



Introduction to Dermoscopy



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I HAVE NO
FINANCIAL
DISCLOSURES



Dermlite dermatoscope company did allow us to borrow dermatoscopes from them for this workshop. However, I do not work for them or receive any compensation from them. I must return all of the borrowed dermatoscopes to Dermlite after this workshop.

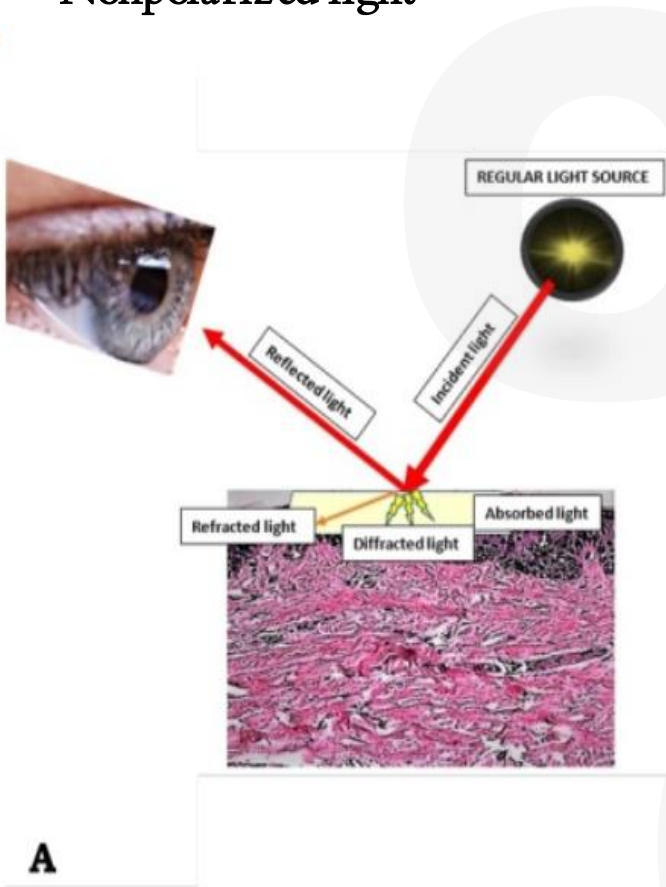
Objectives



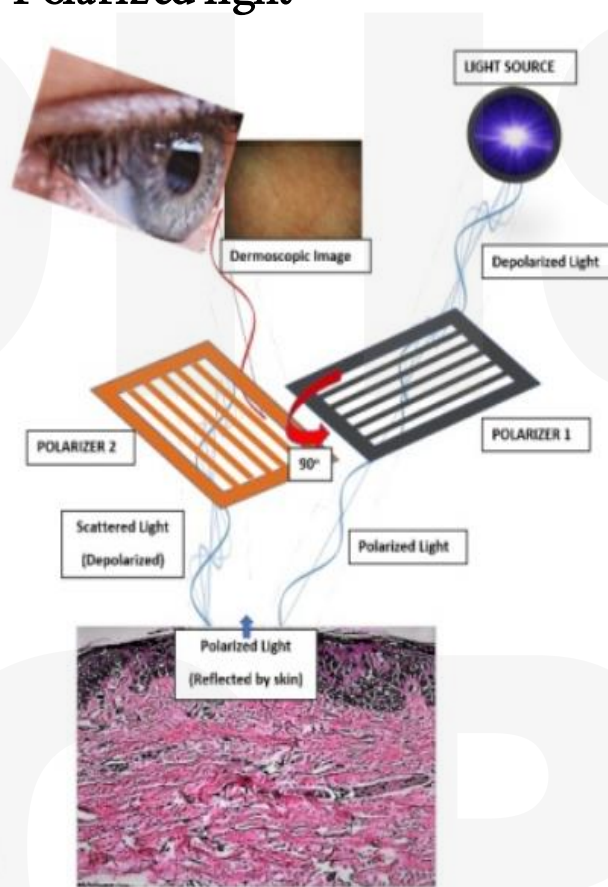
- 1) Learn the basics of dermoscopy and associated features: we will review dermatoscopic features of benign and malignant lesions and practice with Kahoot! quizzes as we go
- 2) Learn the Two-step algorithm and TADA method for differentiating a benign versus potentially malignant lesion
- 3) Learn about special features of dermoscopy on acral sites
- 4) Learn how to use a dermatoscope with hands-on practice



Nonpolarized light



Polarized light



What is Dermoscopy?

- Handheld instrument (dermatoscope) with transilluminating light source and magnifying optics (10×).
- Allows visualization of subsurface skin structures located in the epidermis, dermoepidermal junction, and papillary dermis, not visible to the naked eye

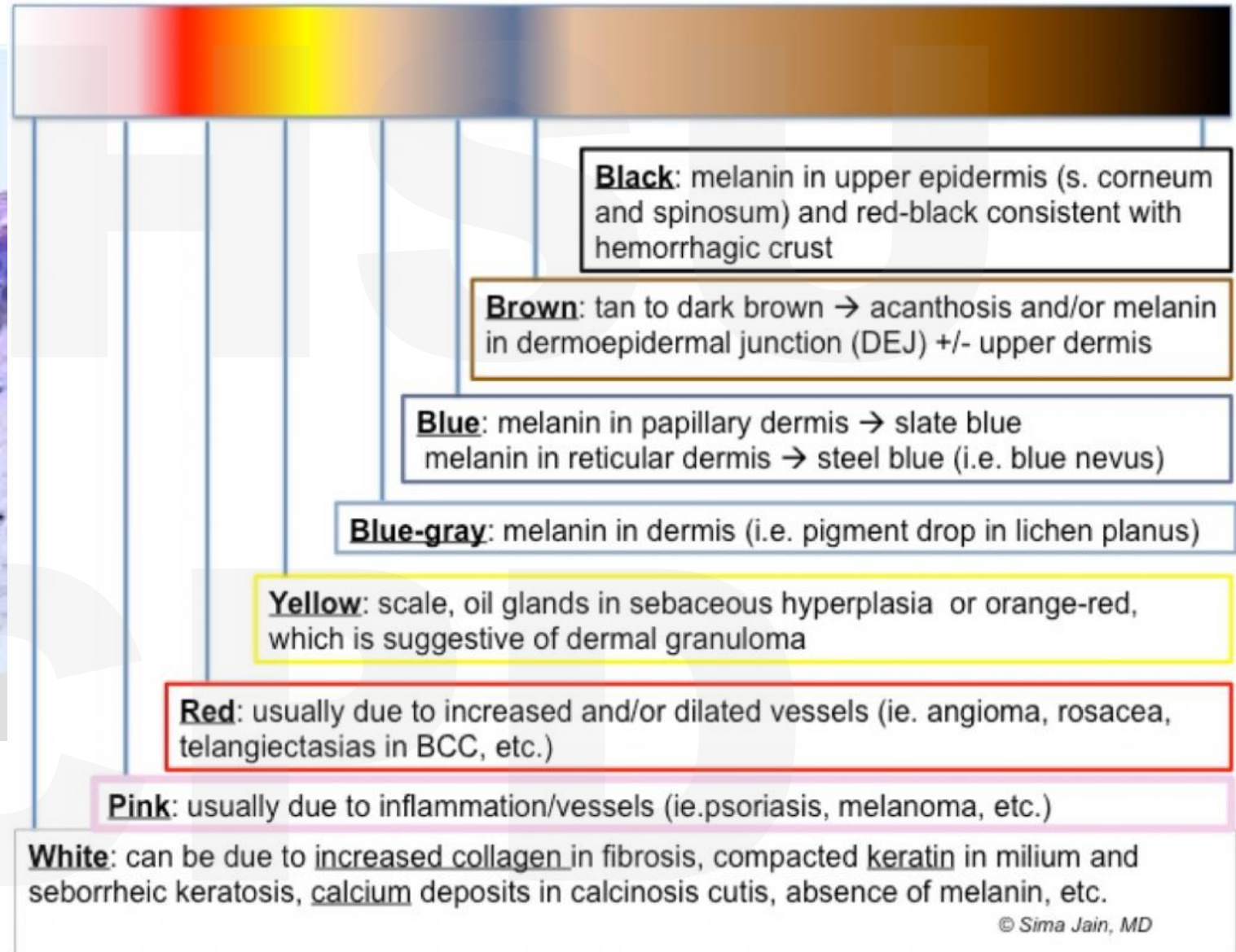
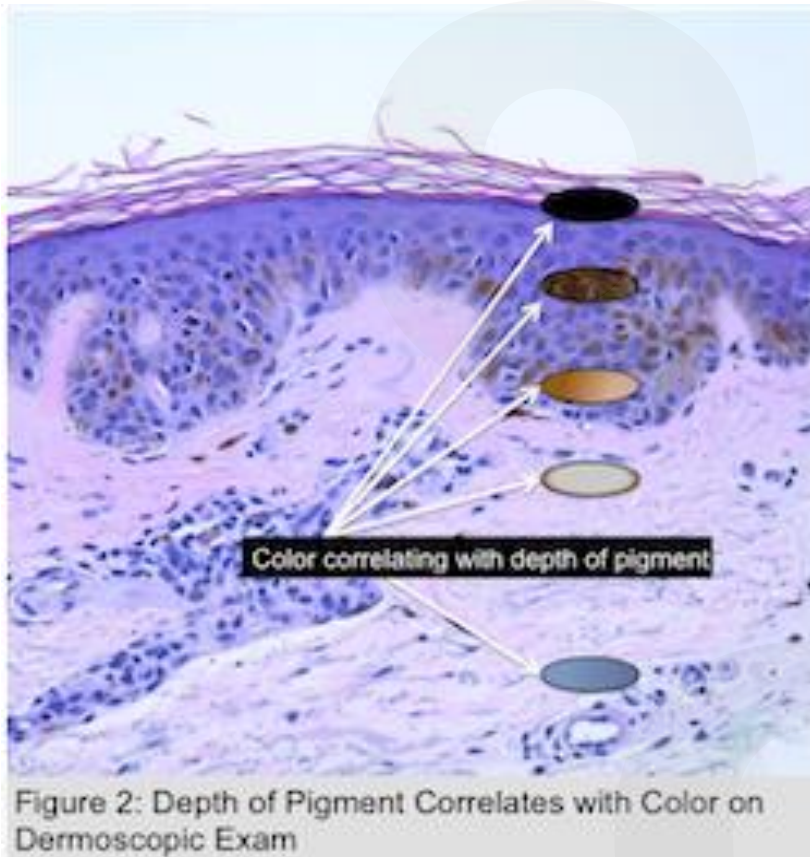
Why use Dermoscopy?



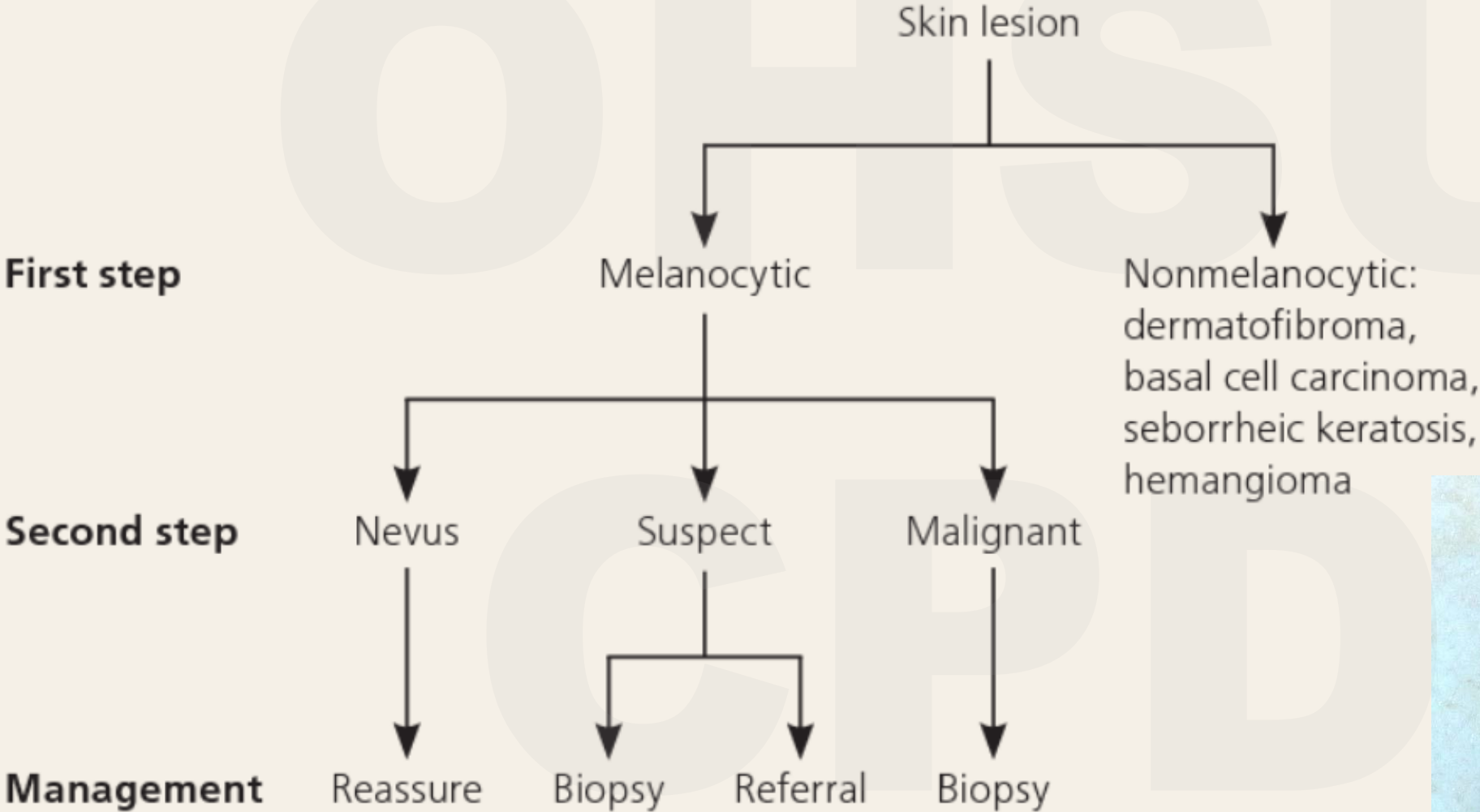
- Improves diagnostic accuracy, sensitivity, and specificity for skin cancer diagnosis.
- After initial investment in dermatoscope, the actual cost of performing dermoscopy is low
- Quick
- Non-invasive
- Ability to photograph for serial monitoring
- Patients love it!



Fig. 3: Different Shades Seen on Dermoscopic Exam



Two-Step Dermoscopy Algorithm



First step

Second step

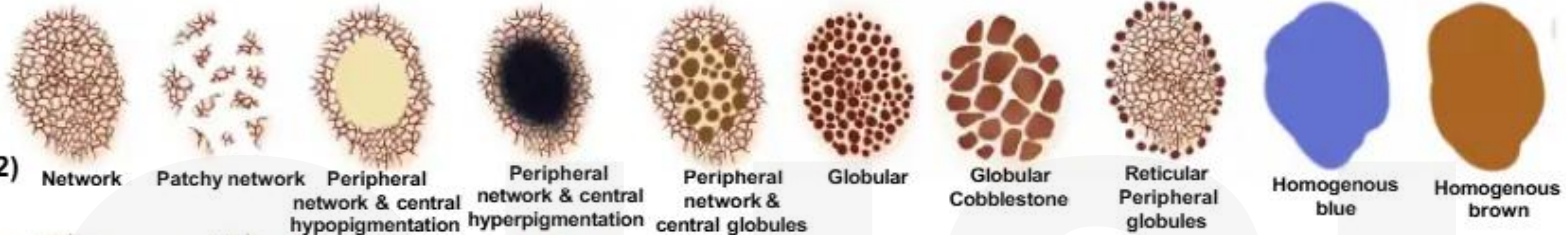
Management

Step 1:
Is it melanocytic
or nonmelanocytic?



Step 1

1. Nevus (also, see card 2)



2. DF/IDN



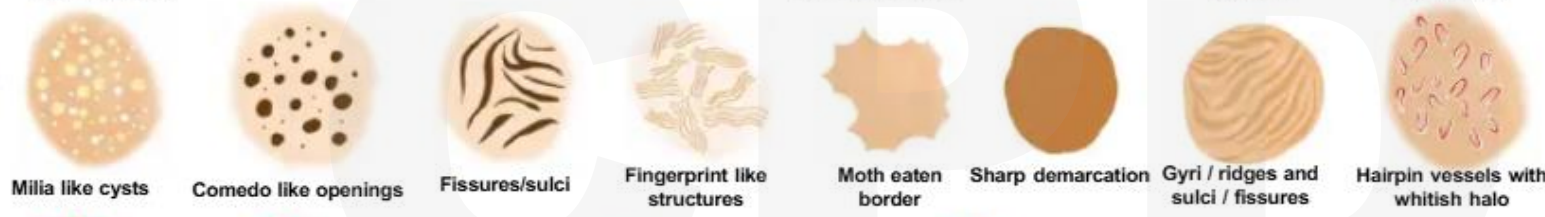
3. BCC



4. SCC



5. Seb K



6. Other

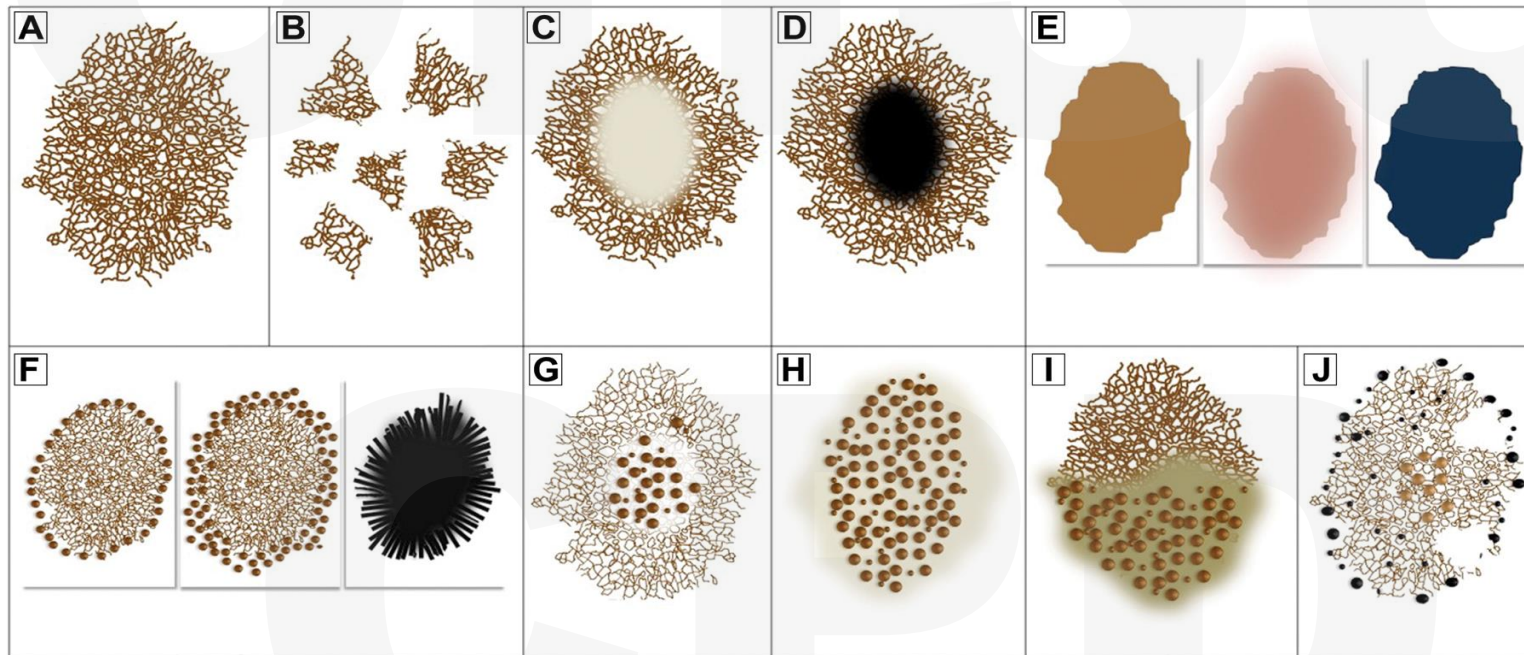


dermoscopia.org

Step 2: Look for melanoma patterns & structures (Card 2&3)

Designed by Ralph P. Braun & Ashfaq A. Marghoob.

Organized Nevi Patterns

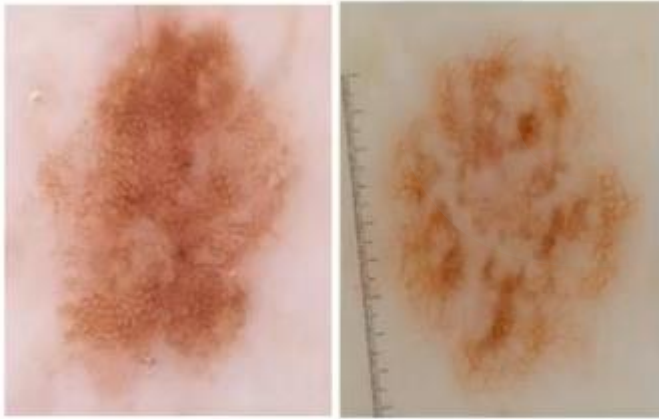


(Margoob, Liopyris, & Jaimes, 2019)

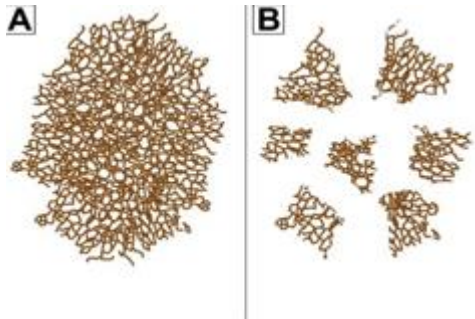
Organized Nevus Patterns

Skin Type I-III

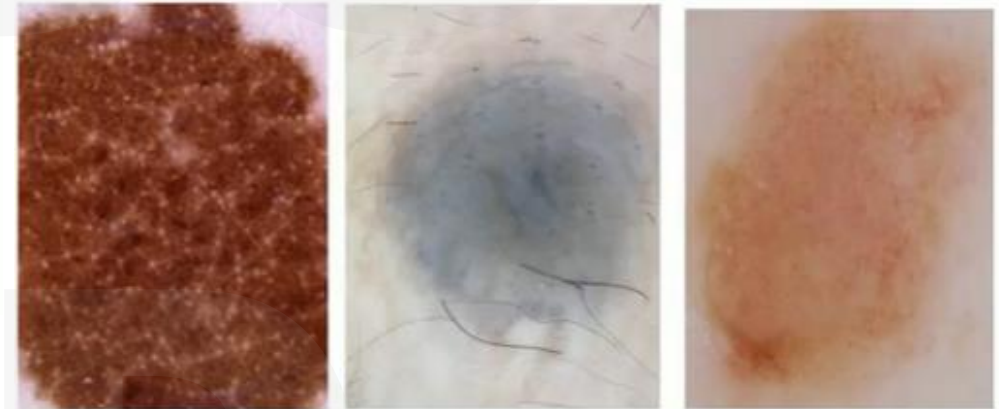
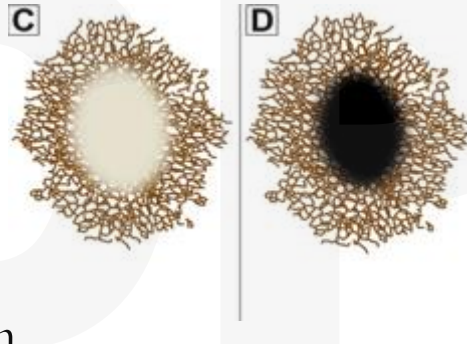
Skin Type III-VI



Network/Reticular: diffuse or patchy



Peripheral network with central: hypo or hyper-pigmentation



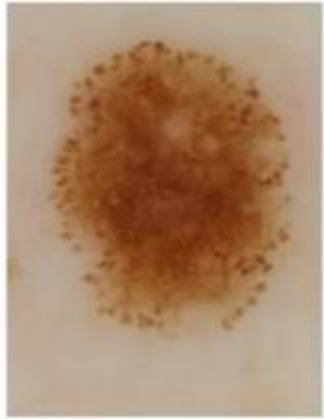
Homogenous: brown or blue or tan/pink



Exception: new reticular lesion, >6mm on older person with sun damaged skin, may be melanoma

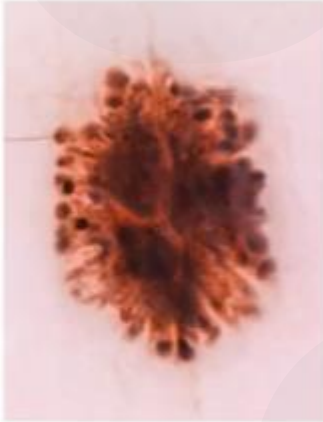
Organized Nevus Patterns

Growing nevus,
Normal under
age 40

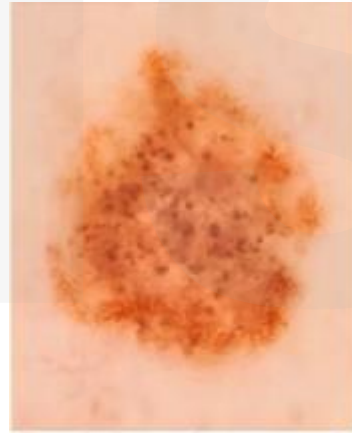


Peripheral
globules

Nevus of Reed/
Spitz nevus
Normal under
age 16

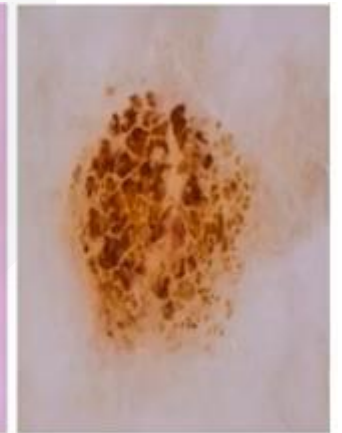
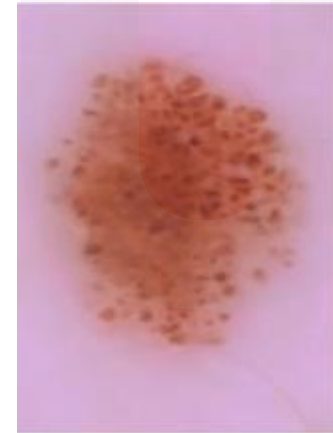


Starburst



Peripheral network
with central
globules

Small globules Large globules



Globular: small or cobblestone

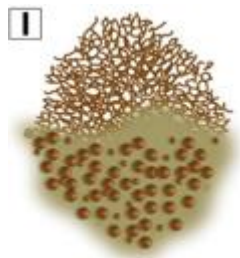


Globular nevi are almost always on head, neck, or torso
(globular usually not on extremities)

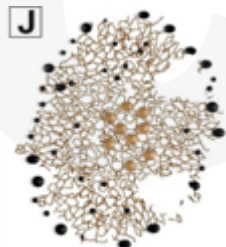
Organized Nevus Patterns



Two component



Symmetric multi component



Unna's nevus
(usually on torso)

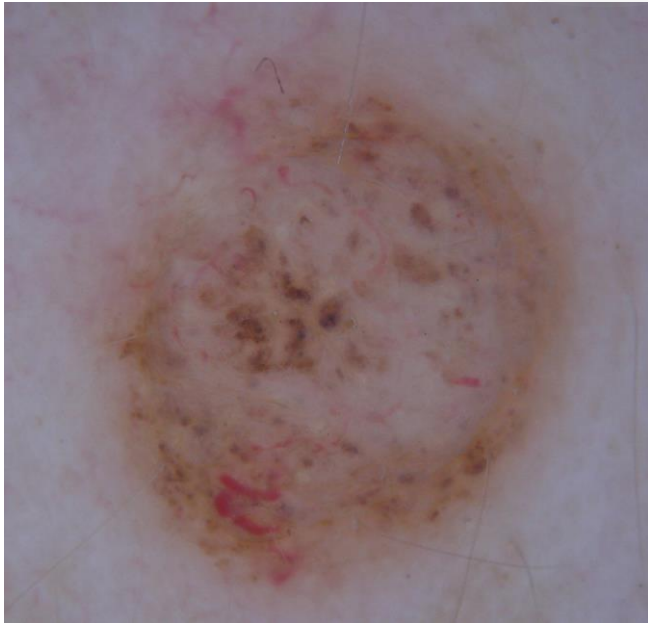


Miescher's nevus
(usually on face)



Dermoscopy of Unna's Nevi (intradermal nevus of trunk)

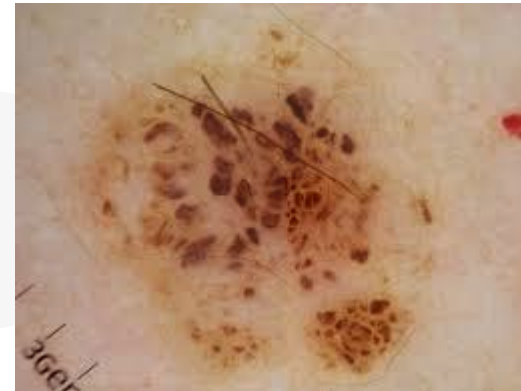
Brown areas (37%)



Milia (17%)



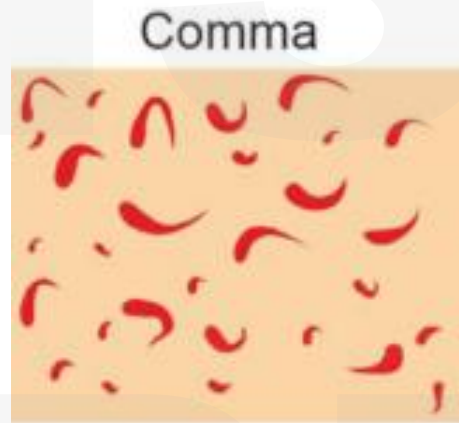
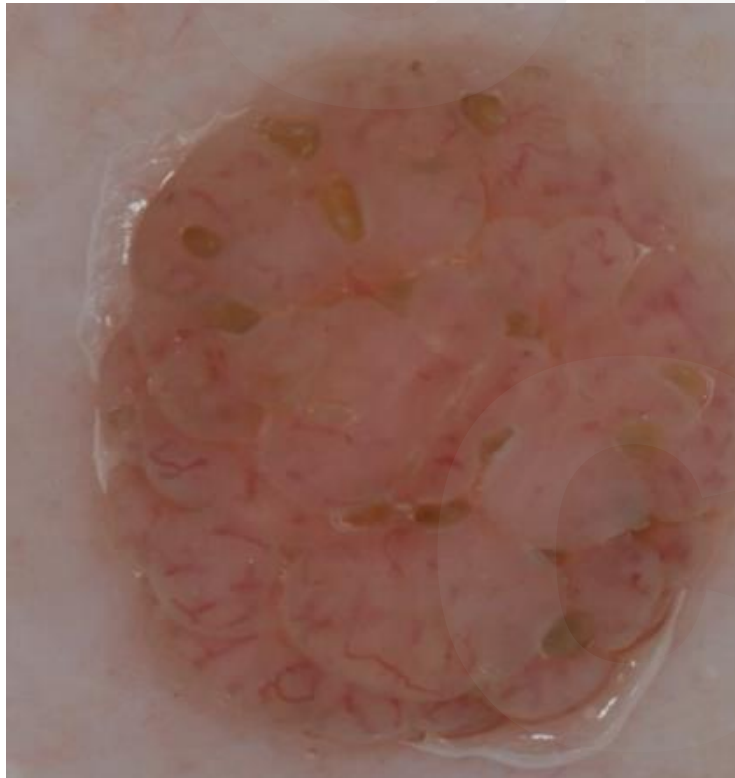
Globules (39%)



Hypopigmented areas (16%)



Vessels in Unna's Nevi (intradermal nevus of trunk)



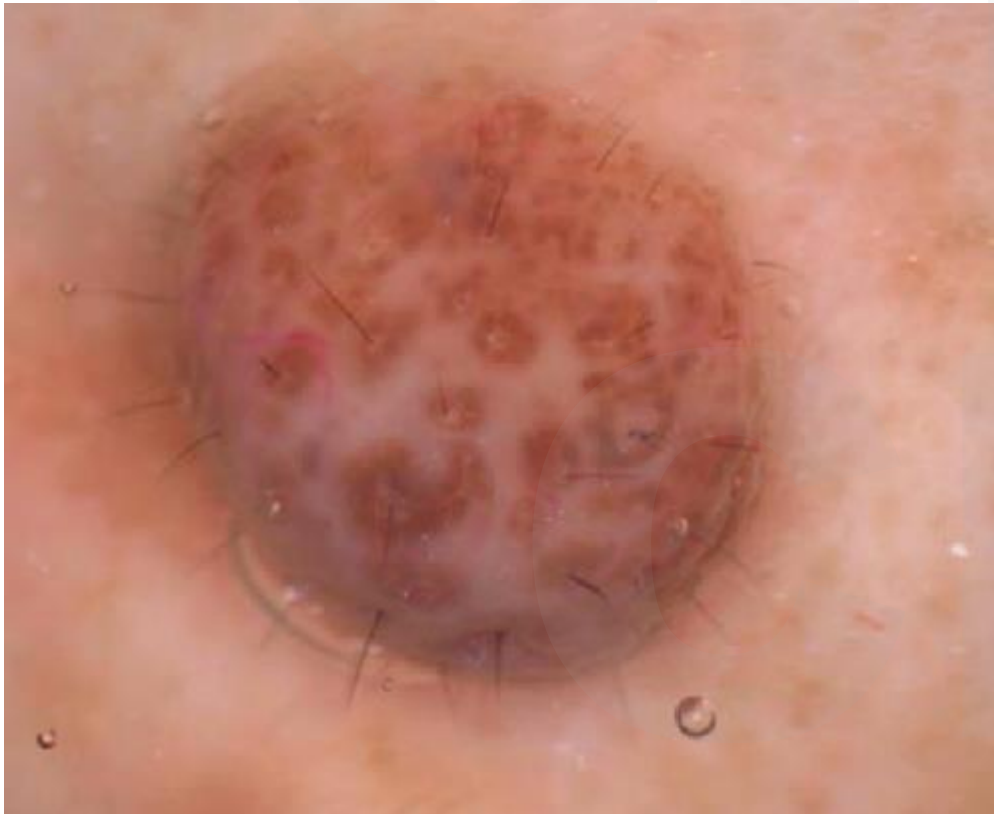
Comma vessels in >80% of intradermal nevi

Miescher's Nevi (Intradermal Nevus of Face)

Globules 29%

Brown areas
36%

Hypopigmented areas
24%

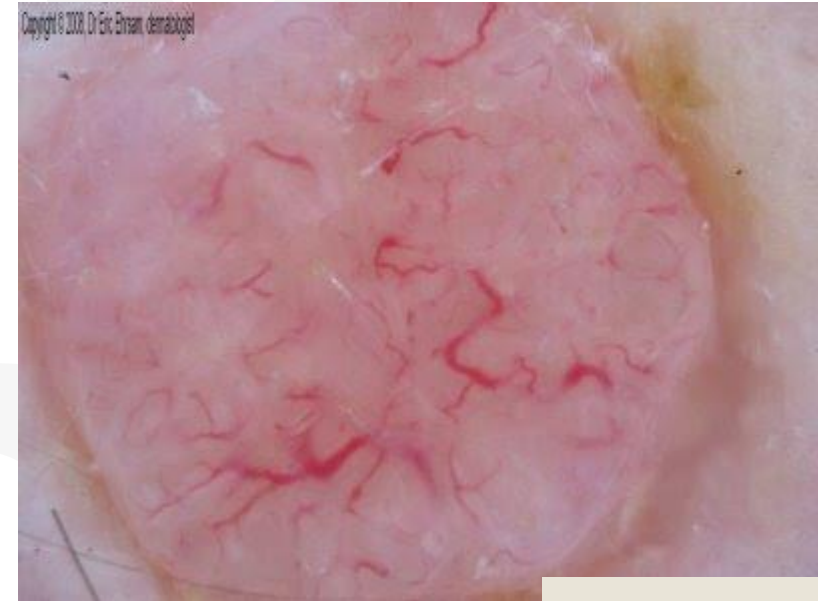


Vessels in Miescher's Nevi

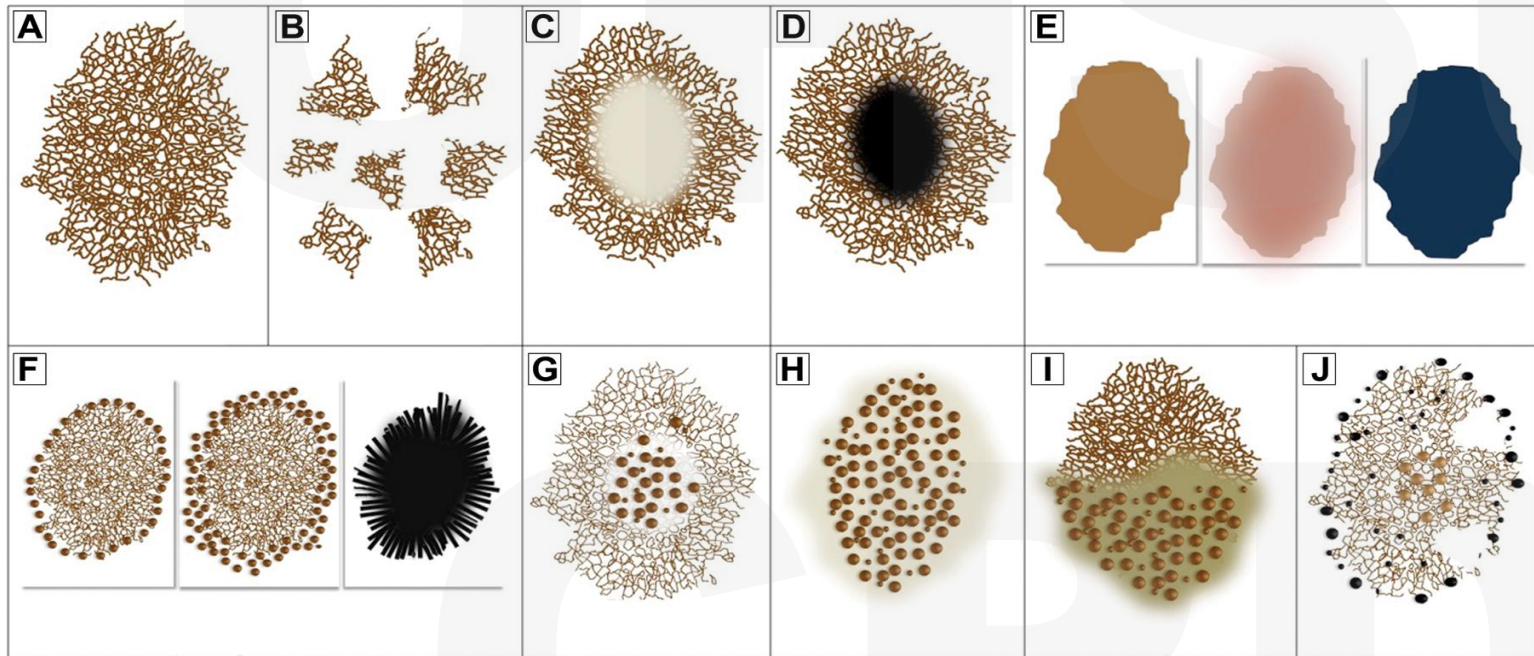
Comma 80%

Arborizing "Y" vessels 50%

Polymorphous 60%



Review of Dermatoscopic Features of Organized Nevi



KAHOOT QUIZ:
IDENTIFY THE BENIGN
PIGMENT PATTERN



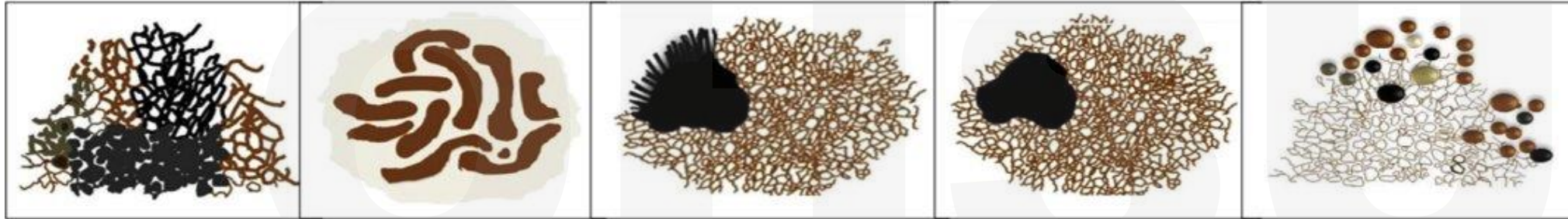
CPD

Organized vs Disorganized Pigment Patterns

Organized pattern of a benign nevus



Important Features of Melanoma



Atypical network

Negative network

Streaks

Off-center blotch

Atypical globules



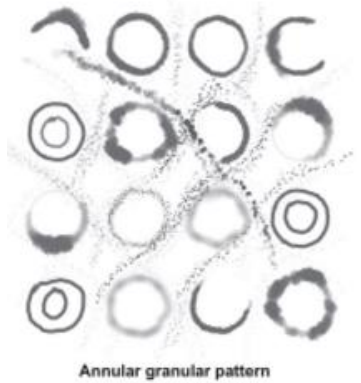
Regression structures
(scar-like, peppering)

Blue-grey/white veil
(asymmetric, diffuse)

Atypical vessels
(dotted, serpentine)

Chrysalis
(shiny white streaks)

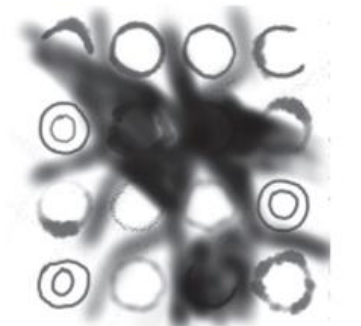
Peripheral brown
Structureless areas



Annular granular pattern



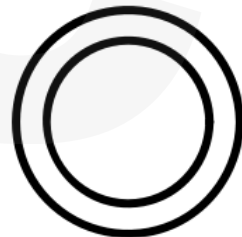
Pigmented follicular openings



Dark blotches and obliterated hair follicles

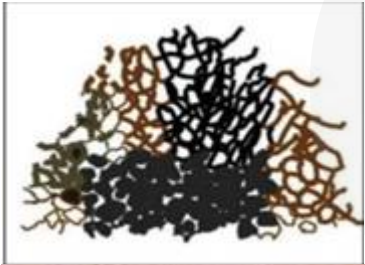


Angulated lines
(polygonal lines)



Circle within a circle

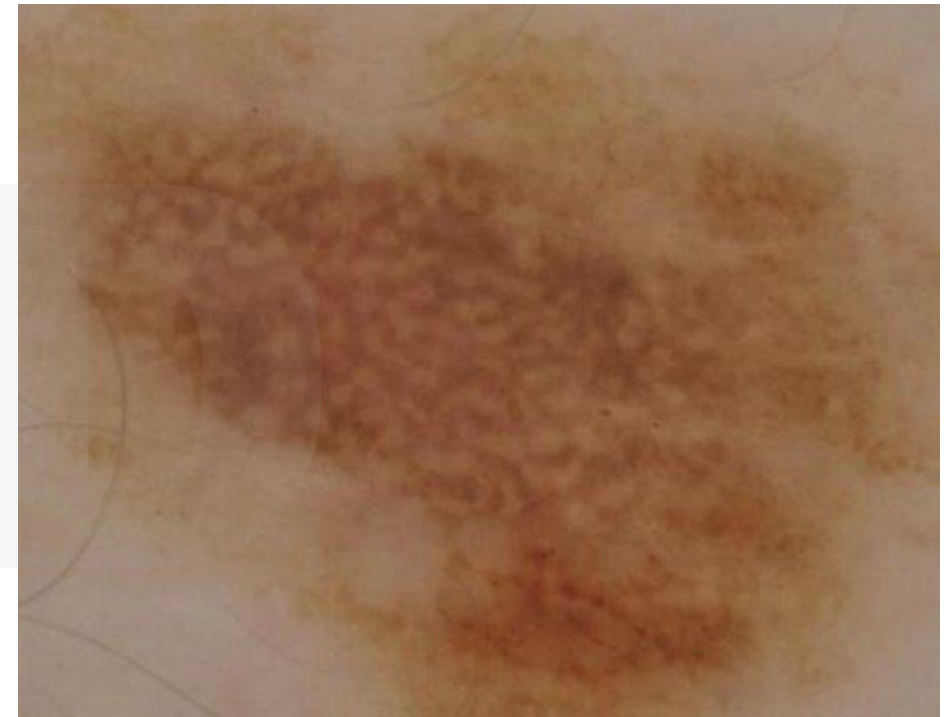
Important Features of Melanoma



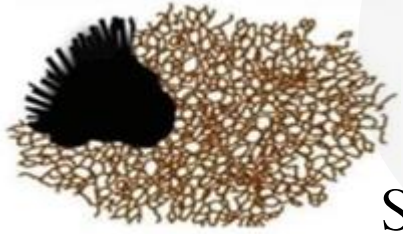
Atypical Network



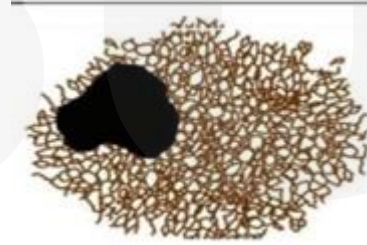
Negative Network
“Giraffe-like”



Important Features of Melanoma



Streaks (aka: lines radial or pseudopods)



Off-center blotch



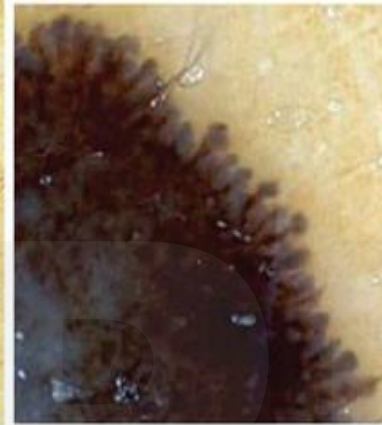
(a)



(b)



(c)



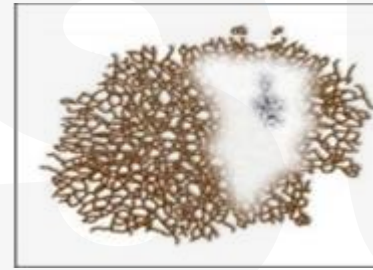
(d)



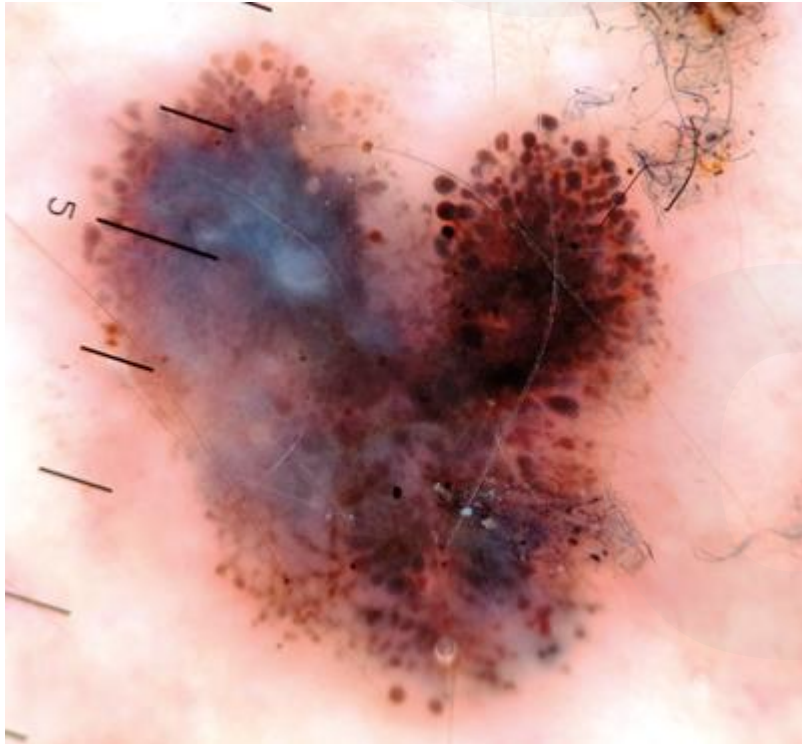
Important Features of Melanoma



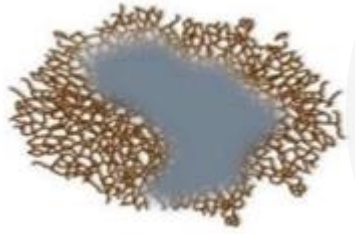
Atypical globules



Regression structures
(scar-like or peppering)



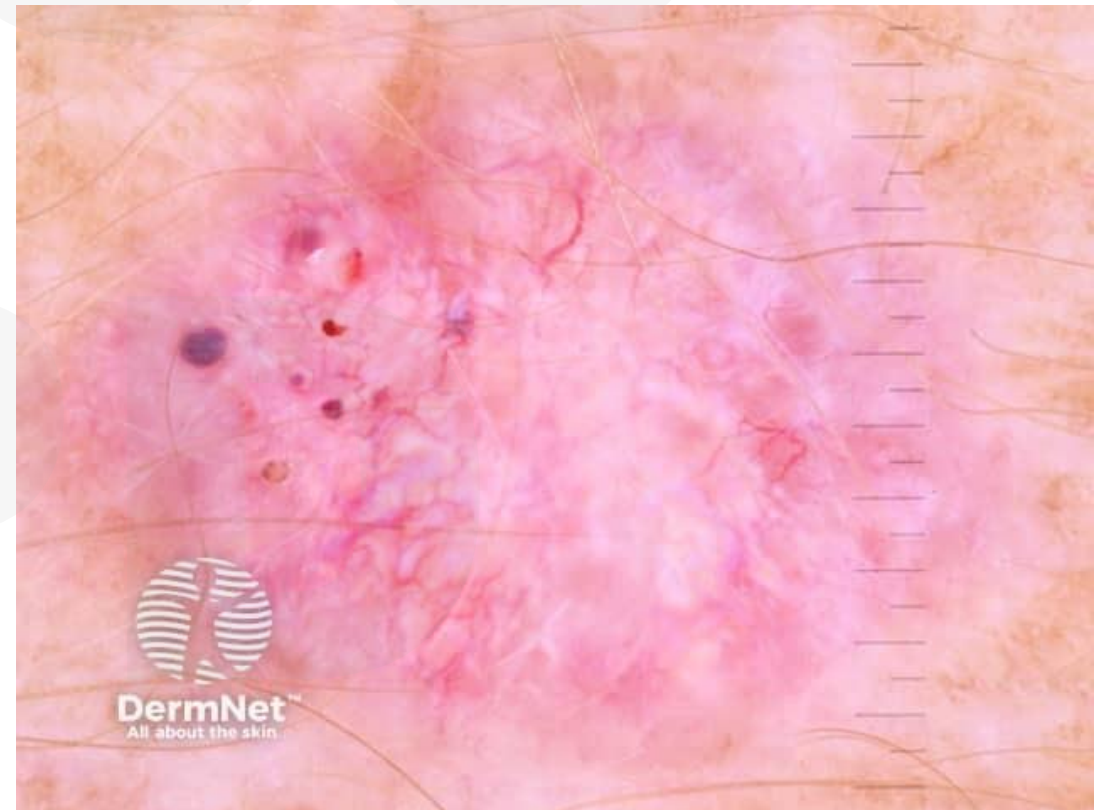
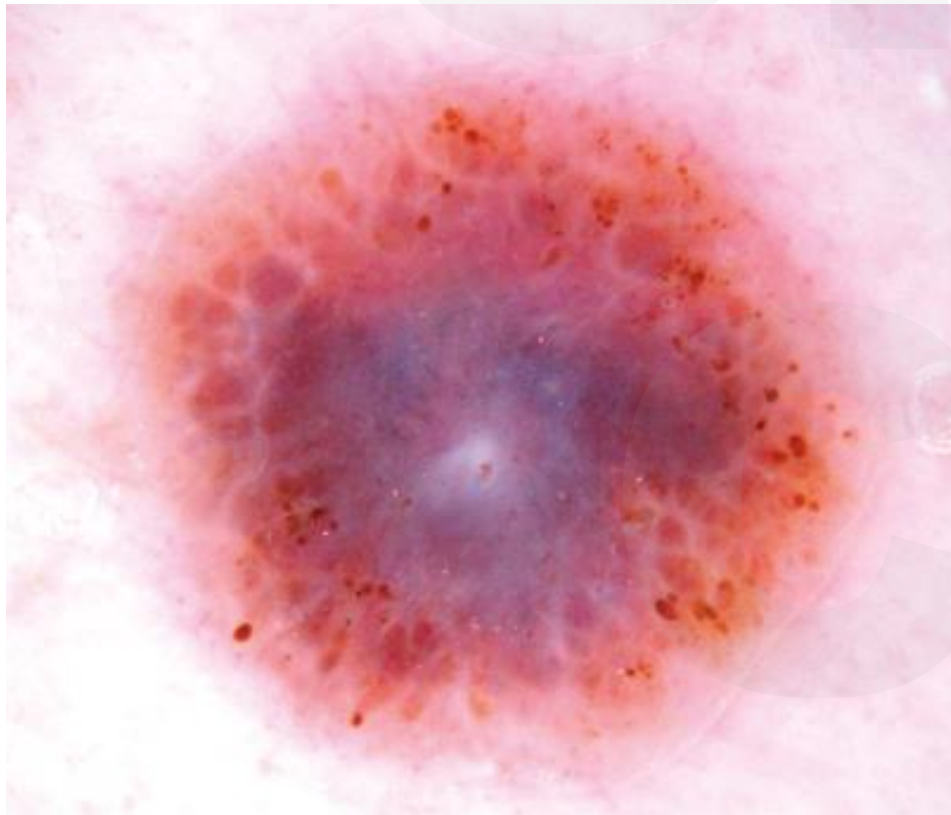
Important Features of Melanoma



Blue-gray/white veil



Atypical vessels
(dotted, serpentine)



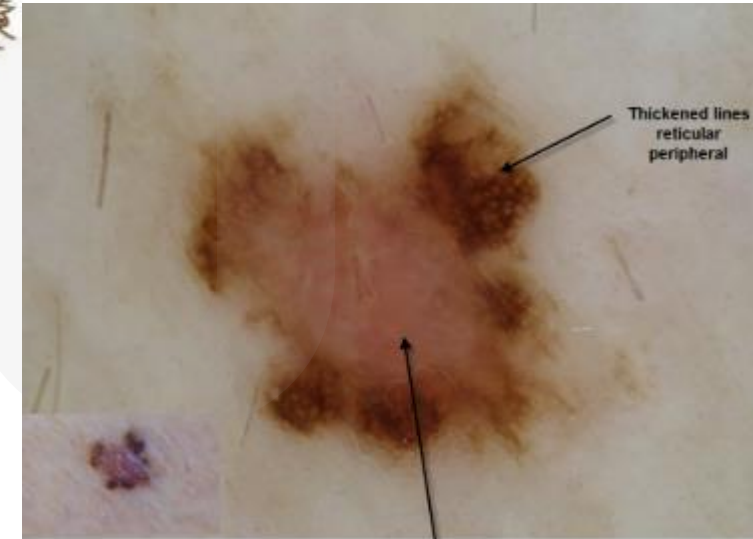
Important Features of Melanoma



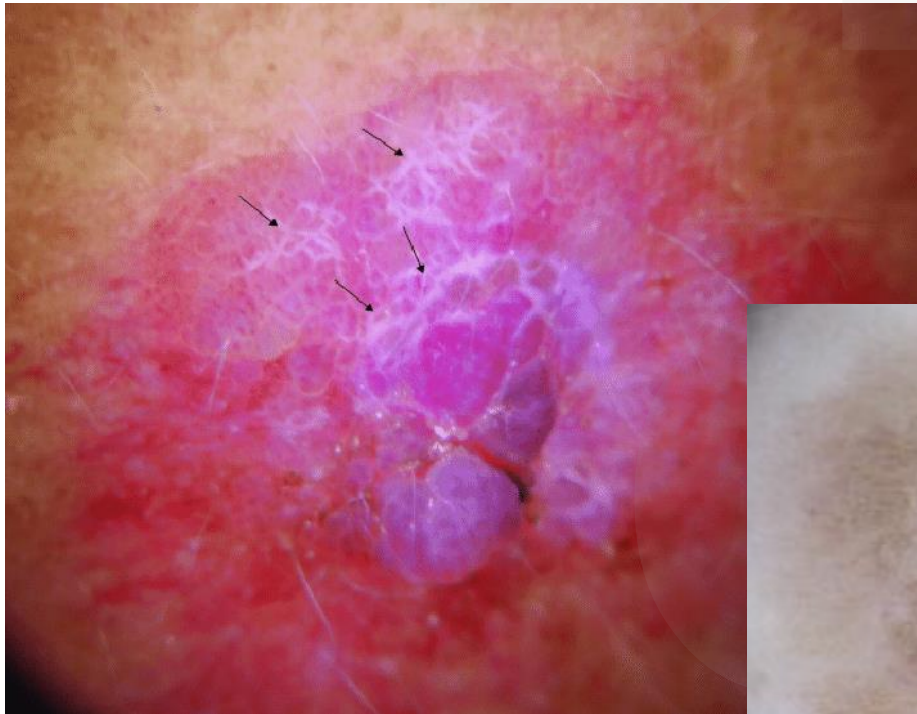
Chrysalis
(shiny white streaks)



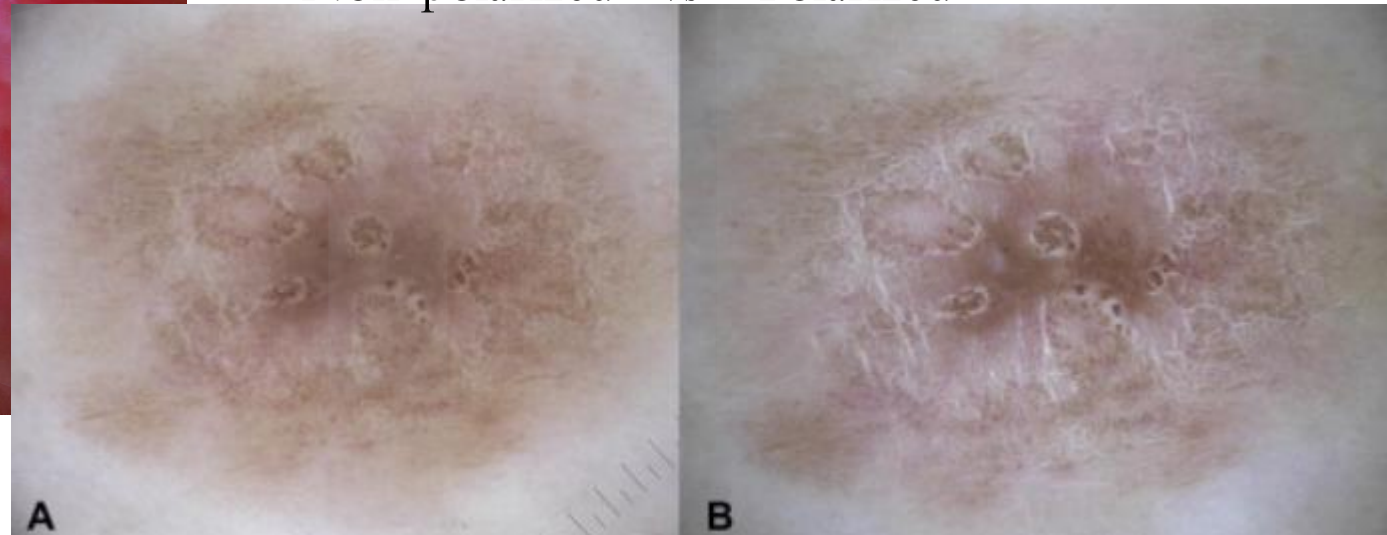
Structureless areas



Pink structureless area



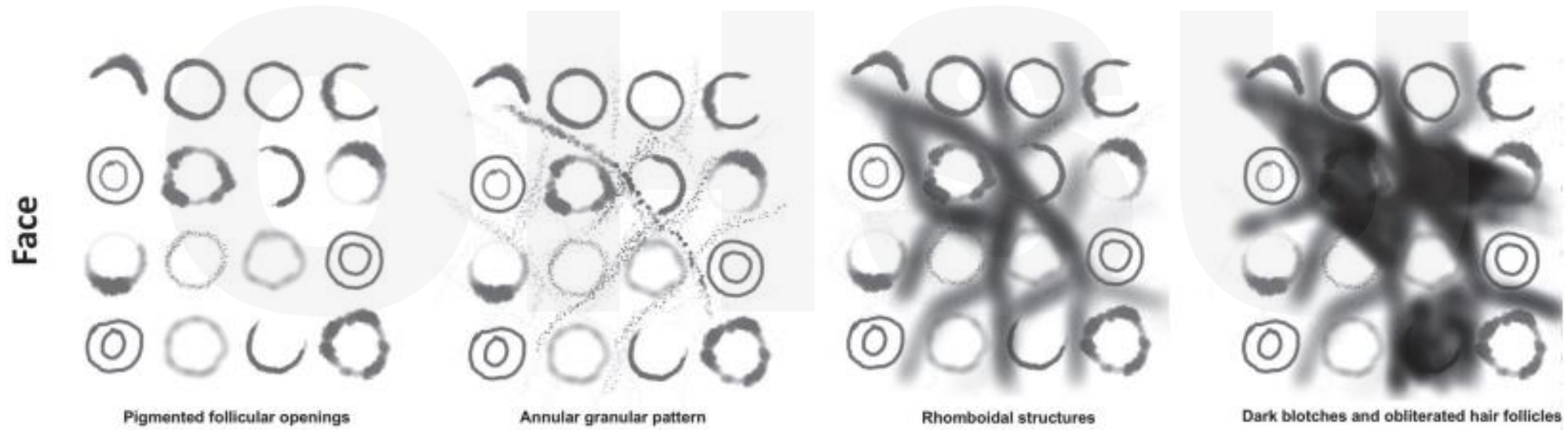
Non-polarized vs Polarized



A

B

Face:



- Annular-granular pattern
- Asymmetric follicular openings
- Gray dots/granules around ostial openings
- Circle within circle sign
- Angulated lines forming rhomboids
- Blotche

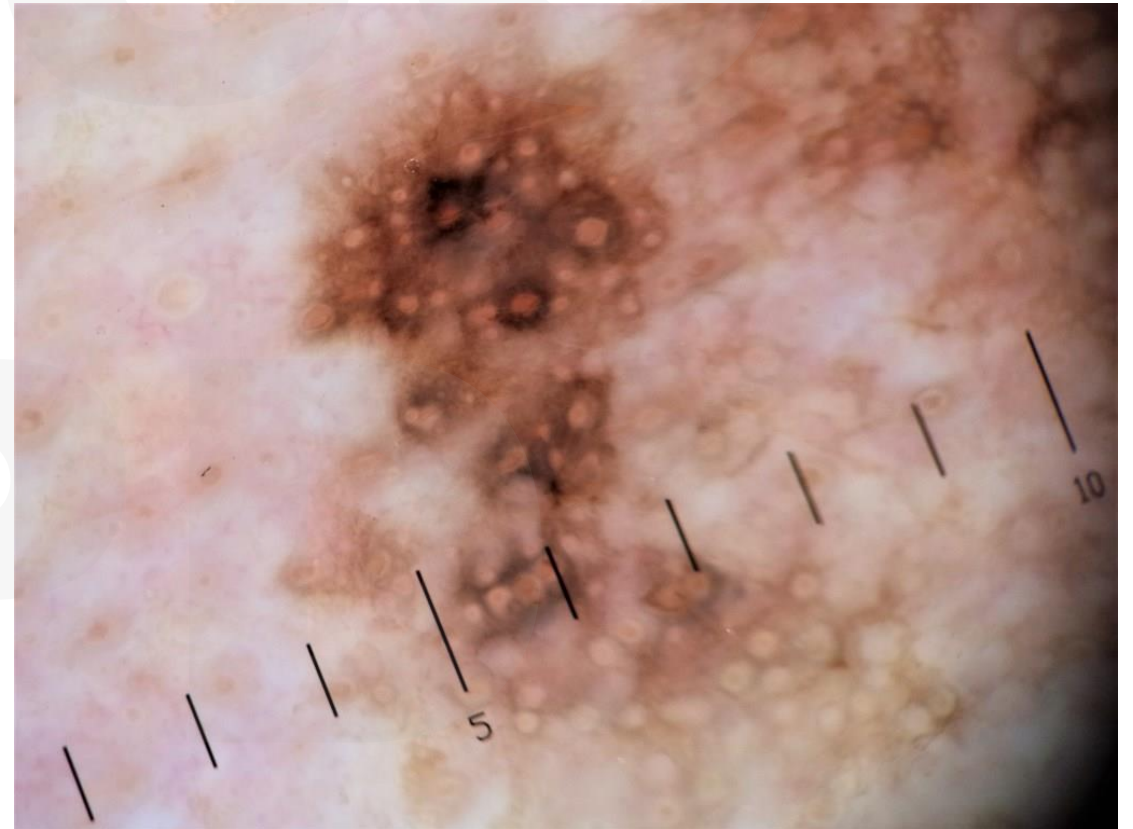
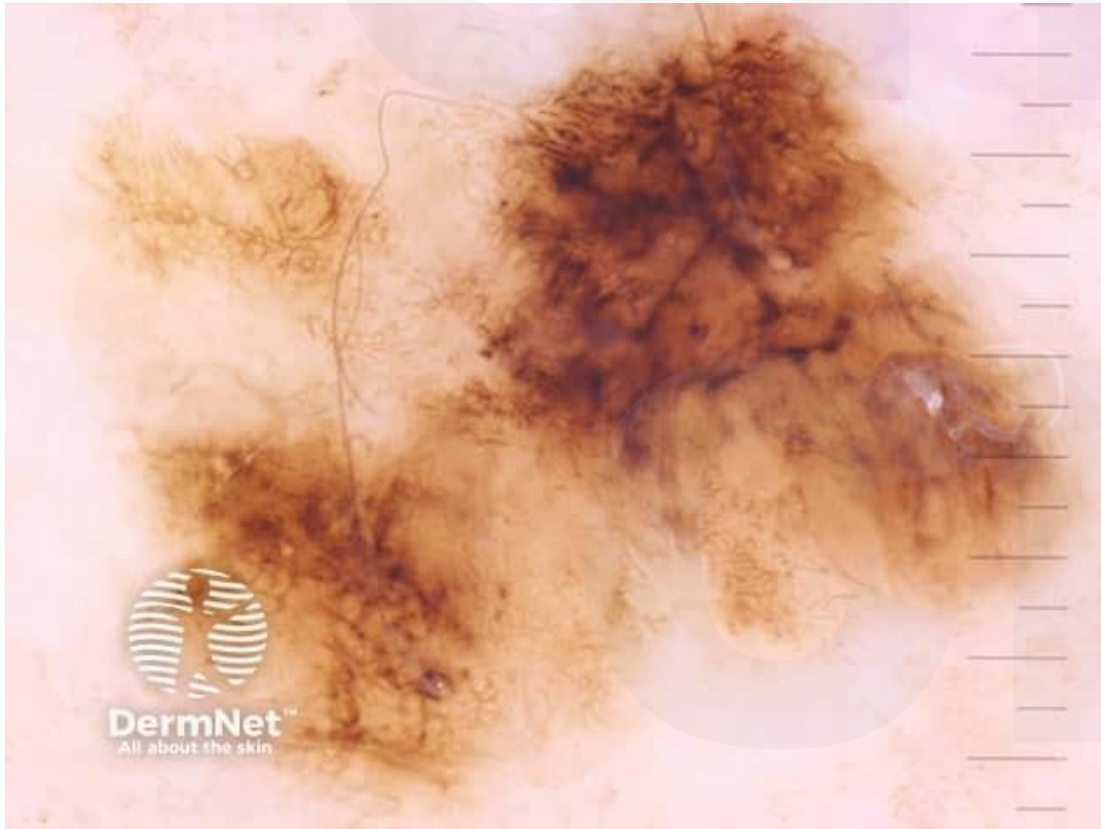
Important Features of Melanoma on the Face



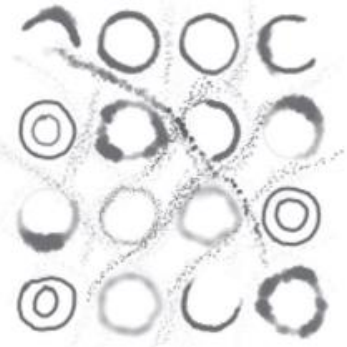
Angulated lines
(polygonal lines/
rhomboidal structures)



Circle within a circle



Important Features of Melanoma on the Face



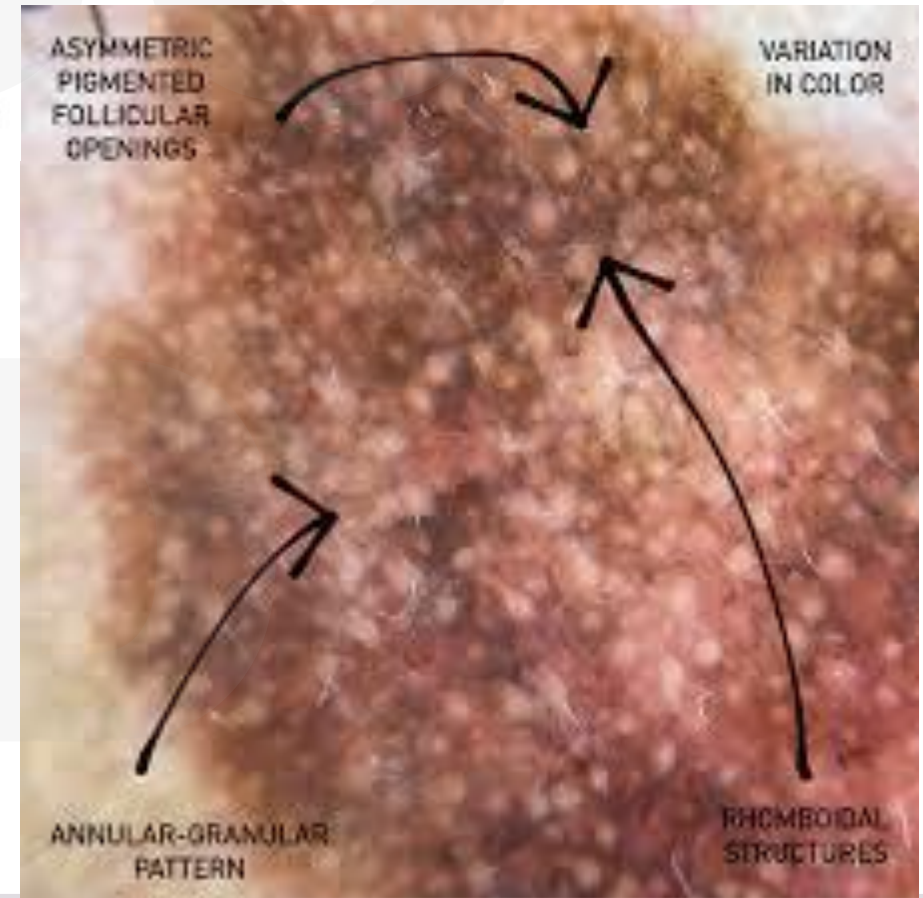
Annular Granular/
gray dots around
follicular openings



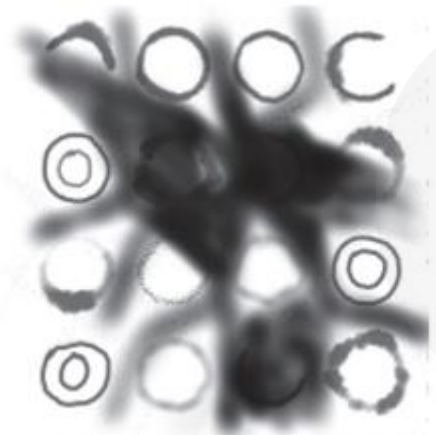
Asymmetric Follicular Openings



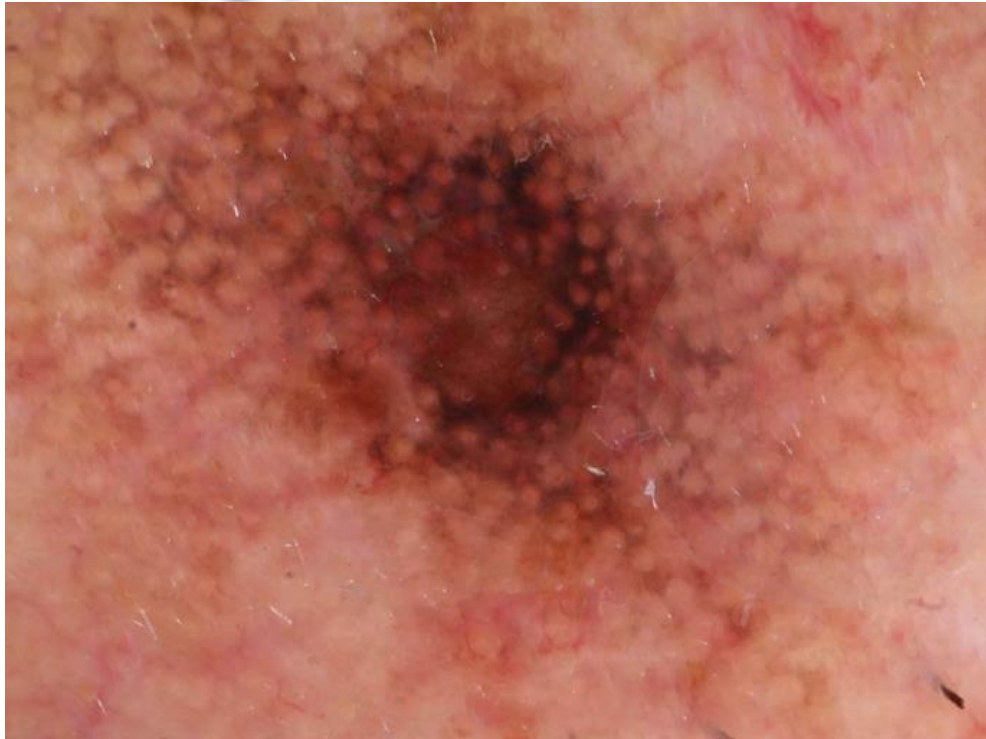
Te Whatu Ora
Health New Zealand



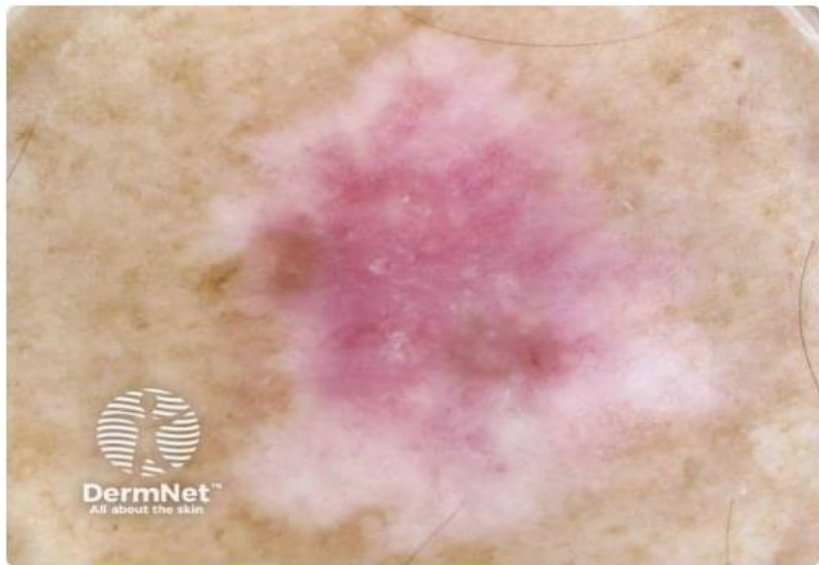
Important Features of Melanoma on the Face



Dark Blotches and
Obliterated Hair Follicles



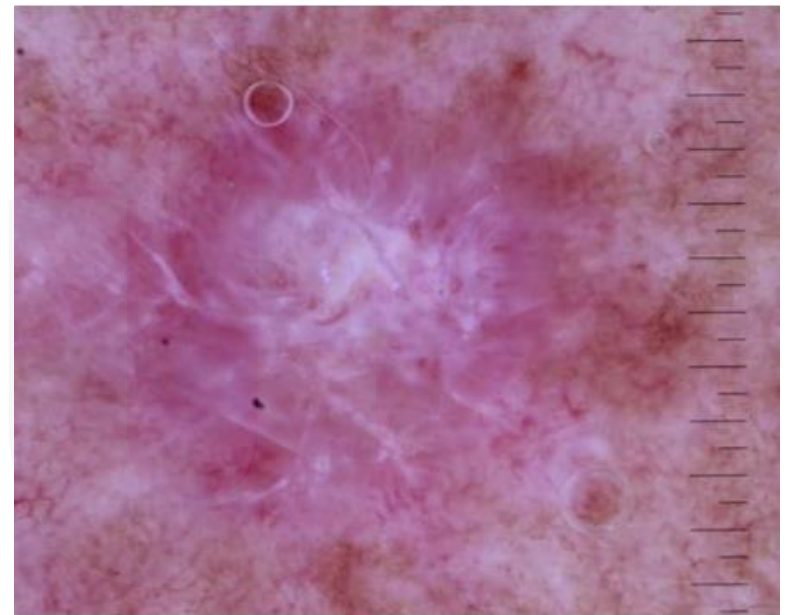
AMELANOTIC MELANOMA



Multiple shades of pink



Pigment remnants

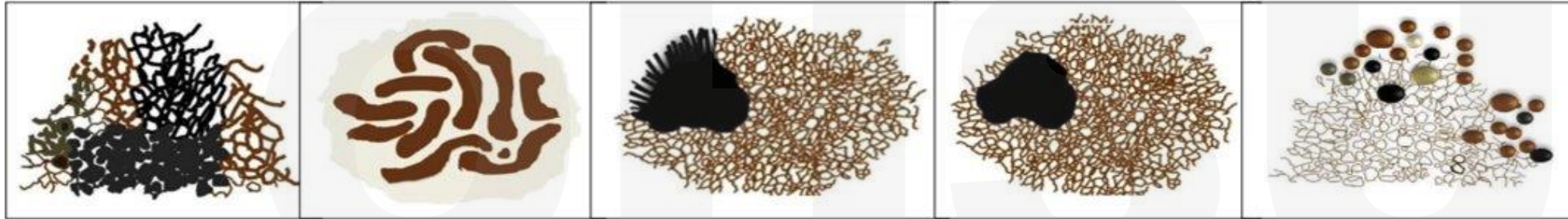


White lines, polymorphous vessels



Linear irregular vessels

Review of Important Features of Melanoma



Atypical network

Negative network

Streaks

Off-center blotch

Atypical globules



Regression structures
(scar-like, peppering)

Blue-grey/white veil
(asymmetric, diffuse)

Atypical vessels
(dotted, serpentine)

Chrysalis
(shiny white streaks)

Peripheral brown
Structureless areas



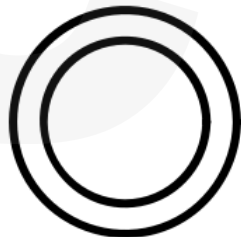
Annular granular pattern



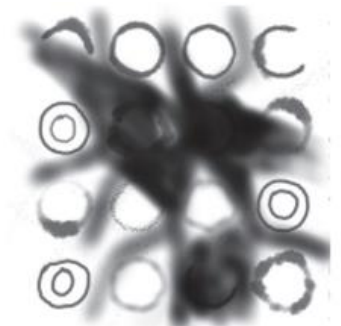
Pigmented follicular openings



Angulated lines
(polygonal lines)



Circle within a circle



Dark blotches and obliterated hair follicles

(Margoob, Liopyris, & Jaimes, 2019)

OHHSU

KAHOOT QUIZ: IDENTIFY
THE IMPORTANT FEATURE

OF MELANOMA



CPD



Acral Pigmented Lesions

- Acral (palm, sole, nail bed) pigmented lesions are present in 28%-36% of the US population
- About 44% of people with darker phototypes (IV to VI) have acral pigmented lesions
- About 28% of people with fairer phototypes (I to II) have acral pigmented lesions
- Acral melanoma is a rare form of melanoma, accounting for only about 2-3% of all cases diagnosed. About 2,000 - 3000 cases of acral melanoma are diagnosed each year in the US and it accounts for 33.6% to 36.0% of all melanoma in Blacks, 18.0% to 23.1% in Asians, 9.0% to 9.3% in Hispanics, and 1.0% in Whites



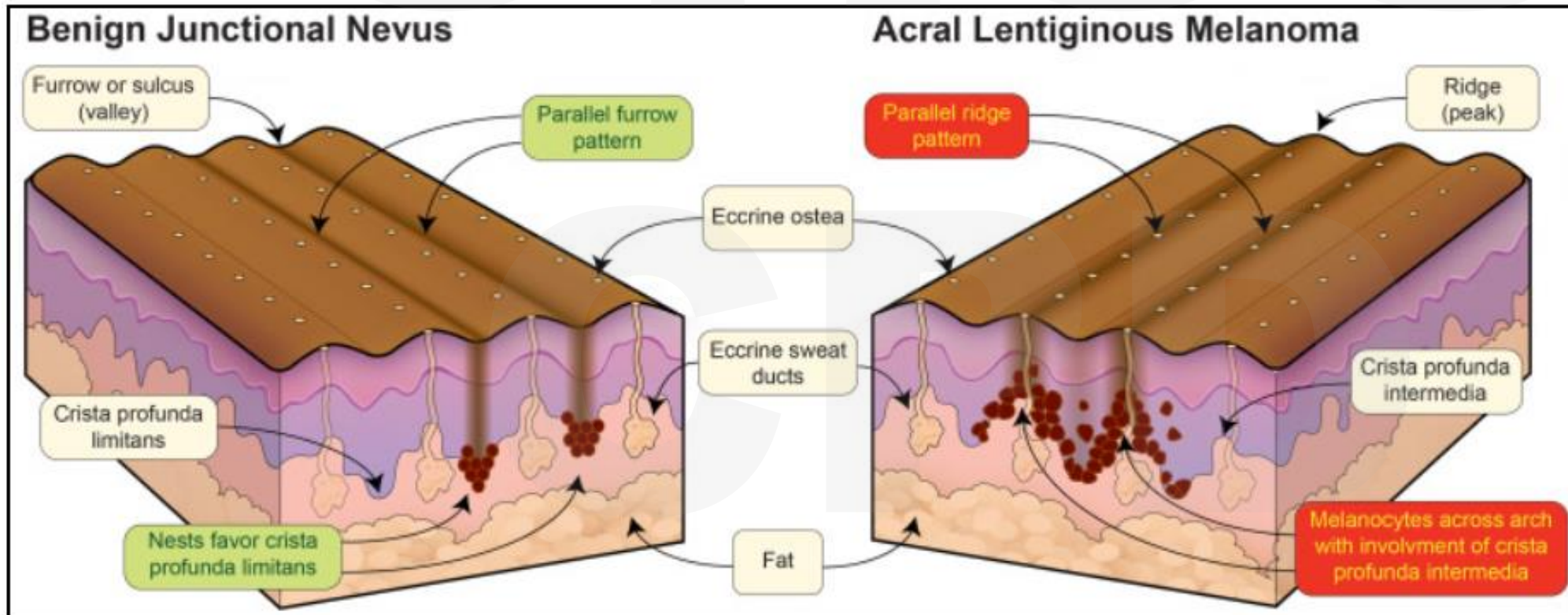
Dermoscopy of Acral Pigmented Lesions: Furrows and Ridges



Furrow Pattern

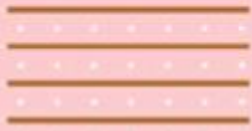


Ridge Pattern

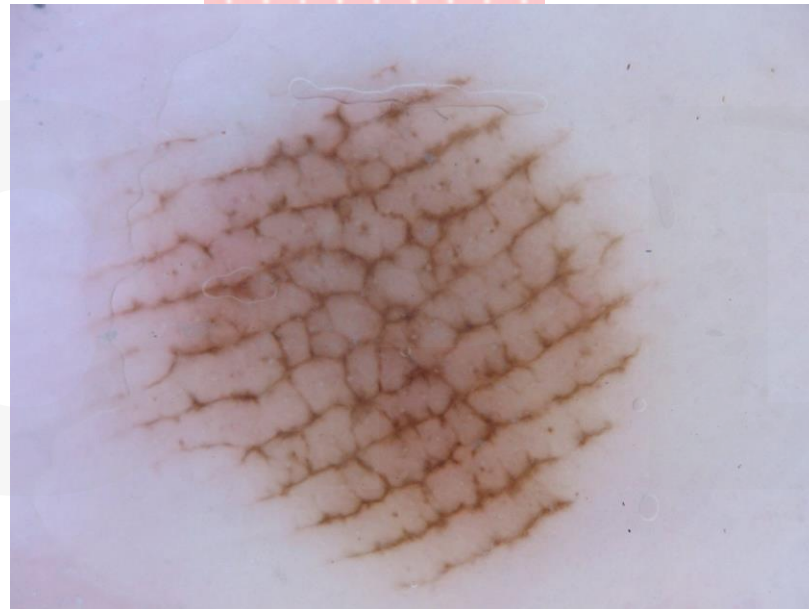


Benign Acral Pigmented Lesion Patterns

Parallel furrow pattern



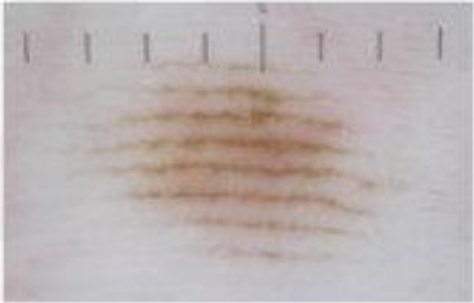
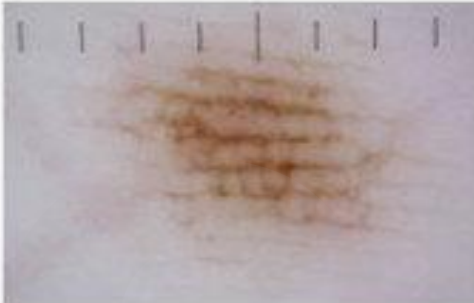

Lattice-like pattern



Fibrillar pattern



Location of Specific Acral Pigmented Lesion Patterns

Pattern	Image	Location
Parallel furrow		Observed mainly on the margins of the weightbearing surfaces, pigmentation is observed in the furrows
Lattice-like pattern		Arch areas and non-weightbearing volar areas, pigmentation is observed in the furrows with links crossing like rungs on a ladder
Fibrillar pattern		Weight bearing areas (particularly heels, forefoot and pulps of the toe), pigmentation is observed in the furrows with fine parallel streaks crossing the dermatoglyphics tangentially



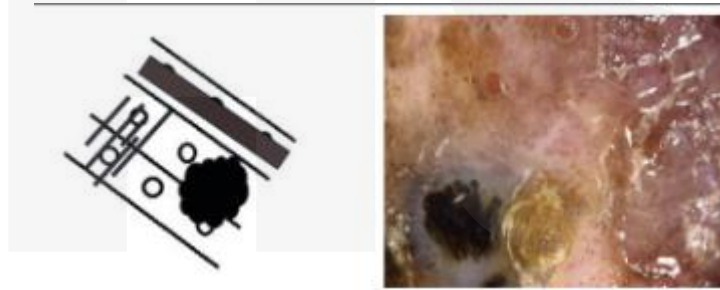
Furrows are FINE...Ridges are RISKY

Dermatoscopic Features Concerning for Acral Melanoma

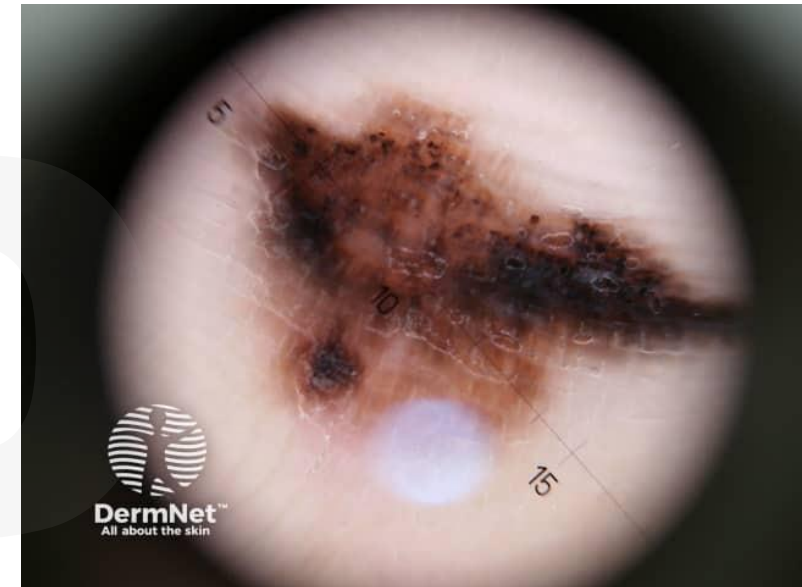
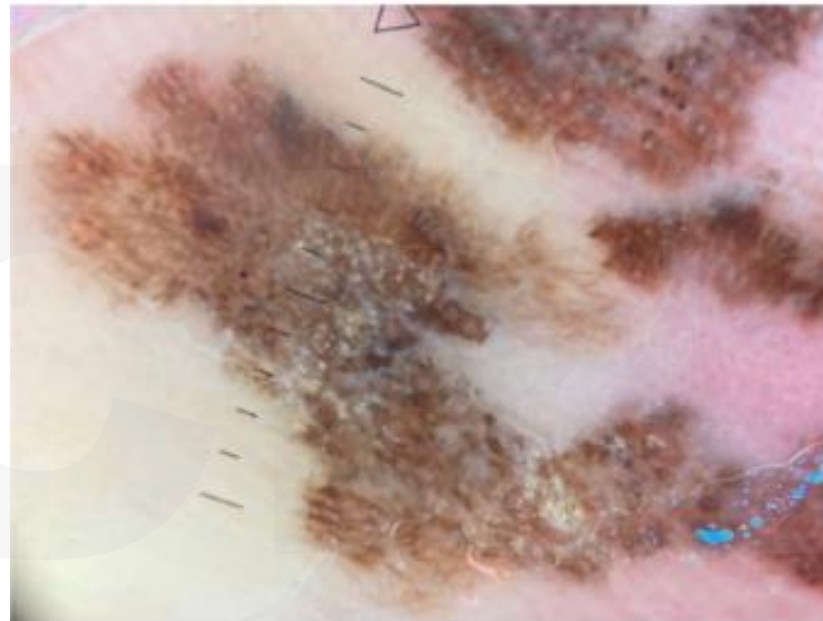
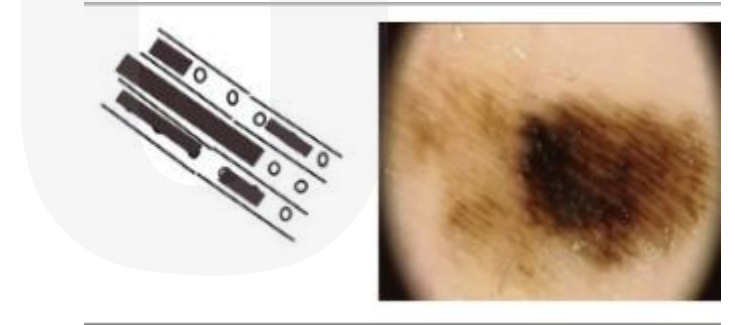
Parallel Ridge: pigment in highest widest part of dermatoglyphs



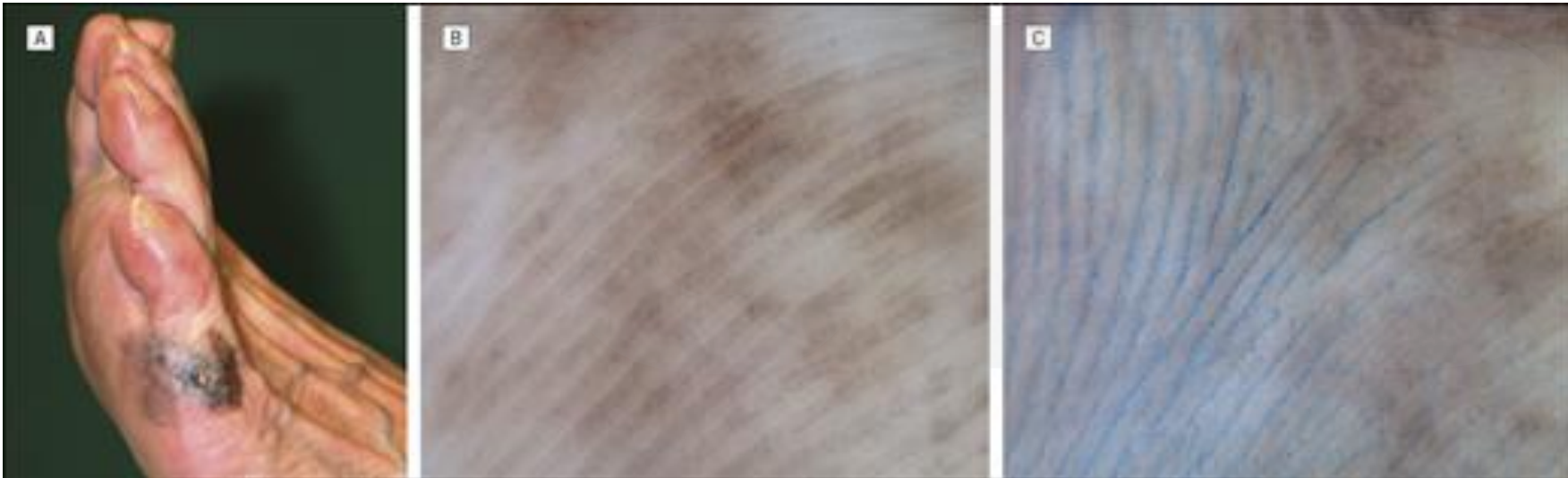
Multicomponent: combination of patterns or structures



Asymmetric

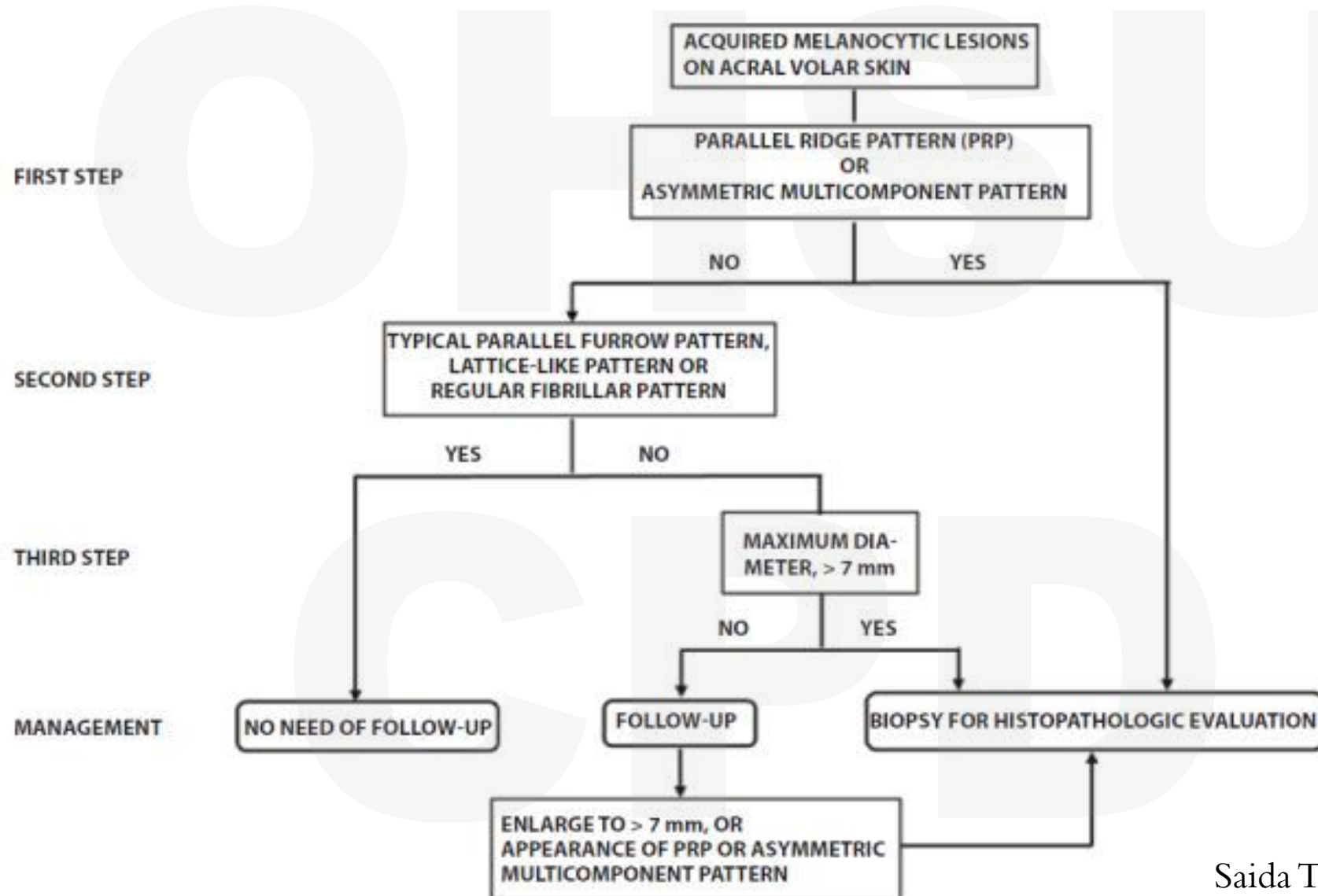


Furrow Ink Test for Acral Pigmented Lesions



Ink will adhere to the furrows

3-step Algorithm for Determining if an Acral Pigmented Lesion Needs to be Biopsied



KAHOOT QUIZ:
DERMOSCOPY OF ACRAL
PIGMENTED LESIONS



CPD

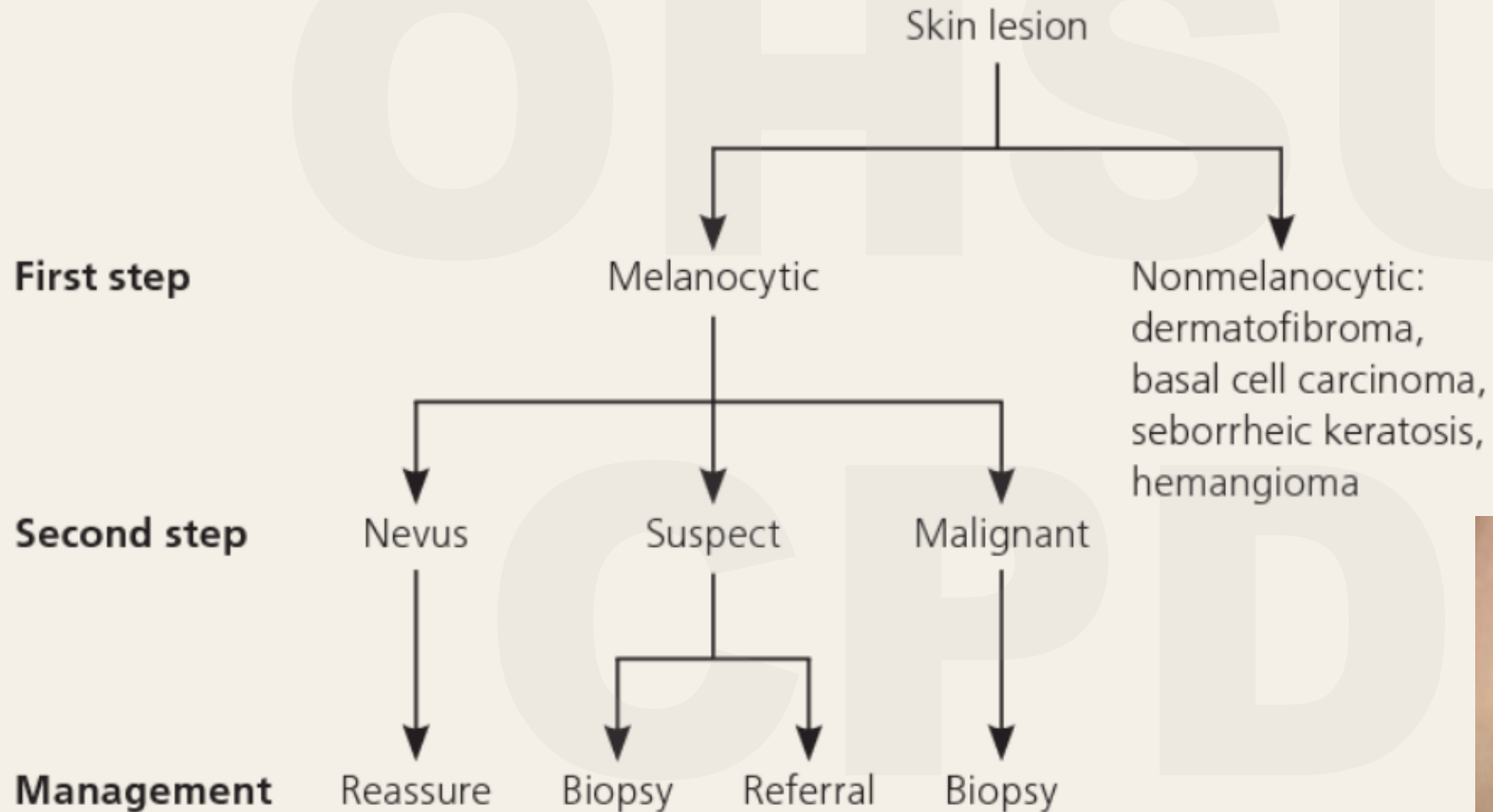
HANDS-ON
DERMOSCOPY
BREAKOUT:
15 MINUTES



Pearls:

- Toggle between polarized and non-polarized
- Adjust the lens
- Try skin contact and non-contact
- Use an alcohol swab for better visualization
- Look with intention, searching for features, try to name the features as you see them

Two-Step Dermoscopy Algorithm



Nonmelanocytic
lesions...



Dermatofibroma



- Fibrous histiocytoma composed of collagen, macrophages (histiocytes), capillaries, and fibroblasts
- Typically result from minor trauma (insect bite, ingrown hair)
- Benign. Rare transformation into dermatofibrosarcoma protuberans



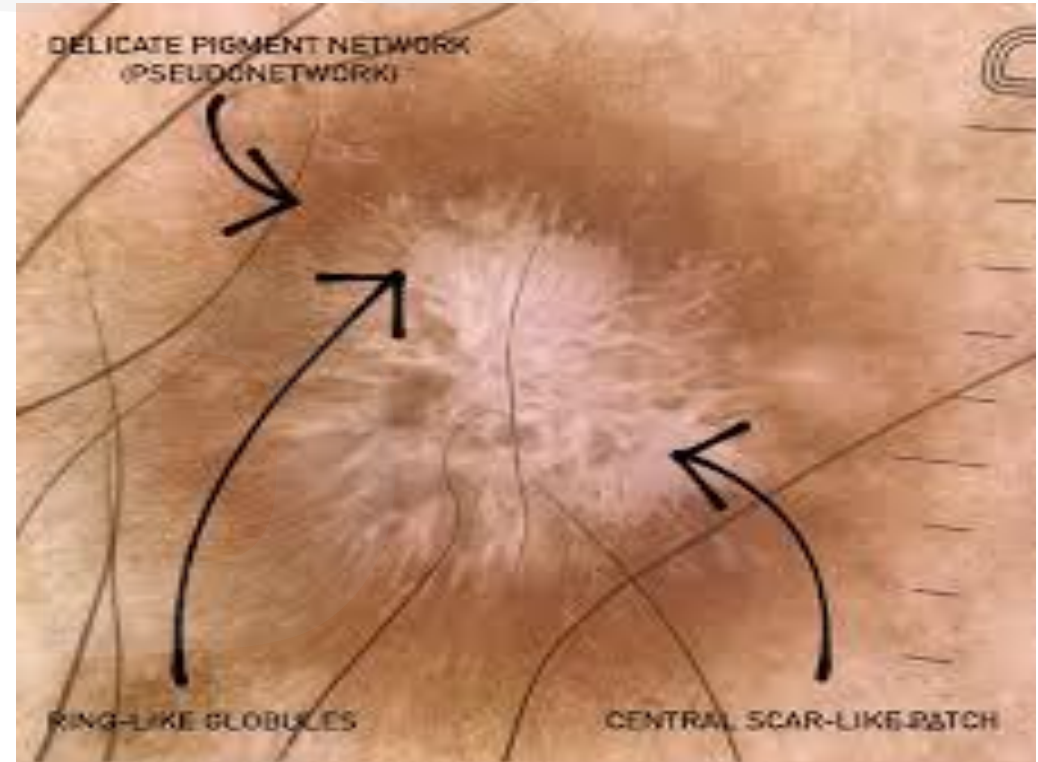
Dermoscopy of Dermatofibroma (DF)



DF: network with central white blotch



DF: network with ring-like globules, shiny white streaks & pink hue



Basal Cell Carcinoma



3. BCC



Arborizing /
branched vessels



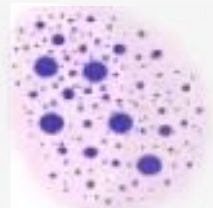
Spoke wheel like
structures



Leaf like areas



Blue gray ovoid nests



Multiple blue gray
dots / globules

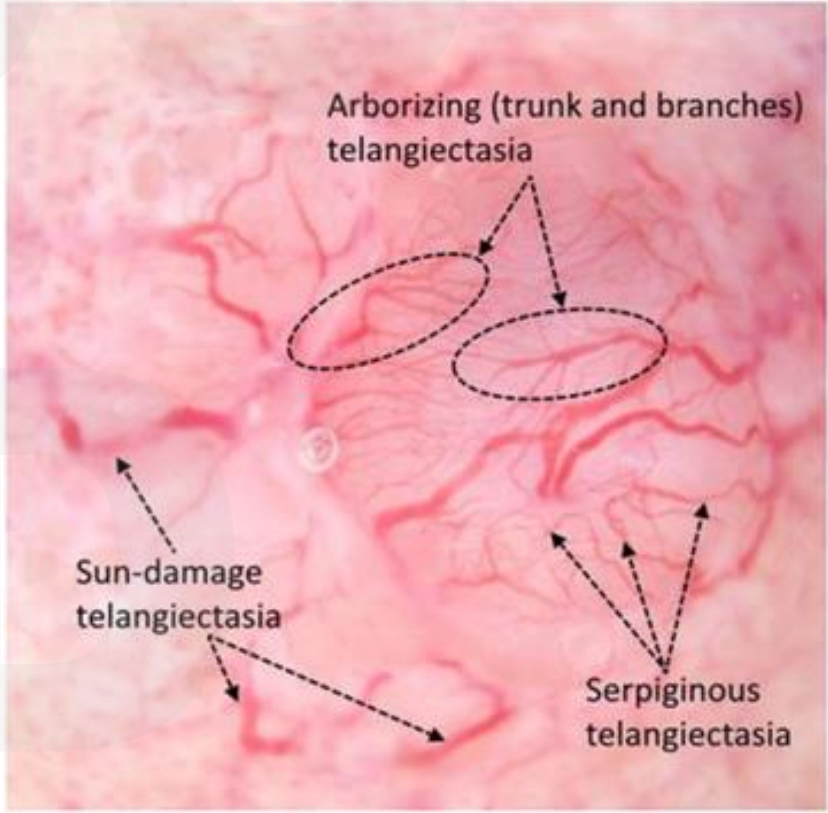
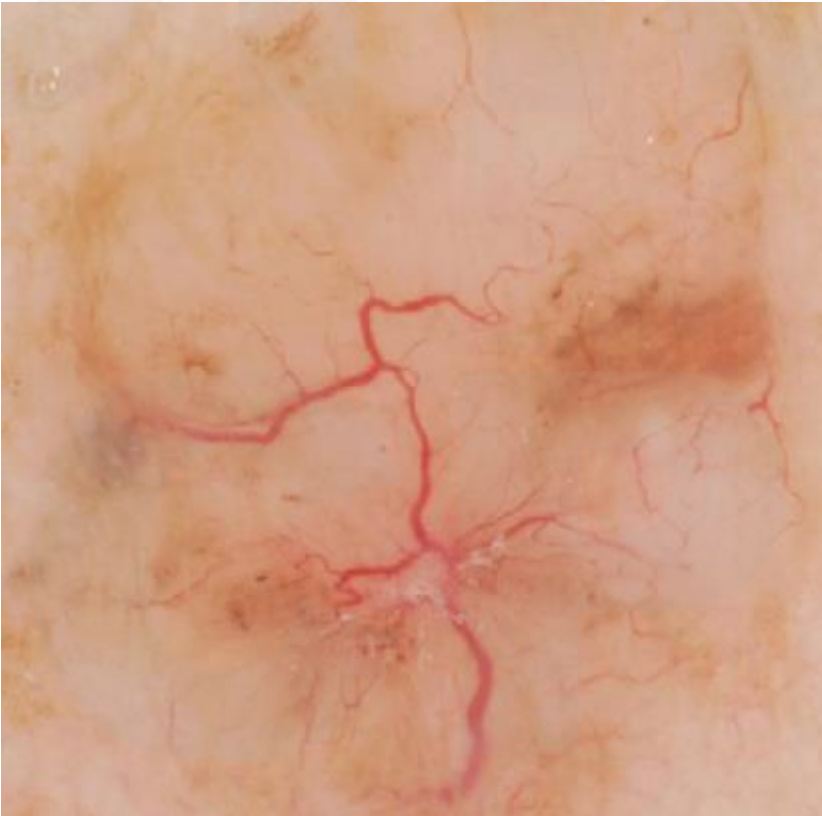


Shiny white blotches &
strands

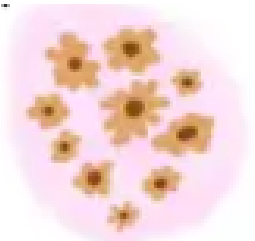


Ulceration

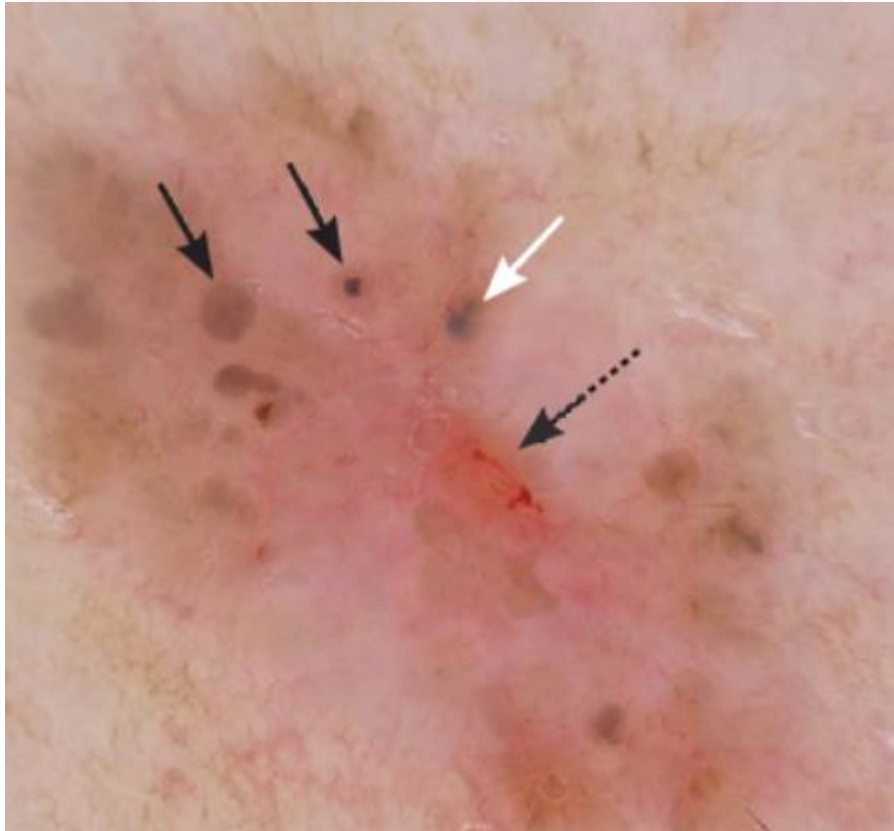
Dermoscopy Features of Basal Cell Carcinoma



Dermoscopy Features of Basal Cell Carcinoma

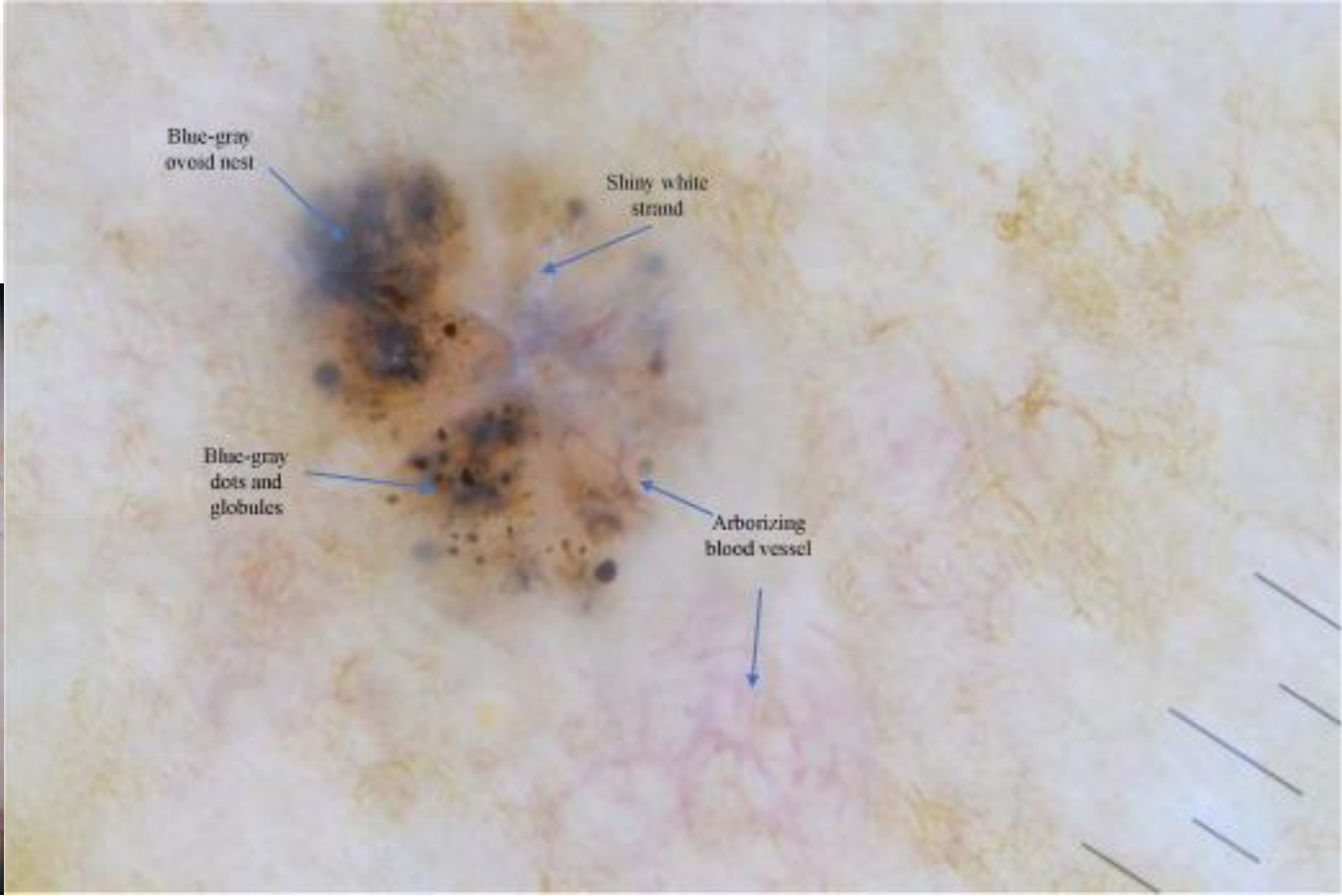
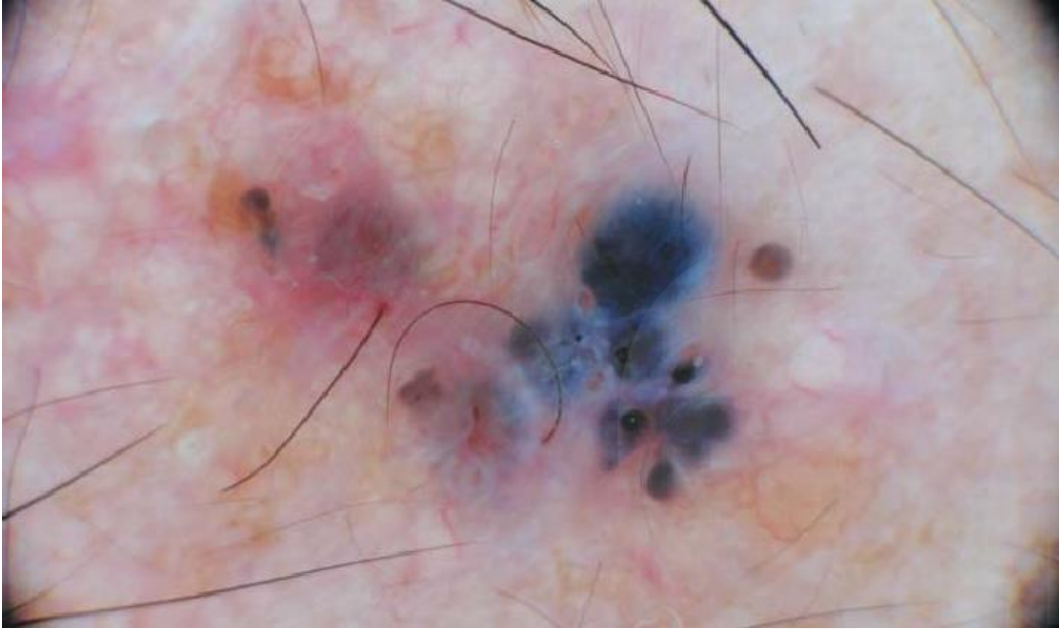
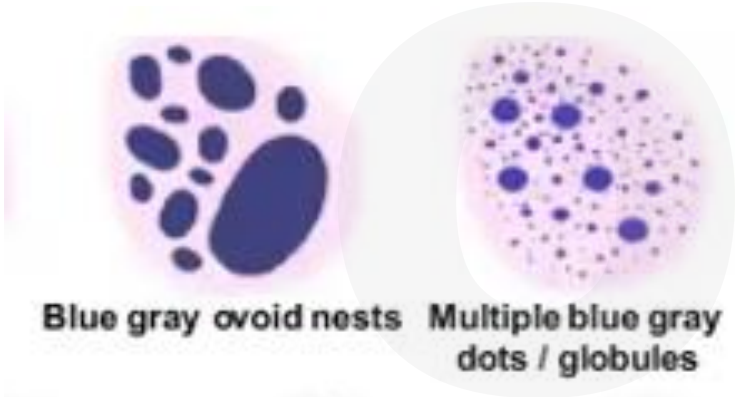


Spoke wheel like structures

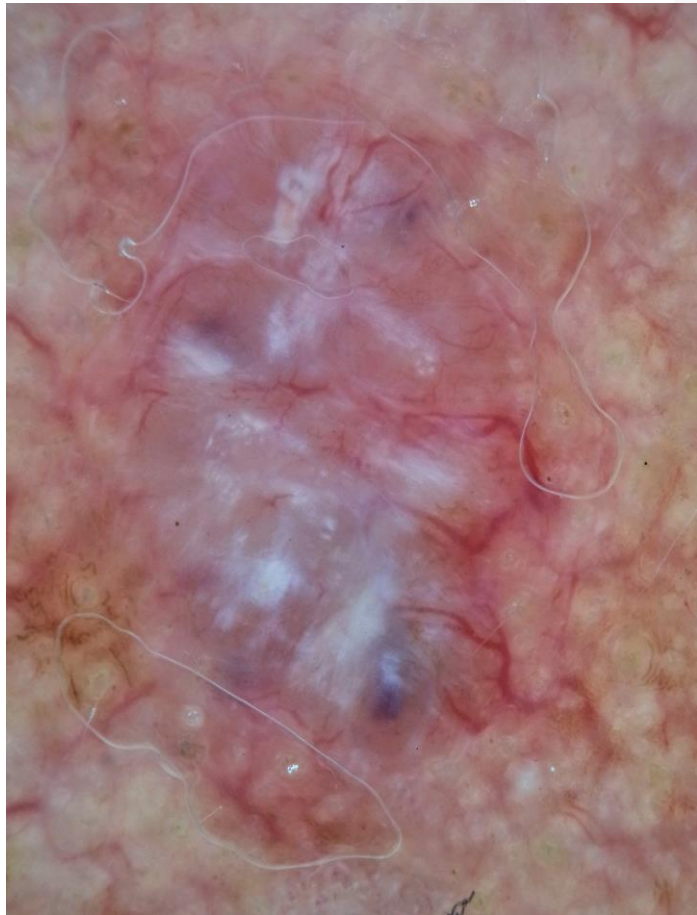


Leaf like areas

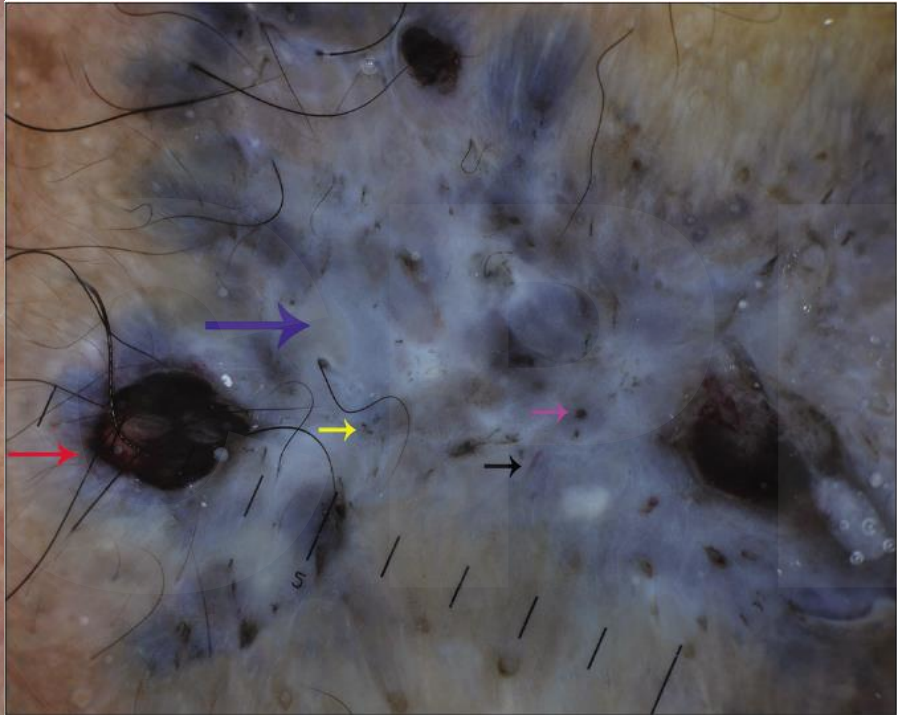
Dermoscopy Features of Basal Cell Carcinoma



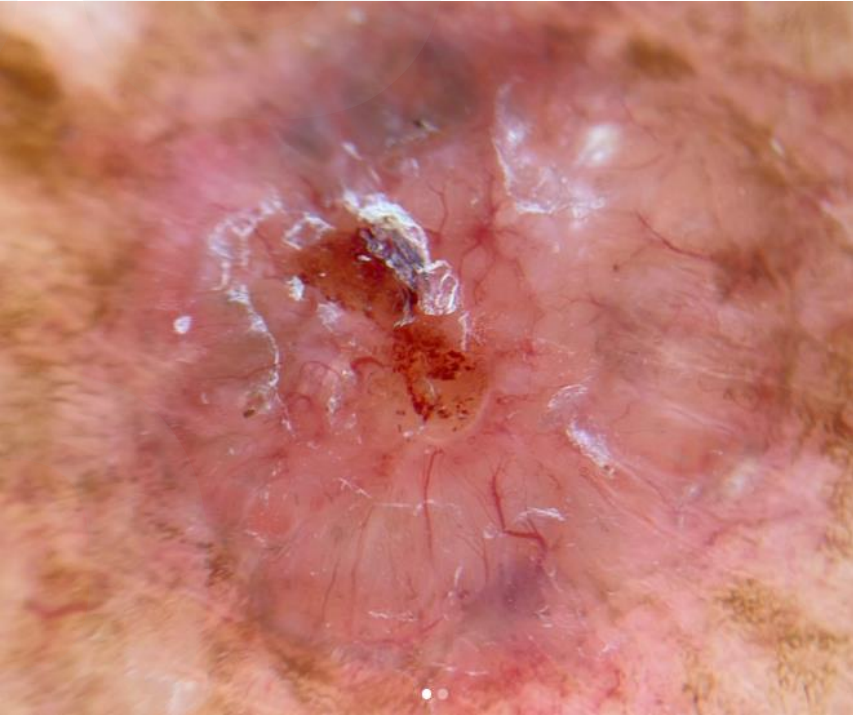
Dermoscopy Features of Basal Cell Carcinoma



Shiny white blotches & strands



Ulceration



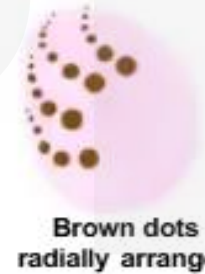
KAHOOT QUIZ:
DERMOSCOPY OF BASAL CELL
CARCINOMA



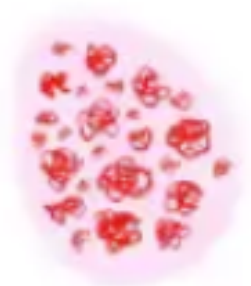
Squamous Cell Carcinoma



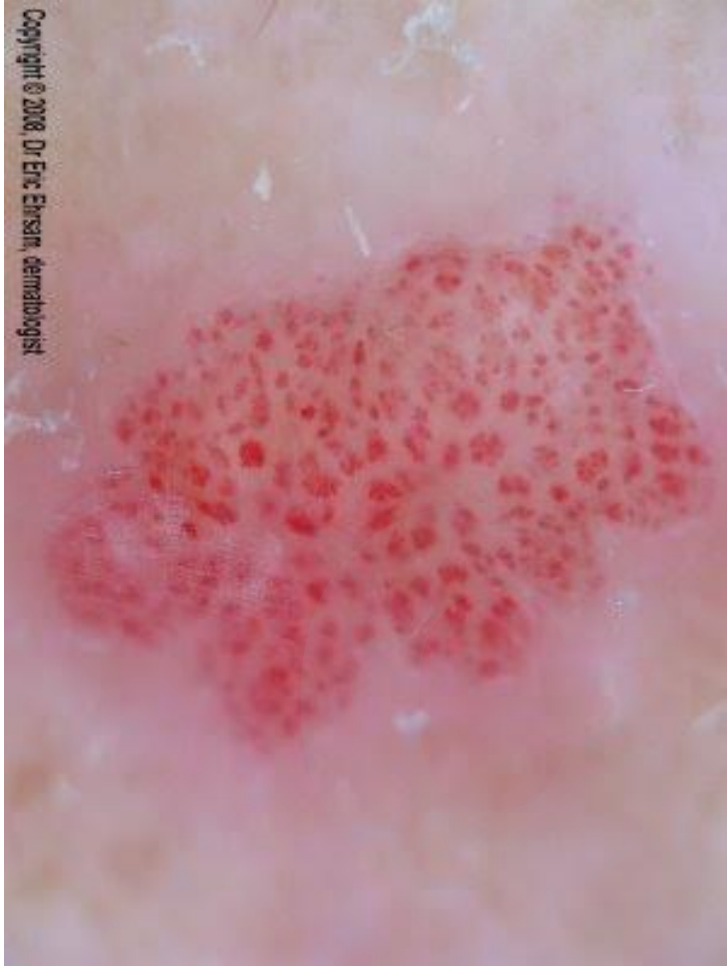
4. SCC



Squamous Cell Carcinoma Dermoscopy Features



Glomerular /
coiled vessels



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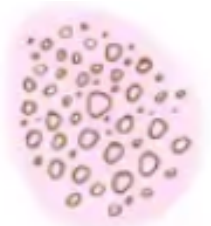


Hairpin vessels with
whitish halo



Copyright © Dr Eric Ehlsam, dermatologist

Squamous Cell Carcinoma Dermoscopy Features



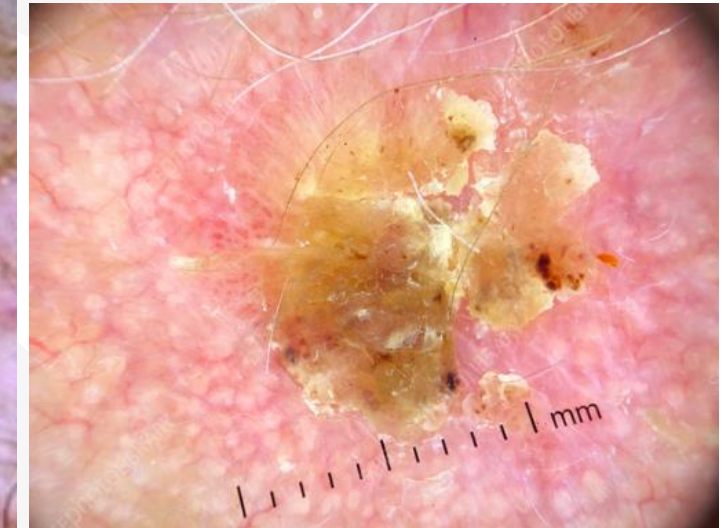
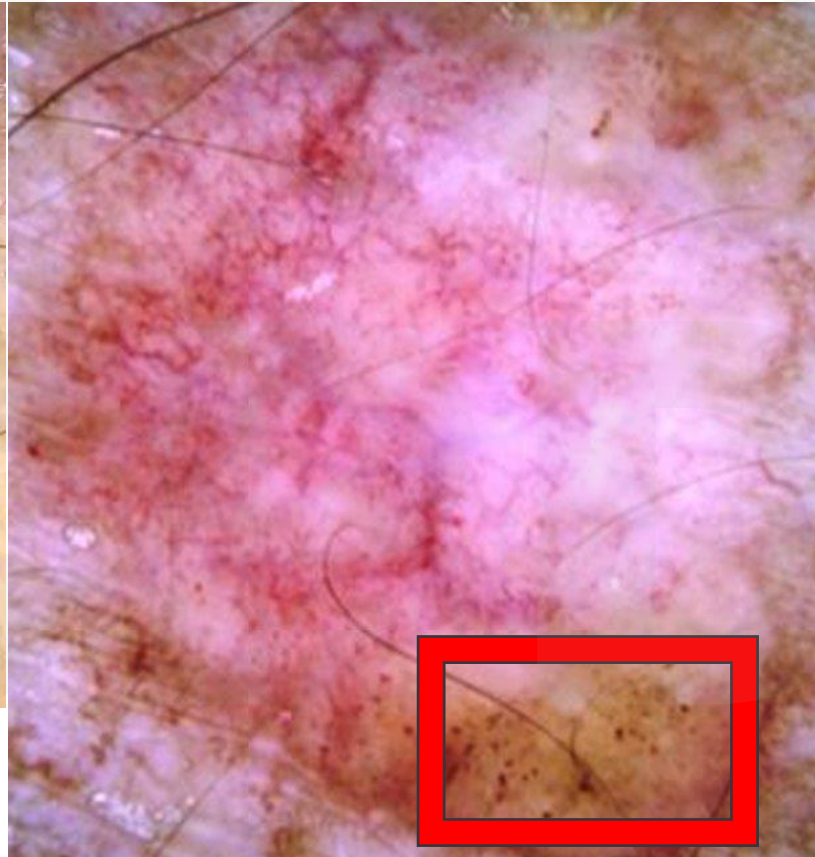
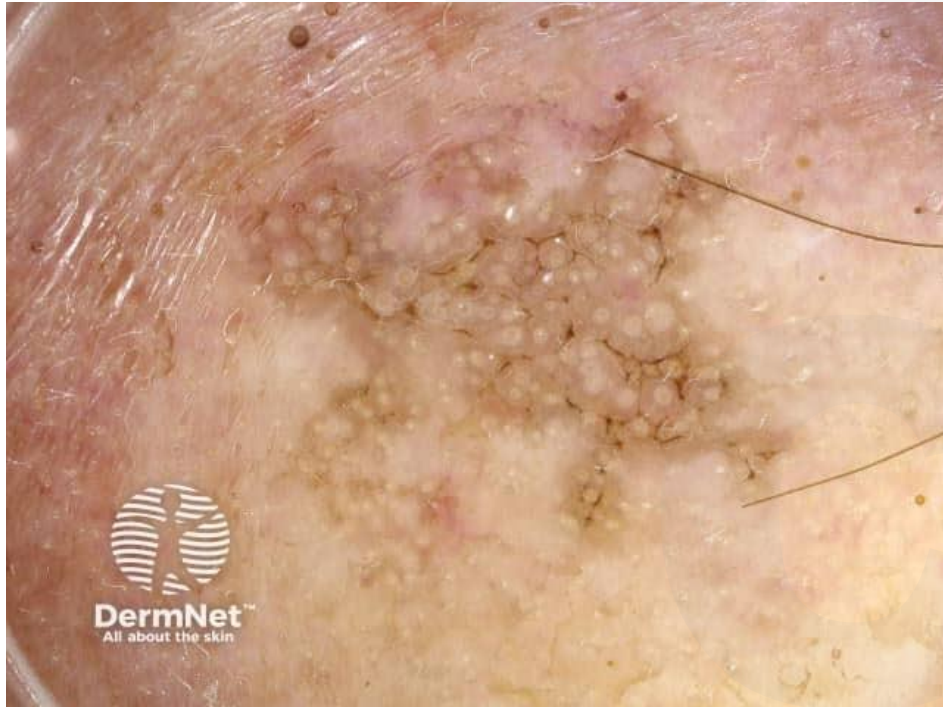
Brown circles



Brown dots
radially arranged



Yellow scale



Squamous Cell Carcinoma Dermoscopy Features



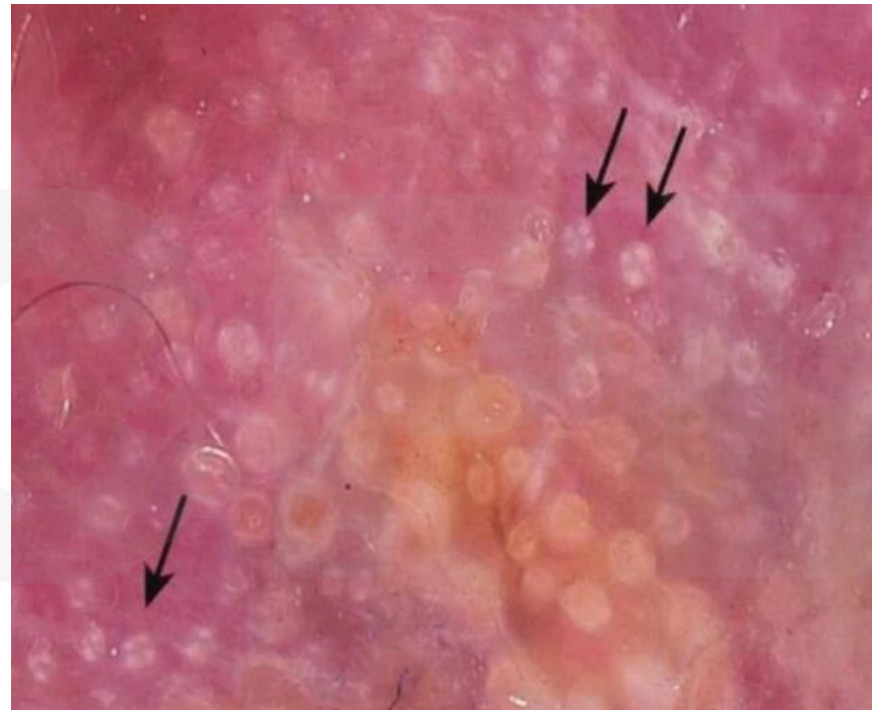
White dots



Rosettes



Yellow dots



KAHOOT QUIZ:
DERMOSCOPY OF SQUAMOUS
CELL CARCINOMA



CPD

Seborrheic keratosis



5. Seb K



Milia like cysts



Comedo like openings



Fissures/sulci



Fingerprint like structures



Moth eaten border



Sharp demarcation



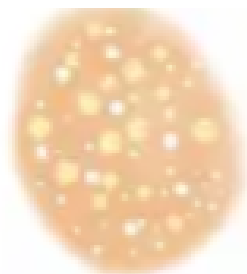
Gyri / ridges and sulci / fissures



Hairpin vessels with whitish halo

Seborrheic Keratosis Dermatoscopic Features

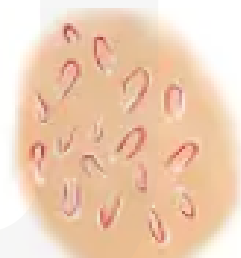
O H S U



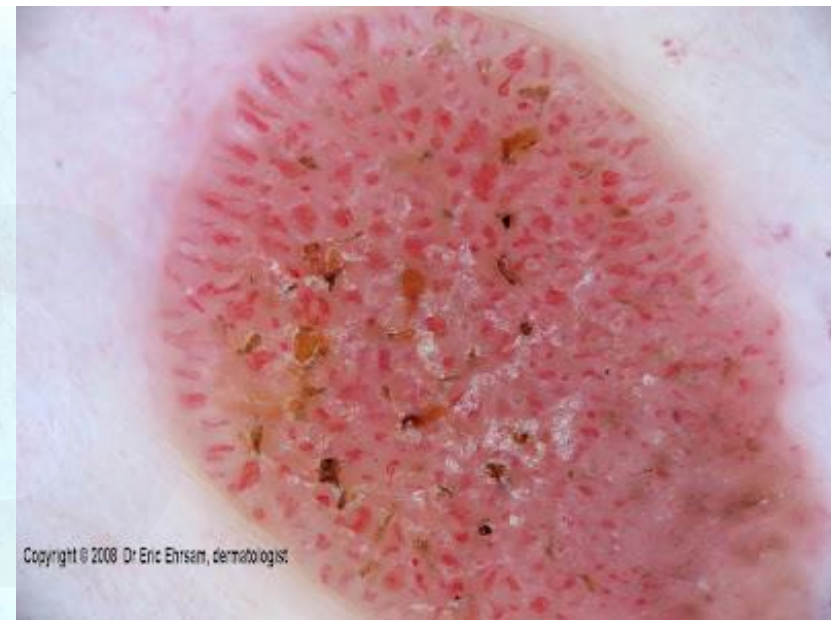
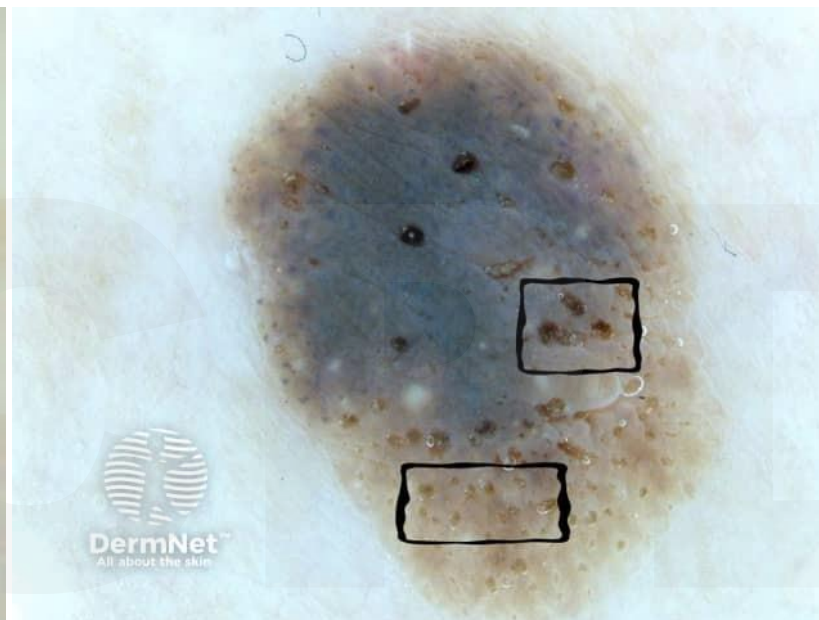
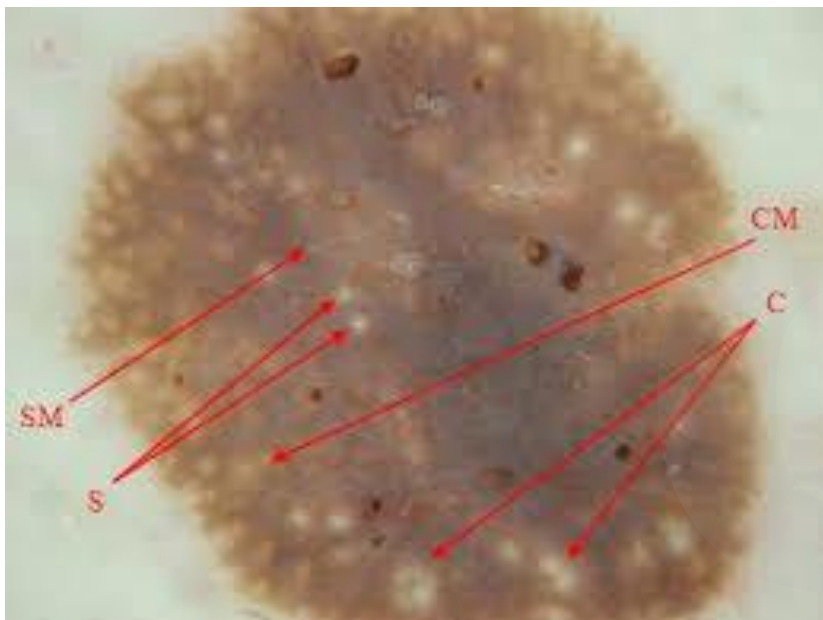
Milia like cysts



Comedo like openings



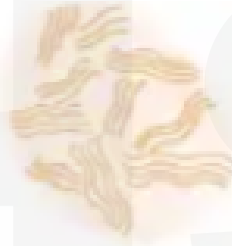
Hairpin vessels with whitish halo



Seborrheic Keratosis Dermatoscopic Features



Fissures/sulci

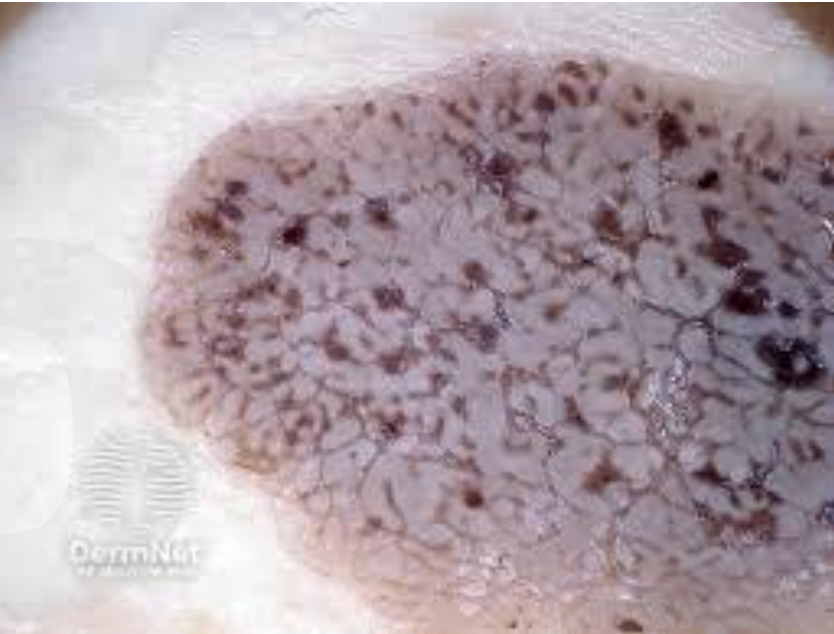
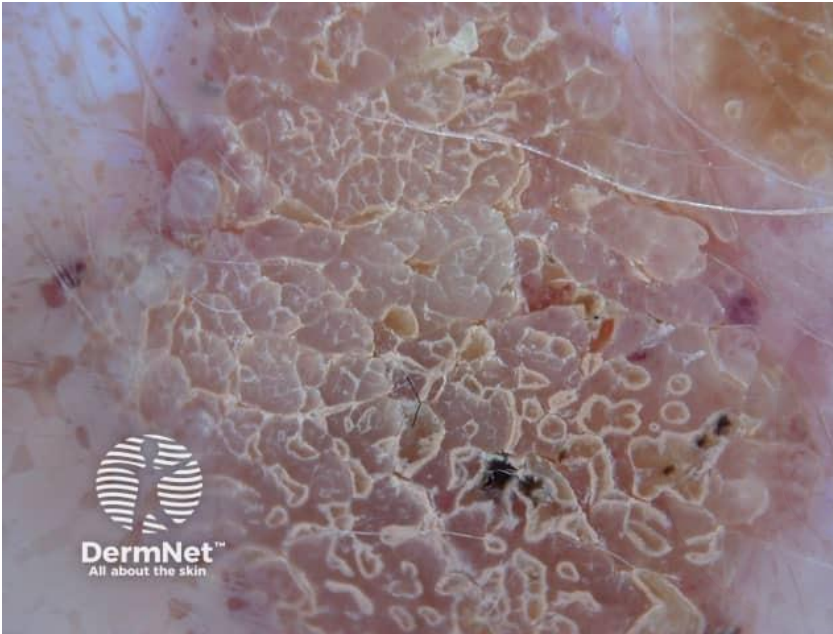


Fingerprint like structures



Gyri / ridges and sulci / fissures

O H S U



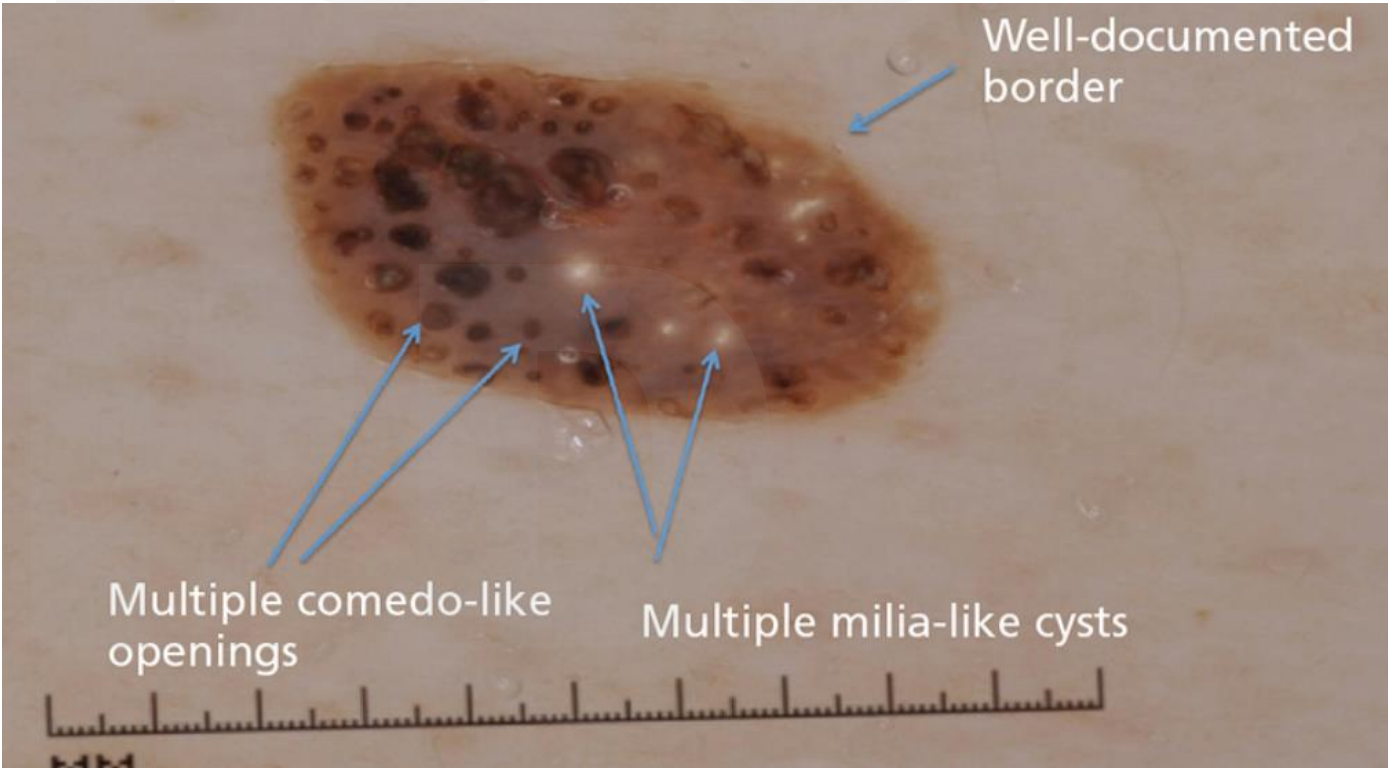
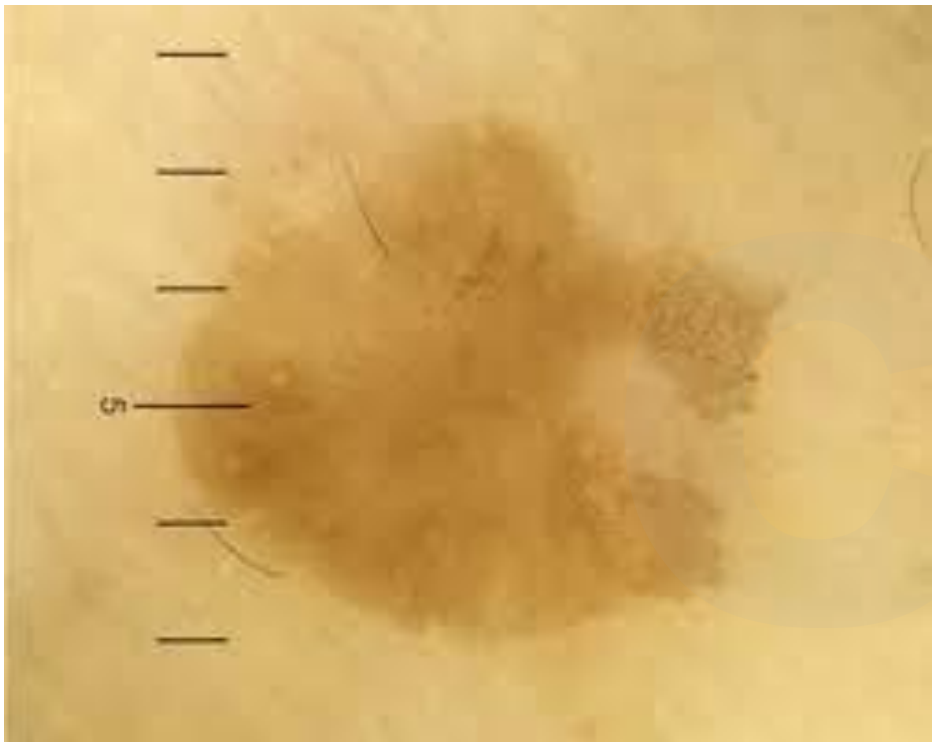
Seborrheic Keratosis Dermatoscopic Features



Moth eaten border



Sharp demarcation



Well-documented border

Multiple comedo-like openings

Multiple milia-like cysts

KAHOOT QUIZ:
DERMOSCOPY OF
SEBORRHEIC KERATOSES



CPD

Last Section: "Other" Lesions!

O H S U

6. Other



Angioma: Red lacunae



Angiokeratoma:
Red / blue / black lacunae



Sebaceous hyperplasia:
Crown vessels



CCA: Vessels in serpiginous
/ string of pearls arrangement

C P D

Hemangiomas

Cherry angiomas



Spider angioma



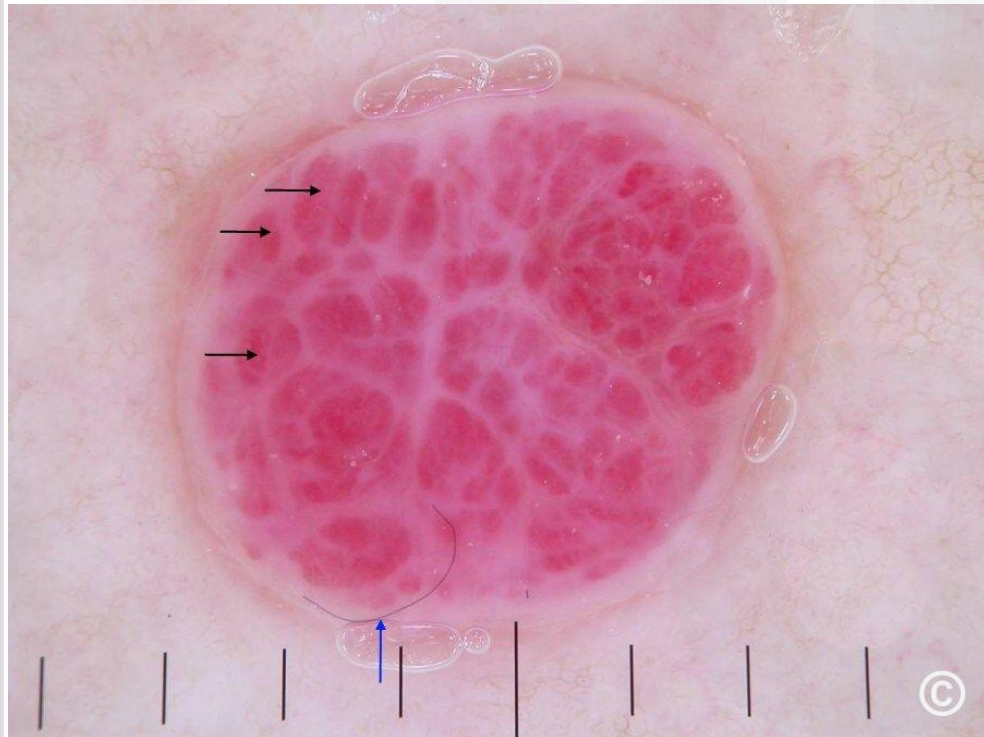
Angiokeratomas



Dermoscopy of Hemangiomas



Red Lacunae of
cherry hemangiomas



Spider angioma



Red, blue, black lacunae of
angiokeratomas



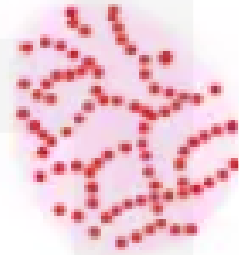
Sebaceous Hyperplasia



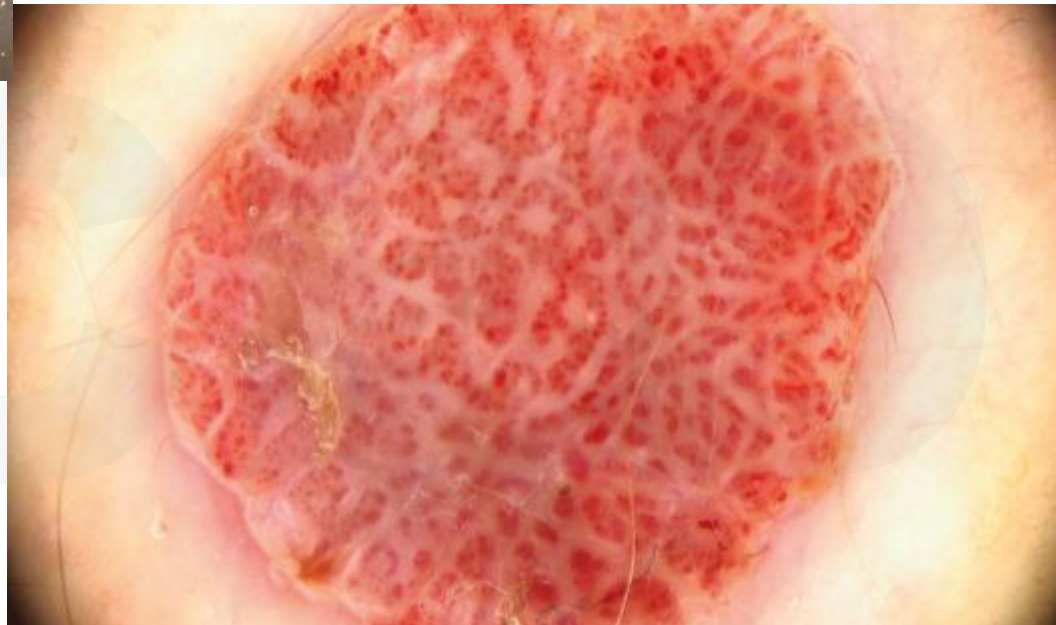
Yellow globules and crown vessels



Clear Cell Acanthoma



Vessels in string of pearl arrangement

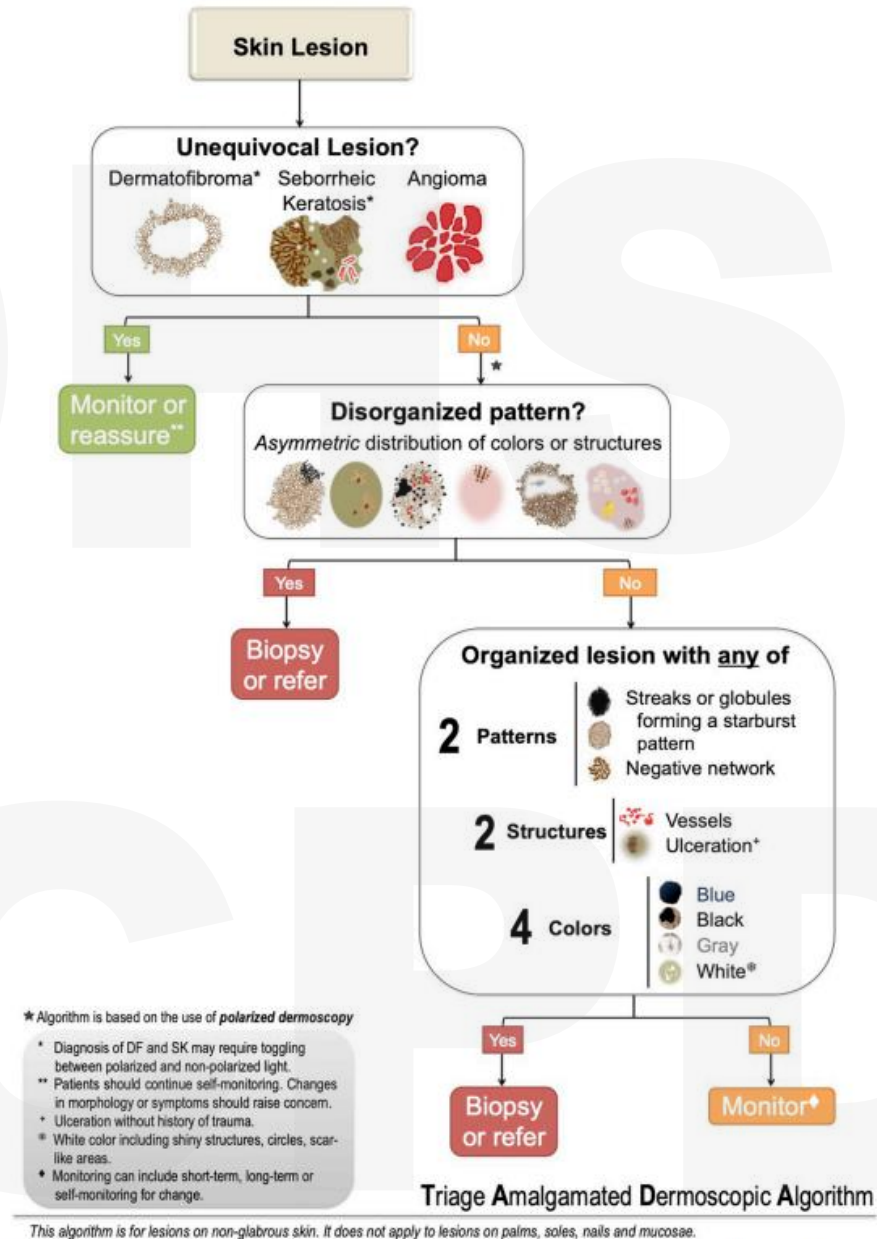


KAHOOT QUIZ:
DERMOSCOPY OF
“OTHER” LESIONS



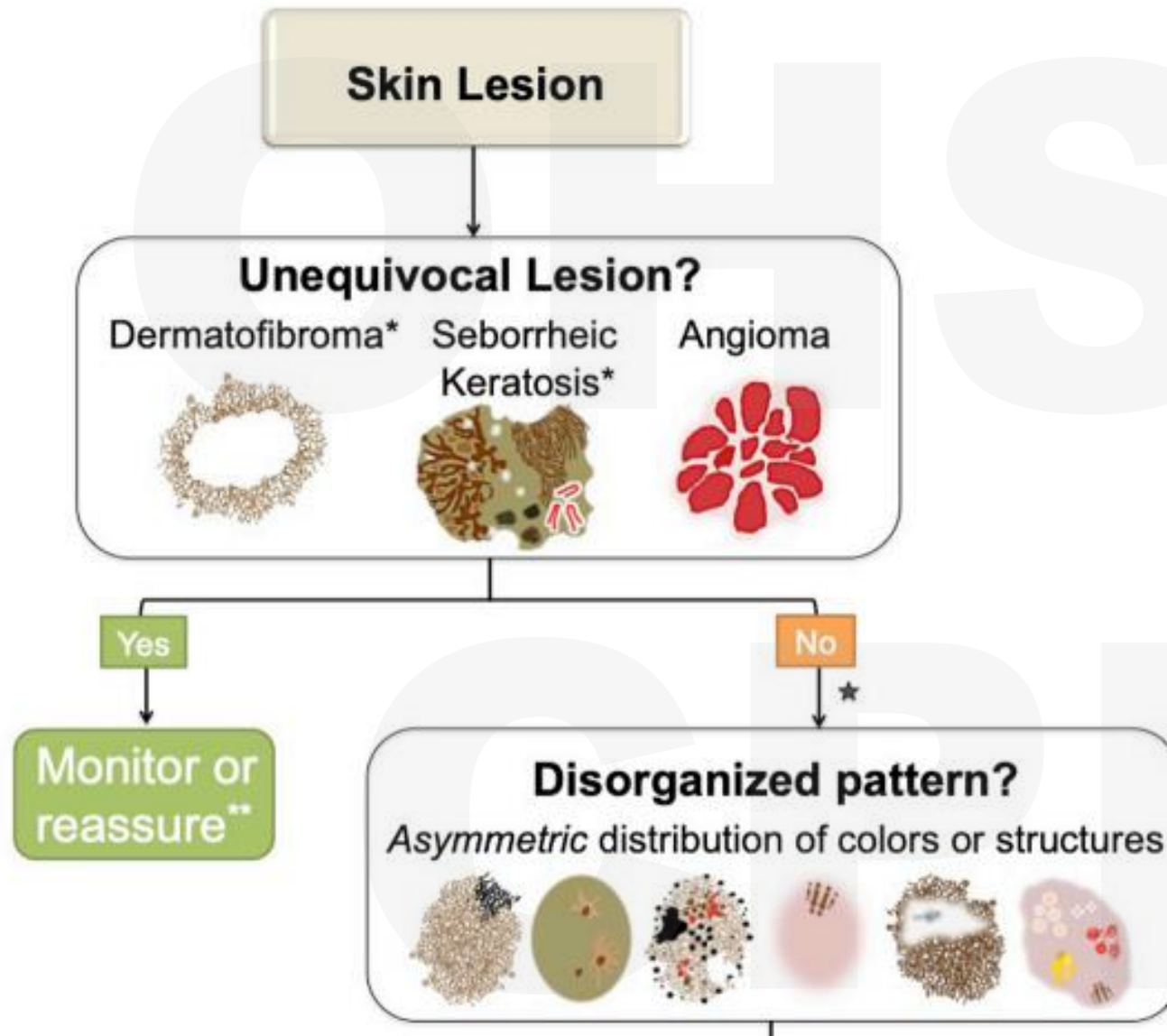
CPD

TADA Method Triage Amalgamated Dermoscopic Algorithm

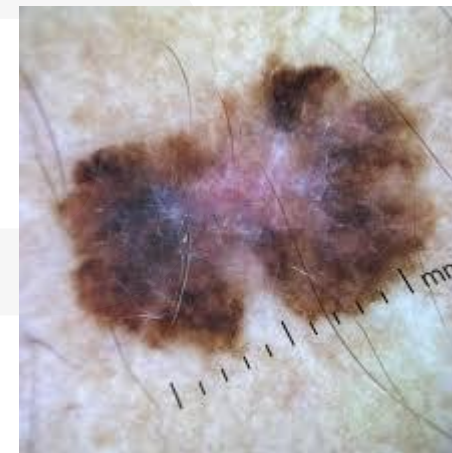


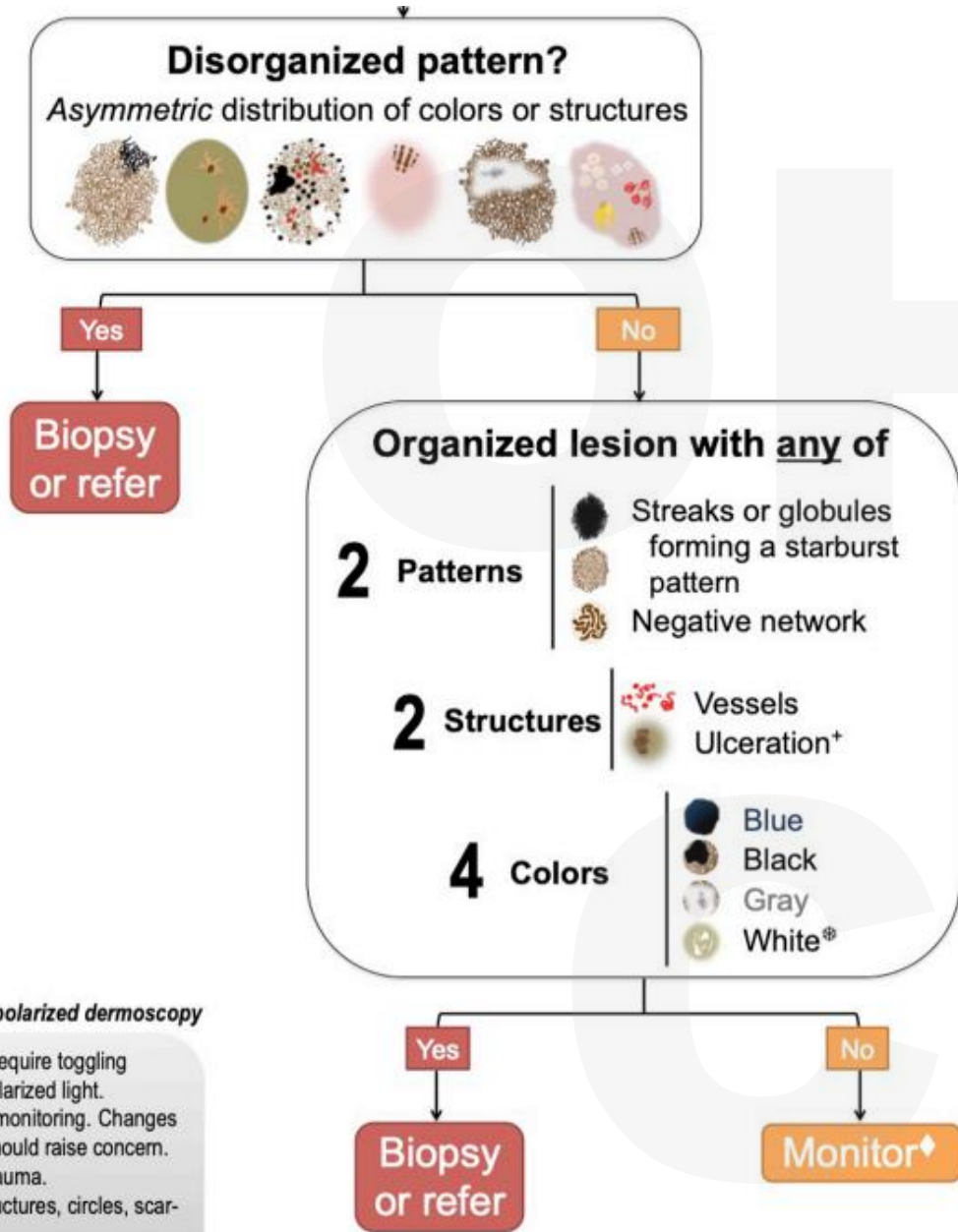
Infographic 1. Triage amalgamated dermoscopic algorithm. *DF*, Dermatofibroma; *SK*, seborrheic keratosis.

Unequivocal--Reassure



Disorganized- BIOPSY or REFER!





Organized Lesion:

- Is there more than one pattern?
- Are there two or more concerning structures?
- Are there four or more colors?

If yes, **BIOPSY** or **REFER!**

If no, may photograph, document, and monitor

Polarized dermoscopy

require toggling polarized light. monitoring. Changes could raise concern. trauma. structures, circles, scar-form, long-term or

KAHOOT QUIZ: NAME
THAT LESION!



CPD

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QUESTIONS?

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