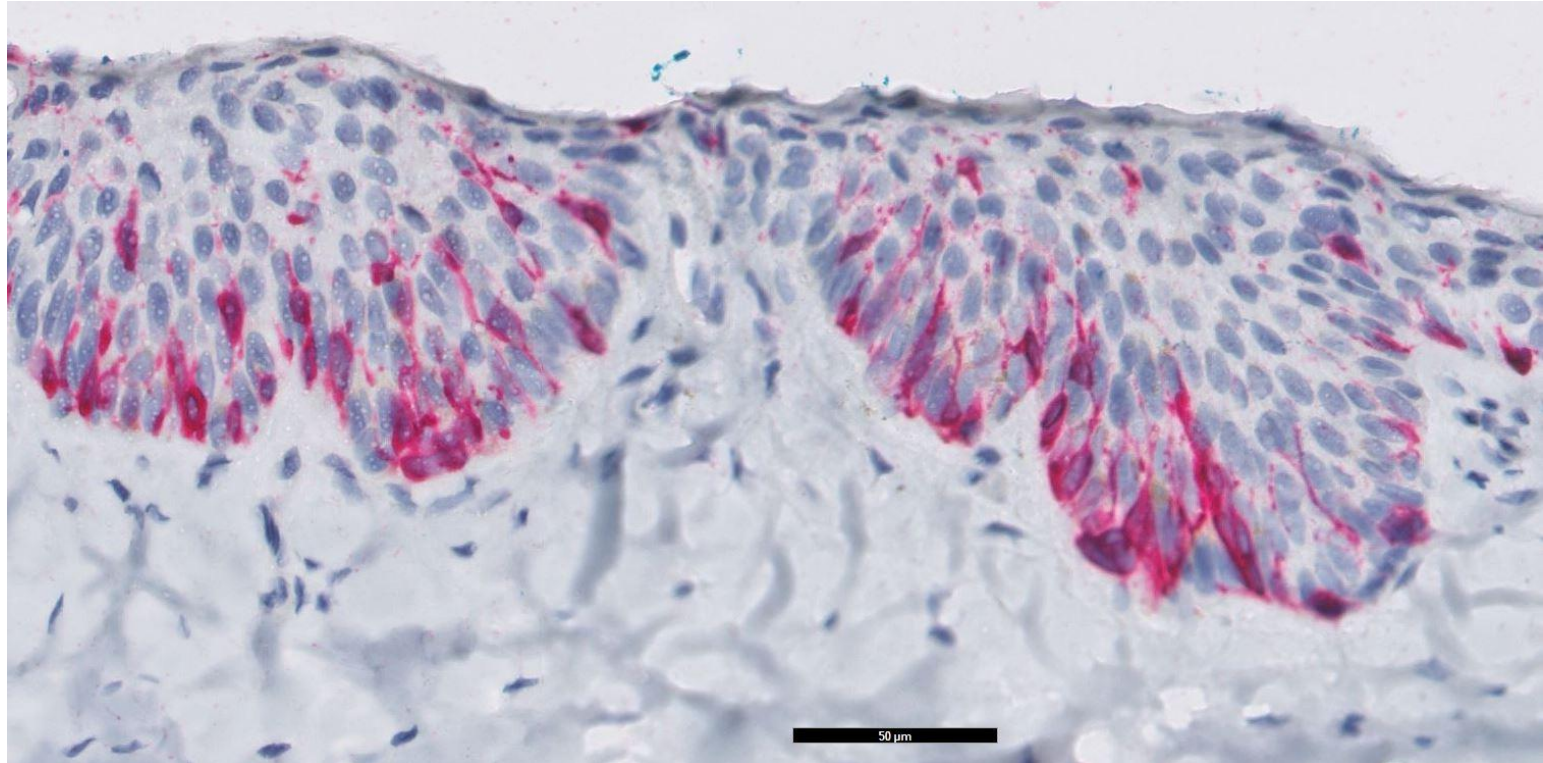
Nail bed/matrix



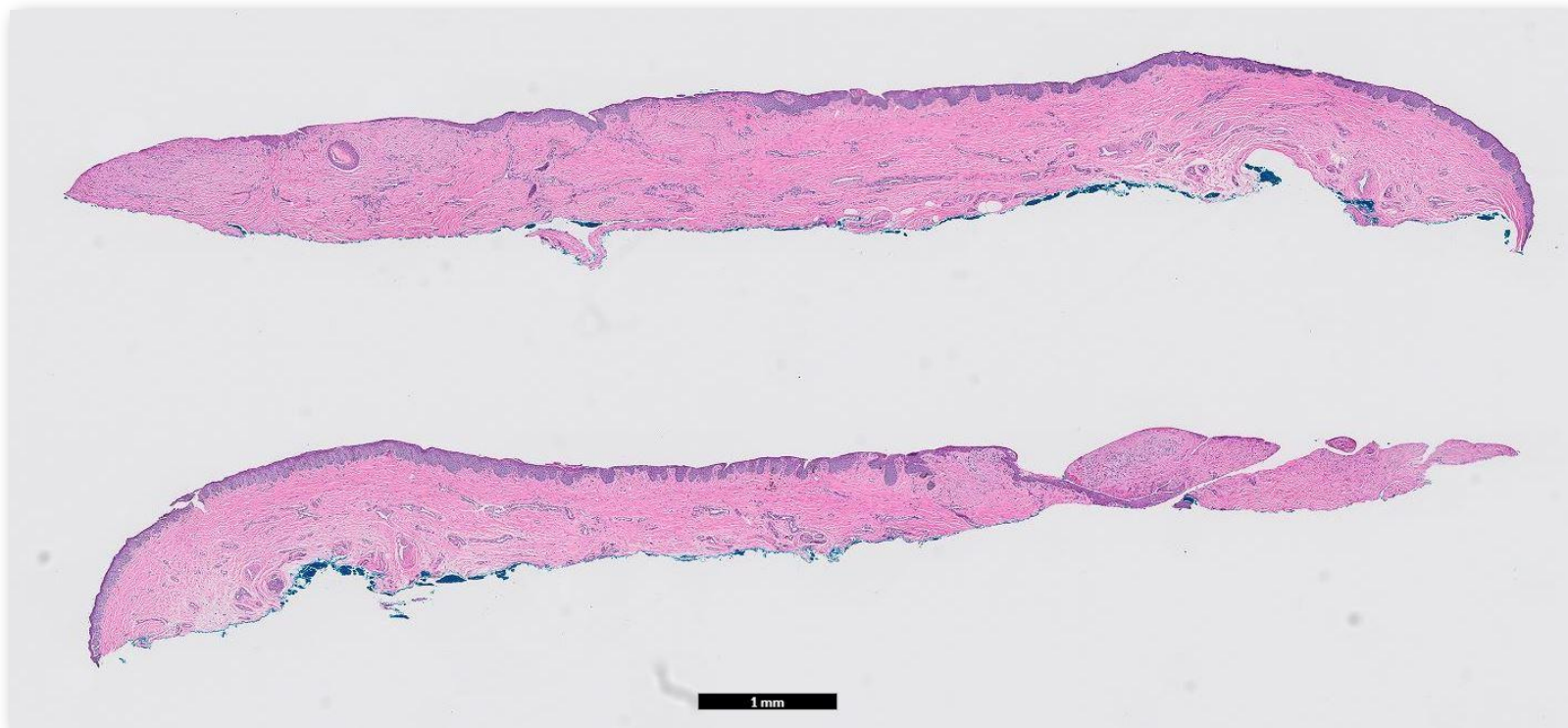
Nail bed/matrix



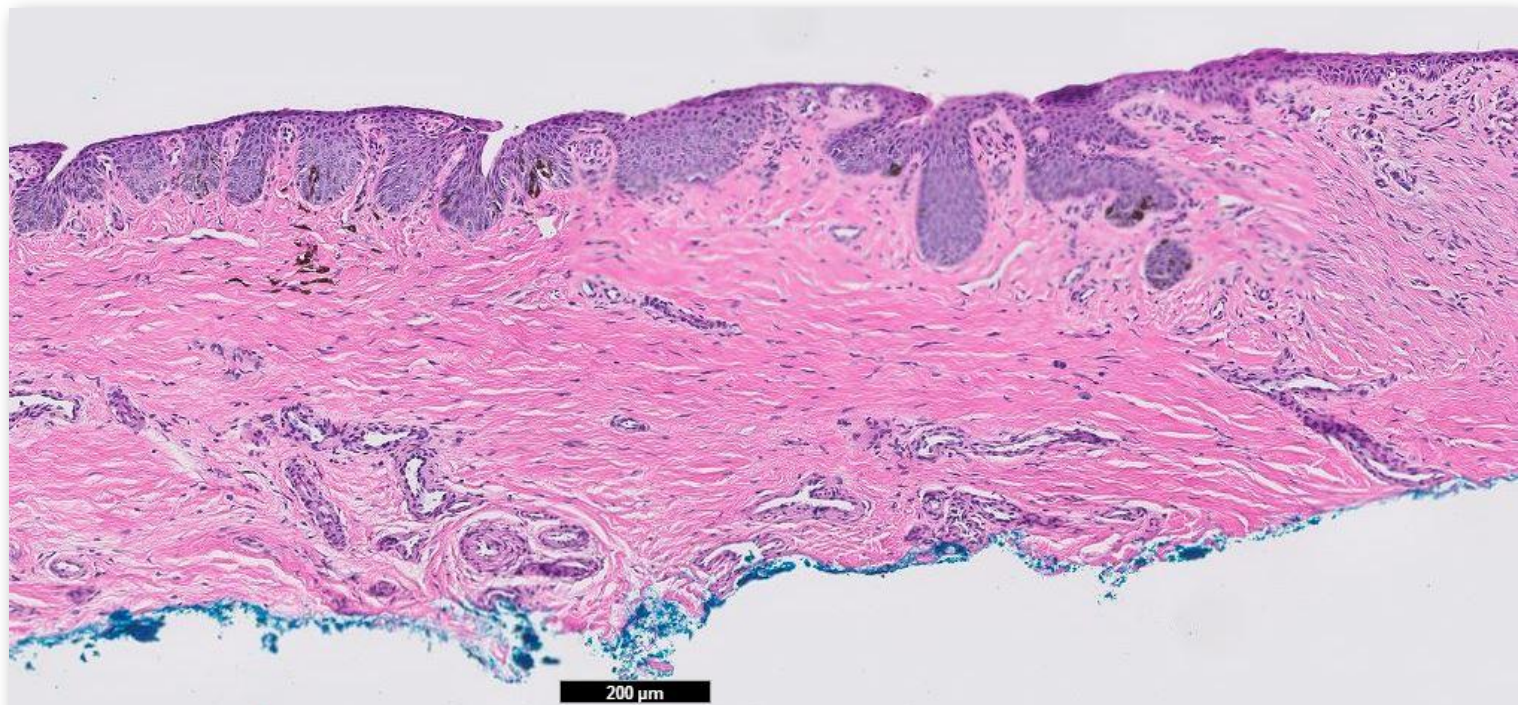
Benign nevus in 10 y/o



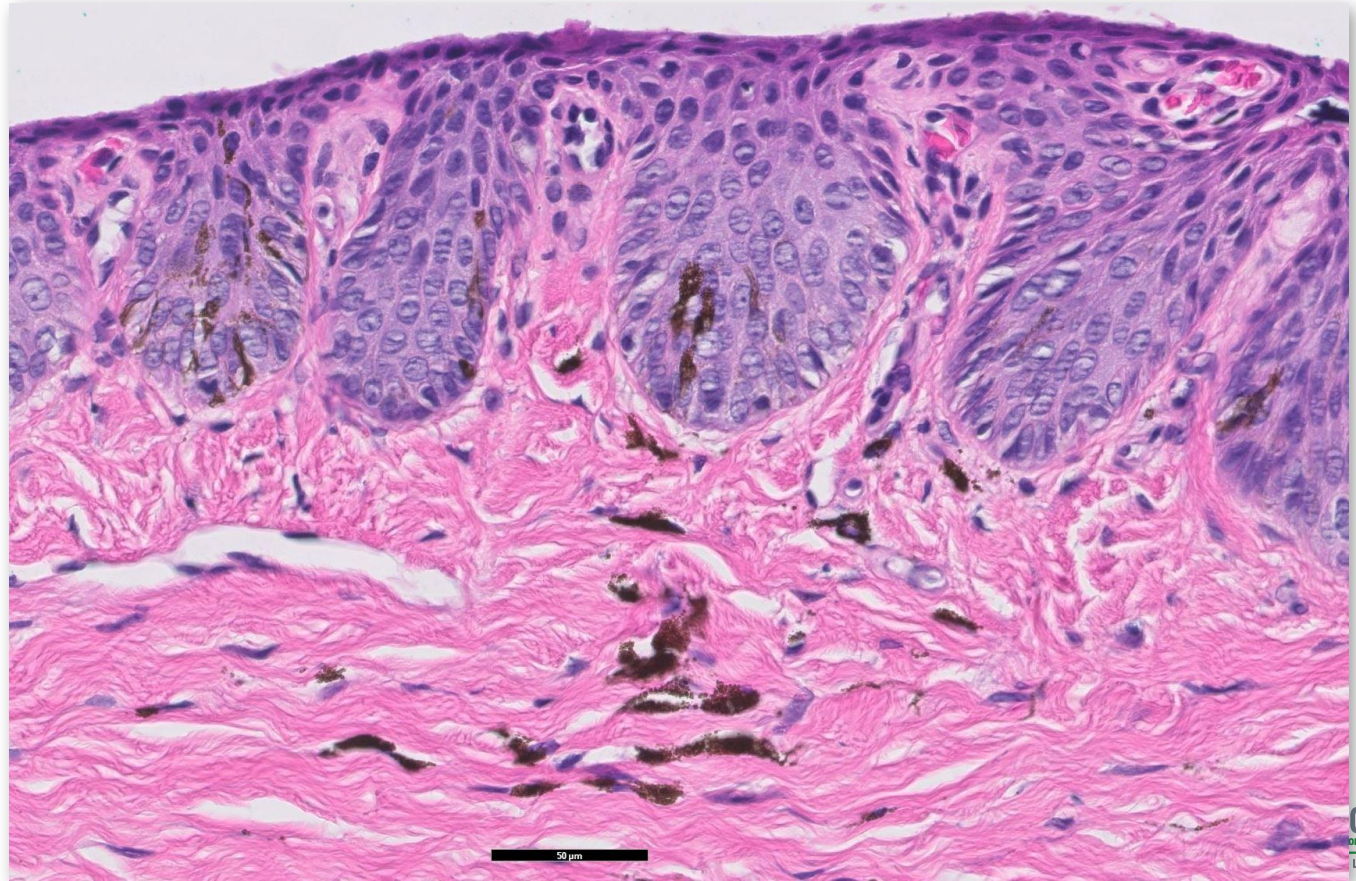
13 y/o male



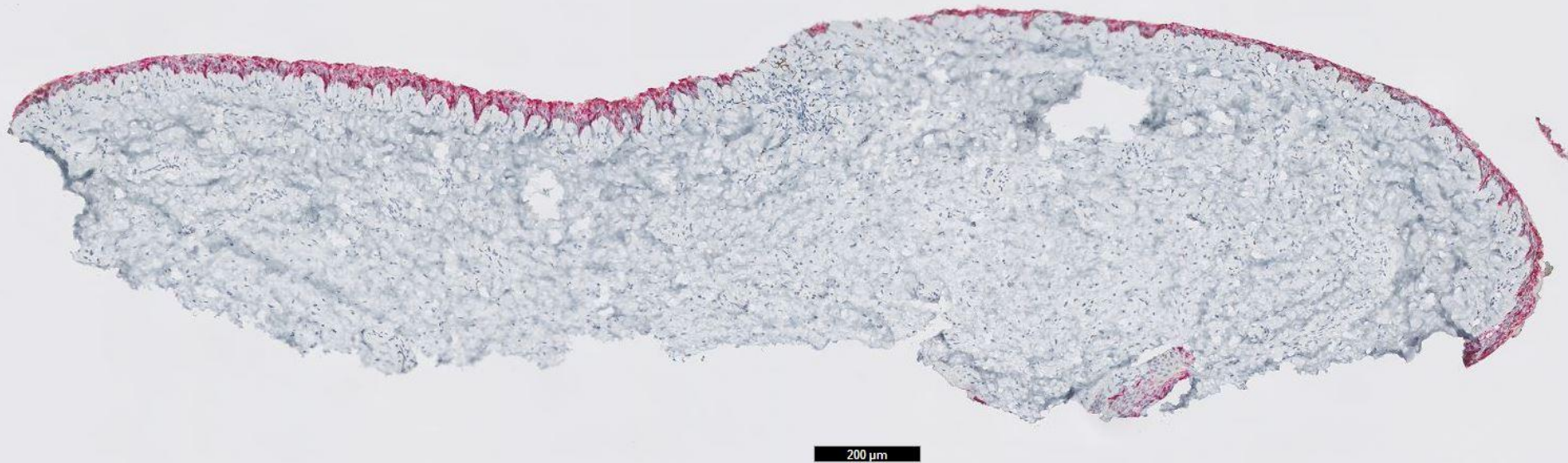
13 y/o male



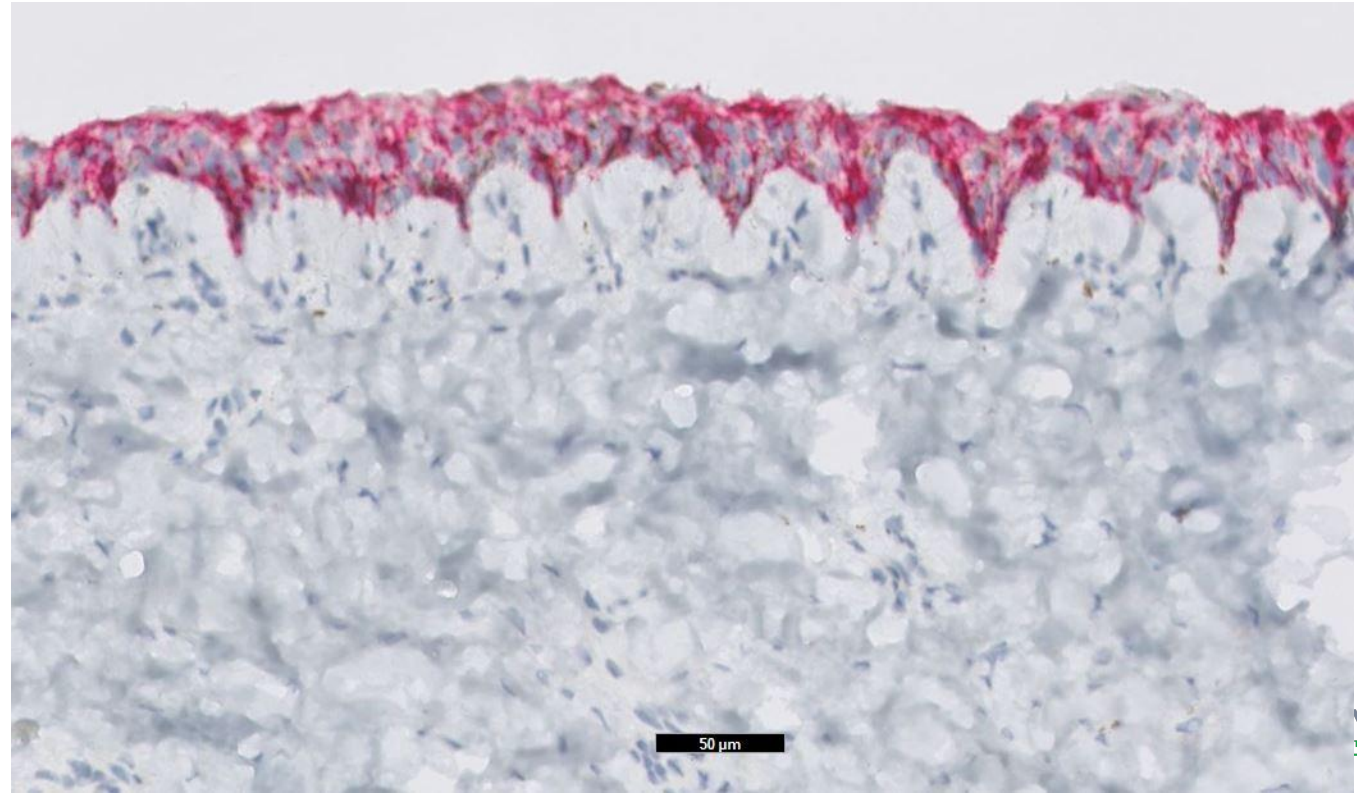
13 y/o male



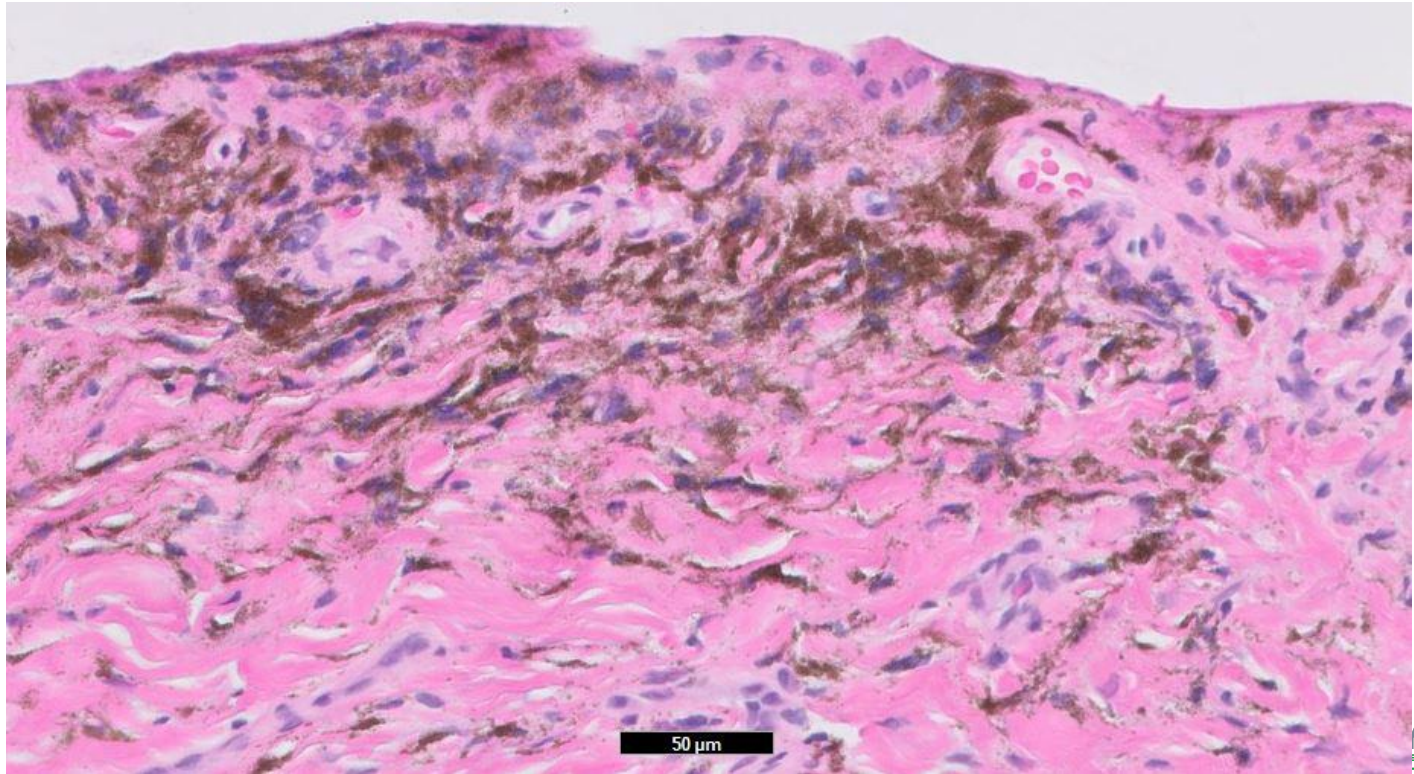
13 y/o nailbed



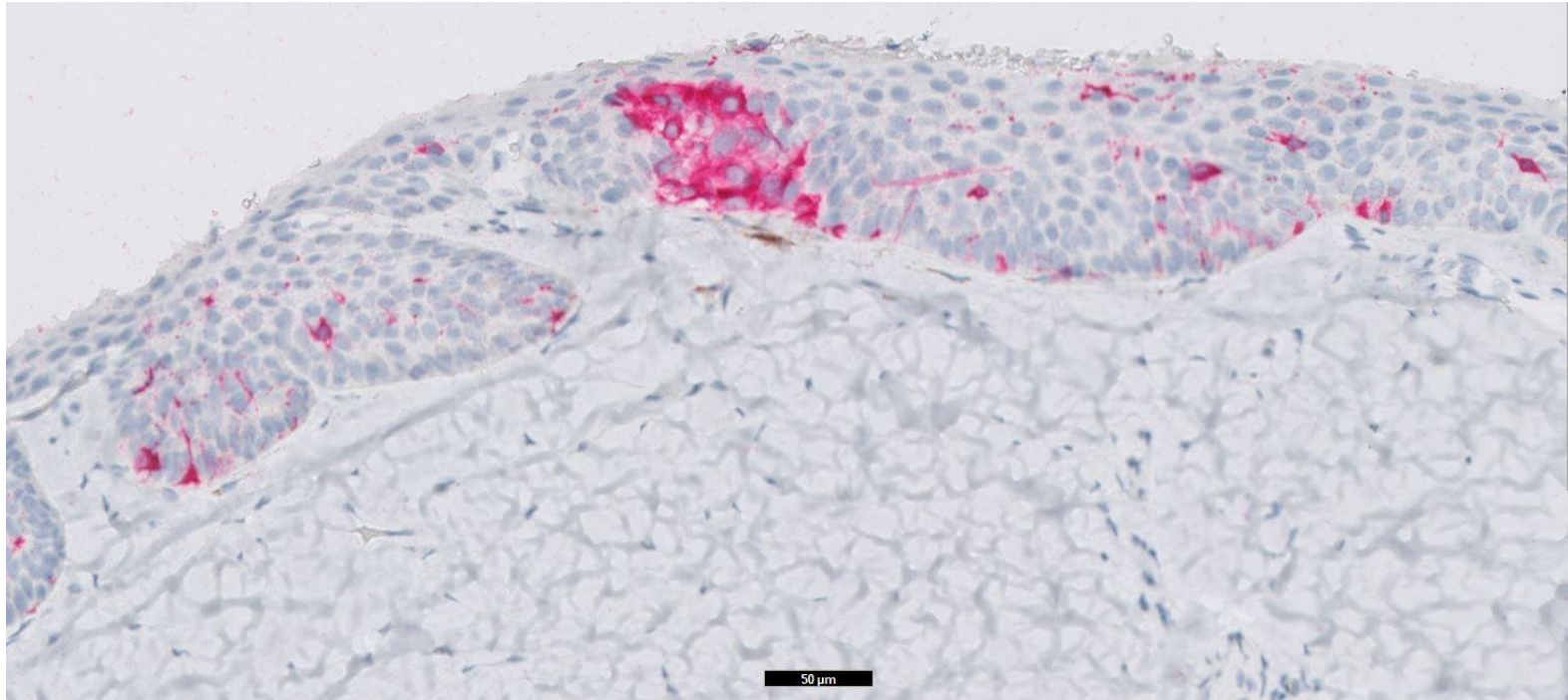
13 y/o nailed



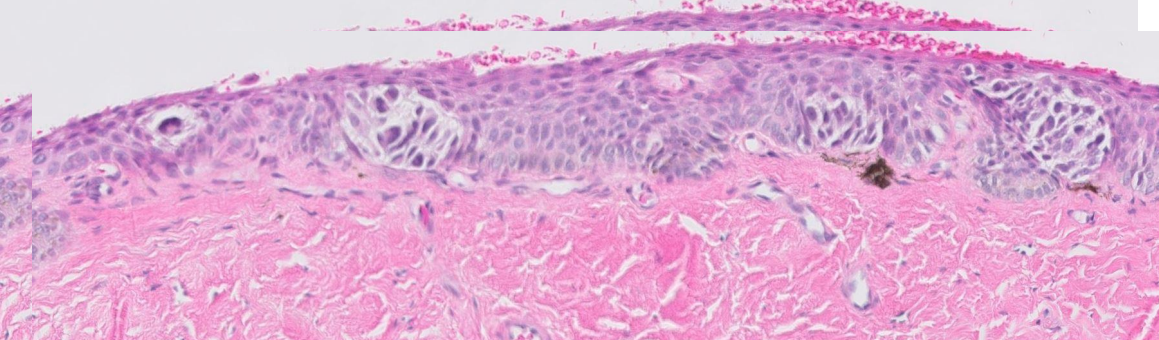
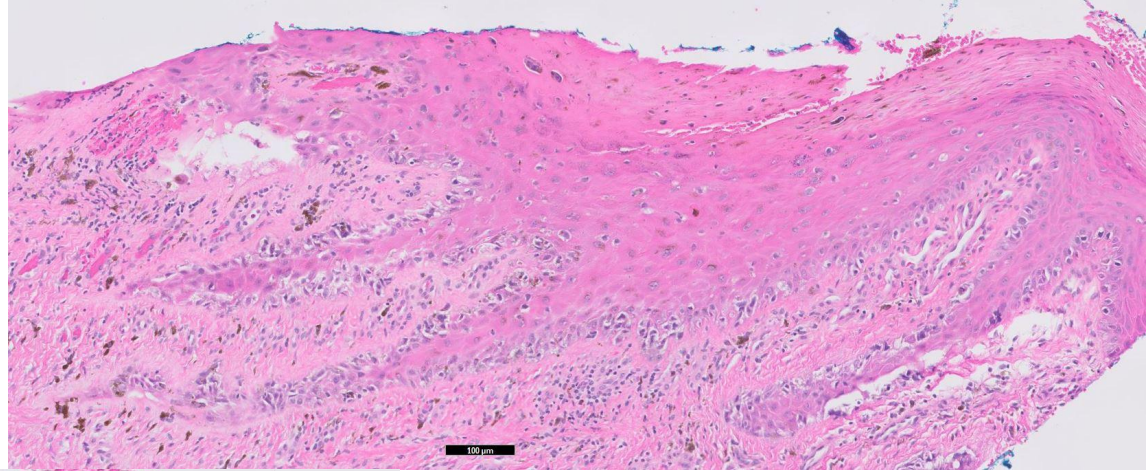
18 y/o



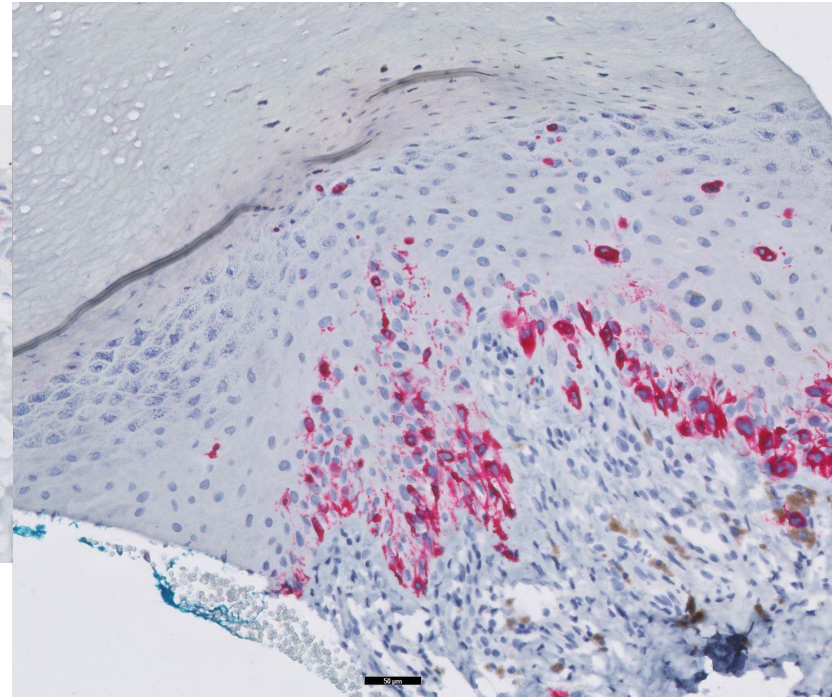
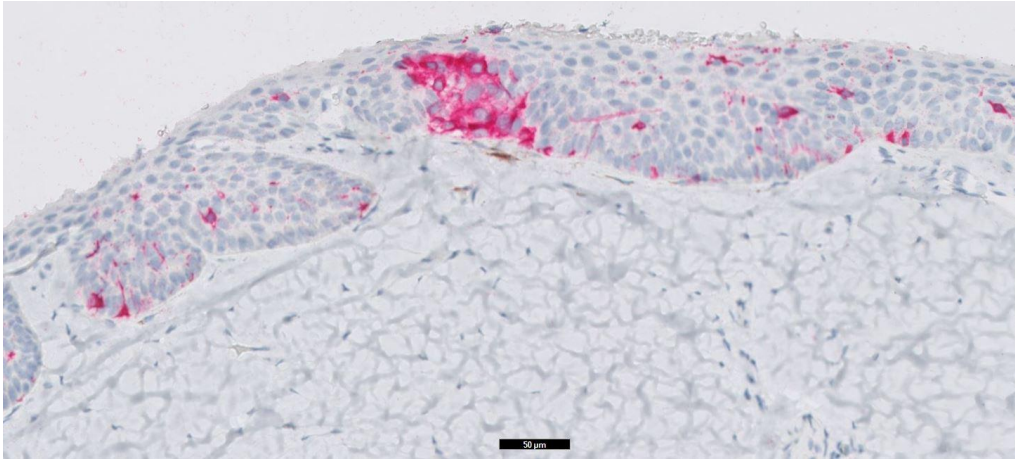
18 y/o nail



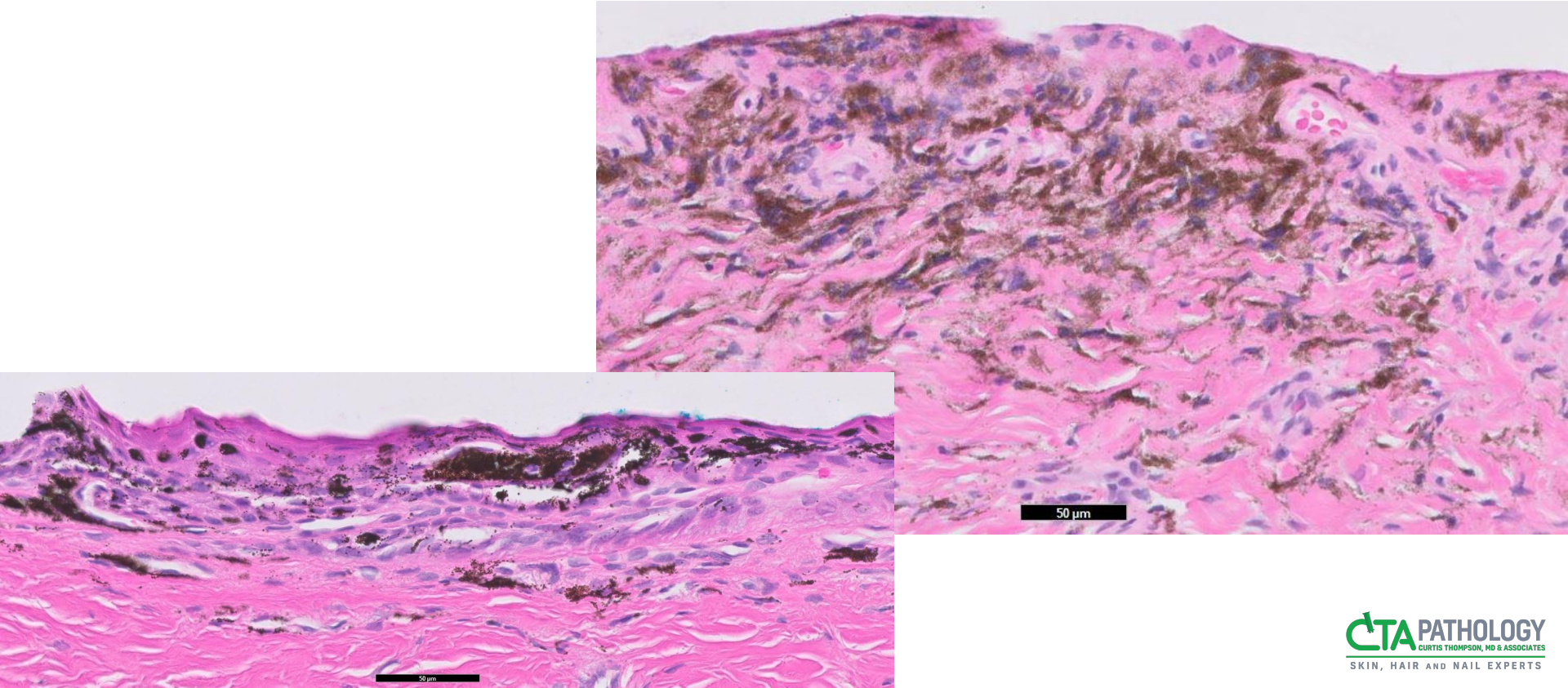
Benign? Atypical? Malignant?



Benign? Atypical? Malignant?



Benign? Atypical? Malignant?



Pigmented lesion in a child

- Often type III skin type or above (worry about acral lentiginous MM)
- Concern to parents—pressure to biopsy
- Biopsy shows large, single, Spitzoid melanocytes (?Atypia?)

Pigmented lesion in a child

- Few pediatric melanocytic tumors sampled—nail experts do not sample
- Traditional criteria for benign vs atypical vs malignant do not apply

Molecular markers—B9 vs malignant

Cyclin D1 and PRAME expression in distinguishing melanoma in situ from benign melanocytic proliferation of the nail unit

[Young Jae Kim](#), [Chang Jin Jung](#), [Hyoungmin Na](#), [Woo Jin Lee](#), [Sung Eun Chang](#), [Mi Woo Lee](#), [Chan-Sik Park](#),
[Youngkyoung Lim](#) ✉ & [Chong Hyun Won](#) ✉

[Diagnostic Pathology](#) **17**, Article number: 41 (2022) | [Cite this article](#)

Molecular markers—PRAME

- Benign--13 of 14 cases negative
- Melanoma In-situ—10 of 13 positive

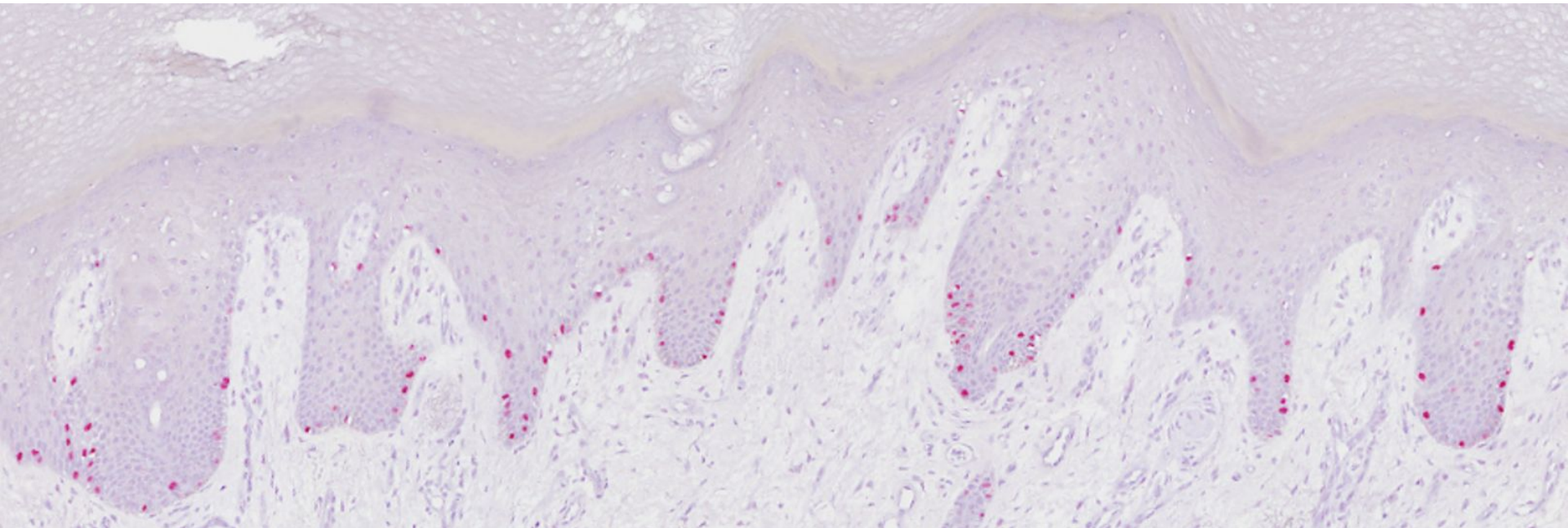
****Very strong PRAME staining most c/w MIS**

Cyclin D1 and PRAME expression in distinguishing melanoma in situ from benign melanocytic proliferation of the nail unit

[Young Jae Kim](#), [Chang Jin Jung](#), [Hyoungmin Na](#), [Woo Jin Lee](#), [Sung Eun Chang](#), [Mi Woo Lee](#), [Chan-Sik Park](#), [Youngkyoung Lim](#) [✉] & [Chong Hyun Won](#) [✉]

[Diagnostic Pathology](#) 17, Article number: 41 (2022) | [Cite this article](#)

Be careful with PRAME



Thanks!

curtis@ctapathology.com

