

Una iniciativa de:



ACADEMIA ESPAÑOLA
DE DERMATOLOGÍA
Y VENEREOLOGÍA



FUNDACIÓN
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PIEL SANA
ACADEMIA ESPAÑOLA
DE DERMATOLOGÍA
Y VENEREOLOGÍA

Con el patrocinio de:



AEDV 35^a
edición

HIGHLIGHTS

Viena

30sep - 3oct
2026

AEDV 35ª edición

HIGHLIGHTS

Viena
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DERMATOPATOLOGÍA

Las cosas pequeñas siguen teniendo una gran importancia.

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Las cosas pequeñas siguen teniendo una gran importancia.

NEREA INFANTE GONZALO

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30sep - 3oct
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**NO TENGO CONFLICTOS
DE INTERÉS**

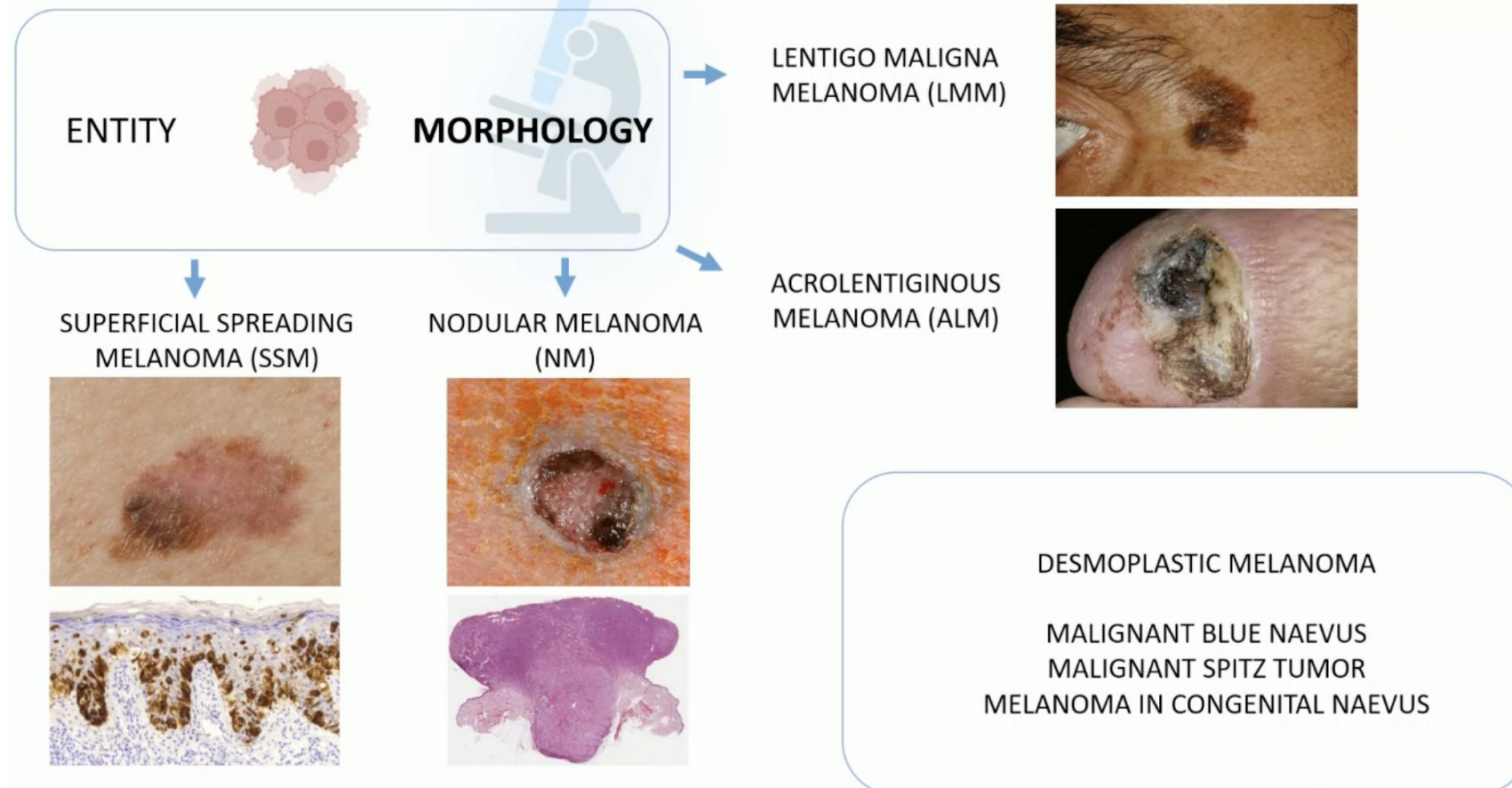
Una iniciativa de:



Con el patrocinio de:



MELANOMA SUBTYPES/GROWTH PHENOTYPES



MELANOMA SUBTYPES WHO 4th – 5th

NAEVUS	INTERMEDIATE	PATHWAY	MM ENTITY	MOLECULAR
	Melanoma in BAP1-inactivated melanocytoma Melanoma in WNT-activated melanocytoma Melanoma in PEM	I. Low-CSD	Superficial spreading melanoma ; low-CSD nodular melanoma Melanoma in BAP1-inactivated melanocytoma Melanoma in WNT-activated melanocytoma Melanoma in PEM	BRAF V600, NRAS
?		II. High-CSD	Lentigo maligna melanoma ; high-CSD melanoma; high-CSD nodular melanoma	NF1, NRAS, non-V600 BRAF
?		III. Desmoplastic	Desmoplastic melanoma	NF1, MAPK-pathway alterations
	Spitz melanocytoma	IV. Spitz	Spitz melanoma	HRAS; ALK, ROS1, NTRK1/3, RET, MET, BRAF fusions
?		V. Acral	Acral melanoma	KIT, NRAS, BRAF; CCND1/TERT amplifications; other CNAs
	Congenital-nevus associated melanocytoma	VII. Congenital nevus-associated	Melanoma arising in congenital melanocytic nevus	NRAS; BRAF
	Cellular blue melanocytoma	VIII. Blue nevus-associated	Melanoma arising in blue nevus	GNAQ, GNA11, CYSLTR2, PLCB4; BAP1, SF3B1, EIF1AX

TISSUE FACTORS

→ THICKNESS

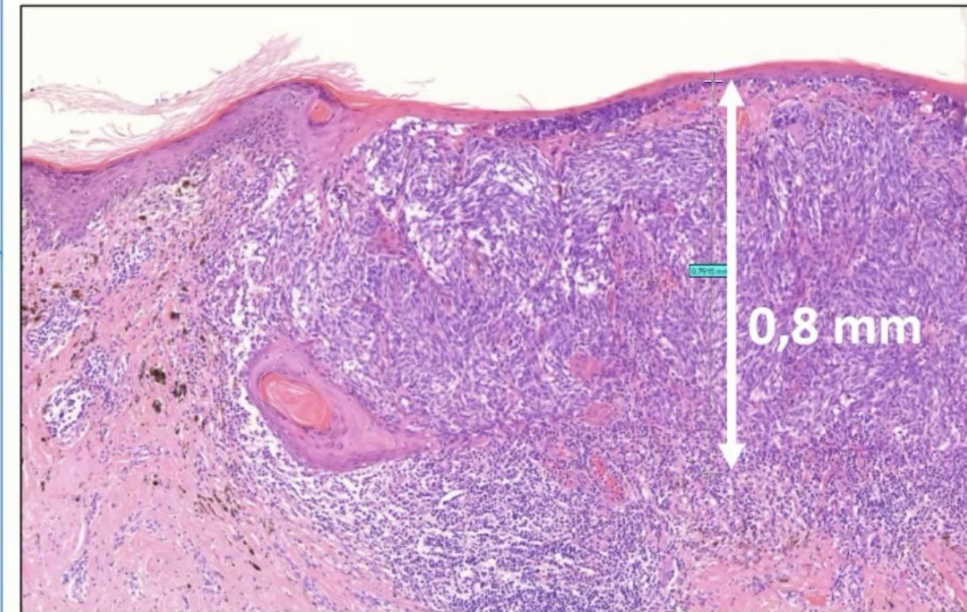
- BRESLOW (nearest 0.1 millimetres)
- CLARK LEVELS (II-V)
- pT (AJCC8, TNM9)

→ cSTAGE

Primary Tumor (T)

- TX** Primary tumor cannot be assessed (for example, curettaged or severely regressed melanoma)
- T0** No evidence of primary tumor
- Tis** Melanoma in situ
- T1** Melanomas 1.0 mm or less in thickness
- T2** Melanomas 1.1 - 2.0 mm
- T3** Melanomas 2.1 - 4.0 mm
- T4** Melanomas more than 4.0 mm

ANATOMIC STAGE/PROGNOSTIC GROUPS					
Clinical Staging ³			Pathologic Staging ⁴		
Stage 0	Tis	N0 M0	0	Tis	N0 M0
Stage IA	T1a	N0 M0	IA	T1a	N0 M0
Stage IB	T1b	...	IB	T1b	...
	T2a	...		T2a	...
Stage IIA	T2b	N0 M0	IIA	T2b	M0 M0
	T3a	...		T2a	...
Stage IIB	T3b	...	IIB	T3b	...
	T4a	...		T4a	...
Stage IIC	T4b	...	IIC	T4b	...
Stage III	Any T	≥N1 M0	IIIA	T1-2a	N1a M0
	...	...		T1-2a	N2a
	...	...	IIB	T0	N1b-c M0
	...	...		T1-2a	N1b-c
	...	...		T1-2a	N2b
	...	...		T2b-3a	N1a-2b
	...	...	IIC	T0	N2b-c M0
	...	...		T0	N3b-c
	...	...		T1a-3a	N2c-3c
	...	...		T3b-4a	Any N
	...	...		T4b	N1a-2c
	...	...	IIID	T4b	N3a-c M0
Stage IV	Any N	Any N M1	IV	Any T	Any N M1



Melanoma Staging: Evidence-Based Changes in the American Joint Committee on Cancer Eighth Edition Cancer Staging Manual

Jeffrey E. Gershenwald, MD^{1,2}; Richard A. Scolyer, MD^{3,4}; Kenneth R. Hess, PhD⁵; Vernon K. Sondak, MD⁶; Georgina V. Long, MBBS, PhD⁷; Merrick I. Ross, MD⁸; Alexander I. Lazar, MD, PhD⁹; Mark B. Faries, MD¹⁰; John M. Kirkwood, MD¹¹; Grant A. McArthur, MD, BS, PhD¹²; Lauren E. Hayda, PhD¹³; Alexander M. M. Eggermont, MD, PhD¹⁴; Keith I. Pahor, MD¹⁵; Charles M. Balch, MD¹⁶; John F. Thompson, MD¹⁷; for members of the American Joint Committee on Cancer Melanoma Expert Panel and the International Melanoma Database and Discovery Platform



Key Changes in the AJCC Eighth Edition Melanoma Staging System

TISSUE FACTORS

→ THICKNESS

→ BRESLOW THICKNESS

pT1a <0,8 mm (0,75-0,84) 0,8<pT1b ≤1 mm

2007

Population-Based 20-Year Survival Among People Diagnosed With Thin Melanomas in Queensland, Australia

Adèle C. Green, Peter Baade, Michael Coory, Joanne F. Aitken, and Mark Smithers

Melanoma Staging: Evidence-Based Changes in the American Joint Committee on Cancer Eighth Edition Cancer Staging Manual **2017**

Jeffrey E. Gershenwald, MD^{1†}; Richard A. Scolyer, MD^{2,3†}; Kenneth R. Hess, PhD^{4†}; Vernon K. Sondak, MD⁵; Georgina V. Long, MBBS, PhD⁶; Merrick I. Ross, MD⁷; Alexander J. Lazar, MD, PhD⁸; Mark B. Faries, MD⁹; John M. Kirkwood, MD¹⁰; Grant A. McArthur, MD, BS, PhD¹¹; Lauren E. Haydu, PhD¹²; Alexander M. M. Eggermont, MD, PhD¹³; Keith T. Flaherty, MD¹⁴; Charles M. Balch, MD¹⁵; John F. Thompson, MD¹⁶; for members of the American Joint Committee on Cancer Melanoma Expert Panel and the International Melanoma Database and Discovery Platform

Table 1. Cause-Specific Survival Estimates by Years After Diagnosis and Prognostic Factors (1982-2006)

Variable	No. of Patients	Survival				P
		5-Year	10-Year	15-Year	20-Year	
Thickness, mm						< .001
< 0.25	2,372	99.4	98.7	98.6	98.3	
0.25-0.49	11,552	99.4	98.8	98.4	98.1	
0.50-0.74	8,366	98.9	97.5	96.8	96.2	
0.75-1.00	4,446	96.1	93.2	91.1	89.0	

Is something at 0,8 mm ??

Difficulties: regression, adnexal involvement, desmoplastic part (S100, SOX10), residual naevus (HMB45, SOX10)

TISSUE FACTORS

→ THICKNESS

→ BRESLOW DENSITY – UPSTAGING!

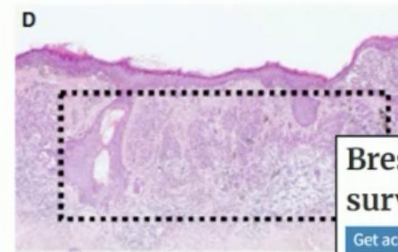
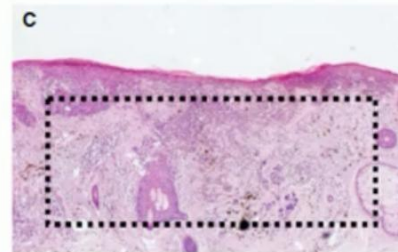
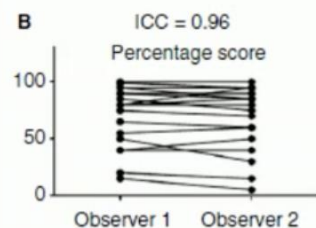
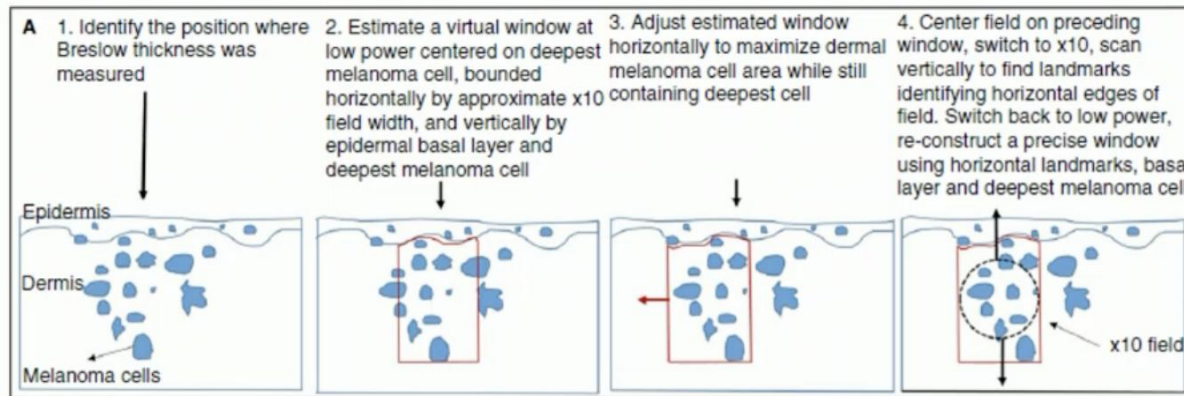
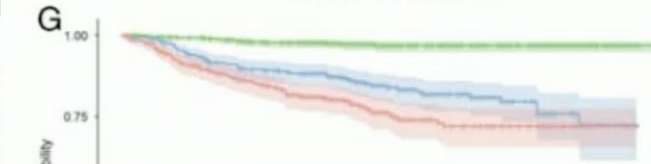
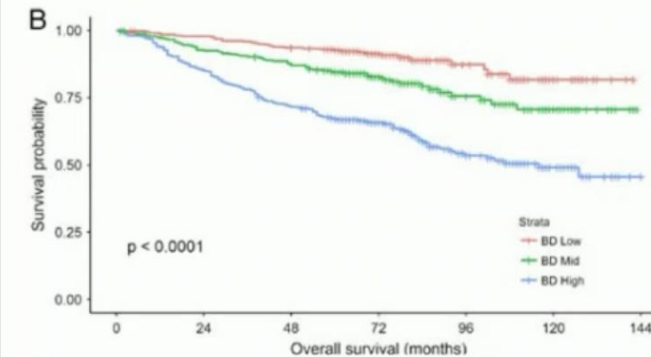


Figure 1. Breslow density (BD) scoring. **A**, Cartoon illustrating how the BD window is formed. See Materials and methods for a detailed explanation. **B**, Intraclass correlation coefficient. **C**, Melanoma with a Breslow thickness of 0.8 mm and a BD of 10%. **D**, Melanoma with a Breslow thickness of 0.8 mm and a BD of 60%.

Histopathology 2017, 70, 264–272. DOI: 10.1111/his.13060

Am J Surg Pathol. 2018, 42(6):715.

ACTAS Dermo-Sifiliográficas 112 (2021) 922---923



Breslow density ability to predict melanoma survival: should it be used in clinical practice?

[Get access >](#)

Pedro Gil-Pallares, Olalla Figueroa-Silva, Laura Taboada-Paz, María Eugenia Gil-Pallares, María Dolores Sánchez-Aguilar Rojas, Vanesa Balboa-Barreiro ✉, Alba Navarro-Bielsa, José Manuel Suárez-Peñaranda

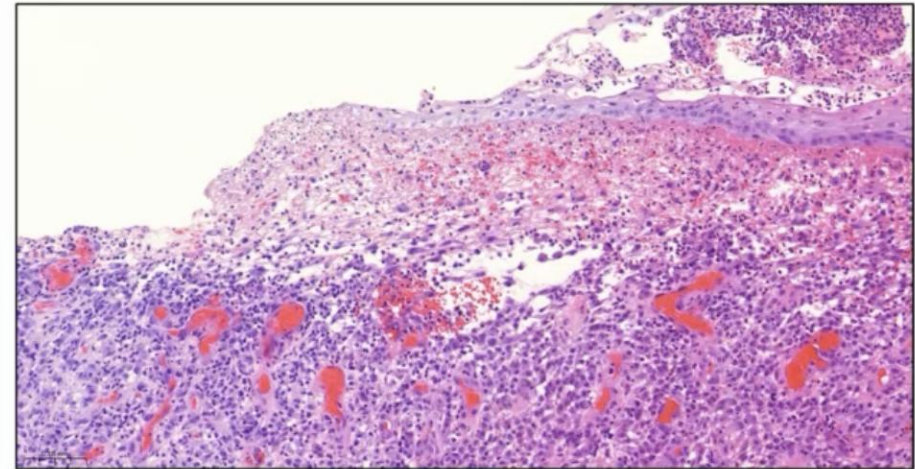
Clinical and Experimental Dermatology, Volume 50, Issue 1, January 2025, Pages 56–61,

TISSUE FACTORS

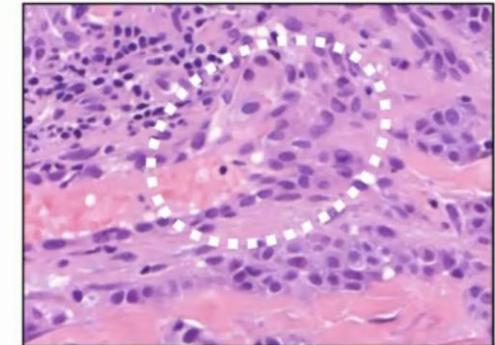
→ ULCERATION – UPSTAGING!

NOTE: a and b subcategories of T are assigned based on ulceration and thickness as shown below:

T CLASSIFICATION	THICKNESS (mm)	ULCERATION STATUS
T1	≤1.0	a: Breslow < 0.8 mm w/o ulceration b: Breslow 0.8-1.0 mm w/o ulceration or ≤ 1.0 mm w/ ulceration.
T2	1.1-2.0	a: w/o ulceration b: w/ ulceration
T3	2.1-4.0	a: w/o ulceration b: w/ ulceration
T4	>4.0	a: w/o ulceration b: w/ ulceration



- PREFORMED SPREAD (LYMPHATIC, NEUROTROPISM)
- MIKROSCOPIC SATELLITE (pN+!!, regression)
- **DERMAIL MITOSIS (AJCC7 vs AJCC8)**
- **REGRESSION**
- **TIL**



TISSUE FACTORS

→ MITOTIC ACTIVITY

Not stage determiner (AJCC8/TNM9), however....

Mitotic rate is associated with positive lymph nodes in patients with thin melanomas

Lee Wheless, MD, PhD,^a Chelsea A. Isom, MD,^b Mary A. Hooks, MD, MBA,^b and Rondi M. Kauffmann, MD, MPH^b
Nashville, Tennessee

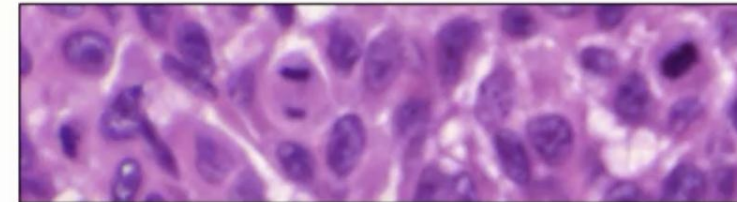
(J Am Acad Dermatol 2018;78:935-41.)

Reappraisal of the Prognostic Significance of Mitotic Rate Supports Its Reincorporation into the Melanoma Staging System

Mohammed Kashani-Sabet, MD,¹ James R. Miller, III, PhD¹; Serigne Lo, PhD^{2,3}; Mehdi Nosrati, BS¹; Jonathan R. Stretch, MBBS^{1,2,3,4}; Kerwin F. Shannon, MBBS^{1,2,3,4}; Andrew J. Spillane, MD^{1,2}; Robyn P. M. Saw, MS^{1,2,3,4}; James E. Cleaver, PhD⁵; Kevin B. Kim, MD¹; Stanley P. Leong, MD¹; John F. Thompson, MD^{2,3,4}; and Richard A. Scolyer, MD^{1,2,3,4,6}

Background: Mitotic rate is a strong, independent prognostic factor in patients with melanoma. However, incorporating it into the melanoma staging system has proved challenging. **Methods:** The prognostic impact of mitotic rate was assessed in a melanoma cohort comprising 5050 patients from 2 geographically distinct populations. Computer-generated cut points for mitotic rate were constructed to determine its impact on melanoma-associated survival using Kaplan-Meier and multivariate regression analyses. The impact of mitotic rate also was assessed in randomly split training and validation sets. **Results:** Mitotic rate had a nonlinear impact on survival, as evidenced by unequally spaced cut points. An index incorporating these cut points that was constructed from one population produced significantly more accurate predictions of survival in the other population than using the entire scale of mitotic rate. An index constructed from the combined cohort was found to be independently predictive of survival, with an impact comparable to that of ulceration. Optimal high-versus-low cut points for mitotic rate were generated separately for each T category (<2 mitoses/mm² vs ≥2 mitoses/mm² for T1 melanoma, <4 mitoses/mm² vs ≥4 mitoses/mm² for T2 melanoma, <6 mitoses/mm² vs ≥6 mitoses/mm² for T3 melanoma, and <7 mitoses/mm² vs ≥7 mitoses/mm² for T4 melanoma). Using Kaplan-Meier analysis, elevated mitotic rate was found to have an impact on survival comparable to that of ulceration within each T category. Application of the index for mitotic rate that was constructed from the training data set demonstrated an independent impact in the validation data set, with a significance similar to that of ulceration. **Conclusions:** The results of the current study demonstrated the comparable prognostic impact of mitotic rate and ulceration, providing support for its reincorporation into the T category. *Cancer* 2020;126:4717-4725. © 2020 American Cancer Society.

KEYWORDS: melanoma, mitotic rate, prognostic modeling, staging.



The effect of tumor mitotic rate on melanoma-specific survival: An analysis of 54,598 cases

To the Editor: Tumor mitotic rate (TMR) has been removed from the eighth edition of the American Joint Committee on Cancer (AJCC) melanoma staging criteria¹ for T1 melanomas, though it is recognized as a related risk factor for melanoma-specific survival across all stages and in some multivariate models. Herein, we analyze the relationship between TMR and melanoma-specific survival using the Surveillance, Epidemiology, and End Results

increase in mitotic rate for T1a melanomas was associated with a 39% increased risk of death. In the Kaplan-Meier survival analysis, we used zero mitoses as the reference for T1a and T1b (0.8-1.0 mm with or without ulceration) subjects and found that mitotic rate was a significant factor associated with survival in T1a [hazard ratio: 3.32 (2.25, 4.91); *P* < .0001] and T1b [hazard ratio: 3.44 (2.32, 5.12); *P* < .0001] tumors. Study limitations were the exclusion of cases with unavailable TMR or survival status. Other prognostic variables such as lymph node status and genomic testing data were also not included in the analysis.

Table 1. Effect of mitotic rate and ulceration on melanoma-associated death

Tumor stage (Breslow depth)	Mitotic rate (1 vs <1 mitosis/mm ²) OR (95% CI)	Presence vs absence of ulceration OR (95% CI)
Overall	3.2 (3.0, 3.5); <i>P</i> < .0001	1.4 (1.3, 1.6); <i>P</i> < .0001
T1 (≤1.0 mm)	3.4 (3.1, 3.8); <i>P</i> < .0001	1.6 (1.3, 2.1); <i>P</i> = .0001
T2 (>1.0-2.0 mm)	2.8 (2.1, 3.8); <i>P</i> < .0001	0.99 (0.78, 1.25); <i>P</i> = .9110
T3 (>2.0-4.0 mm)	1.9 (1.1, 3.4); <i>P</i> = .0291	0.82 (0.61, 1.10); <i>P</i> = .1791
T4 (>4.0 mm)	3.5 (1.3, 9.7); <i>P</i> = .0141	0.67 (0.46, 0.97); <i>P</i> = .0322

OR, Odds ratio.

TISSUE FACTORS

→ REGRESSION

Is it Necessary to Perform Sentinel Lymph Node Biopsy in Thin Melanoma? A Retrospective Single Center Analysis

A. Kocsis¹ • L. Karsko² • Zs. Kurgyis¹ • Zs. Besenyi² • L. Pavics² • E. Dosa-Racz¹ • E. Kis¹ • E. Baltas¹ • H. Ocsai¹ • E. Varga¹ • B. Bende¹ • A. Varga¹ • G. Mohos¹ • I. Korom¹ • J. Varga¹ • L. Kemeny¹ • I. B. Nemeth¹ • J. Olah^{1,3}

Pathology & Oncology Research (2020) 26:1861–1868

Table 3 Multivariate logistic regression model of the clinicopathologic parameters

Multivariate logistic regression model	SLN positivity	
Variable	OR (95% CI)	p
Age	.958 (.916; 1.002)	0.059
Gender	.651 (.152; 2.782)	0.562
Breslow	1.626 (.036; 72.656)	0.802
Clark	.560 (.112; 2.807)	0.480
Mitosis index	.723 (.348; 1.502)	0.385
Regression	5.796 (1.046; 32.123)	0.044 *

OR odds ratio

CI confidence interval

*p < 0.05 significant

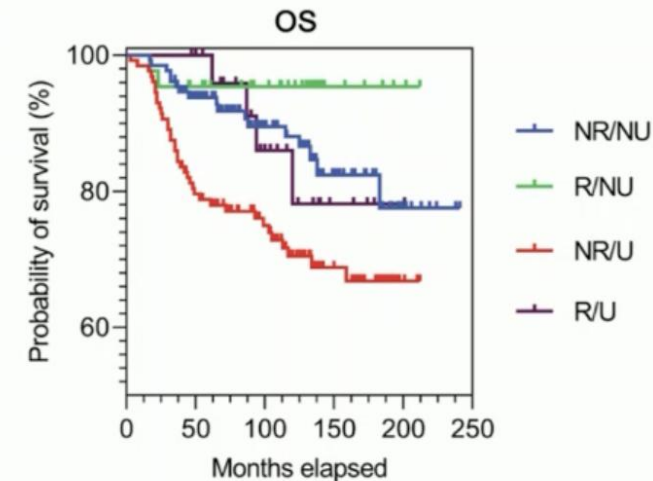
method = enter

In early-stage (<1 mm Breslow) melanomas, extensive (>75%) regression as independent prognostic factor.



Tumour regression predicts better response to interferon therapy in melanoma patients: a retrospective single centre study

Noémi E. Mezölaki, Eszter Baltás, Henriette L. Ócsai, Anita Varga, Irma Korom, Erika Varga, István B. Németh, Erika G. Kis, János Varga, Ádám Kocsis, Rolland Gyulai, Mátyás Bukva, Lajos Kemény and Judit Oláh



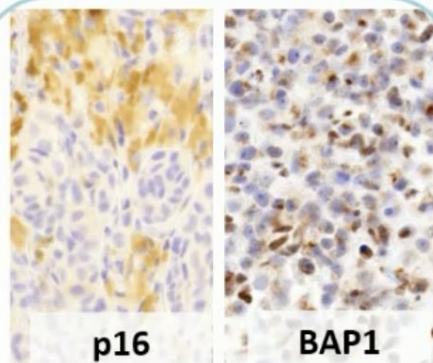
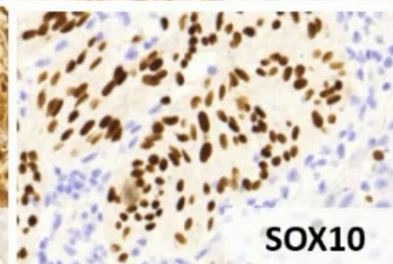
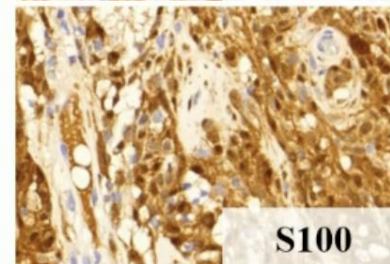
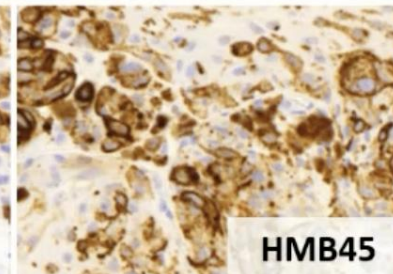
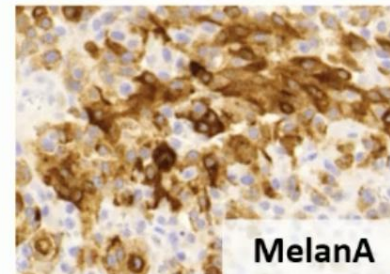
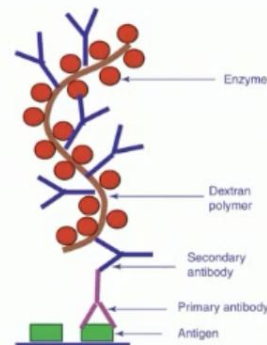
TISSUE MARKERS

→ IHC MARKERS

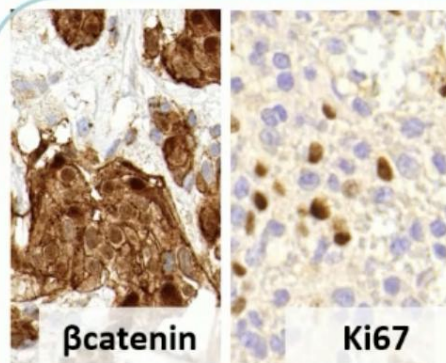
→ REFINING ENTITIES

Desmoplastic melanoma
De(un)differentiated melanoma
Melanocytomas
Spitz vs Spitzoid melanoma
Residual naevus

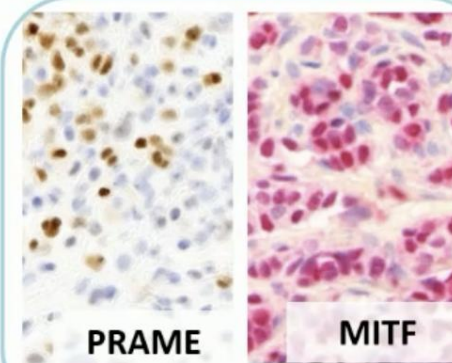
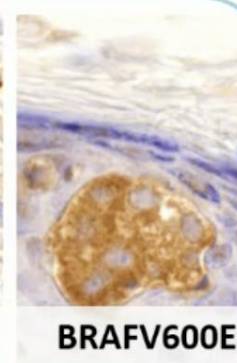
→ REFINING DIGNITY



„BREAK”

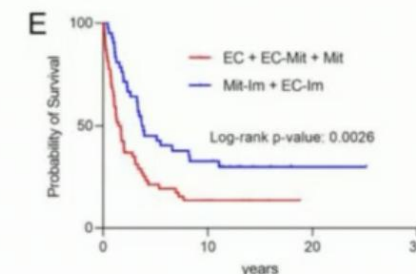
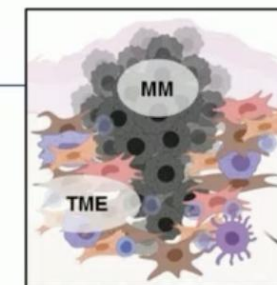
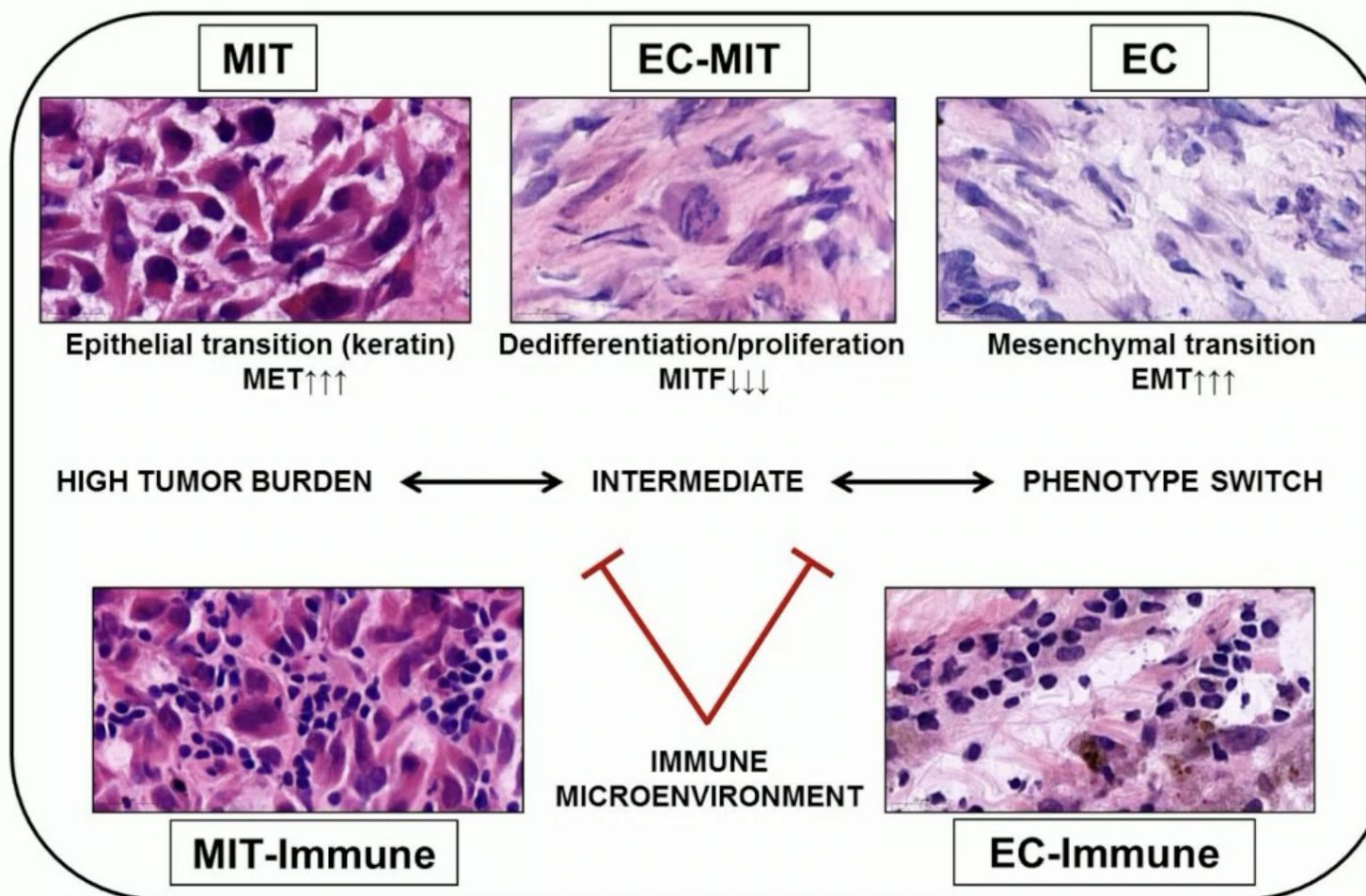


„GAS”



DIFFERENTIATION

INTRATUMORAL HETEROGENEITY - PLASTICITY



Proteogenomic Profiling of
Treatment-Naïve Metastatic
Malignant Melanoma

PRIMARY EXCISION, REEXCISION+ SLNB



0,5 cm safety
zone (SZ)

STAGE

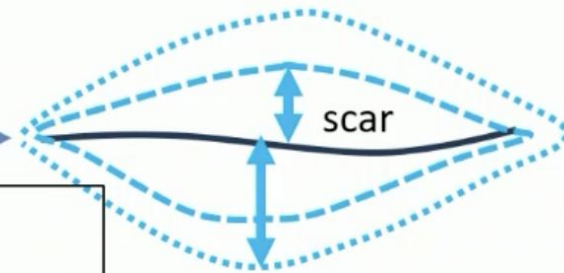
pT1a+adverse parameters
pT1b (0,8-1mm±U)
pT2-3
pT4

SLNB

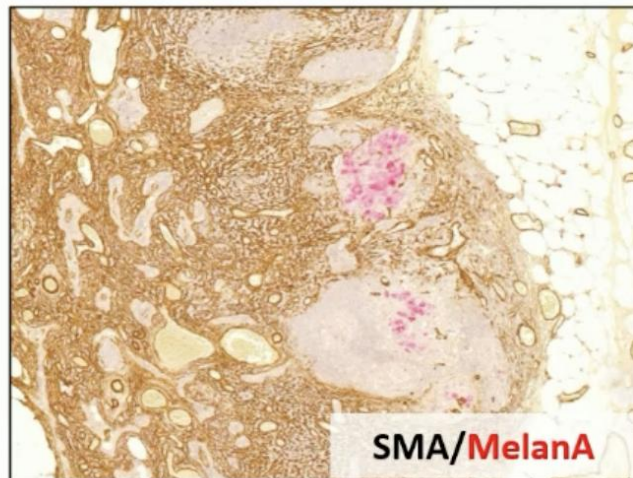
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+/-
+
+

SZ

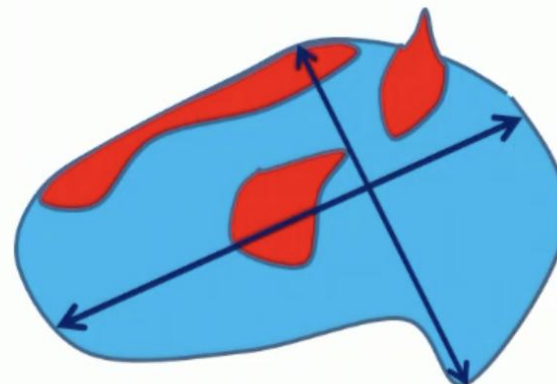
1cm
1-2cm
2cm



Definitive SZ



SMA/MelanA



SIZE (100µm – mm)

MICRO LOCALISATION

AREA % (?)

EXTRACAPSULAR SPREAD

SIGNIFICANCE OF SLNB

→ PROGNOSTIC VALUE

pT1b, pT2-3-4

Regression/adverse parameters

EXCEPTIONS

Melanocytomas

► IT HAS NO EFFECT ON SURVIVAL

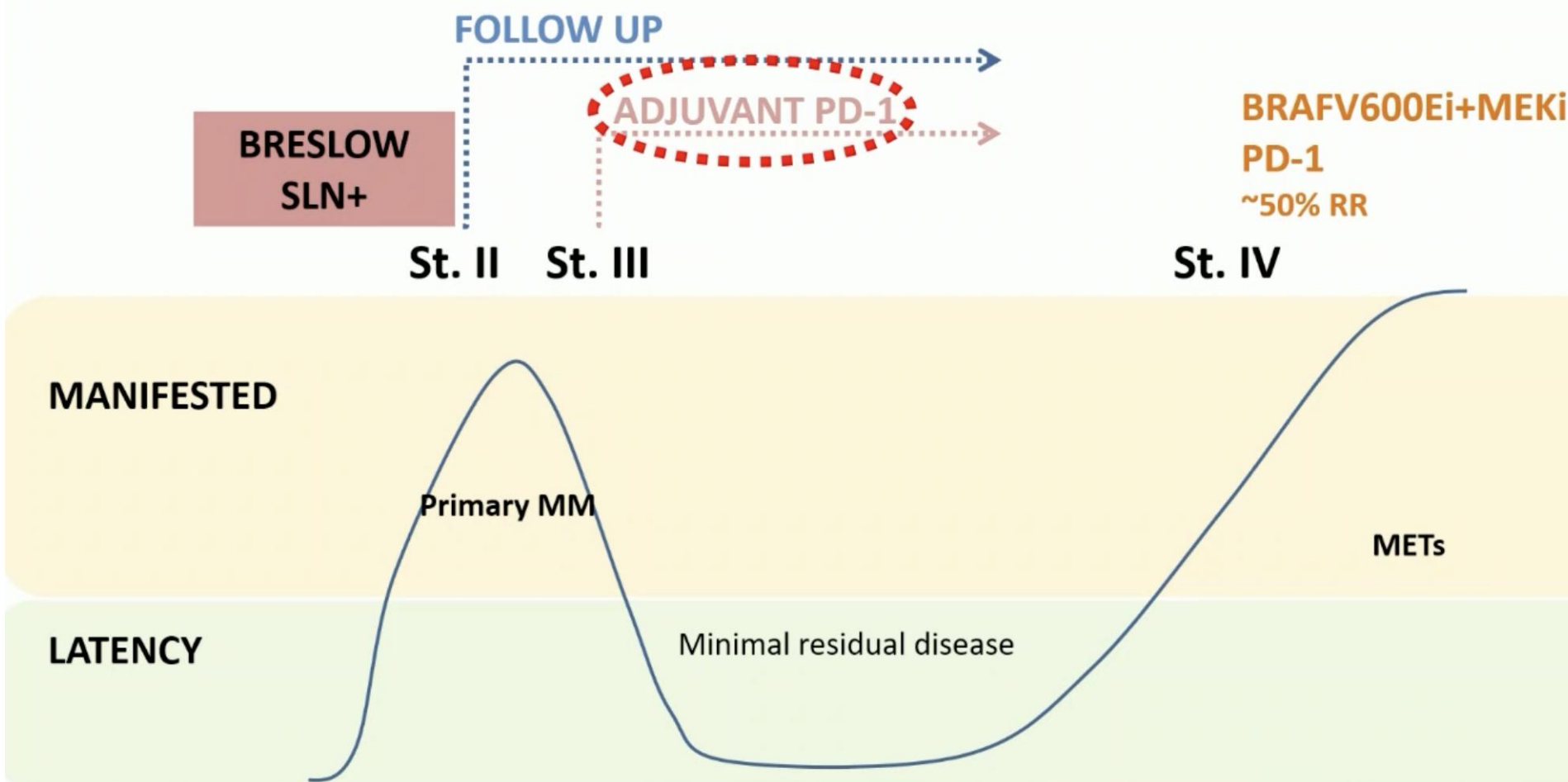
Table 2. Summary of clinical trials investigating sentinel lymph node biopsies and prognosis

Trial name	Complete or ongoing	Year initiated	Final results published	Number of patients	Primary outcome	Secondary outcome	Results
MSLT-I ⁹⁹⁻¹⁰¹	Complete	1994	2014	2001	Survival outcomes in patients who received CLND versus SNLB after WLE of primary melanoma		No difference in survival outcomes between both groups; SLNB is an effective staging method with less morbidity than complete lymph node dissection
MSLT-II ¹⁰³	Complete	2006	2017	1934	Melanoma-specific survival in patients who undergo CLND versus observation	Disease-free survival and cumulative rate of non-sentinel node status in patients who undergo CLND versus observation	No difference in melanoma-specific survival between both groups; disease-free survival increased in CLND group
DeCOG-SLT ^{105,106}	Complete	2006	2019	483	Distant metastasis-free survival in patients who undergo CLND versus observation	Relapse-free survival, overall survival, recurrences in lymph node regional basin in patients who undergo CLND versus observation	No difference in distant metastasis-free survival, relapse-free survival, overall survival between both groups
EORTC 1208 (MiniTUB) ^{107,108}	Ongoing	2009	NA	NA	Distant metastasis-free interval in patients who undergo CLND versus observation	Regional control rate, relapse-free interval, melanoma-specific survival, overall survival, Morbidity in patients who undergo CLND versus observation	NA

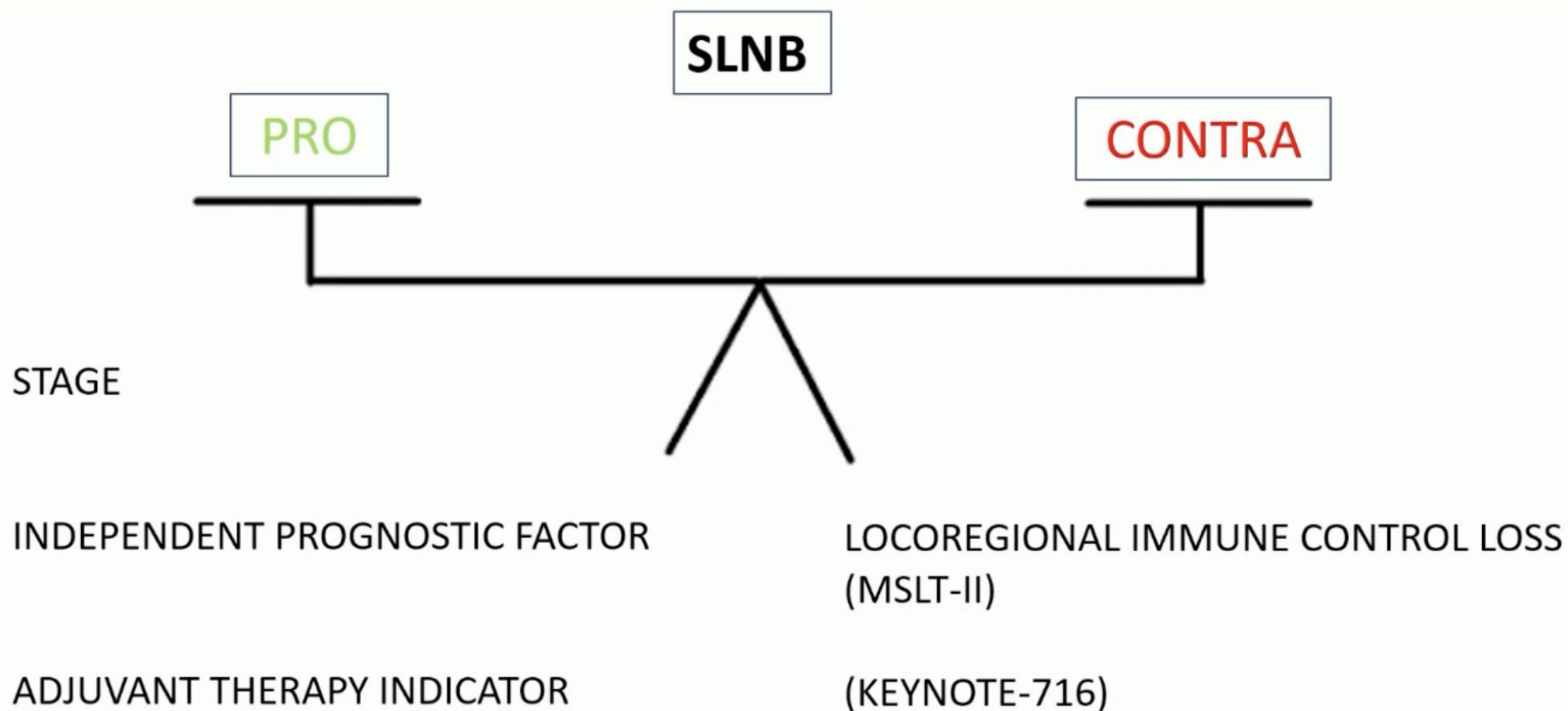
CLND, complete lymph node dissection; NA, not applicable; SLNB, sentinel lymph node biopsy; WLE, wide local excision.

SIGNIFICANCE OF SLNB

→ INDIRECT THERAPEUTIC RELEVANCE (STAGE III – adjuvant PD1)



SIGNIFICANCE OF SLNB

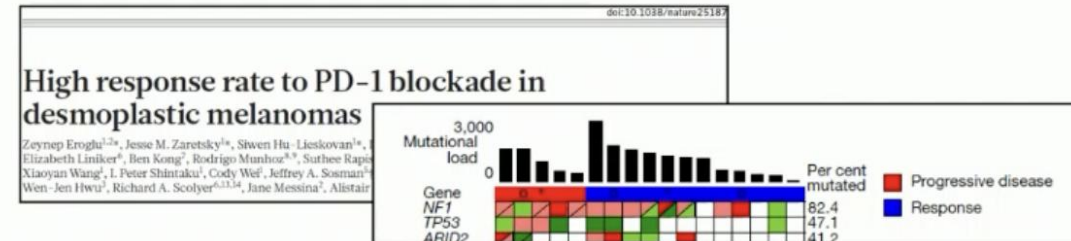
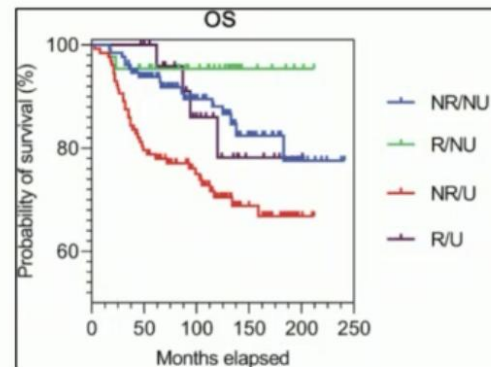


PREDICTIVE TISSUE MARKERS

→ ICI

- PDL-1 alone has a limited value
- NRAS
- ENTITY: DESMOPLASTIC MELANOMA

→ REGRESSION



Melanoma Research 2024, 34:54–62

Tumour regression predicts better response to interferon therapy in melanoma patients: a retrospective single centre study

Noémi E. Mezölaki, Eszter Baltás, Henriette L. Ócsai, Anita Varga, Irma Korom, Erika Varga, István B. Németh, Erika G. Kis, János Varga, Ádám Kocsis, Rolland Gyulai, Mátyás Bukva, Lajos Kemény and Judit Oláh

→ TIL

TRANSLATIONAL CANCER MECHANISMS AND THERAPY | NOVEMBER 01 2024

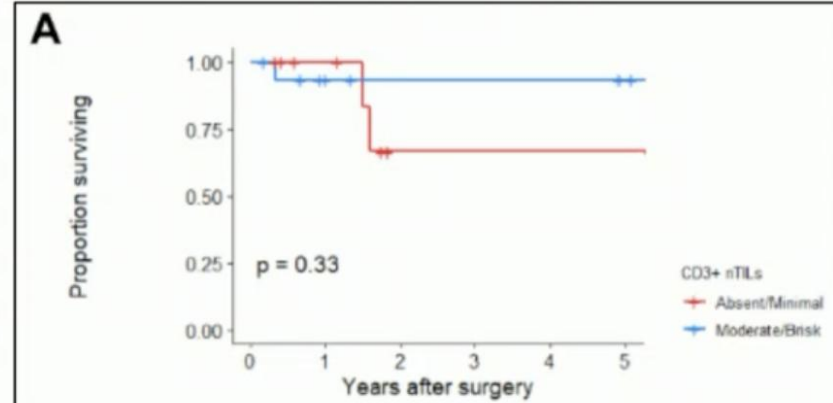
Tumor-Infiltrating Lymphocytes in Necrotic Tumors after Melanoma Neoadjuvant Anti-PD-1 Therapy Correlate with Pathologic Response and Recurrence-Free Survival

Kevin L. Ma¹; Tara C. Mitchell¹; Meaghan Dougher¹; Cimarron E. Sharon¹; Gabriella N. Tortorello¹; David E. Elder¹; Eric E. Morgan¹; Phyllis A. Gimotty¹; Alexander C. Huang¹; Ravi K. Amaravadi¹; Lynn M. Schuchter¹; Ahron Flowers¹; John T. Miura¹; Giorgos C. Karakousis¹; Xiaowei Xu¹

Check for updates

+ Author & Article Information

Clin Cancer Res (2024) 30 (21): 4987–4994.



CSCC risk prediction depends on reliable histopathology

Age, in years

78

Sex

Female

Number of prior cSCCs

2

Tumor location

BWH T-stage

Face (including ear)

Tumor diameter, in cm

2.4

Tissue involvement

AJCC8 T-stage

Beyond subcutaneous fat

Differentiation Grade

Good/moderate

Perineural or lymphovascular invasion

Absent

Predict

Erasmus MC



Find the model here:



Probability of 14.8%
of developing a metastasis
within 5 years

Take home messages



Routine reporting is usually sufficient

When key risk factors are reported, expert revision rarely changes risk estimates



Missing information matters

About 10% could not be reliably assessed because of fragmented or limited tissue.

→ Need for other diagnostic tests



Two variables drive discrepancies

Differentiation grade

Depth of invasion /
Tissue involvement



¹ Rentroia-Pacheco, B. et al. Comprehensive molecular characterization of cutaneous squamous cell carcinoma reveals determinants of metastatic progression. medRxiv 2026.07.17.26358051



> J Am Acad Dermatol. 2024 Jan 30:S0190-9622(24)00135-X. doi: 10.1016/j.jaad.2024.01.035.
Online ahead of print.

2024

Dermatoscopy and reflectance confocal microscopy for basal cell carcinoma diagnosis and diagnosis prediction score: A prospective and multicenter study on 1005 lesions

Caterina Longo ¹, Stefania Guida ², Marica Mirra ³, Riccardo Pampena ³, Silvana Ciardo ⁴, Sara Bassoli ⁴, Alice Casari ⁴, Franco Rongioletti ⁵, Marco Spadafora ⁶, Johanna Chester ⁴, Shaniko Kaleci ⁴, Michela Lai ⁶, Serena Magi ⁷, Laura Mazzoni ⁷, Francesca Farnetani ⁴, Ignazio Stanganelli ⁷, Giovanni Pellacani ⁸

Results: A total of 1005 lesions were included, of which 474 histopathologically confirmed versus 531 diagnosed by clinical-dermatoscopic-RCM correlation, confirmed with 2 years of follow-up. Specifically, 740 were confirmed BCCs. Sensitivity and specificity for dermatoscopy alone was 93.2% (95% CI, 91.2-94.9) and 51.7% (95% CI, 45.5-57.9); positive predictive value was 84.4 (95% CI, 81.7-86.8) and negative predictive value 73.3 (95% CI, 66.3-79.5). Adjunctive RCM reported higher rates: 97.8 (95% CI, 96.5-98.8) sensitivity and 86.8 (95% CI, 82.1-90.6) specificity, with positive predictive value of 95.4 (95% CI, 93.6-96.8) and negative predictive value 93.5 (95% CI, 89.7-96.2).

Confocal microscopy clues to BCC subtype

RCM shows where the tumour sits and how it grows: epidermal cords, dermal islands or thin infiltrating cords

Superficial

Low risk

- Tumour cords connected to the epidermis
- Located at the dermal-epidermal junction
- Peripheral palisading and clefting
- Streaming of the epidermis
- No deep dermal islands

Nodular

Low risk

- Large, round, well-demarcated tumour islands in the dermis
- Marked peripheral palisading and clefting
- Dark silhouettes (non-pigmented) or bright islands with dendritic cells (pigmented)
- Prominent, dilated vessels around islands

Infiltrative / morpheaform

High risk

- Thin, elongated dark cords and small islands
- Embedded in dense, bright, thickened collagen
- Little or no palisading and clefting
- Ill-defined, deeper extension



Limit: ~200 µm depth, so deep infiltrative components can be missed. Combine with dermoscopy; confirm margins ex vivo when needed.

Clinical and Experimental Dermatology, 2026, XX, 1–8
<https://doi.org/10.1093/ced/llag037>
 Published: 13 February 2026
 Original article

CED OXFORD
 Clinical and Experimental Dermatology

2026

Improving basal cell carcinoma subtype diagnosis with dermoscopy and reflectance confocal microscopy: a multicentre prospective study

Stefania Guida^{1,2}, Marco Spadafora^{3,4}, Silvana Ciardo⁵, Marica Mirra⁴, Serena Magi⁶, Laura Mazzoni⁶, Shaniko Kaleci³, Francesca Farnetani⁵, Franco Rongioletti^{1,2}, Ignazio Stanganelli^{6,7}, Giovanni Pellacani⁸ and Caterina Longo^{3,5}

Abstract

Background Basal cell carcinoma (BCC) is the most prevalent form of skin cancer. Accurate histological subtyping is essential for appropriate therapeutic planning, particularly for infiltrative variants associated with higher recurrence rates. Noninvasive imaging modalities such as dermoscopy and reflectance confocal microscopy (RCM) may enhance the diagnostic precision of BCC subtyping prior to treatment.

Objectives To validate dermoscopic criteria and identify RCM features associated with distinct BCC subtypes in a larger cohort and to improve the accuracy of noninvasive BCC subtyping and support precision treatment planning.

Methods This was a prospective multicentre study conducted between August 2017 and June 2019 across three centres in Northern Italy. In total, 281 histologically confirmed BCCs from 256 patients were analysed. Each lesion underwent standardized clinical, dermoscopic and handheld RCM evaluation prior to biopsy. Subtype-specific features were recorded and correlated with histopathology. Interobserver agreement was assessed using Cohen's kappa, and diagnostic performance was evaluated via sensitivity, specificity and the area under the receiver operating characteristic curve (AUC). The study was registered at [ClinicalTrials.gov](https://clinicaltrials.gov) (NCT04789421).

Results Among the 281 BCCs, 15% were superficial, 38% were nodular and 47% were infiltrative. Dermoscopically, superficial BCCs exhibited brown globules and shiny white-red structureless areas; nodular BCCs presented blue structures, arborizing vessels and ulceration; infiltrative BCCs showed white porcelain areas and lacked pigmentation. RCM identified streaming and cords in superficial BCCs ($P = 0.003$; threefold risk), large tumour islands in nodular BCCs, and dark silhouettes in infiltrative BCCs ($P = 0.005$; two–threefold risk). Diagnostic accuracy improved with combined dermoscopy and RCM. Sensitivity for superficial BCC increased from 74.4% [95% confidence interval (CI) 60.2–85.8] to 81.4% (95% CI 68.1–91.0), specificity from 97.9% (95% CI 95.5–99.5) to 98.3% (95% CI 96.1–99.5), and AUC reached 0.899.

Conclusions The integration of dermoscopic and RCM findings significantly enhances the noninvasive preoperative classification of BCC subtypes. This approach improves diagnostic accuracy and may inform more precise, subtype-tailored management, reducing treatment failures and supporting personalized dermatological care.

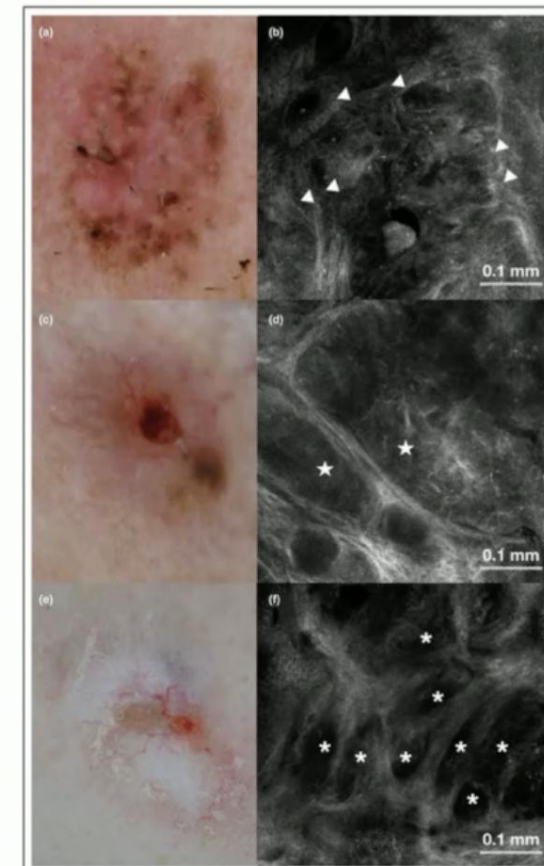


Figure 1 Dermoscopy and reflectance confocal microscopy (RCM) of (a, b) superficial basal cell carcinoma (BCC), showing (a) brown structures and shiny-red structureless areas in dermoscopy, with (b) corresponding cords in RCM (arrowheads); (c, d) nodular BCC, (c) blue structures, arborizing vessels and ulceration in dermoscopy, with (d) corresponding big tumour islands in RCM (star-shaped markers); (e, f) infiltrative BCC, (e) with porcelain areas, ulceration and arborizing vessels in dermoscopy, and (f) dark silhouette in RCM (asterisks).

GUIDA ET AL. JAAD 2026

In 2026, the evidence moves closer to real life

**2.006
cases**

equivocal flat macules of the head
and neck included in the study

91.9%

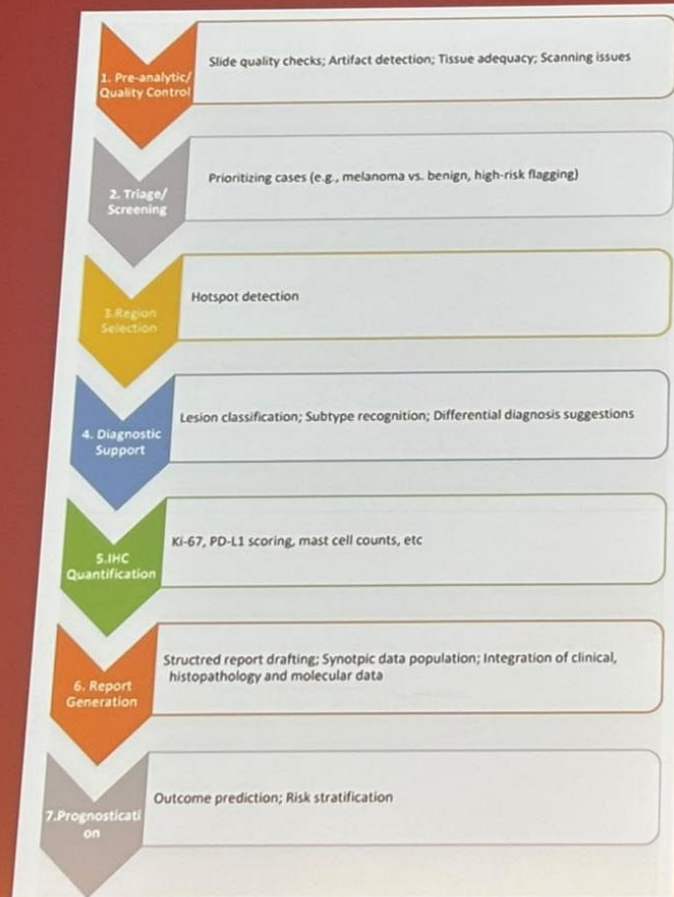
LM/LMM correctly diagnosed by
RCM

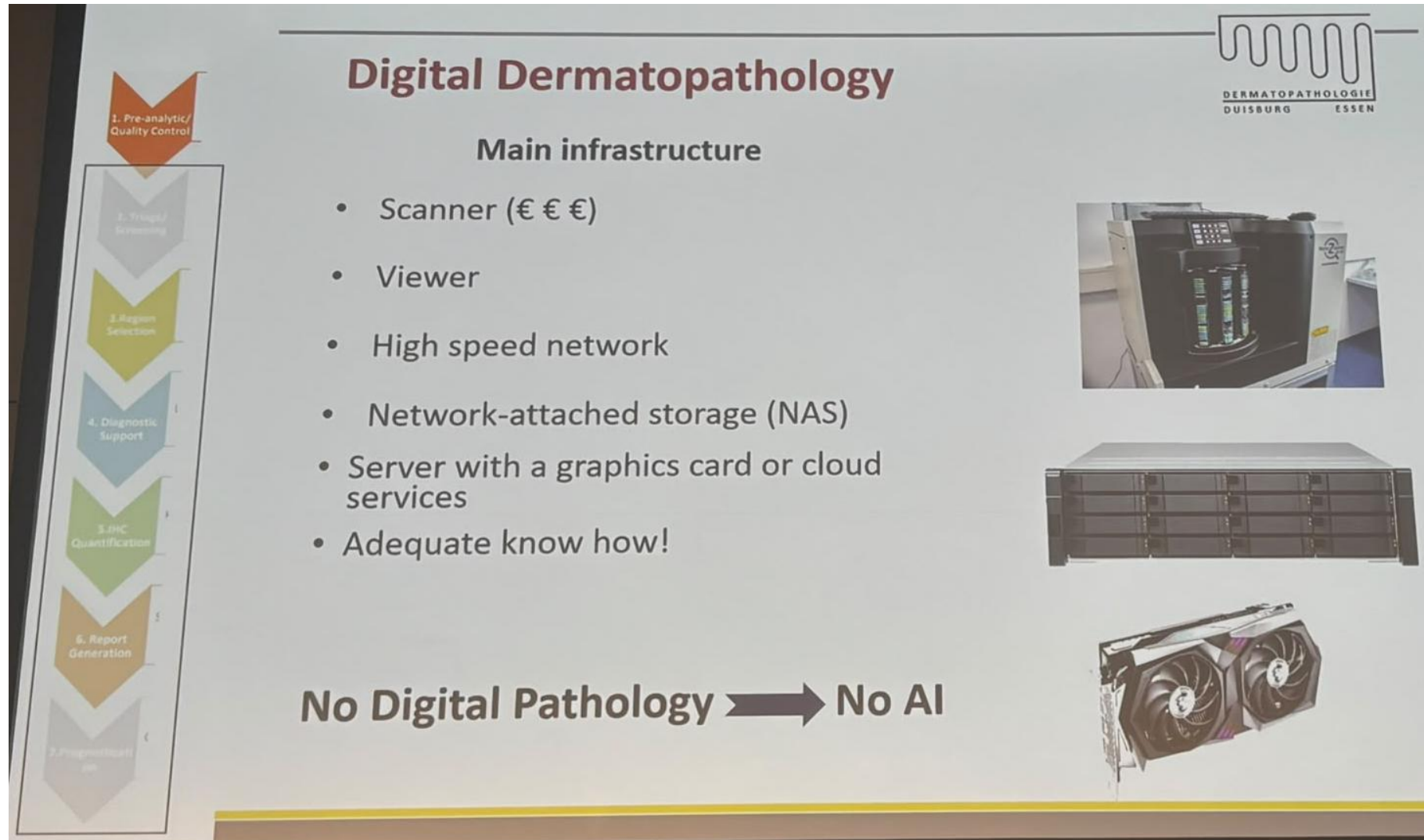
94.2%

BCC/SCC correctly diagnosed by
RCM

**DERMOSCOPY + RCM: A VERY SAFE NON-INVASIVE PATHWAY, WITH A
SMALL RESIDUAL RISK TO DISCLOSE.**

IA APPLICATIONS IN DERMATOPATHOLOGY





Journal of Imaging **MDPI**

Article
Deeply Supervised UNet for Semantic Segmentation to Assist Dermatopathological Assessment of Basal Cell Carcinoma

Jean Le'Clerc Arrastia ^{1,*}, Nick Heilenkötter ¹, Daniel Otero Baguer ¹, Lena Hauberg-Lotte ¹, Tobias Boskamp ², Sonja Hetzer ³, Nicole Duschner ³, Jörg Schaller ³ and Peter Maass ¹

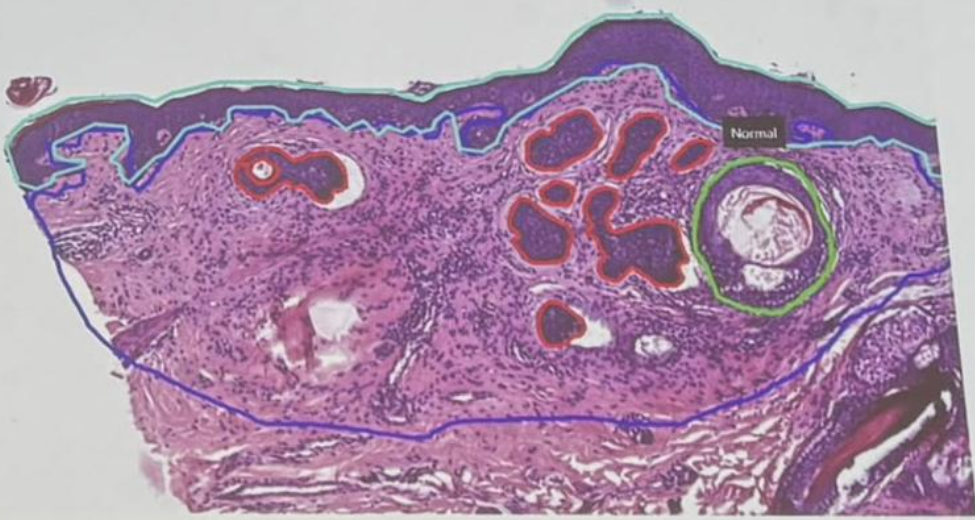
¹ Center for Industrial Mathematics, University of Bremen, 28359 Bremen, Germany; nick27@uni-bremen.de (N.H.), otero@uni-bremen.de (D.O.B.), hauberg@math.uni-bremen.de (L.H.-L.), pmaass@uni-bremen.de (P.M.)
² SCILS, Bruker Daltonik, 28359 Bremen, Germany; tobias.boskamp@bruker.com
³ Dermatopathologie Duisburg-Essen, 45329 Essen, Germany; sonja.hetzer@uni-bremen.de (S.H.), nicole.duschner@gmail.com (N.D.), dermatohistologie@googlemail.com (J.S.)
* Correspondence: leclerc@uni-bremen.de

Digital Dermatopathology and AI in the diagnosis of BCC

Aim: Help the dermatopathologists in optimizing their limited time for examining histological slides

Solution: Developed an initial artificial intelligence model to assist the dermatopathologists by automatizing the whole diagnosis of BCC samples

Current status: Developing a tool to **close the gap** between the research results and the application in the daily routine



aisencia **Universität Bremen**

WHY AI IN MELANOCYTIC TUMORS

- Diagnostic uncertainty remains concentrated in intermediate cases
- Agreement is highest in completely benign and clearly invasive melanoma
- Variability occurs
 - between different pathologist (INTEROBSERVER VARIABILITY)
 - when same pathologist review a lesion again (INTRAOBSERVER VARIABILITY)

Diagnostic confidence	Disagreement with local pathologist	Agreement with local pathologist	Disagreement with expert panel	Agreement with expert panel
1	5 (35.7%)	9 (64.3%)	10 (71.4%)	4 (28.6%)
2	31 (52.5%)	28 (47.5%)	31 (52.5%)	28 (47.5%)
3	117 (35.8%)	210 (64.2%)	135 (41.3%)	192 (58.7%)
4	52 (20.6%)	201 (79.4%)	63 (24.9%)	190 (75.1%)
5	15 (11.03%)	121 (89.0%)	25 (18.4%)	111 (81.6%)
Overall ^a	220 (27.9%)	569 (72.1%)	264 (33.5%)	525 (66.5%)

The diagnostic uncertainty for three out of 792 cases was labeled as unknown and therefore excluded for the comparison.
 indicates low diagnostic confidence, whereas 5 indicates high diagnostic confidence.

Article

<https://doi.org/10.1038/s41867-025-00160-0>

Discordance, accuracy and reproducibility study of pathologists' diagnosis of melanoma and melanocytic tumors

Received: 16 July 2024

Accepted: 10 January 2025

Published online: 17 January 2025

Check for updates

Sarah Haggrenmüller¹, Christoph Wiles^{1,2}, Julia Abela¹, Jane T. Winterstein^{1,2}, Lukas Heinlein^{1,3}, Carina Nogueira Garcia¹, Jochen S. Ullrich^{3,4,5}, Sebastian A. Wohlfeld^{3,4,5}, Friedegund Meier⁶, Sarah Hobelaberger⁶, Frank F. Geltrich⁶, Mildred Sargon^{1,5}, Axel Hauschild⁶, Lars E. French^{10,11}, Lucie Heinzelting^{10,12}, Justin G. Schlager¹⁰, Karvan Ghoreschi¹³, Max Schlaak¹⁴, Franz J. Hölke¹⁵, Gabriela Poch¹⁶, Sören Korsing¹⁷, Cosimo Serfert¹⁸, Carola Berking¹⁹, Markus V. Heppert²⁰, Michael Erdmann²¹, Sebastian Haferkamp²², Konstantin Drexler²³, Dirk Schadendorf²⁴, Wiebke Sandermann²⁵, Matthias Goebeler²⁶, Bastian Schilling²⁷, Jakob Nikolaus Kather²⁸, Stefan Fröhling²⁹, Mar Llamas-Velasco³⁰, Luis C. Requena³¹, Gerardo Ferrás³², Maite Fernandez-Figueras³³, Sylvie Fraïtag³⁴, Cornelia S. L. Müller^{35,36}, Hans Starz³⁷, Heinz Kutzner³⁸, Raymond Barnhill³⁹, Richard Carr⁴⁰, Kenneth S. Beznik⁴¹, Stephan Alexander Braun⁴², Tim Holland-Letz⁴³ & Titus J. Brinker¹

1. Pre-analytic/
Quality Control

2. Triage/
Screening

3. Region
Selection

4. Diagnostic
Support

5. IHC
Quantification

6. Report
Generation

7. Prognostic
on

tvst
Special Issue

Piloting a Deep Learning Model for Predicting Nuclear BAP1 Immunohistochemical Expression of Uveal Melanoma from Hematoxylin-and-Eosin Sections

Hongrun Zhang¹, Helen Kalirai^{2,3}, Amelia Acha-Sagredo², Xiaoyun Yang⁴, Yalin Zheng¹, and Sarah E. Coupland^{2,3}

¹ Department of Eye and Vision Science, Institute of Life Course and Medical Sciences, University of Liverpool, Liverpool, UK.
² Liverpool Ocular Oncology Research Group, Department of Molecular and Clinical Cancer Medicine, Institute of Systems, Molecular and Integrative Biology, University of Liverpool, Liverpool, UK.
³ Liverpool Clinical Laboratories, Liverpool University Hospitals NHS Foundation Trust, Liverpool, UK.
⁴ Chinese Academy of Sciences (CAS) IntelliCloud Technology Co., Ltd., Shanghai, China

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Sarah E. Coupland, University of Liverpool, William Henry Duncan Building, 3rd Floor, West Derby Street, Liverpool, L7 8TX, UK. e-mail: s.e.coupland@liverpool.ac.uk

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Accepted: July 28, 2020
Published: September 1, 2020

Keywords: uveal melanoma; choroidal melanoma; hematoxylin-and-eosin (H&E); BAP1; prognostication; whole slide imaging; deep learning; artificial intelligence

Citation: Zhang H, Kalirai H, Acha-Sagredo A, Yang X, Zheng Y, Coupland SE. Piloting a deep learning model for predicting nuclear BAP1 immunohistochemical expression of uveal melanoma from hematoxylin-and-eosin sections. *Trans Vis Sci Tech.* 2020;9(2):50. <https://doi.org/10.1167/tvst.9.2.50>

DL Model Predicts nBAP1 in H&E Sections of UM

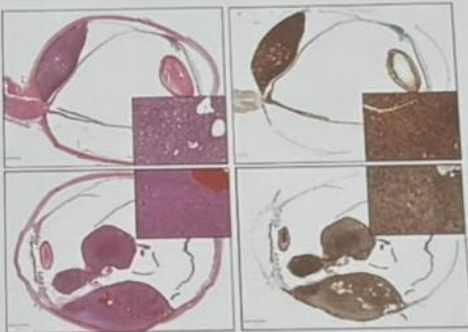


Figure 1. Low- and high-power magnification images of enucleated eyes stained for hematoxylin and eosin (H&E) and BAP1 immunohistochemistry, taken after whole slide scanning. **Top row:** This is a nBAP1 positive UM; **bottom row:** a nBAP1 negative UM. The insets provide the higher power magnification of the tumor morphology and the location of the BAP1 staining.

TVST | Special Issue | Vol. 9 | No. 2 | Article 50 | 3

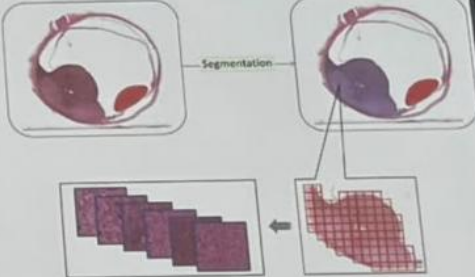


Figure 2. Generation of tumor patches. The tumor region is first segmented from a whole slide image. The tiling operation is then applied to the tumor region. A tile with tumor ratio over 90% is cropped out as a tumor patch.

DL for Prediction of nBAP1 Expression

A “bottom-up approach” was developed for the

HOLY GRAIL

To predict positive IHC
Money saving
Not only count

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DO WE UNDERSTAND/TRUST AI?

European Journal of Cancer 167 (2022) 54–69



Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.ejancer.com



Review

Explainable artificial intelligence in skin cancer recognition: A systematic review



Katja Hauser ^a, Alexander Kurz ^a, Sarah Haggenmüller ^a, Roman C. Maron ^a, Christof von Kalle ^b, Jochen S. Utikal ^{c,d}, Friedegund Meier ^c, Sarah Hobelsberger ^c, Frank F. Gellrich ^c, Mildred Sergon ^c, Axel Hauschild ^f, Lars E. French ^{g,p}, Lucie Heinzerling ^g, Justin G. Schlager ^g, Kamran Ghoreschi ^h, Max Schlaak ^h, Franz J. Hilke ^h, Gabriela Poch ^h, Heinz Kutzner ⁱ, Carola Berking ^j, Markus V. Heppt ^j, Michael Erdmann ^j, Sebastian Haferkamp ^k, Dirk Schadendorf ^l, Wiebke Sondermann ^l, Matthias Goebeler ^m, Bastian Schilling ^m, Jakob N. Kather ⁿ, Stefan Fröhling ^o, Daniel B. Lipka ^o, Achim Hekler ^a, Eva Krieghoff-Henning ^a, Titus J. Brinker ^{a,*}

Visual attention, CBIR CAM, customized activation map, Grad CAM...otros

How IA decide

“black box model”

Transparence is a legal requirement.
Explainable AI try to understand “how”

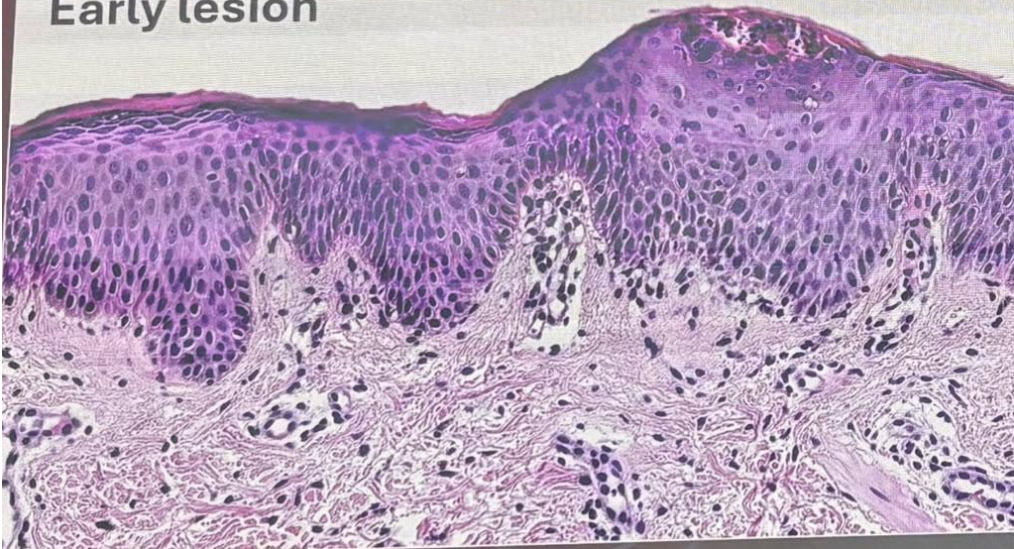
Dermatologist-like explainable AI enhances trust and confidence for melanoma diagnosis

Tirtha Chanda^{a*}, Katja Hauser^{a*}, Sarah Hobelsberger^{a*}, Tabea-Clara Bucher^a, Carina Nogueira Garcia^a, Christoph Wies^a, Harald Kittler^a, Philipp Tschandl^a, Cristian Navarrete-Dechent^a, Sebastian Podlipnik^a, Emmanouil Chousakos^a, Iva Crnacic^a, Jovana Majstorovic^a, Linda Alhajwan^a, Tanya Foreman^a, Sandra Peternel^a, Sergei Sarap^a, İrem Özdemir^a, Raymond L. Barnhill^a, Mar Llamas Velasco^a, Gabriela Poch^a, Sören Korsing^a, Wiebke Sondermann^a, Frank Friedrich Gellrich^a, Markus V. Heppt^a, Michael Erdmann^a, Sebastian Haferkamp^a, Konstantin Drexler^a, Matthias Goebeler^a, Bastian Schilling^a, Jochen S. Utikal^a, Kamran Ghoreschi^a, Stefan Fröhling^a, Eva Krieghoff-Henning^a, Titus J. Brinker^{a*}

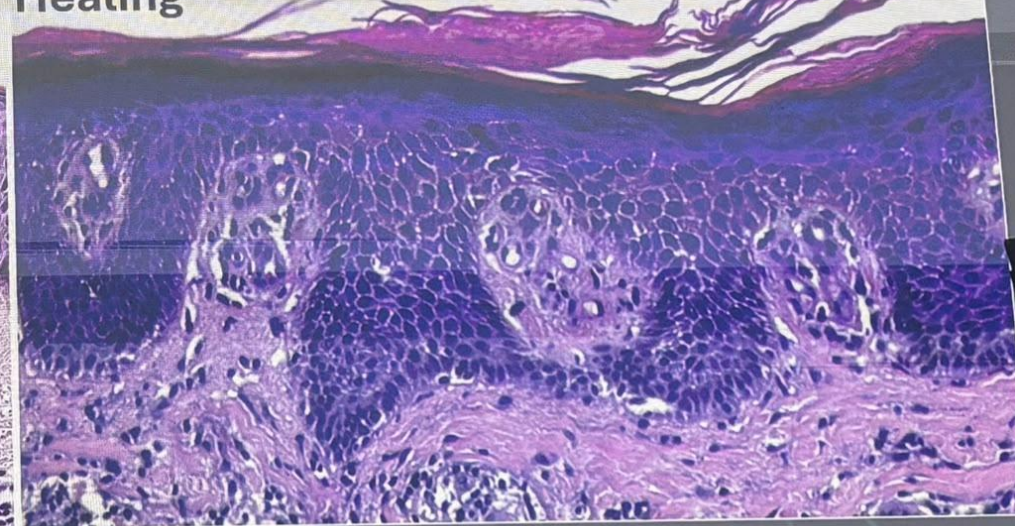
Factors influencing the histopathology of psoriasis

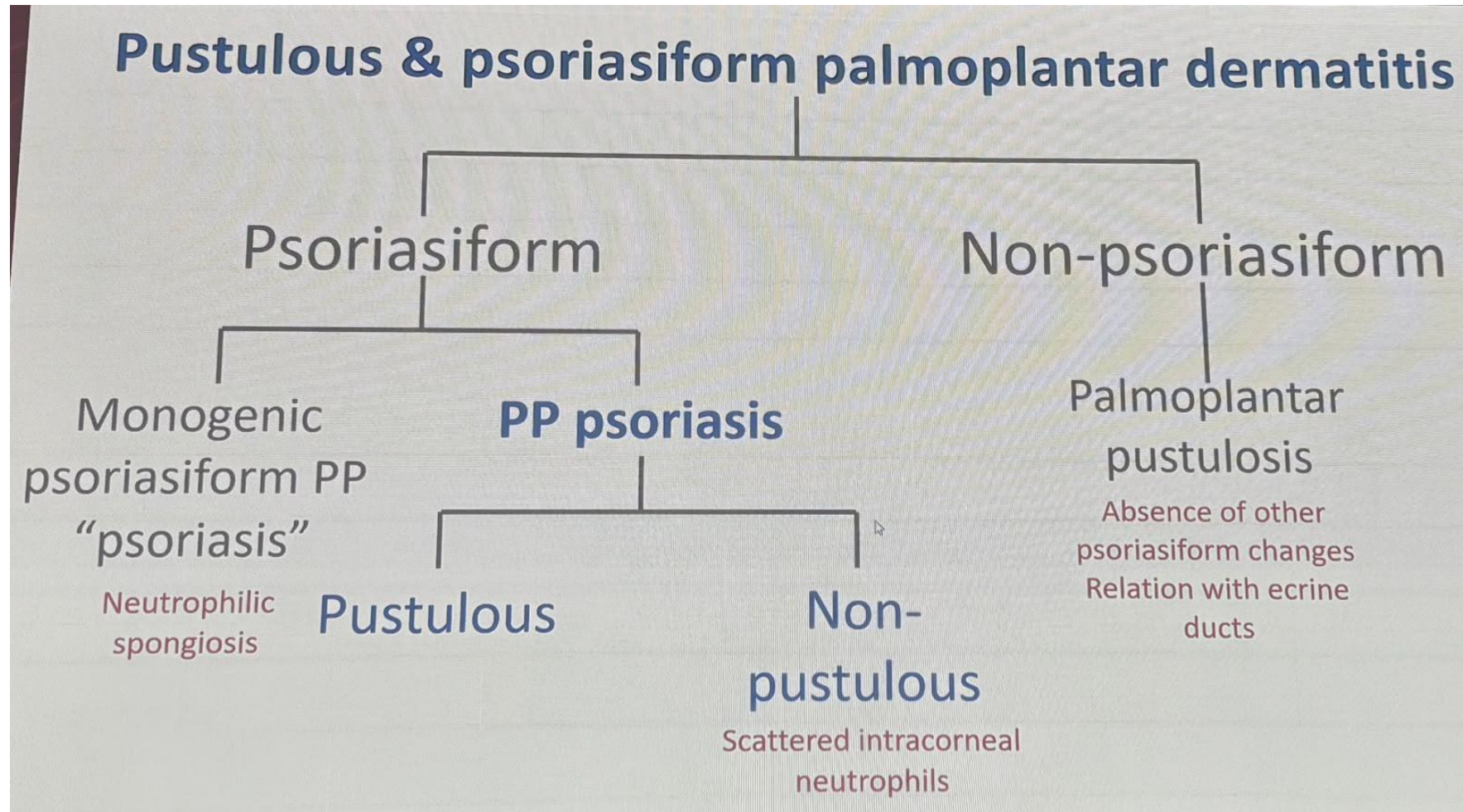
1. **Stage of progression:** Typical findings require some time to develop and fade progressively when lesions disappear
2. **Local factors:** traumatization, topical steroids, vascular insufficiency, other
3. **Clinical form:** vulgaris/en plaque, guttate, inverse, scalp, verrucous, other

Early lesion



Healing





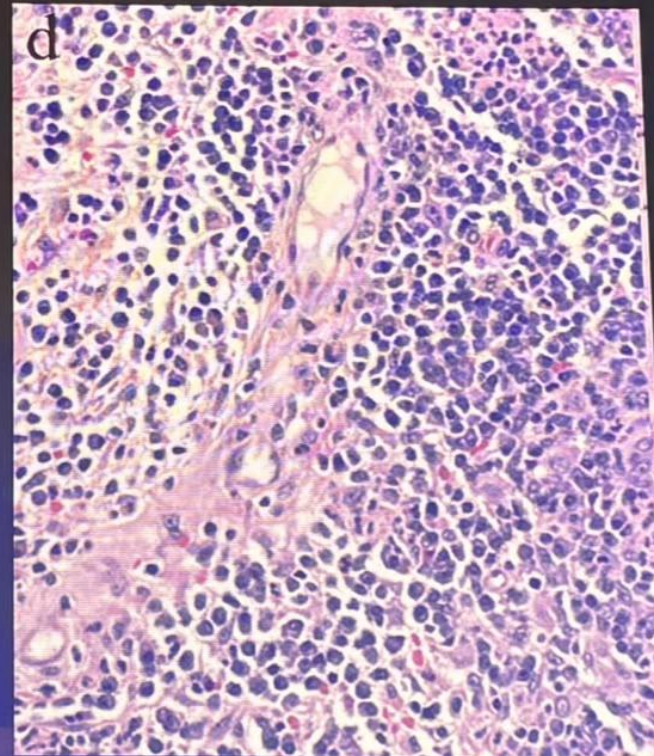
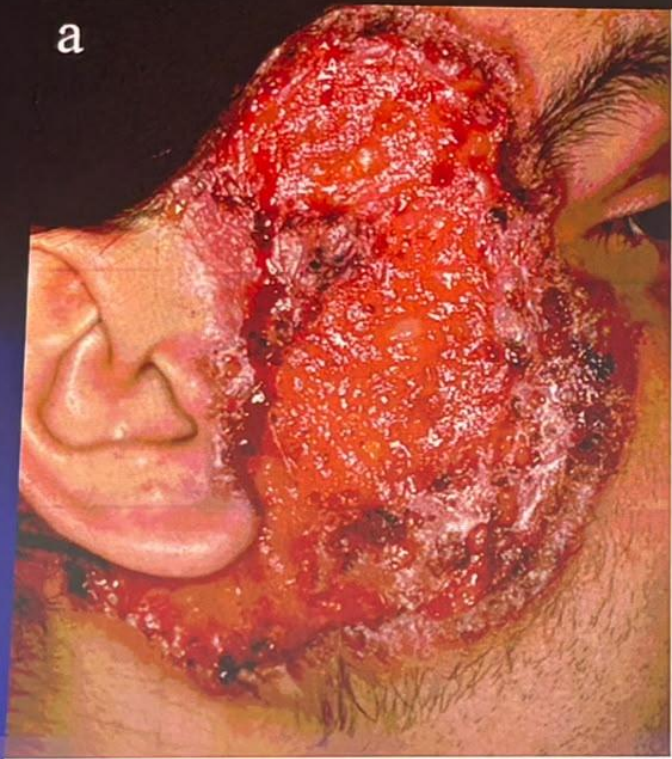
Exclusion of other causes of cutaneous ulceration

- **Vascular/occlusive** – arterial/venous ulcers, calciphylaxis, type 1 cryoglobulinaemia, anti-phospholipid syndrome, livedoid vasculopathy, Martorell's ulceration
- **Vasculitis** – ANCA, PAN, types 2 and 3 cryoglobulinaemia
- **Malignancy**
- **Infections** – blastomycosis, sporotrichosis, atypical mycobacteria, leishmaniasis, herpes, ecthyma gangrenosum
- **Drug induced**
- **Inflammatory** – cutaneous Crohn's

Becker et al. Clinical mimickers misdiagnosed as PG. Am J Clin Dermatol 2025;26:511-523

Syndromic PG			PSTPIP-1 has +ve regulatory function for pyrin inflammasome activation SLa Bella et al Front Immunol 2024:14
Autoinflammatory disease	Clinical manifestation	Genetic mutation	
PAPA	Pyogenic arthritis, PG, acne	PSTPIP-1	
PAPASH	Pyogenic arthritis, PG, acne, hidradenitis suppurativa	PSTPIP-1, NOD2	
PASH	PG, acne, hidradenitis suppurativa	PSTPIP-1, NLRP3, NLRP12, NOD2, LPIN2, NCSTN, IL-18	
PAC	Pyoderma gangrenosum, acne, ulcerative colitis	PSTPIP-1	
PASS	PG, acne, seronegative spondylarthritis, +/- hidradenitis suppurativa	PSTPIP-1	
PsAPASH	Psoriatic arthritis, PG, acne, suppurative hidradenitis	PSTPIP-1	
PAAND	PG, acne, cutaneous abscesses, fever, neutrophilic dermatosis	MEFV	

Cocaine-induced PG



- +ve cANCA (anti-proteinase-3)
- Cocaine and levamisole detected in hair

Diseases associated with PG (50-70% of cases)

- **Inflammatory bowel disease (24-41%)**
 - Ulcerative colitis
 - Crohn's disease
- **Inflammatory arthritis**
- **Haematological diseases (11-31%)**
 - Myelodysplastic syndrome/Leukaemias; AML, CML, CLL, hairy cell
 - Monoclonal gammopathy of uncertain/dermatological significance
 - Myeloma
 - Hodgkin and non-Hodgkin lymphoma
- **Miscellaneous causes**
 - Solid tumours
 - autoimmune hepatitis
 - primary immunodeficiencies

Take Home Messages

- **Exclude other causes of cutaneous ulceration**
- **Exclude infective cause of ulceration**
 - 16s ribosomal RNA to identify and classify bacteria
 - metagenomic testing to identify bacteria and viruses
- **Identify underlying cause**
 - myeloid and lymphoid next generation sequencing
 - lymphoma mutational panel
- **Clarity of therapeutic choices**
 - clinical trials

Pigment Network

- Typical pigment network

Common finding in dysplastic nevi (reticular nevi),
but many variations on the theme

Delicate network also in lentigo simplex, solar
lentigo and dermatofibroma

- Atypical pigment network

Dermoscopic criterion with high specificity for the
diagnosis of melanoma

Reticular pattern

- Correspond to proliferations of melanocytes along the elongated rete ridges
- Are the dermoscopic hallmark of naevi in adults with development at puberty
- Are typically seen in junctional and compound naevi (with and without dysplasia)

Globular pattern

- Correspond histopathologically to nests of melanocytes at the dermo-epidermal junction and in the dermis
- Are the dermoscopic hallmark of naevi in childhood
- Are typically seen in small congenital naevi, compound naevi (with and without dysplasia) and dermal naevi

EA
DV CONGRESS
2026

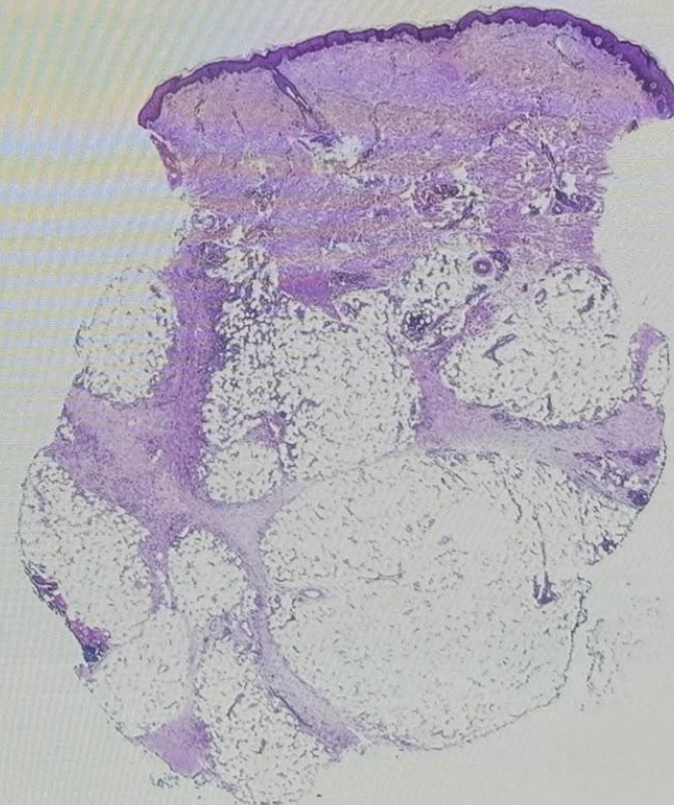
Pseudopanniculitis: Clinicopathological correlation

Panniculitis

Group of **inflammatory diseases** whose hallmark is the involvement of the subcutaneous tissue

Pseudopanniculitis

- **Secondary** involvement of subcutaneous tissue
- **Panniculitis-like** neoplastic and non-neoplastic skin conditions



EA CONGRESS
DV 2026

Pseudopanniculitis

Panniculitis-like

Not centered on the subcutaneous tissue

Most common causes:

- Infectious
- Secondary to external agents
- Neoplastic



Radiesse (Calcium hydroxylapatite) reaction



Radiesse (Calcium Hydroxylapatite) Hands / Hand Rejuvenation With Fillers / Dorsal Hand Volumization

Jason Emer, MD ✓
161 k subscribers

Subscriu-me

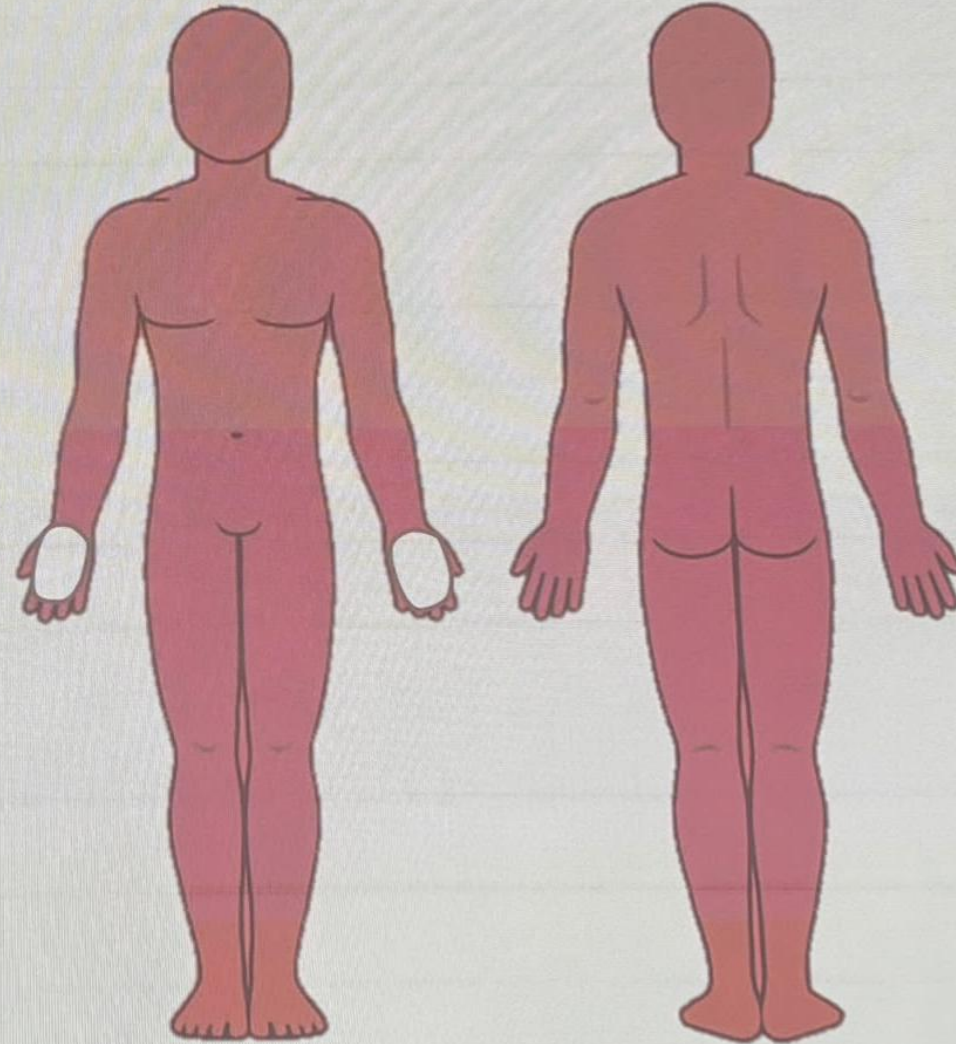
37

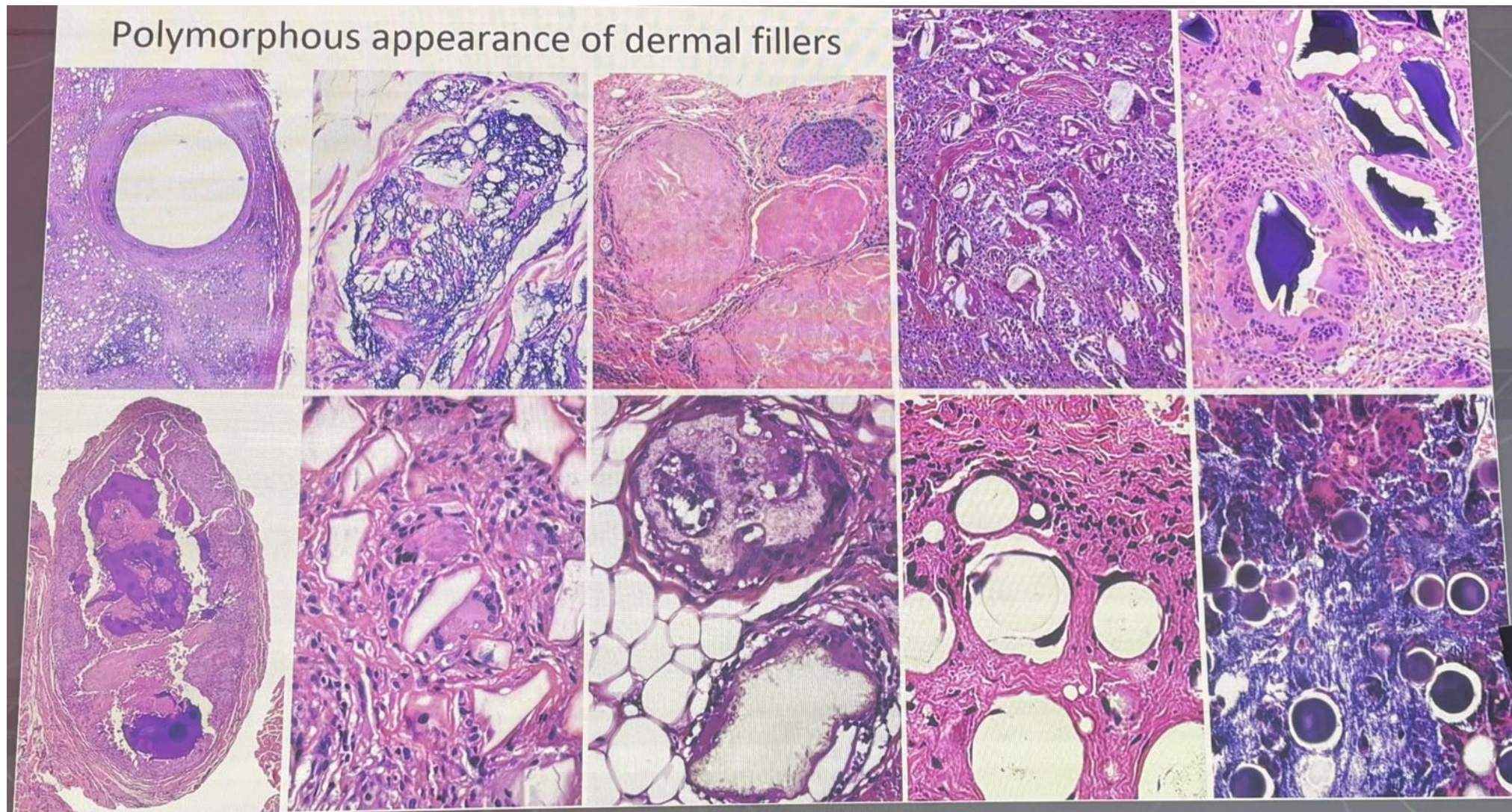


Comparteix

Baixa

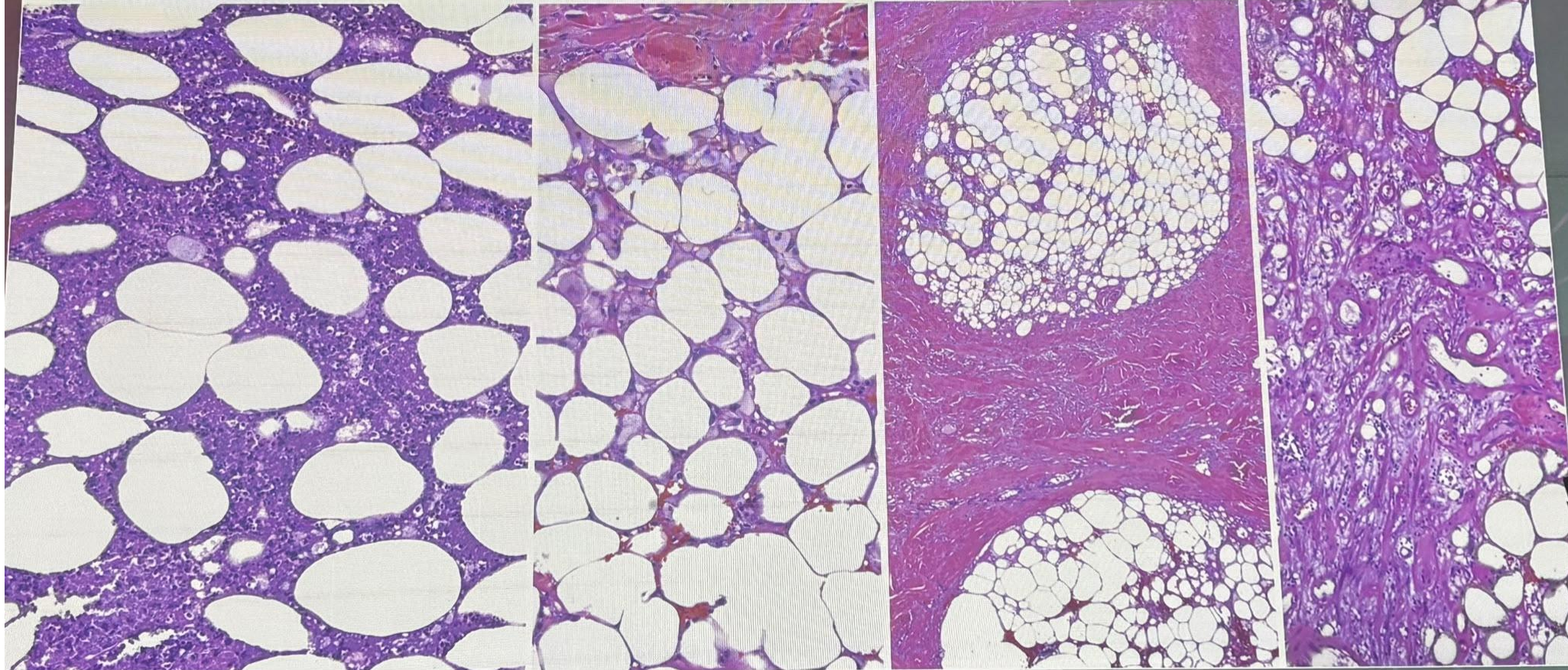
Filler-free areas (so far)





- Bx** • Acute lobular inflammation without vasculitis
- Lipophagic granulomas
 - Sclerotic thickening of the septa
 - Hyalinized vessel walls and pleomorphic fibroblasts

Postirradiation “panniculitis”
after cardiac catheterization



- La genética está redefiniendo las entidades dermatológicas y su aproximación terapéutica.
- Siguen existiendo dudas sobre la clasificación y pronóstico de las lesiones melanocíticas.
- Es fundamental la correlación clínico-patológica.

Una iniciativa de:



ACADEMIA ESPAÑOLA
DE DERMATOLOGÍA
Y VENEREOLOGÍA



ACADEMIA ESPAÑOLA
DE DERMATOLOGÍA
Y VENEREOLOGÍA

Con el patrocinio de:



AEDV 35^a
edición

HIGHLIGHTS

Viena

30sep - 3oct
2026

La Academia Española de Dermatología y Venereología expresa su agradecimiento al patrocinador UCB, por su especial apoyo y contribución con la actividad formativa Highlights 2026.

Una iniciativa de:



ACADEMIA ESPAÑOLA
DE DERMATOLOGÍA
Y VENEREOLOGÍA



FUNDACIÓN
PIEL SANA
ACADEMIA ESPAÑOLA
DE DERMATOLOGÍA
Y VENEREOLOGÍA

Con el patrocinio de:



AEDV 35ª
edición

HIGHLIGHTS

Viena

30sep - 3oct
2026

GRACIAS