SKIN CANCER SCREENING IN 2026

Richard Shellenberger, DO, MACP

DISCLOSURES

None

OBJECTIVES

- Review epidemiology of skin cancer
- Examine the importance of early detection
- Screening high risk patients
- Evaluation of pigmented lesions
- An ounce of prevention

EPIDEMIOLOGY DATA

Non-melanoma skin cancer (Keratinocyte carcinoma)

- Most common cancer in the US
  - (98% skin cancers)
  - 1/5 lifetime risk
  - ~ 3-5 million cases/year

Melanoma (1-2% of skin cancer)

- 104,960 in 2025
  - ~61K in Men
  - ~44 K in women)SEER data
- 8,430 deaths/yr in the US
- 5th most common cancer both sexes

MELANOMA EPIDEMIOLOGY

- # of new cases = cervical + endometrial cancer
- Only 20% < cancers of colon and rectum
- **1/28 lifetime risk in US for men**
- **1/41 for women**

MELANOMA EPIDEMIOLOGY

- Age adjusted incidence rate
  - 8.8 per 100,000 in 1975
  - 28.4 per 100,000 in 2022
- 1.4 million living with melanoma in 2021 in the US
- **GOOD NEWS!**
  - Mortality declining 2011- 2021 5% in age < 50 and 3% in age > 50
  - 5 yr survival for distant stage melanoma has risen from 15% to 35%

SUPPORT FOR MELANOMA EARLY DETECTION

- 5-year survival (ACS)
  - **99% for localized stage I and II**
  - 74 – 76% Regional **stage III**
  - 35 % for distant **stage IV**

PUBLIC HEALTH – SHOULD WE SCREEN?

Incidence of melanoma rose 3%/yr from 1975-2015

Most solid tumors decreased!

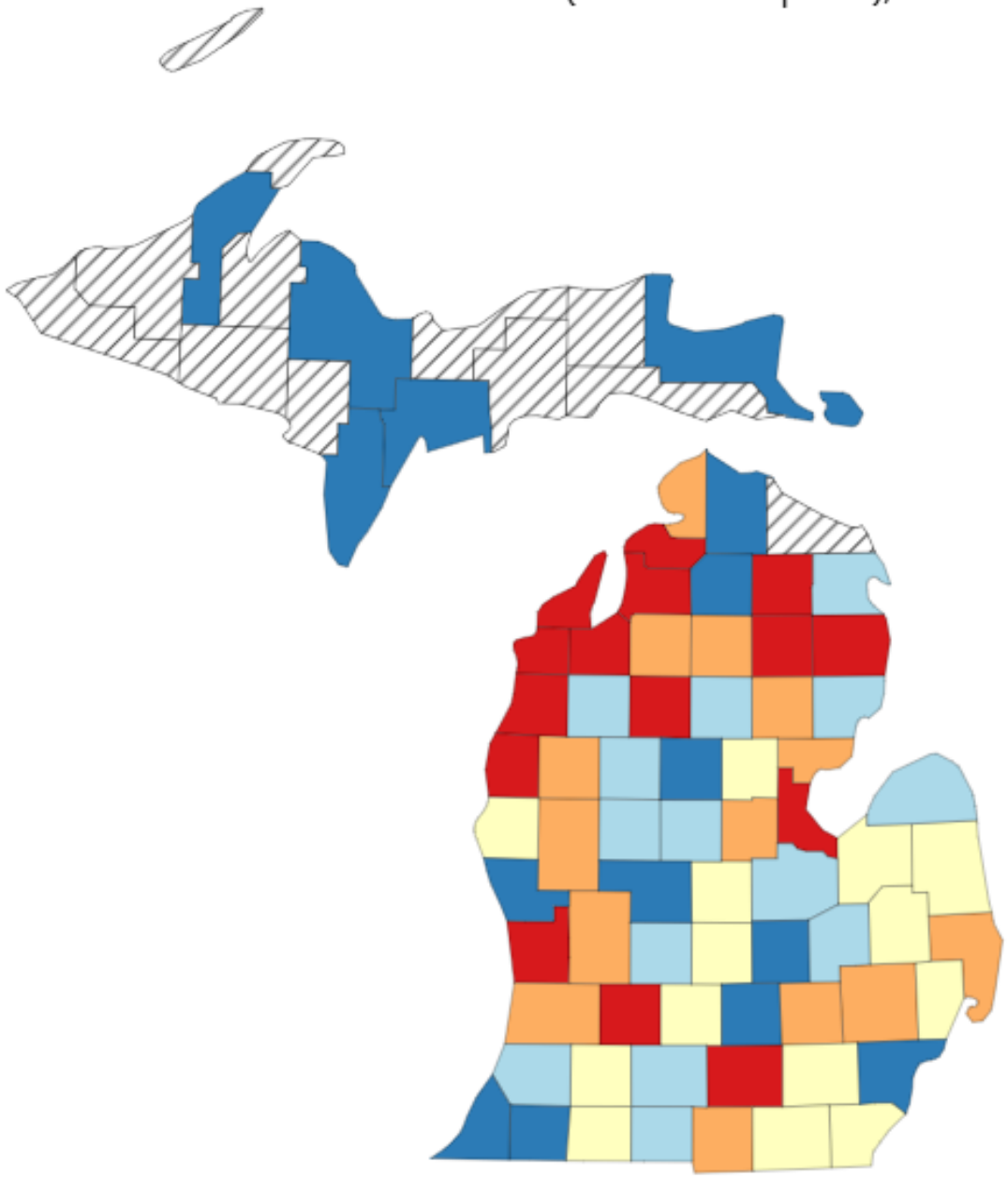
patients tx for melanoma has doubled since 2002

Total cost increases by 288% since 2002

- **For all other cancers 25%**

Melanoma of the Skin (All Stages^), 2018-2022

All Races (includes Hispanic), Both Sexes, All Ages



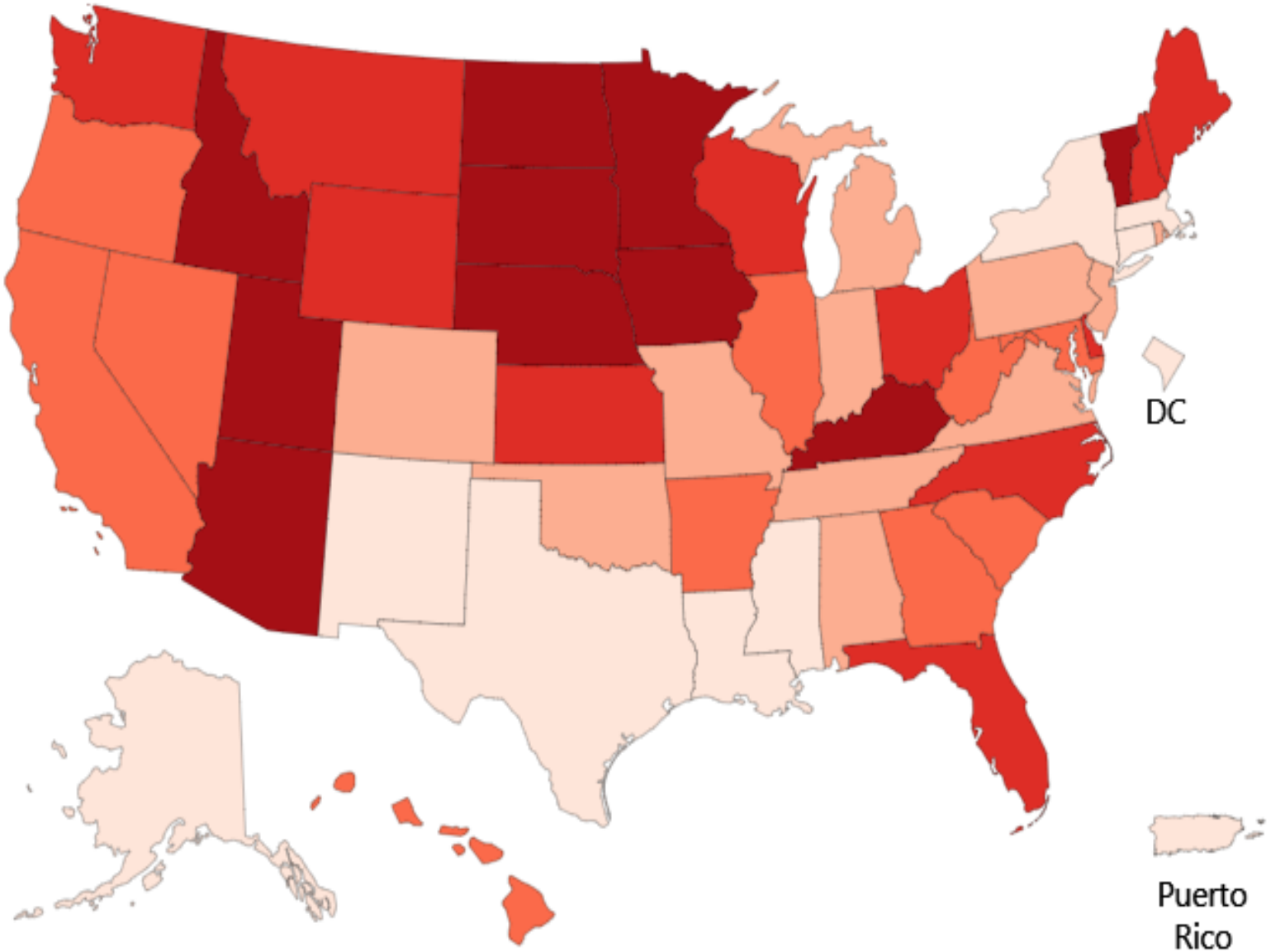
Age-Adjusted

Annual Incidence Rate

(Cases per 100,000)

- 11.4 to 16.6
- >16.6 to 18.5
- >18.5 to 22.5
- >22.5 to 27.2
- >27.2 to 43.2
- Suppressed

All Races (includes Hispanic/Latino), Both Sexes, All Ages, 2018-2022



Age-Adjusted
Annual Incidence Rate
(Cases per 100,000)

- 3.3 to 19.2
- >19.2 to 22.1
- >22.1 to 25.0
- >25.0 to 28.4
- >28.4 to 42.7

- Physician- detected melanoma are consistently thinner than patient detected melanoma
  - Brady et al., 2000
  - Physicians 3.6 X more likely to find lesions < 0.75 mm Breslow depth
  - Tim Johnson(U Mich) 2002 found physician detected melanoma thinner than patient or spouse detected melanoma

SCREENING

- Breast cancer screening in age 40+ 80%
- Cervical cancer screening age 21-65 75%
- Colorectal cancer screening 67%
- PSA (Now "C" USPSTF) 38%
- Skin cancer (NIH estimates) 14-30%%

- All increasing except not certain for skin cancer

2023
SCREENING RATES FOR US CANCERS

SCREENING FOR SKIN CANCER

- **The April 2023 USPSTF statement found that while early detection helps survival, there is limited evidence on the overall benefits vs. harms of screening, leading to the "I" (Insufficient) rating.**

WEINSTOCK, ET AL (CANCER, OCT 15, 2016) UPMC MELANOMA SCREENING PROGRAM

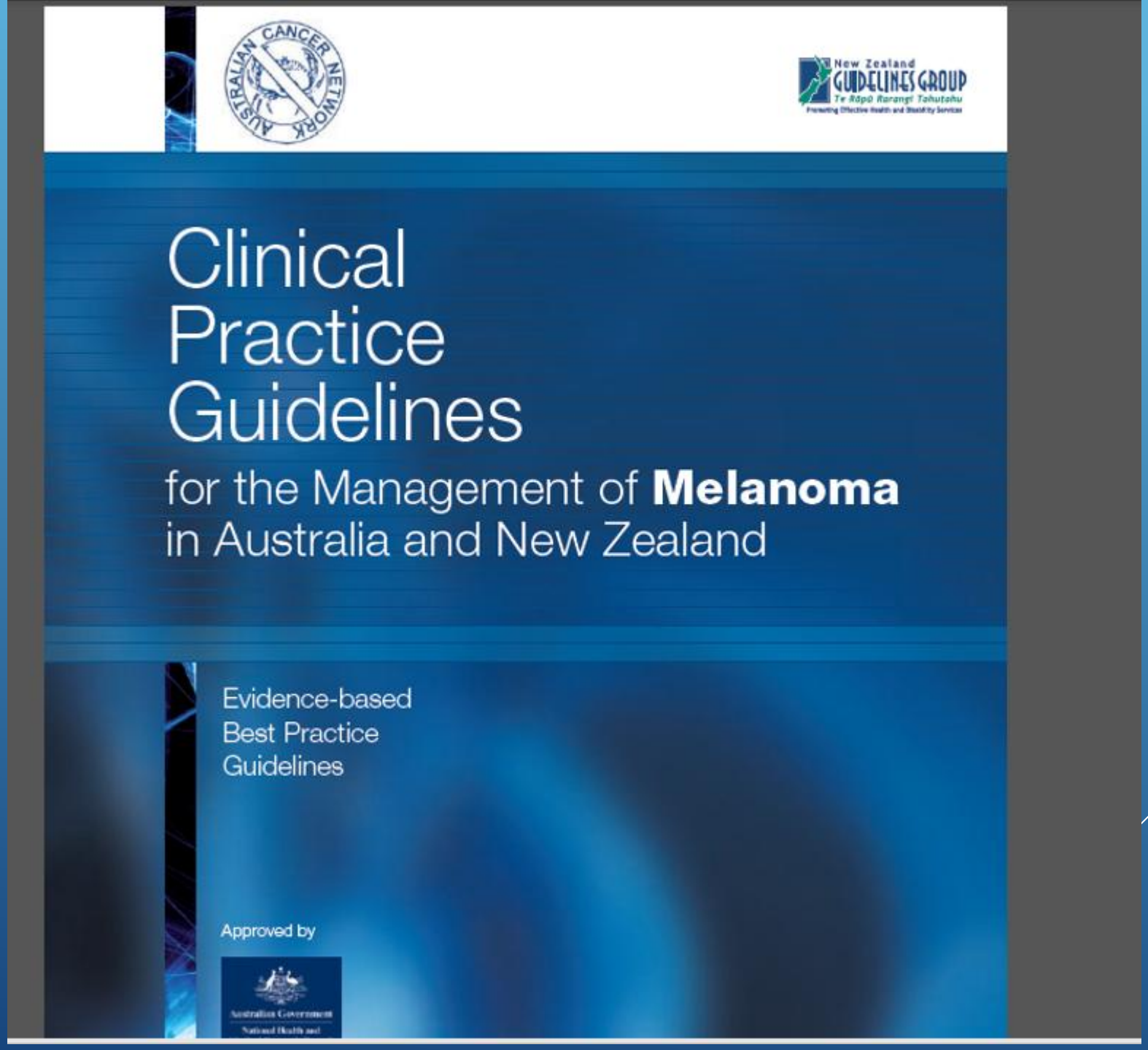
- Landmark primary care skin cancer screening QI
  - PCPs encouraged to offer FBSE to informed patients
  - 2 groups of PCP - 2 hr web-based training module INFORMED
  - EMR alerts for FBSE pt age > 35 when they had a routine visit
  - 15.9% received FBSE
  - Melanoma dx 79% higher in INFORMED group
  - Screened patients
    - 2.4 X more likely to be dx with melanoma
    - Melanoma thinner in group screened

Lack of Data from RCT

Support for screening

- Physicians find thinner melanoma than pt or family
- Yet only 1/3 of melanoma are discover by doctors
- **60 – 80+ % pt dx w melanoma**
  - **2 doctor visits same year as dx**

WHAT TO DO?


AUSTRALIAN CANCER NETWORK
New Zealand
GUIDELINES GROUP
Te Rōpū Rarangi Tohutohu
Clinical
Practice
Guidelines
for the Management of Melanoma
in Australia and New Zealand
Evidence-based
Best Practice
Guidelines
Approved by
Australian Government

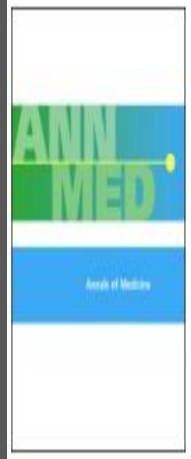
HIGH-RISK PATIENTS

- Person's age and gender
- History of previous melanoma or NMSC
- Family history of melanoma
- Number of nevi
- Skin and hair pigmentation
- Response to sun exposure (sunburns)
- Evidence of actinic skin damage

Grade B Evidence

COUNTRIES WITH SKIN CANCER SCREENING

- Australia / New Zealand
- Canada
  - "Mole Mobile" – free screening
- UK, Switzerland, Belgium, Austria and Spain
  - High risk
- Germany – skin exam every 2 years
- US has the highest # of cases of skin cancer and #9 in IR



Taylor & Francis

Annals of Medicine

ISSN: 0785-3890 (Print) 1365-2060 (Online) Journal homepage: http://www.tandfonline.com/loi/iann20

Melanoma screening: A plan for improving early detection

Richard Shellenberger, Mohammed Nabhan & Sweta Kakaraparthi

To cite this article: Richard Shellenberger, Mohammed Nabhan & Sweta Kakaraparthi (2016): Melanoma screening: A plan for improving early detection, Annals of Medicine, DOI: 10.3109/07853890.2016.1145795

To link to this article: http://dx.doi.org/10.3109/07853890.2016.1145795

MAYO CLINIC

COMMENTARY

Melanoma Screening: Thinking Beyond the Guidelines

Richard A. Shellenberger, DO; Sweta Kakaraparthi, MD; and Karine Tawagi, MD

Malignant melanoma is a growing public health concern for many countries worldwide. The incidence of melanoma has increased during the past 50 years in the United States and in most countries with fair-skinned populations.[1] Most cases are seen in developed countries, where melanoma ranks as the sixth leading cancer.[2] Paradoxically, melanoma composes a small minority of all skin cancer cases seen in the United States but accounts for most skin cancer deaths.[3] The continuing rise in melanoma mortality in the United States is disconcerting considering a decline in death rates for most solid tumors from 1975 through 2013. The cumulative incidence of melanoma in the US white population aged 0 to 74 years ranks third worldwide behind Australia and New Zealand.[4] Evidenced-based guidelines worldwide have not recommended routine screening for any type of skin cancer in the general population. Can thinking beyond these guidelines cultivate a benefit for a cancer with such a requisite for enhanced outcomes? identifying and managing patients at high risk for future melanoma through clinical assessment. These risks include a person's age and sex, history of previous melanoma and nonmelanoma skin cancer; family history of melanoma, number of nevi (common and atypical), skin and hair pigment, response to sun exposure, and evidence of actinic skin damage. Evidence grade B, which represents a body of evidence that can be trusted to guide practice in most situations, has been designated for this recommendation. We believe that these recommendations can be applied to the implementation of research aimed at expanding the evidence base. The USPSTF agrees that targeted research among populations with the highest burden of disease would be useful.[5] However, until clear evidence to support screening is available, stemming the tide of the unfavorable epidemiology of malignant melanoma in the United States may remain a challenge. An opportunity for improving early detection by screening high-risk patients may exist.

From the Internal Medicine Department (R.A.S.) and Internal Medicine Residency Program (K.T.), St Joseph Mercy Hospital, Ann Arbor, MI; and Division of Hematology/Oncology, East Carolina University, Brody School of Medicine, Greenville, NC (S.K.).

HIGH-RISK SCREENING

- Should we screen? Highest melanoma risk
  - **Caucasian men > 50**
  - **Sunburns x 5**
  - **FH (first degree) or personal history of melanoma**
  - **> 40 nevi > 2 mm or > 5 atypical nevi**

ORIGINAL ARTICLE

Cancer Reports | WILEY

Disparities in melanoma incidence and mortality in rural versus urban Michigan

Richard A. Shellenberger[1] | Timothy M. Johnson[2] | Fatima Fayyaz[3] | Bhanu Swamy[1] | Jeremy Albright[4] | Alan C. Geller[5]

[1]St. Joseph Mercy Ann Arbor Hospital, Ypsilanti, Michigan, USA

[2]Ganger Dermatology and Departments of Dermatology, Otolaryngology, and Surgery, Michigan Medicine, Ann Arbor, Michigan, USA

[3]Northwell Health Cancer Institute, Zucker School of Medicine, New Hyde Park, New York, USA

[4]Methods Consultants of Ann Arbor, Ypsilanti, Michigan, USA

[5]Harvard TH Chen School of Public Health, Cambridge, Massachusetts, USA

Correspondence
Richard A. Shellenberger, St. Joseph Mercy Ann Arbor Hospital, Suite 3009 RHC, 5333 McAuley Dr., Ypsilanti, MI 48197, USA.
Email: Richard.Shellenberger@trinity-health.org

Abstract

Introduction: We sought to identifying the possible existence of disparities between rural and urban residents of Michigan for the incidence by stage of disease and disease-specific mortality for cutaneous melanoma (CM).

Methods: Incidence rates for stage of disease and disease-specific mortality of cutaneous melanoma were calculated and controlled for gender, age, and area of residence from January 1, 2014, to December 31, 2018, from data collected form the Michigan Department of Health and Human Services and the Centers for Disease Control and Prevention.

Results: The incidence rates for CM were significantly higher in rural Michigan counties, from 2014–2018, for all patients, both age groups, both genders and all stages. Melanoma-specific mortality rates were also significantly higher for all patients, both age groups and both genders in rural Michigan counties. Using logistic regression analysis, while controlling for age and gender, rural Michigan counties continued to have a higher melanoma-specific morality rate during our study period (OR = 1.491; 95% CI, 1.27–1.74; p = <.001).

Conclusion: We found significant disparities in the incidence rates and disease specific mortality for cutaneous melanoma in rural compared to urban Michigan from 2014–2018.

KEYWORDS
cutaneous melanoma, melanoma incidence, melanoma-specific mortality, rural disparities, rural healthcare

1 | INTRODUCTION

Sociodemographic factors have been associated with the incidence, stage of disease, treatment, trial involvement and prognosis for many

those lacking any core urban area with a population of at least 50 000 persons.[2,3] The incidence rate and mortality rate of many cancers have been shown to be higher in rural populations compared to urban.[4–6] For colorectal, breast, prostate, and cervical cancers; lower

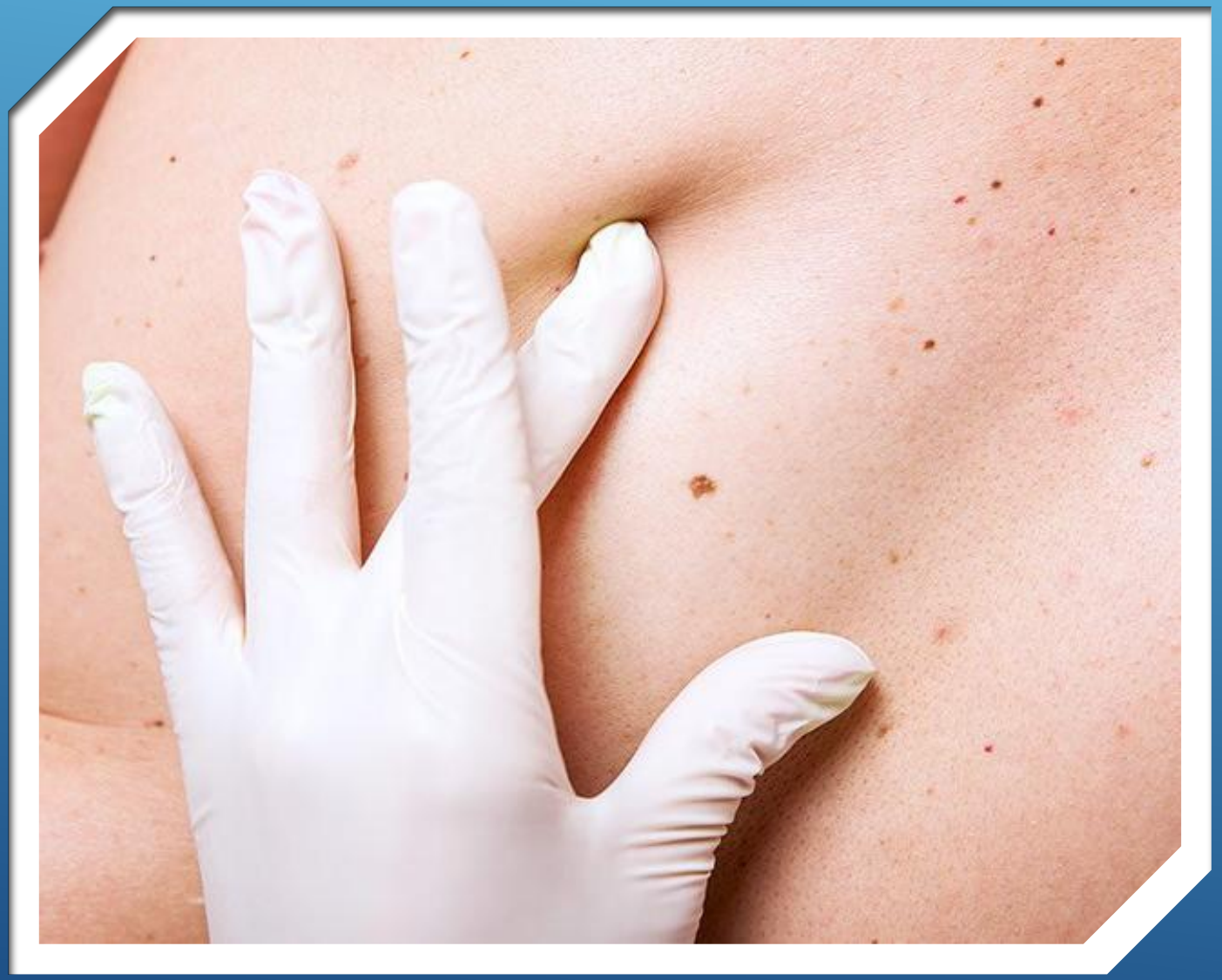
MICHIGAN RURAL MELANOMA DISPARITIES 2014 - 2018

IR Significantly higher in rural Michigan

- (**IRR 1.30, 95% CI 1.25 – 1.36, *p* <.001**)
- Higher in all SEER stages

Cance specific mortality significantly higher in rural Michigan

- (**MRR 1.491; 95% CI, 1.27–1.74; p <.001**)



SCREENING IS LOOKING

SKIN EXAMINATION

Are doctors looking at skin?

- < 25 % Pt in US report a skin exam
- 24% of high risk (2014, Lakhani NA, *Prev Med*)

Patients are concerned

- "Moon Shots" for some of the deadliest cancers
  - Melanoma is #2 of the 7 Moon Shots

BARRIERS TO SKIN EXAM

- Time
- Competing comorbidities
- Getting patients undressed
- Lack of training
  - Wise et al. 2009
    - 76% residents never trained
    - **16% reported being skilled**
  - Shellenberger et al, JGIM, 2018
    - FM residents performed better than IM residents in Skin Cancer Examination

SKIN CANCER SIGNS OR SX

- Moles than grow, itch or bleed
- “Sores” which do not heal
- Pigment spreading around a lesion
- Red or black new pigment

A
Asymmetry
One half is unlike the other.

GOOD

Symmetrical

Asymmetrical

BAD
Have a doctor check it out

B
Border
Blurry and/or jagged edges.

GOOD

Even edges

Uneven edges

BAD
Have a doctor check it out

C
Colour
More than one shade or colour.

GOOD

One shade

Two or more shades

BAD
Have a doctor check it out

D
Diameter
Greater than 6 mm.

GOOD

Smaller than 6mm

Larger than 6mm

BAD
Have a doctor check it out

E
Evolution
Watch for changes over time. If your mole changes in size, shape or colour, it might be suspicious.

"ABCDE" FOR MELANOMA

Number	Probability of melanoma (LR)
1	1.5
2	2.6
3	3.3
4	**8.3**
5	**107**

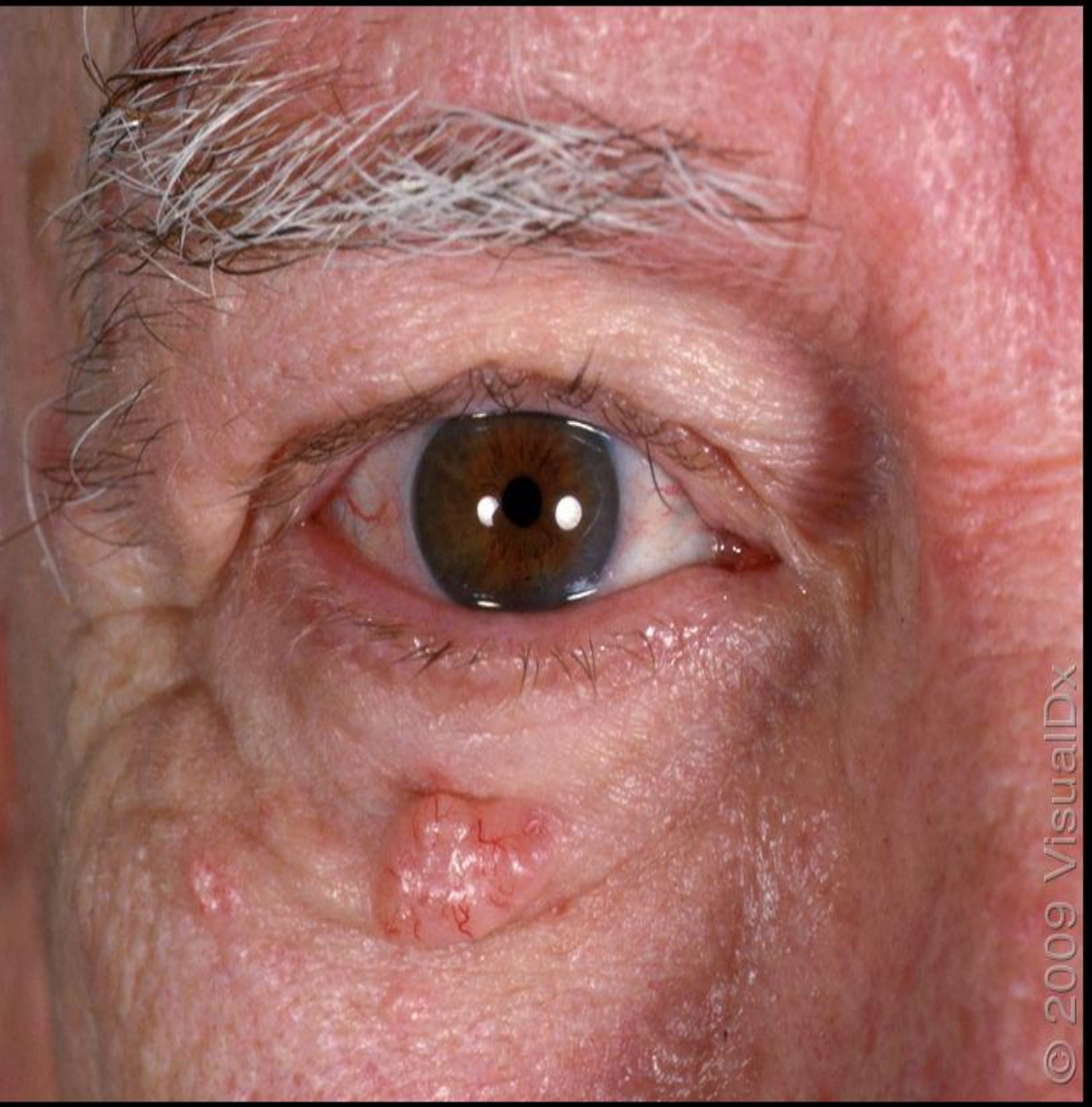
Ebell M. Clinical Diagnosis of Melanoma. Am Fam physician. 2008. 78(10) 1205-1208

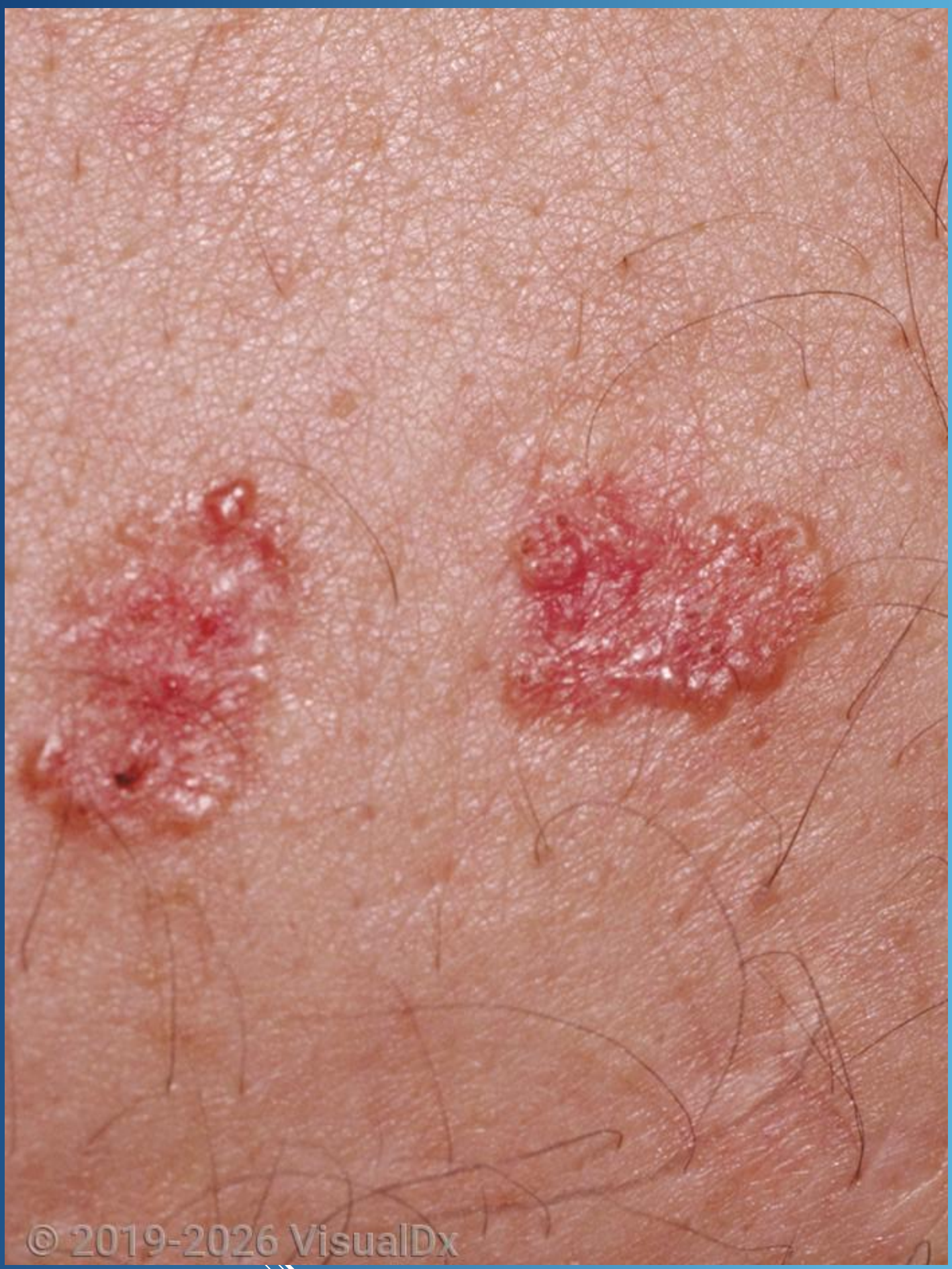
EVOLVING

Lesion is **new** or **changing** in **size, shape, color or sx (bleed and itch)**

Questions:

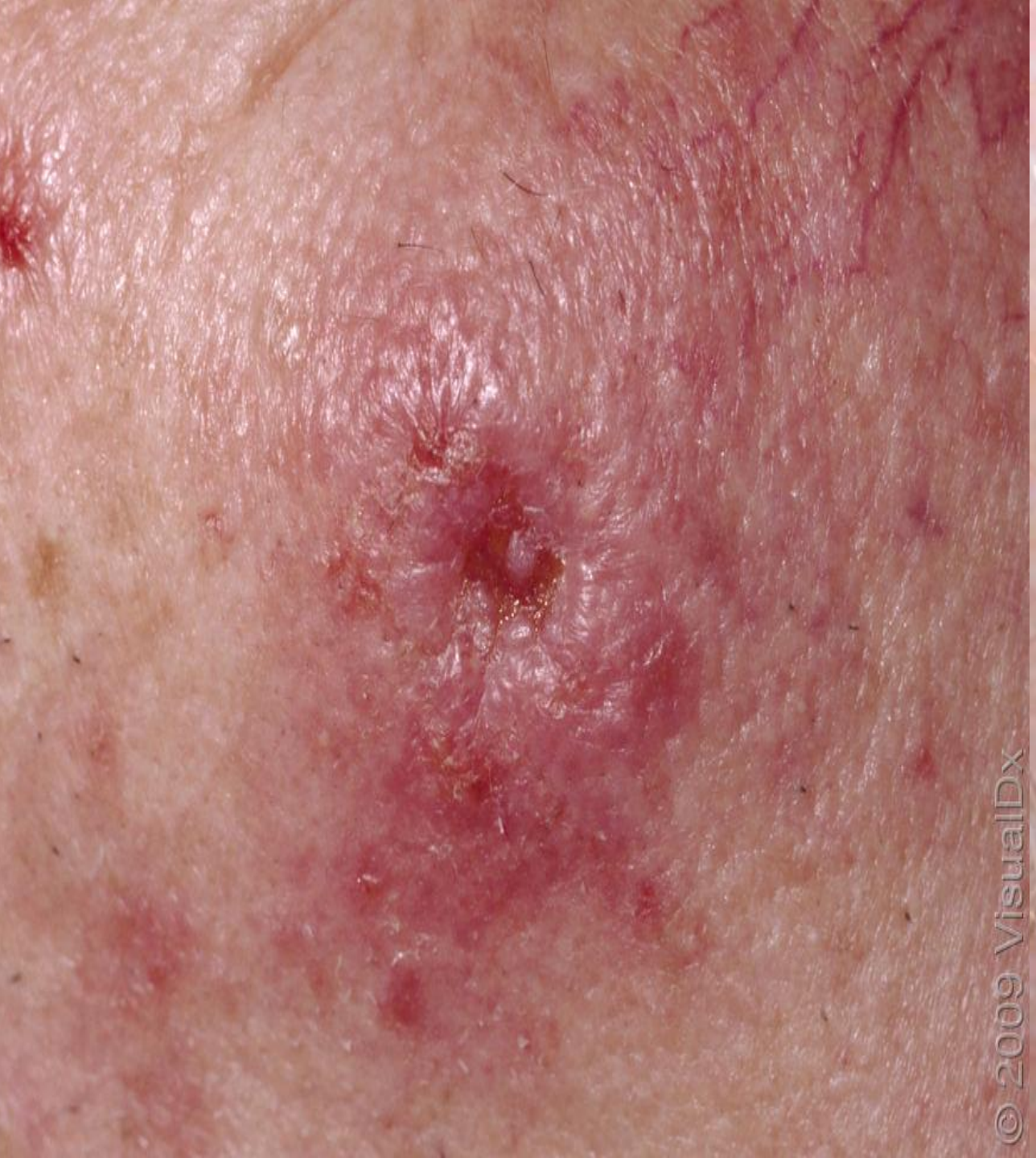
- Ask the patient
- Ask patient's family
- Ask for or take photos

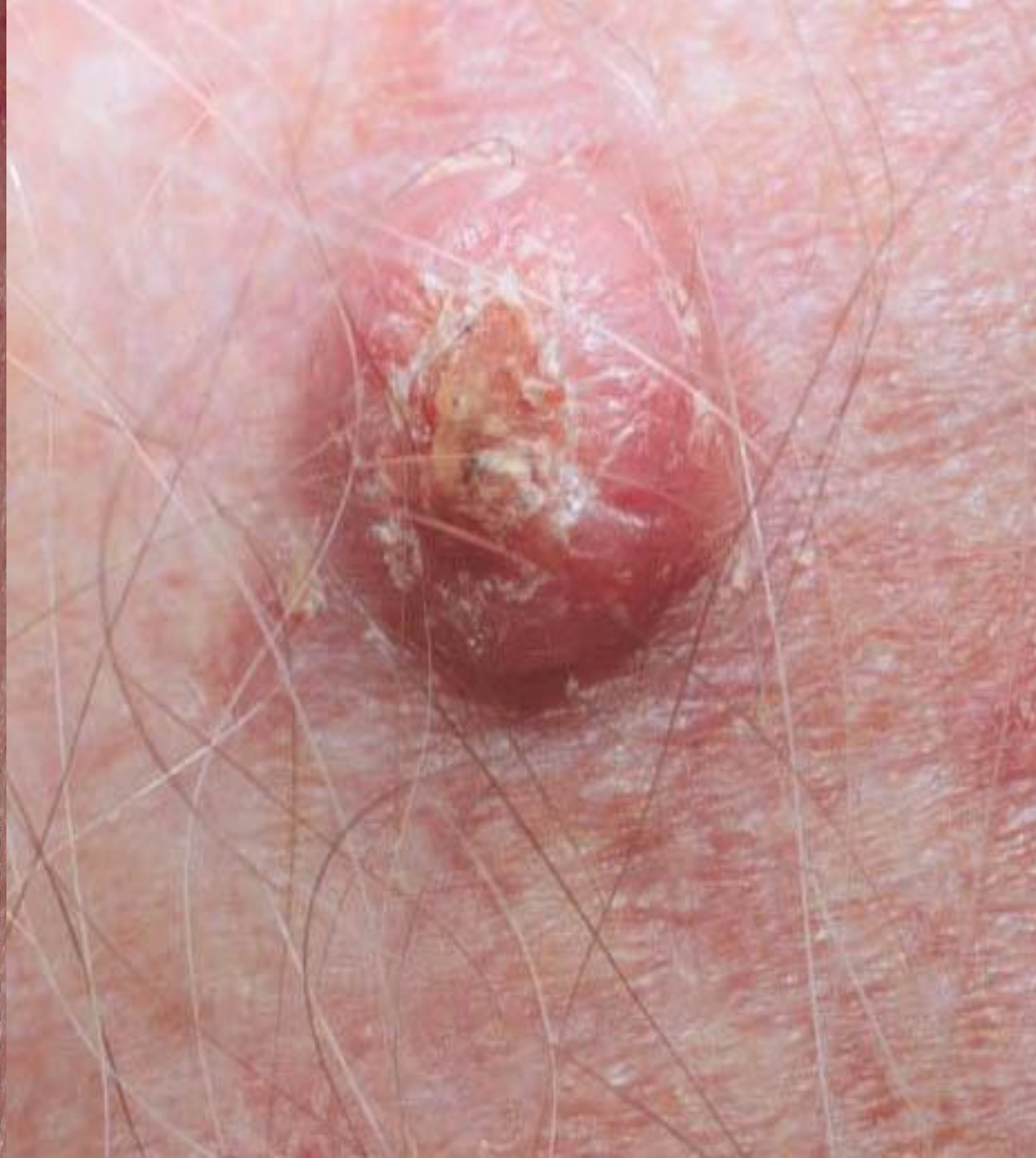

© 2009 VisualDx

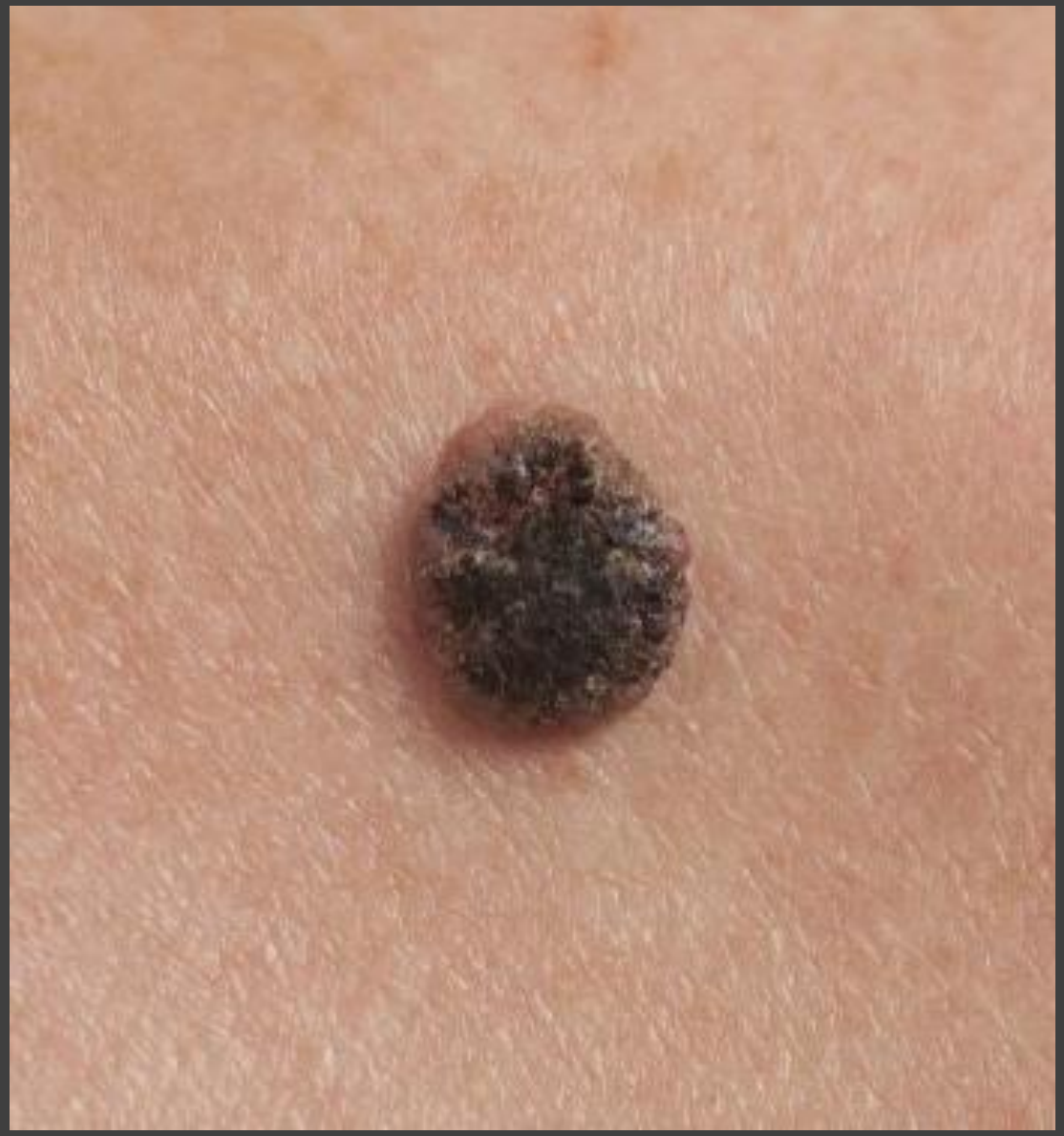

© 2019-2026 VisualDx

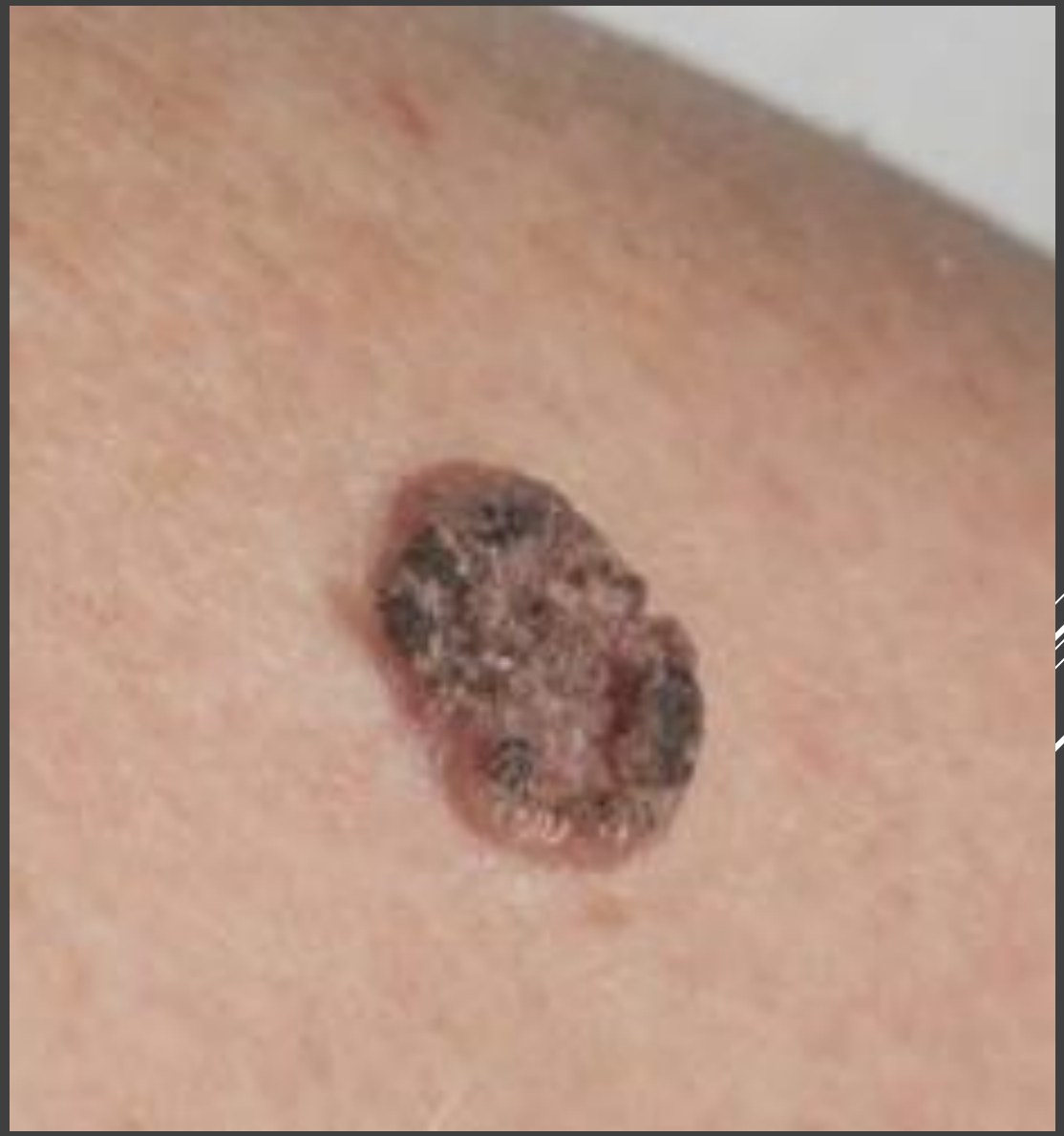
BASAL CELL SKIN CANCER

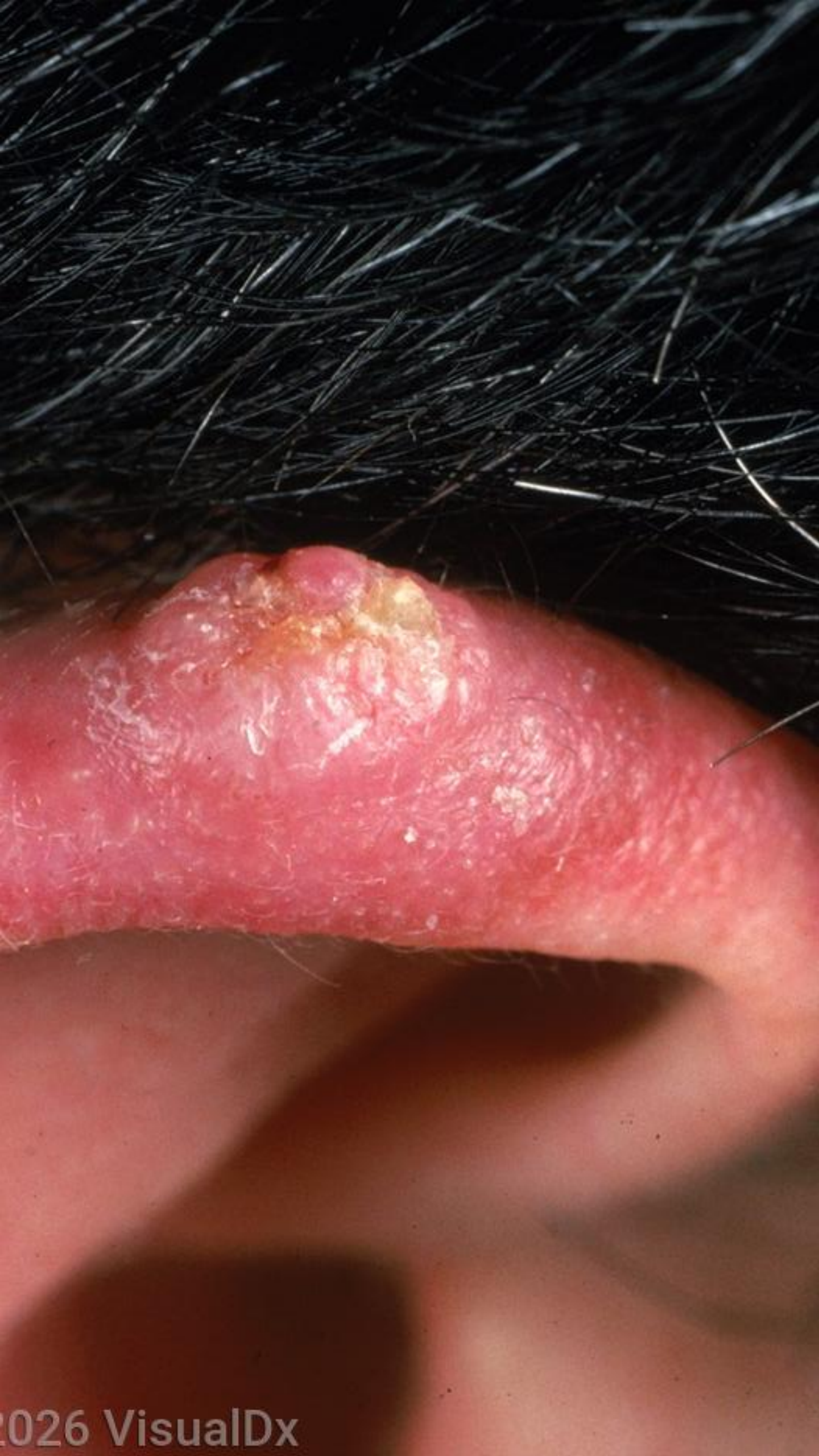
- Nodular and superficial
  - BCSC 60% of primary skin cancers
  - most common on face
- Slow-growing locally invasive
  - Oval, shiny, centra atrophy and vessels visible
- Can do initial bx – shave or **punch** ok
  - Infiltrative or sclerosing types will need Mohs surgery

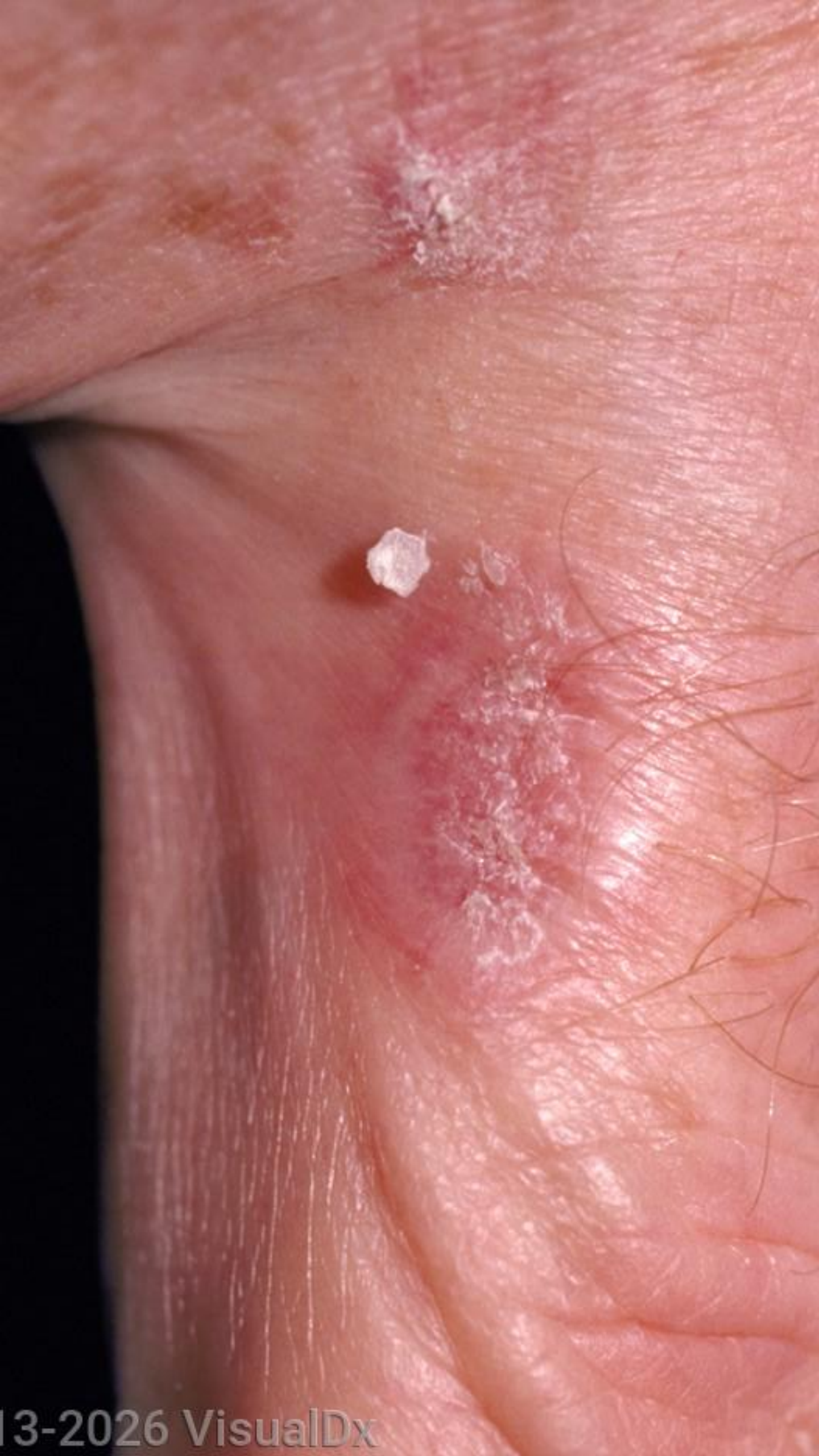









2026 VisualDx

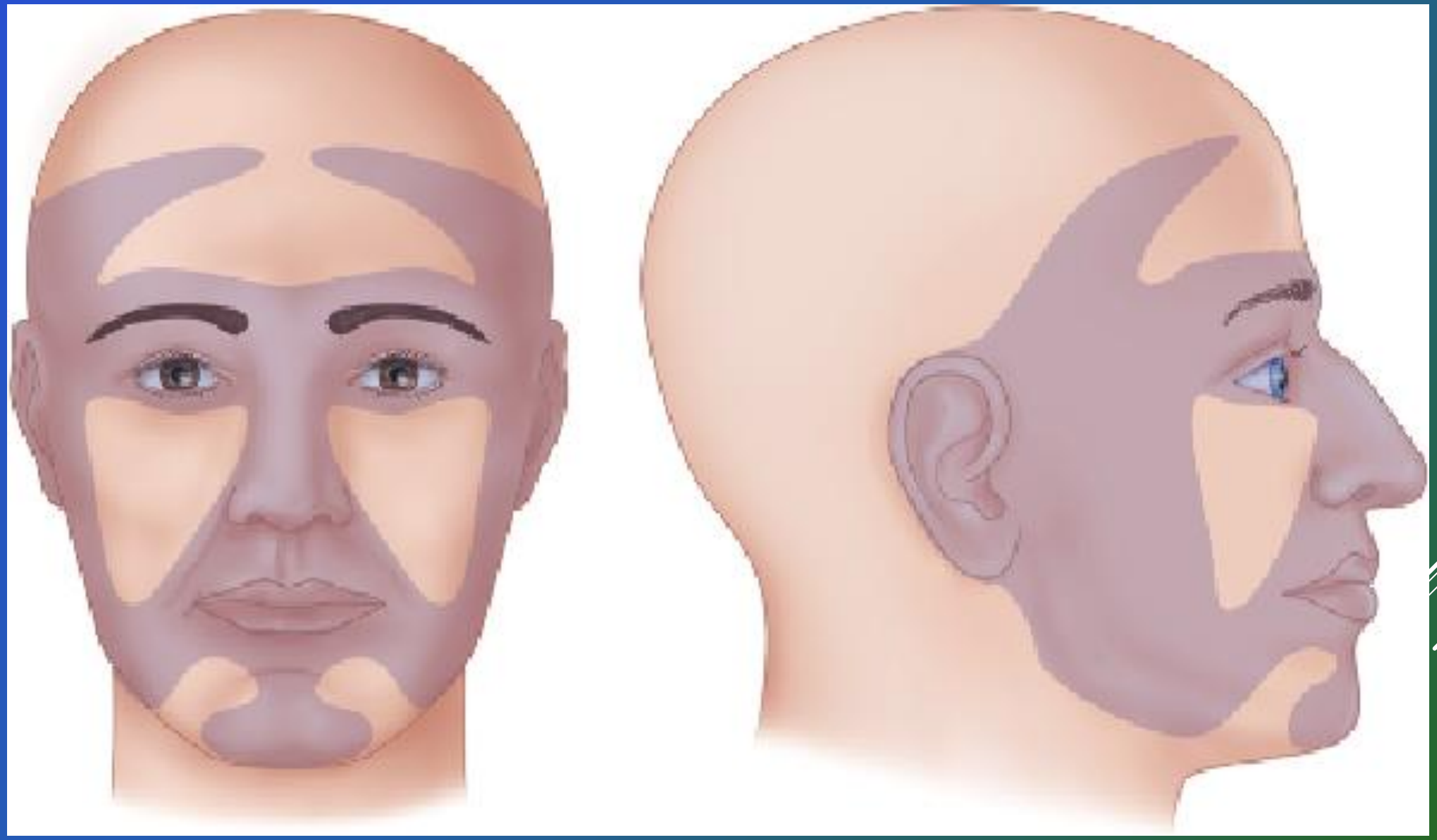

13-2026 VisualDx

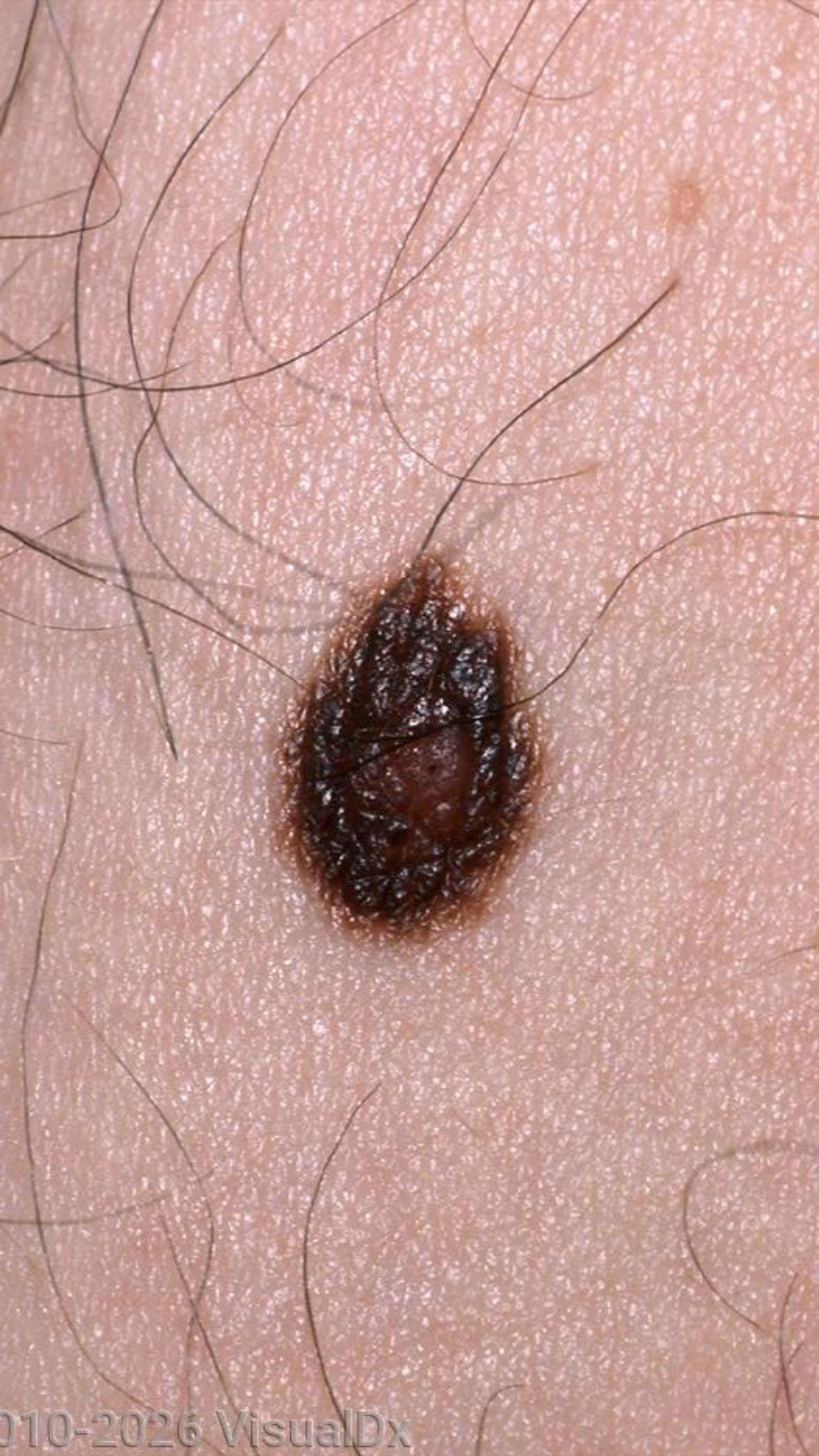
SQUAMOUS CELL SKIN CANCER

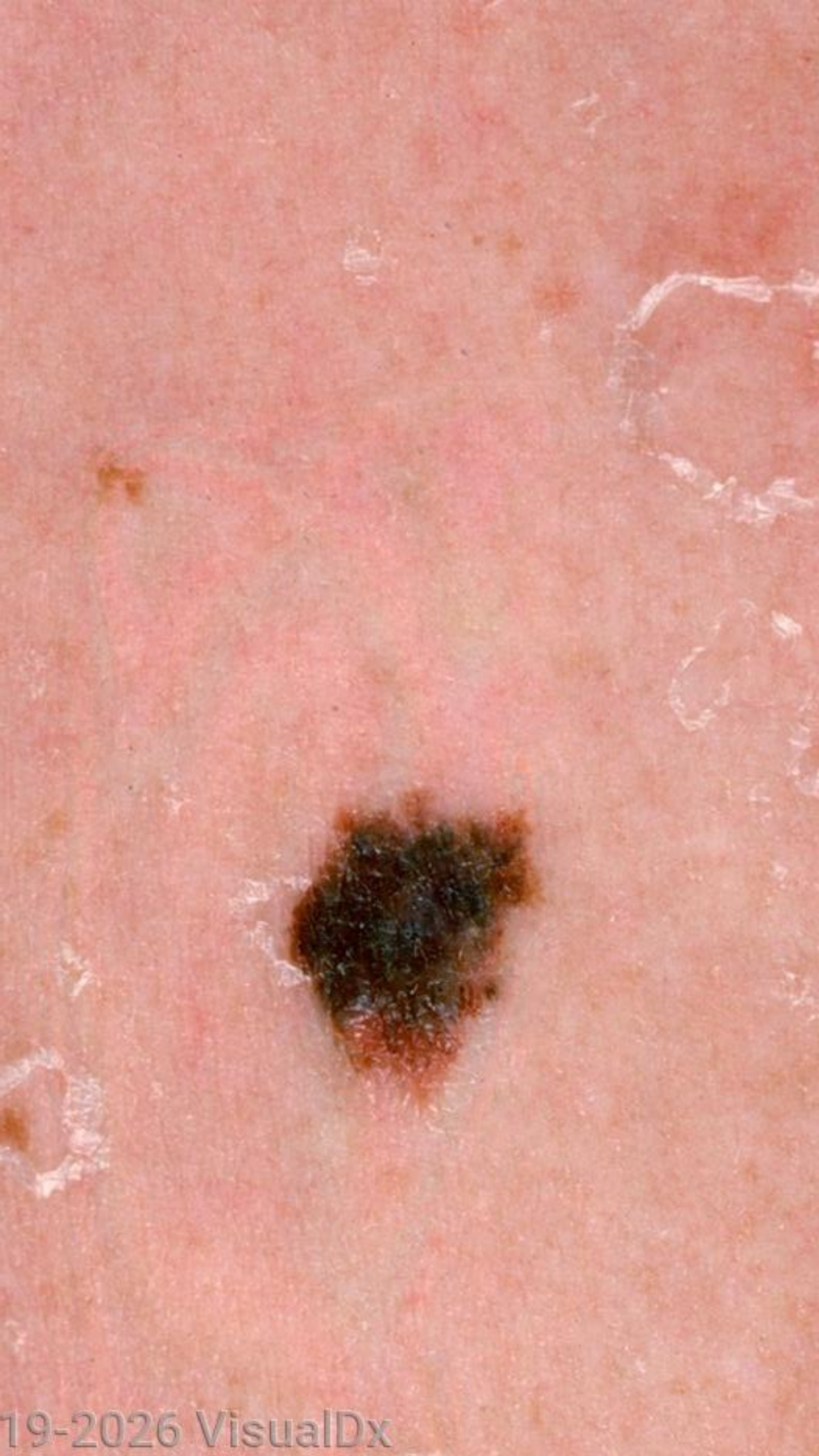
- Appearance
  - Redness, slight scaling and fissuring initially
  - Appears dry and may bleed when scratched
  - Centers may be atrophic and ulcerated

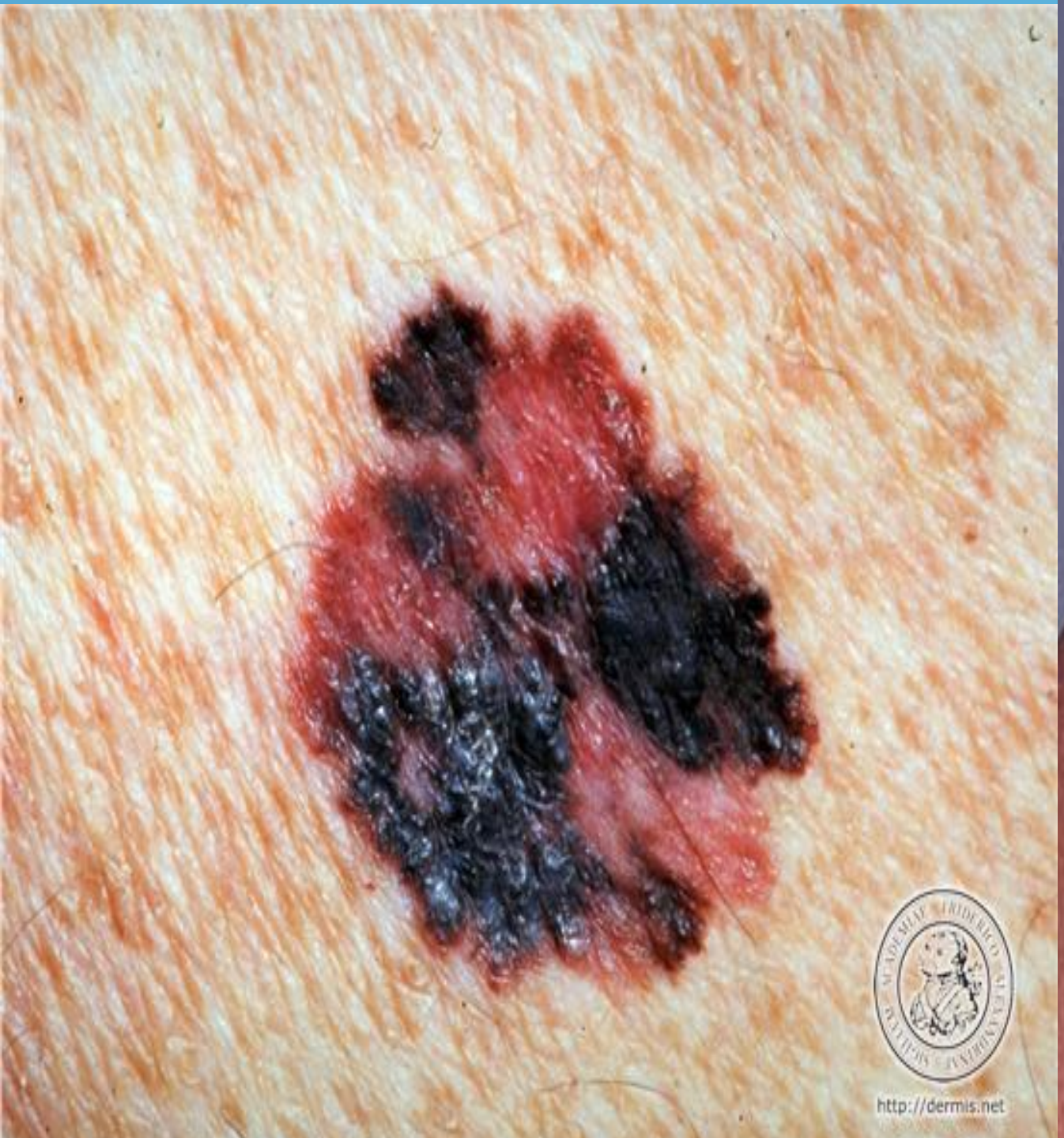
TX OF SCSC

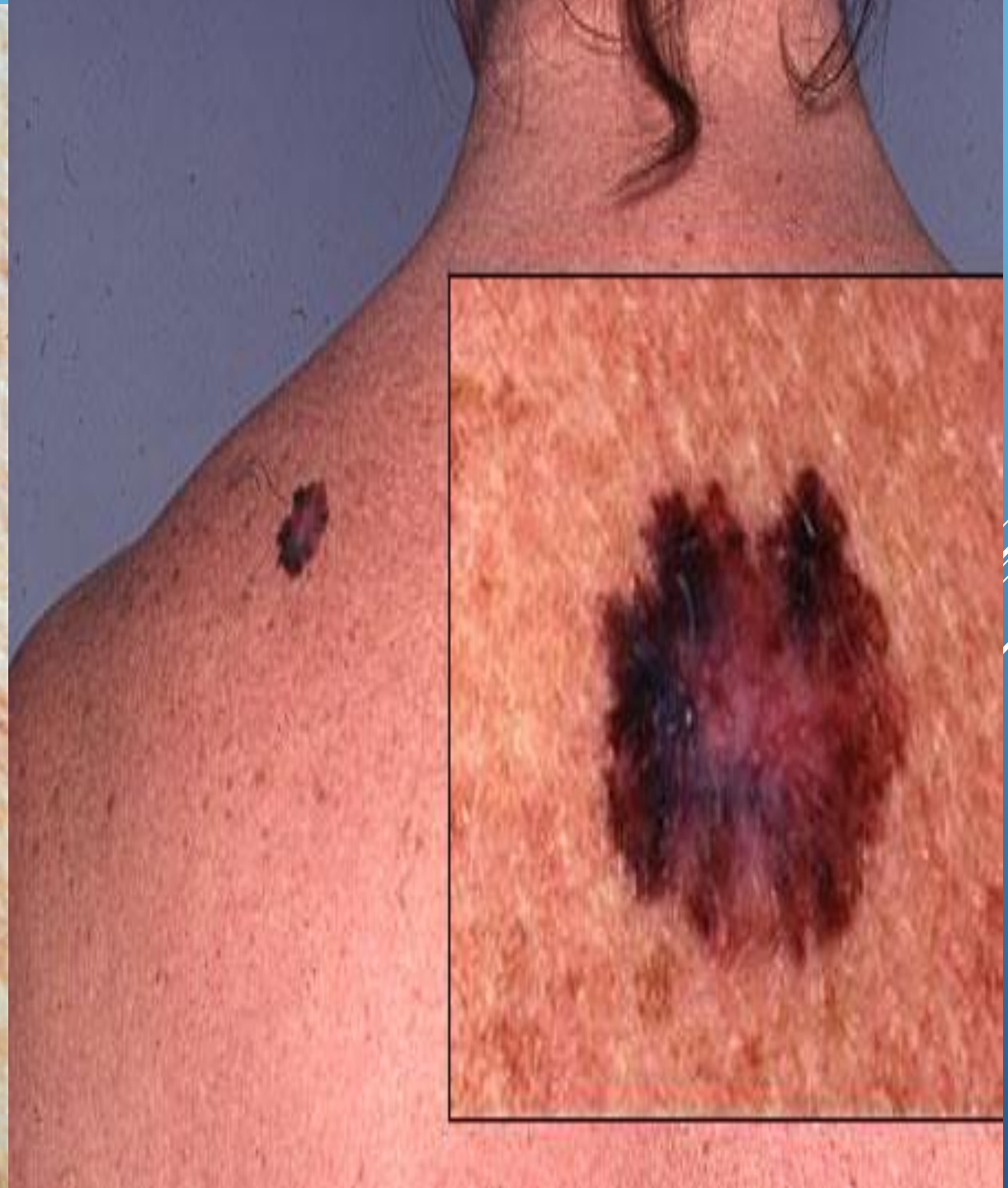
- Punch biopsy vs Excision vs Refer for Mohs surgery
- MOHS:
  - Superior histological analysis
  - Tissue conserving
  - Lower recurrence
- Higher risk with benefit from Mohs:
  - > 6 mm on “mask” area of face
  - > 10 mm on cheek or forehead
  - Rapid growth
  - Poorly defined borders

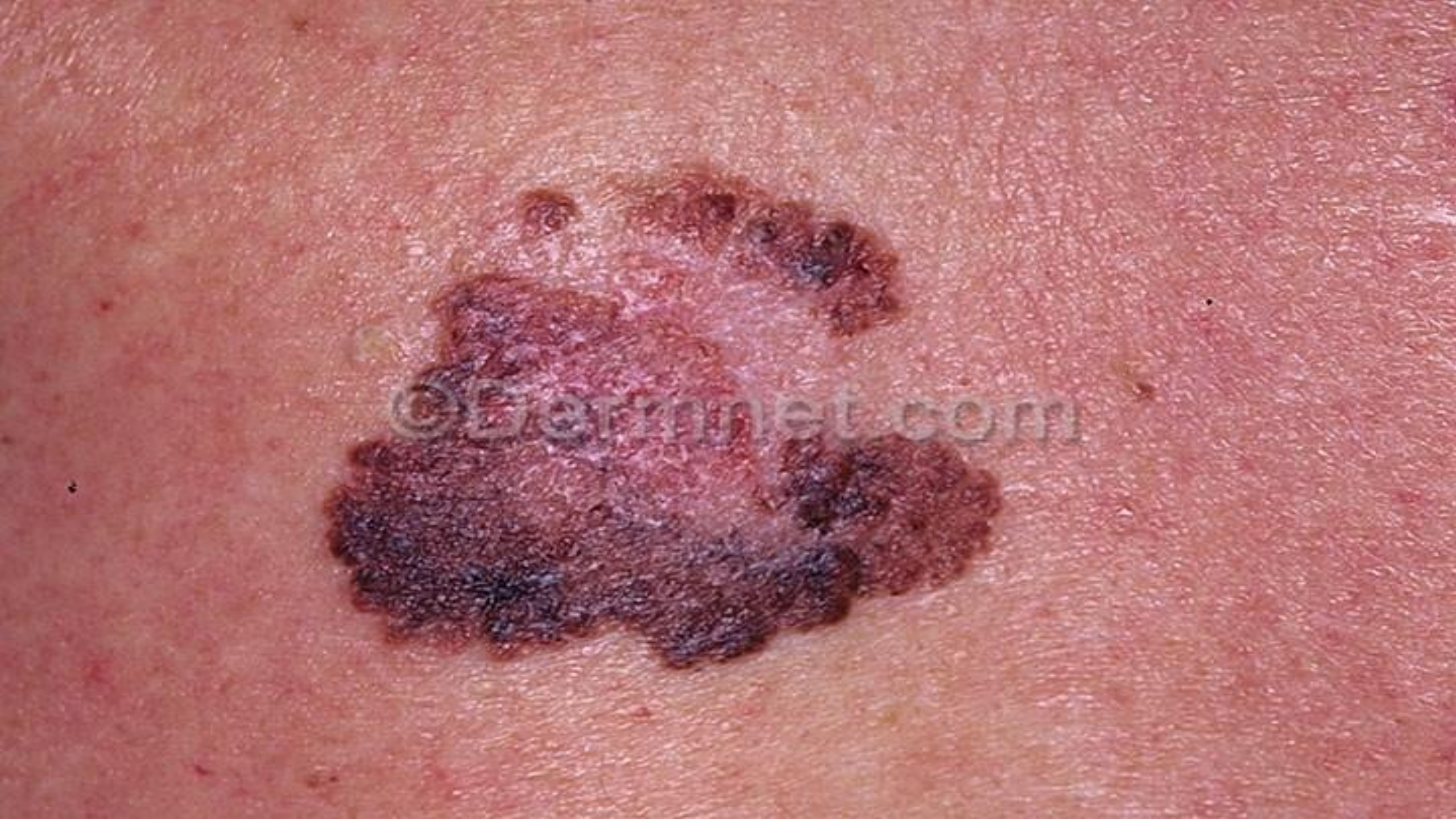


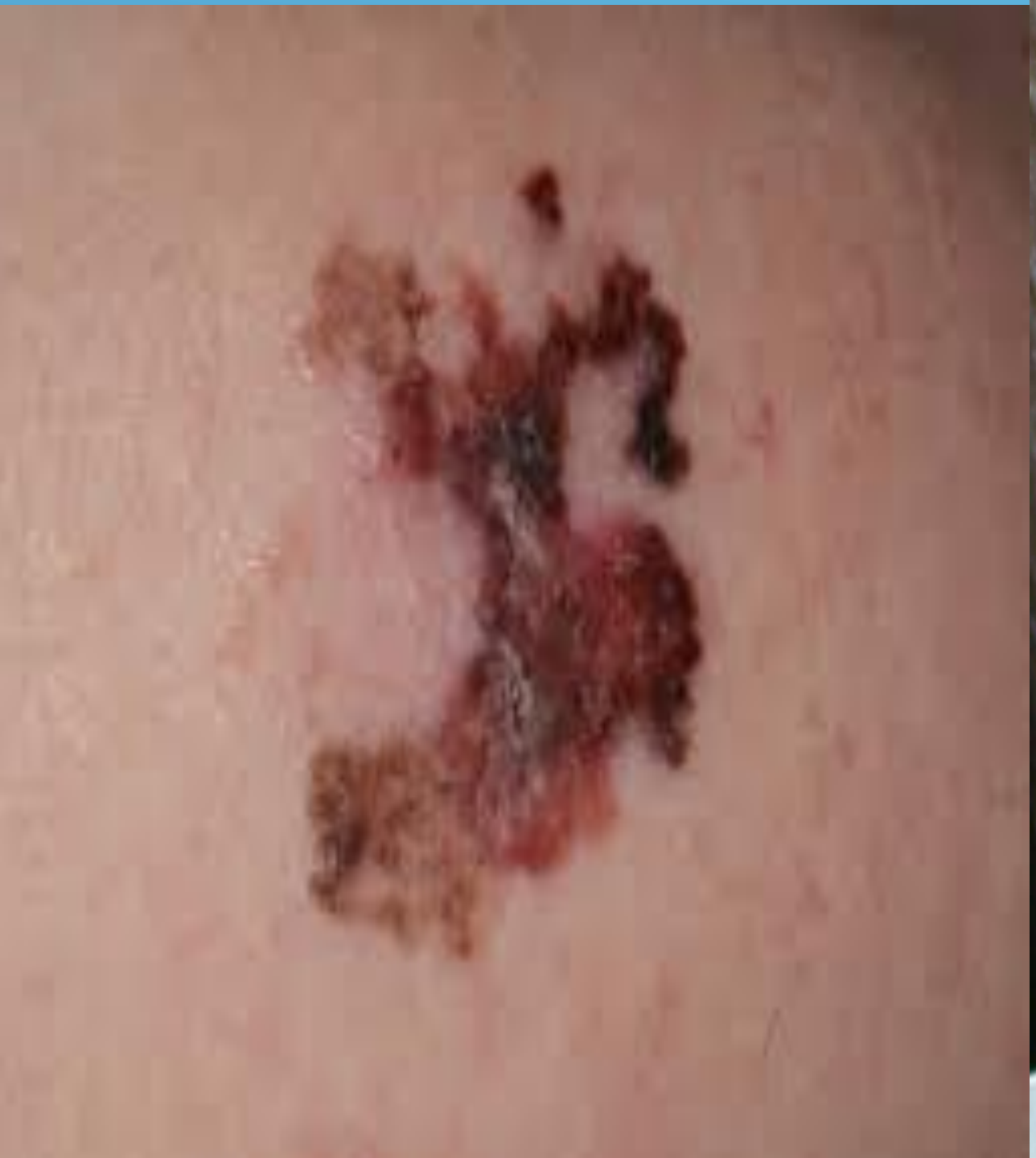


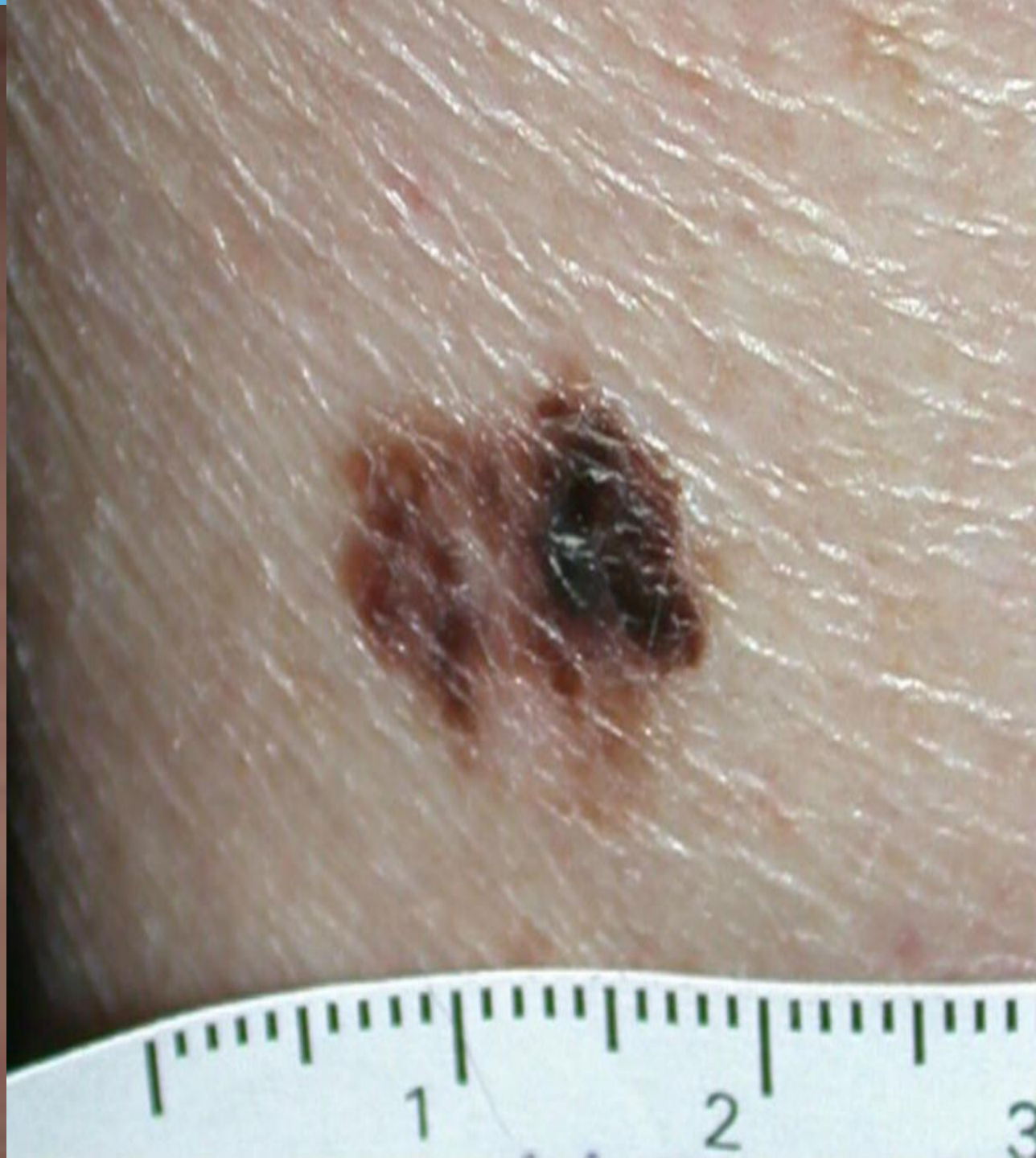



http://dermis.net



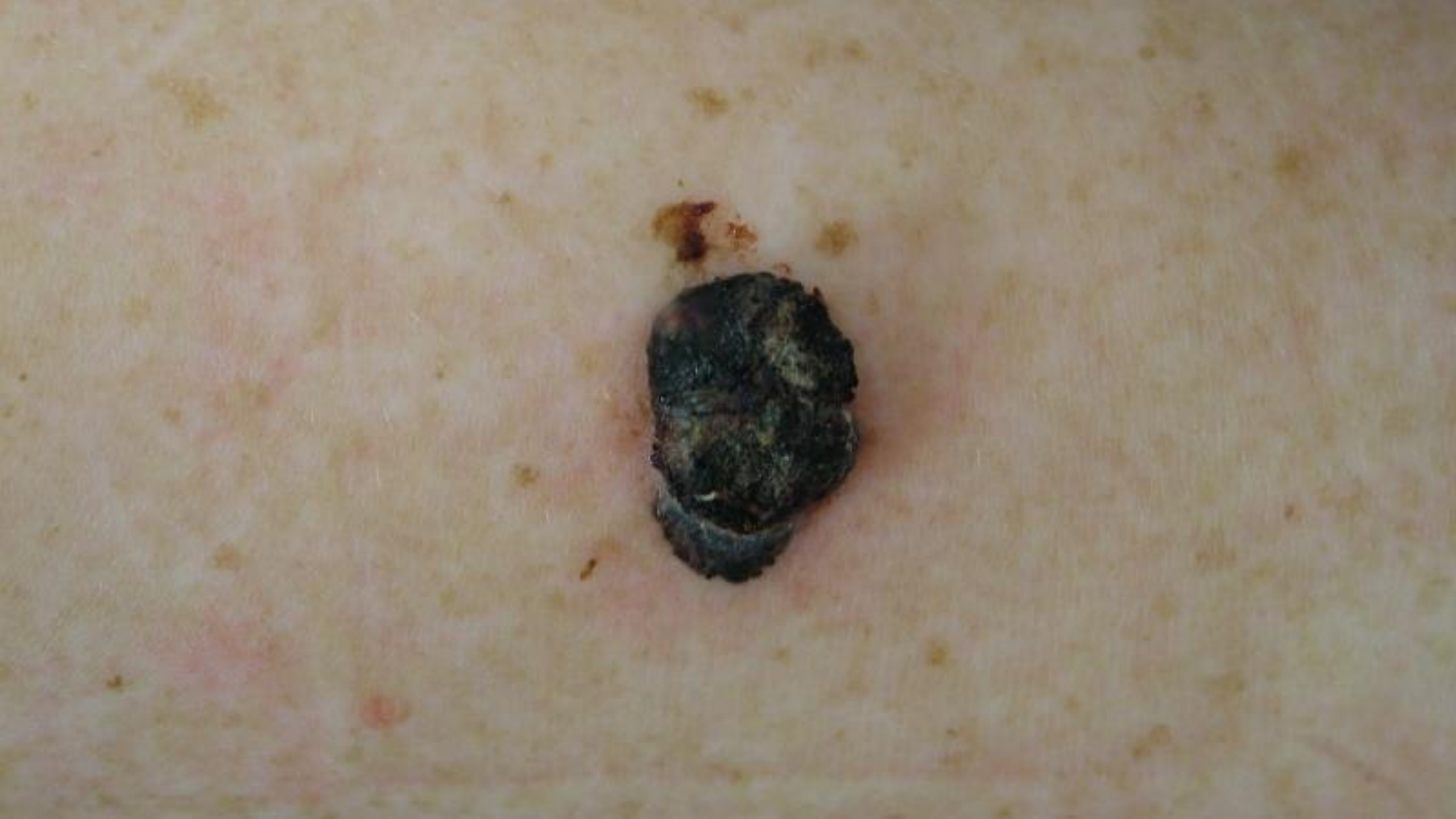


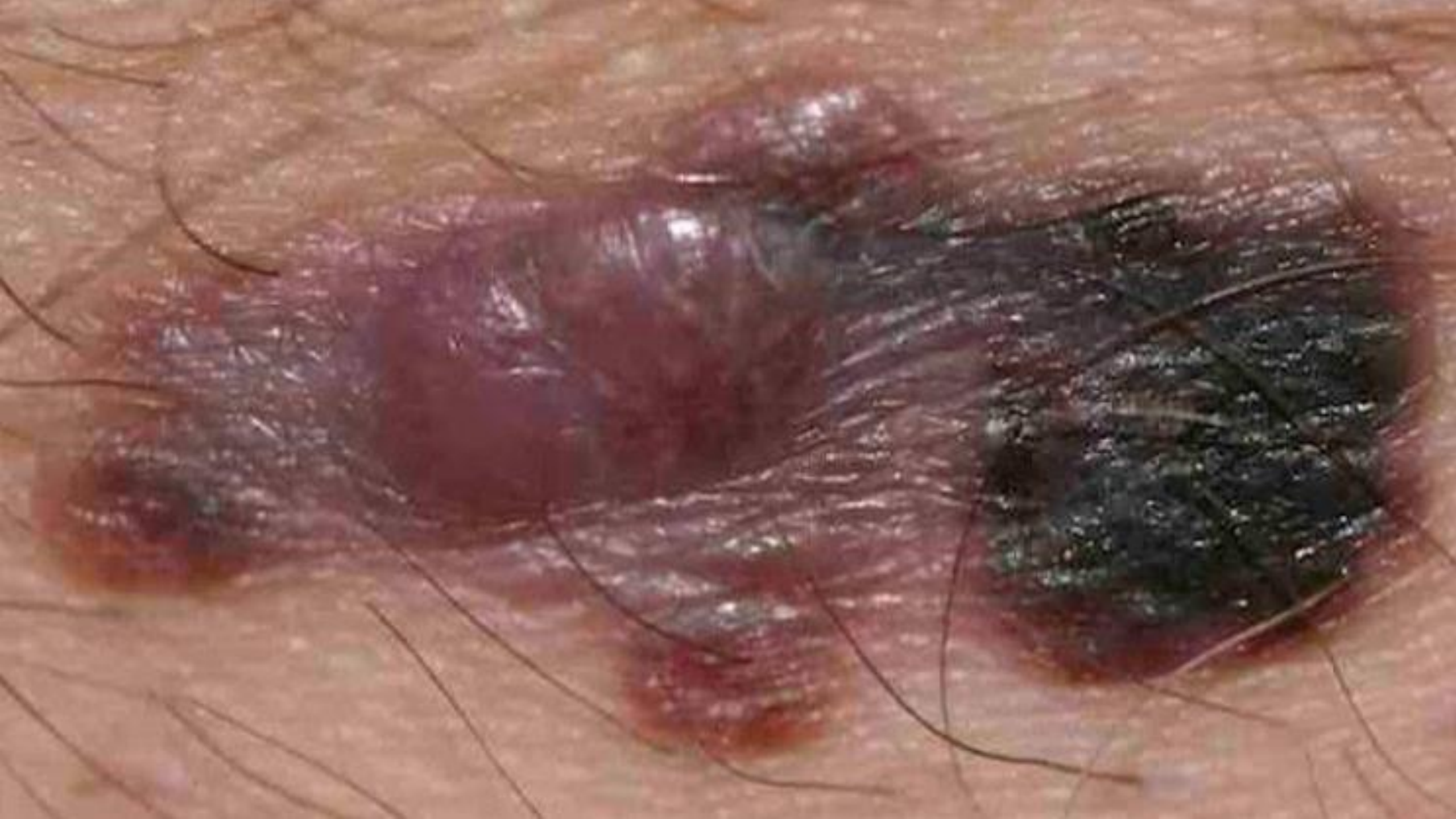


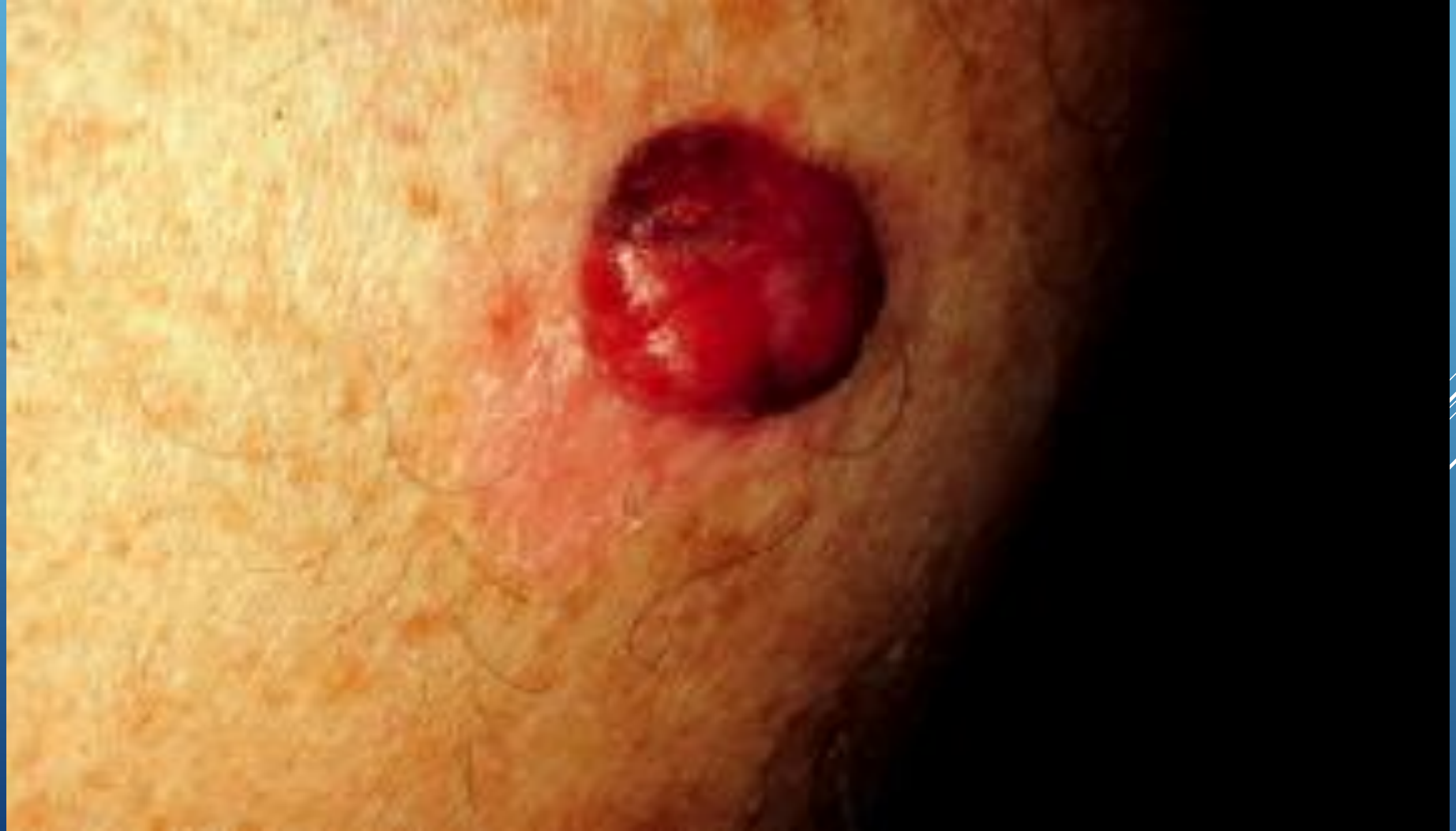

1
2

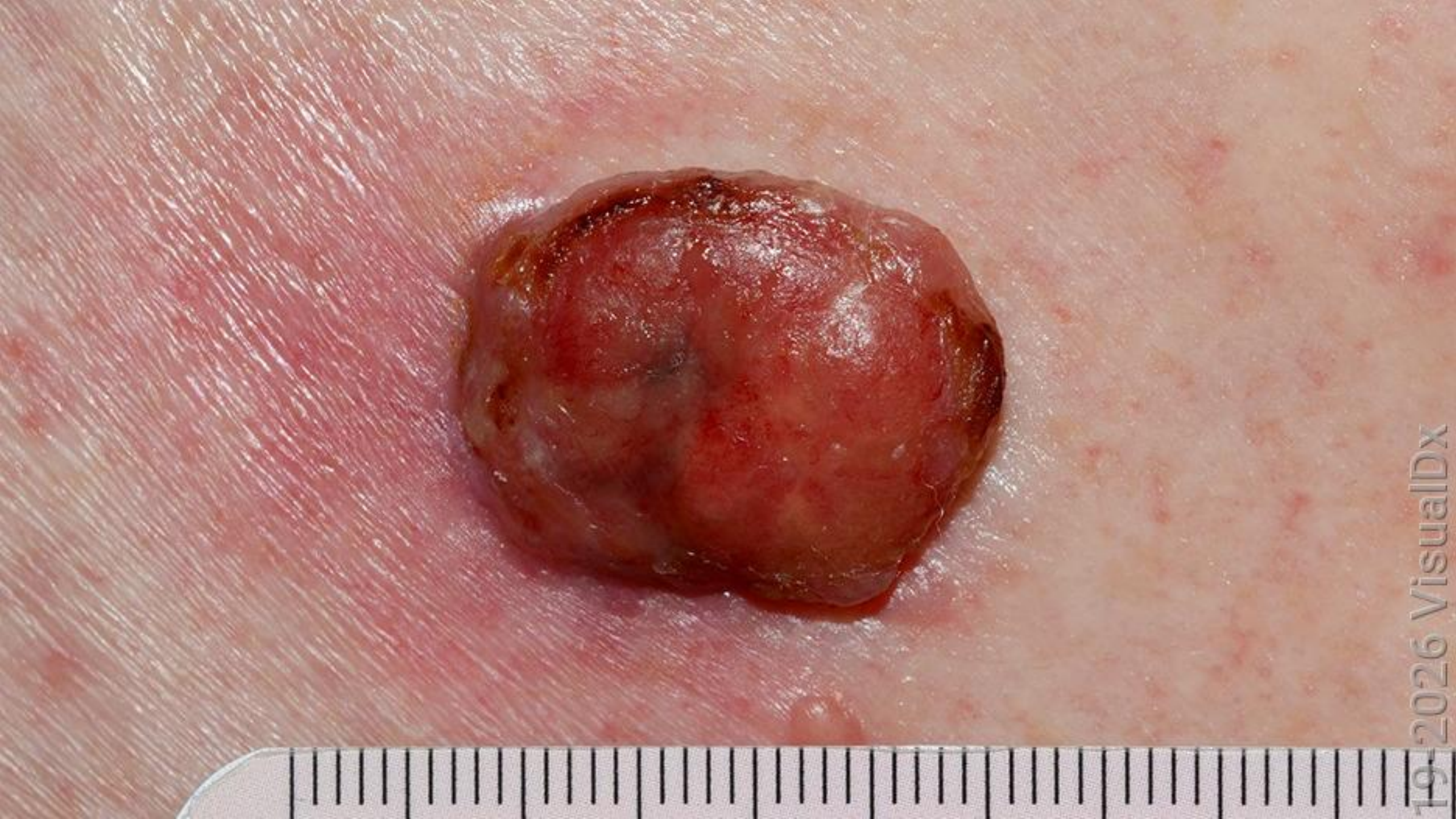
SUPERFICIAL SPREADING MELANOMA

- Most common type of melanoma
- Dark brown or black w red pigment as well
- Slowly spreading irregular outline
- Vertical growth late



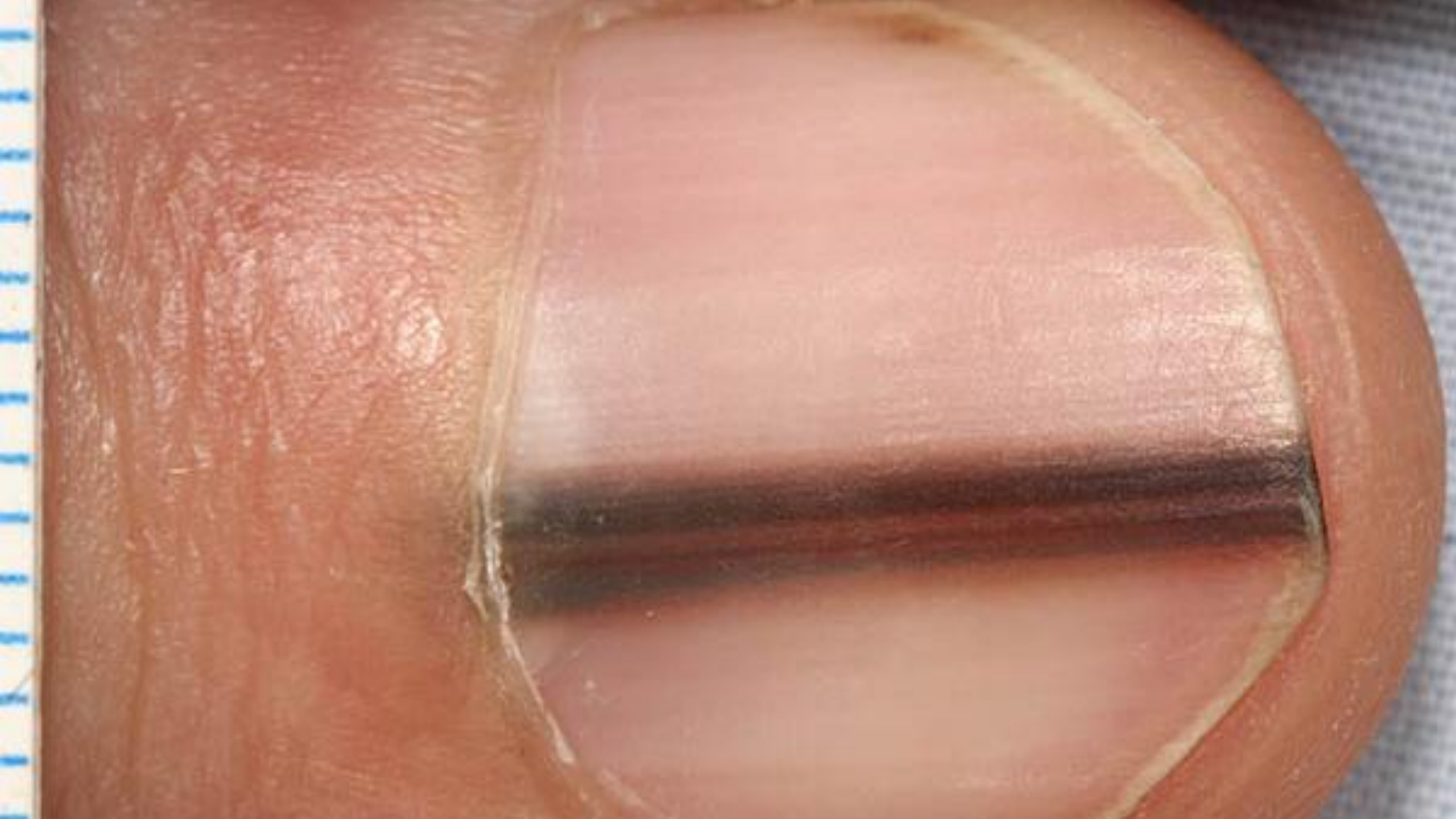


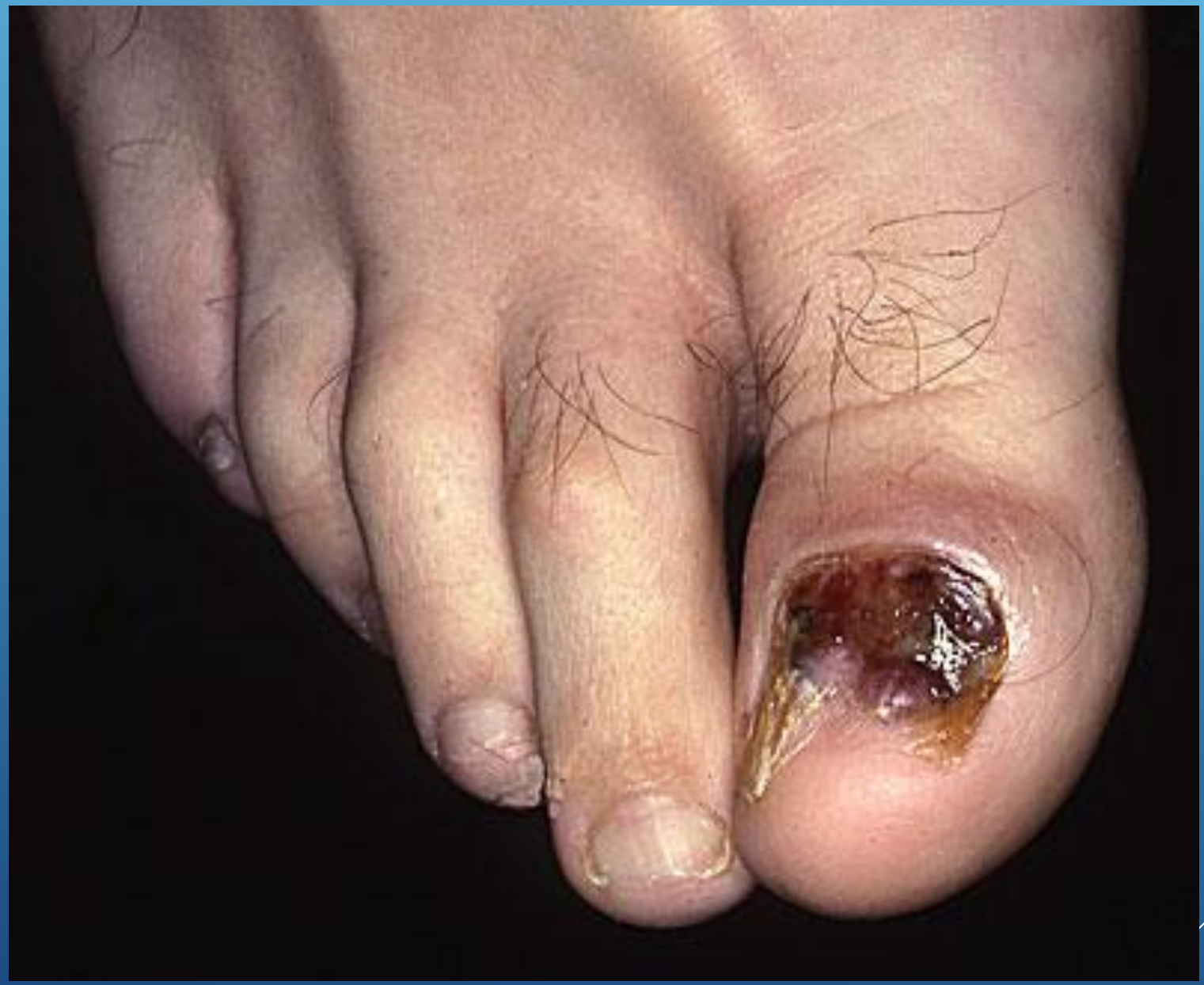



19-2026 VisualDx

NODULAR MELANOMA

- Grows **vertically** - more metastasis - grows quickly
  - Grows 4 x faster
  - 4 x thicker at the time of dx
- 14% cases – 27% over age 65
- 37% of deaths
- Often more symmetric, elevated and may not have pigment





ACRAL LENTIGINOUS MELANOMA

- Palms, soles of feet, under nails, mucosa
- Least common melanoma
- Dark-skinned patients will get this type

BIOPSY

- Ok for primary care to bx pigmented lesions suspicious for melanoma
- Full thickness ellipse takes time
  - Can I punch?
  - Can I shave?

MAYO CLINIC

REVIEW

Impact of Biopsy Technique on Clinically Important Outcomes for Cutaneous Melanoma: A Systematic Review and Meta-analysis

Richard A. Shellenberger, DO; Fatima Fayyaz, MD; Zeyad Sako, MD; Madeline Schaeffer, DO; Karine Tawagi, MD; Caleb Scheidel, MS; and Mohammed Nabhan, MD

Abstract

We performed a systematic review and meta-analysis to examine the relationship between the type of biopsy technique employed in the diagnosis of cutaneous melanoma and 4 clinically important outcomes: melanoma-specific mortality, all-cause mortality, Breslow tumor depth, or melanoma recurrence. Our database was obtained by searching PubMed, Ovid MEDLINE, EMBASE, the Cochrane Database of Systematic Reviews, and the Cochrane Library from inception until December 6, 2019. Studies were identified that compared biopsy techniques used to diagnose cutaneous melanoma with any of our study outcomes. We included 7 observational studies for our meta-analysis after screening 3231 titles and abstracts. Pooled data identified a significantly higher all-cause mortality in the punch biopsy group (risk ratio [RR], 1.520; P=.02). A higher, but nonsignificant, rate of melanoma-specific mortality (RR, 1.96; P=.22) and melanoma recurrence (RR, 1.20; P=.186) was also found for the punch biopsy group. Breslow tumor thickness was not significantly lower for punch incision (standardized mean difference, −0.42; P=.27). We found limited evidence for differences in clinically important outcomes across the spectrum of the most common methods employed in clinical practice for the initial diagnosis of cutaneous melanoma. A small, but significant, increase (P=.02) in all-cause mortality with punch biopsies was not seen for the other outcomes and was most likely due to small sample sizes and demographic differences in the included studies and unlikely represents a clinically important outcome. Our findings support the use of existing clinical practice guidelines for evaluating pigmented lesions suspicious for cutaneous melanoma.

 ■ Mayo Clin Proc Inn Qual Out 2020;4(4):373-383

- Data to compare punch and excision
- No difference between punch and excision;
  - Melanoma-specific mortality
  - Recurrence
  - Breslow depth

NEW META-ANALYSIS ON SHAVE BX

- Ahmadi O. Impact of Shave Biopsy on Diagnosis and Management of Cutaneous Melanoma: A Systematic Review and Meta-Analysis. Ann Surg Oncol. 2021 Mar 29:1–9.
- 43% had disease at the deep margin, 8% staging reclassification, 2% had a change in tx
- Did not examine outcomes

AAD GUIDELINES

- Management of pigmented lesions suspicious for melanoma
  - ABCDE rules
  - Full thickness elliptical, punch, or deep saucerization all OK with 1-3 mm margins
  - Superficial shave discouraged

PREVENTION

- Sun exposure is the strongest modifiable risk for NHW not NHB and Hispanics
  - Total and intermittent sun
  - Sunburns
- Shade, Hats, Sunscreen, SPF shirts
  - RCT of 1621 Australians showed daily sunscreen decrease SCSC and melanoma
- Tanning beds are bad


Johnson's
baby
oil


CLINIQUE
FOR MEN
SPF 21
moisturizer
hydratant
SPF 21
3.4 FL.OZ.LIQ./100 ml
Vacation
Classic Lotion
BROAD SPECTRUM SPF 30 SUNSCREEN
SPF 30
3.4 FL OZ / 100 ML
Neutrogena
DERMATOLOGIST RECOMMENDED
Ultra Shee
dry-touch
sunscreen
30
helioplex
lightweight clean feel
oxybenzone free
water resistant (80 minutes)
3.0 FL OZ (88 mL)

SUMMARY

- Ask about sunburns and mole changes
- Look at patient's skin
  - 2/3 Pt w melanoma saw their PCP before the dx
  - Men over 50 at least look at back
- Biopsy
- Prevention

REFERENCES

1. National Cancer Institute. Surveillance, Epidemiology and End Results Program. Cancer Statistics/Reports on Cancer/Cancer Stat Facts: Melanoma of the Skin. Melanoma of the Skin — Cancer Stat Facts

2. Guy, JP, Machlin SR, Ekwueme Du. Yarroff KR. Prevelance and costs of skin cancer treatment in the U.S., 2002-2006 and 2007-2011. *Am J Prev Med. 2015;48(2):183-187.*

3. National Cancer Institute. State Cancer Profiles. State Cancer Profiles

4. https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/cancer-prevention-and-early-detection-facts-and-figures/2021-cancer-prevention-and-early-detection.pd

5. Sabatino SA, Thompson TD, Croswell JM, Villarroel MA, Rodriguez JL, Adam EE, Richardson LC. Use of Cancer Screening Tests, United States, 2023. Prev Chronic Dis. 2025 Aug 14;22:E52. doi: 10.5888/pcd22.250139. PMID: 40815092; PMCID: PMC12360060.

6. US Preventative Services Task Force. Skin Cancer Screening. April 18, 2023. Recommendation: Skin Cancer: Screening | United States Preventive Services Taskforce

7. Brady MS, Oliveria SA, Christos PJ, Berwick M, Coit DG, Katz J Halpern AC et al. Patterns of Detection in Patients With Cutaneous Melanoma. Cancer. 2000 Jul 15;89 (2) :342-7.

8. Schwatrz JL, Wang TS, Hamilton TA , Lowe L, Sondak VK Johnson TM. Thin primary cutaneous melanoma; Associated detection patterns, lesion characteristics, and patient characteristics. Cancer 2002 Oct 1;95(7):1562-8.

9. Weinstock MA, Ferris LK, Saul MI, Geller AC, Risica PM, Siegel JA, Solano FX, Kirkwood JM. Downstream consequences of melanoma screening in a community practice setting: First results. Cancer. 2016 Oct 15;122(20):3152-3156.

10. https://wiki.cancer.org.au/australia/Guidelines:Melanoma

11. Shellenberger RA, Kakaraparthi S, Tawagi K. Melanoma Screening: Thinking Beyond the Guidelines. Mayo Clin Proc. 2017 May;92(5):693-698.

12. Shellenberger R, Nabhan M, Kakaraparthi S. Melanoma screening: A plan for improving early detection. Ann Med. 2016;48(3):142-8

13. Shellenberger RA, Johnson TM, Fayyaz F, Swamy B, Albright J, Geller AC. Disparities in melanoma incidence and mortality in rural versus urban Michigan. Cancer Rep (Hoboken). 2023 Feb;6(2):e1713

13. Lakhani NA, Saraiya M, Thompson TD, King SC, Guy GP Jr. Total body skin examination for skin cancer screening among U.S. adults from 2000 to 2010. Prev Med. 2014 Apr;61:75-80.

14. https://www.mdanderson.org/cancermoonshots.html

15. Wise E, Singh D, Moore M, Hayes B, Biello KB, Dickerson MC, Ness R, Geller A. Rates of skin cancer screening and prevention counseling by US medical residents. Arch Dermatol. 2009 Oct;145(10):1131-6.

16. Shellenberger RA, Tawagi K, Kakaraparthi S, Albright J, Nabhan M, Geller AC. Are Primary Care Residents Trained to Perform Skin Cancer Examinations? J Gen Intern Med. 2018 Nov;33(11):1839-1841.

17. Ebell M. Clinical Diagnosis of Melanoma. Am Fam physician. 2008. 78(10) 1205-1208

18. Shellenberger RA, Fayyaz F, Sako Z, et al. Impact of biopsy technique on clinically important outcomes for cutaneous Melanoma: a systematic review and meta-analysis. Mayo Clin Proc Innov Qual Outcomes. 2020;4(4):373–83.

19. Ahmadi O, Das M, Hajarizadeh B, Mathy JA. Impact of Shave Biopsy on Diagnosis and Management of Cutaneous Melanoma: A Systematic Review and Meta-Analysis. Ann Surg Oncol. 2021 Mar 29:1–9.

20. Swetter S.M., Tsao H., Bichakjian C.K. Guidelines of care for the management of primary cutaneous melanoma. *J Am Acad Dermatol.* 2019;80(1):208–250.

21. Gandini S, Sera F, Cattaruzza MS, Pasquini P, Picconi O, Boyle P, Melchi CF. Meta-analysis of risk factors for cutaneous melanoma: II. Sun exposure. Eur J Cancer. 2005 Jan;41(1):45-60.

22. Eide MJ and Weinstock MA. Association of UV Index, Latitude, and Melanoma Incidence in Nonwhite Populations—US Surveillance, Epidemiology, and End Results (SEER) Program, 1992 to 2001. *Arch Dermatol. 2005;141:477-481*

23. Shah M, Schur N, Rosenberg A, DeBusk L, Burshtein J, Zakria D, Rigel D. Trends in Melanoma Incidence and Mortality. Dermatol Clin. 2025 Jul;43(3):373-379. doi: 10.1016/j.det.2025.03.005. Epub 2025 Apr 28. PMID: 40581417.

REFERENCES