



Malignant Skin Growths with Dermoscopy Intro Part II

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- I have no disclosures.



Learning Objectives

1

Apply a simplified dermoscopy algorithm (TADA) aimed at differentiating benign skin growths from skin cancer.



2

Increase confidence in deciding if a skin growth is worrisome for skin cancer and needs to be biopsied.



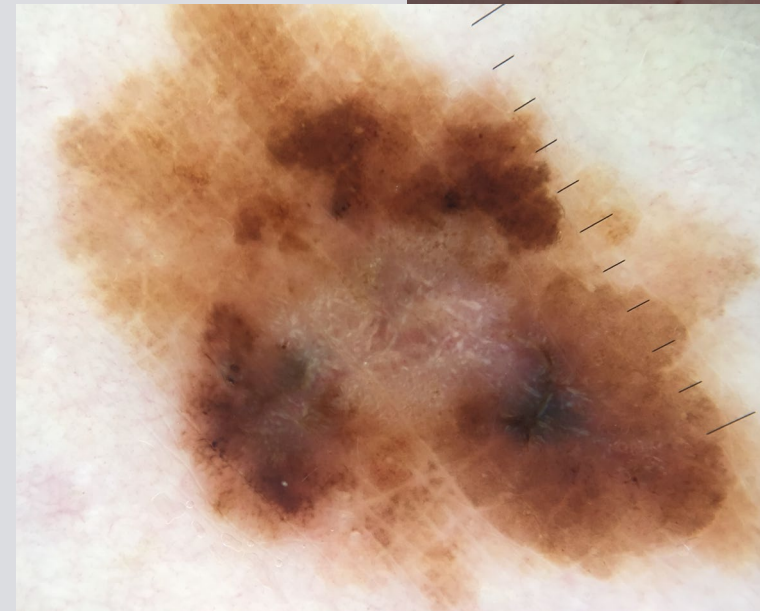
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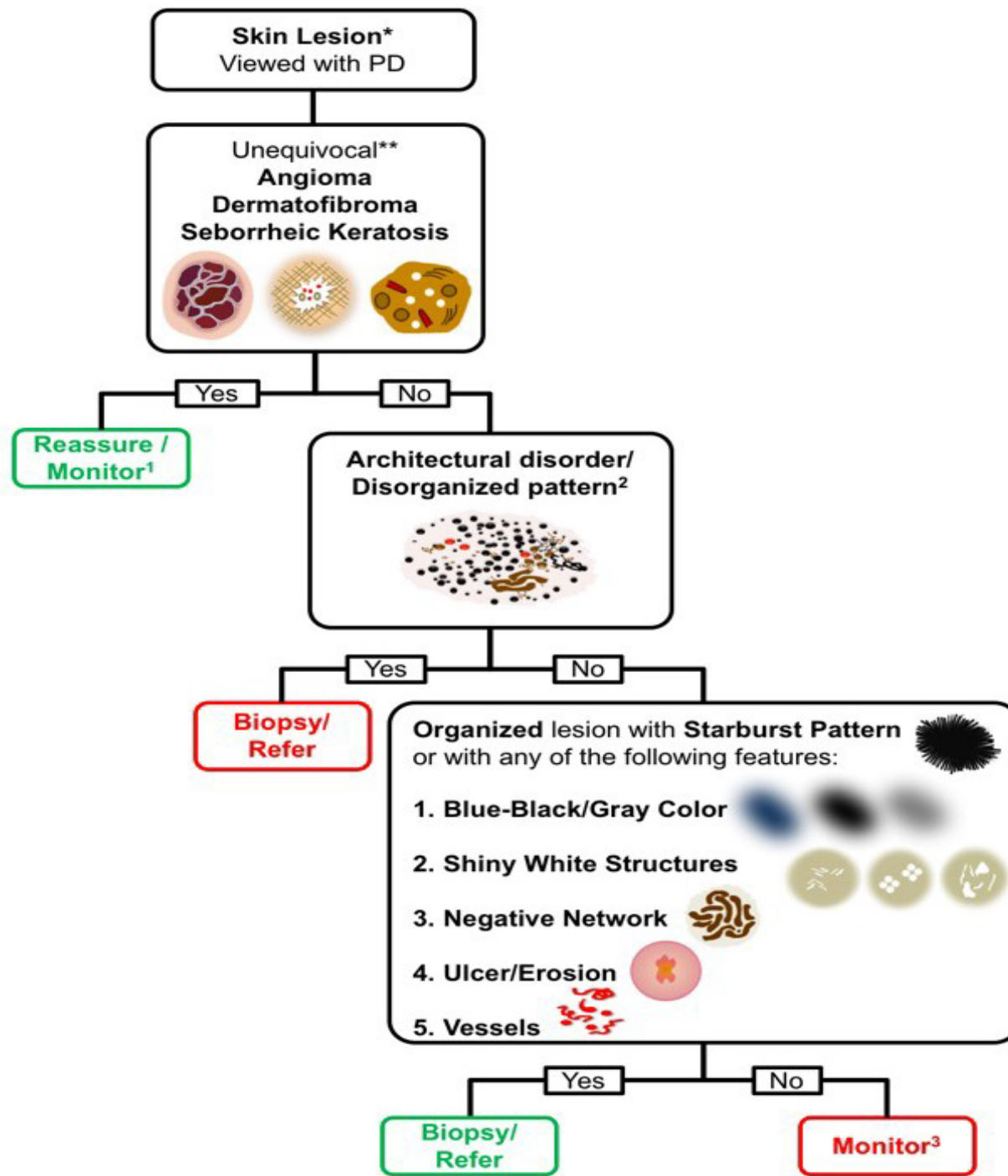
Become more comfortable operating a dermatoscope.



Why Dermoscopy is Helpful

- Better visualization vs naked eye or plain magnification
- Helps determine if growth is vascular, keratinocytic, or melanocytic
- Differentiate nevus vs melanoma
- Reduces # of biopsies to detect melanoma
- Reduces biopsies of benign lesions





- * Not for palms, soles, mucosal surfaces and nails.
- ** Best if able to use PD & NPD since SK and DF are easier to diagnose with NPD.
- ¹ Patients should continue self-monitoring & changes in morphology or symptoms should raise concern.
- ² Colors & structures distributed in an asymmetric/chaotic fashion.
- ³ Monitoring can include short-term monitoring, long-term monitoring or self-monitoring for change.

Triage Amalgamated Dermoscopic Algorithm TADA

Skin Lesion of Concern

Clinically

Dermoscopically

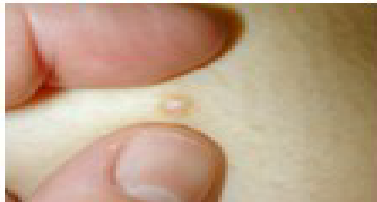
Red to Purple
Dome-Shaped



Classic
Angioma



Firm
Dimpling



Classic
Dermatofibroma



Keratotic
Stuck-On



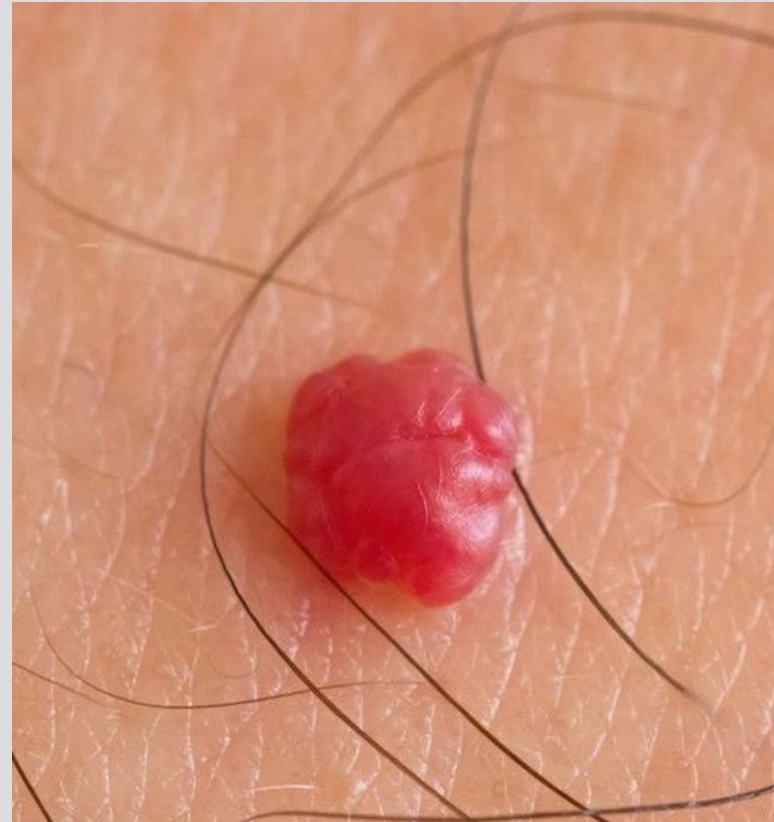
Classic
Seborrheic Keratosis



Cherry Angiomas



Shutterstock

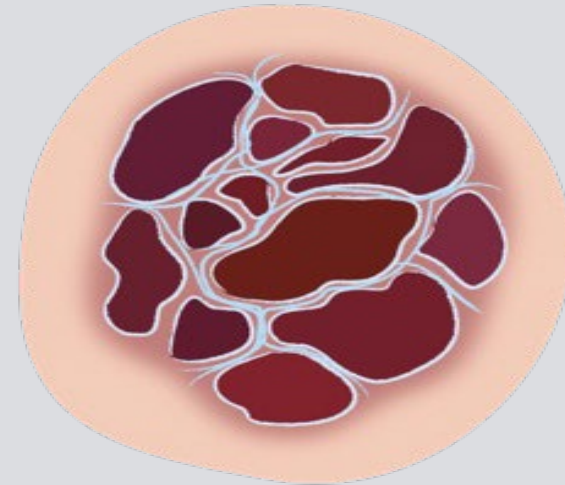


Shutterstock



Angioma under Dermoscopy

- Lacunae sometimes separated by white septae
- Colors:
 - Red
 - Maroon
 - Blue
 - Black
 - Purple



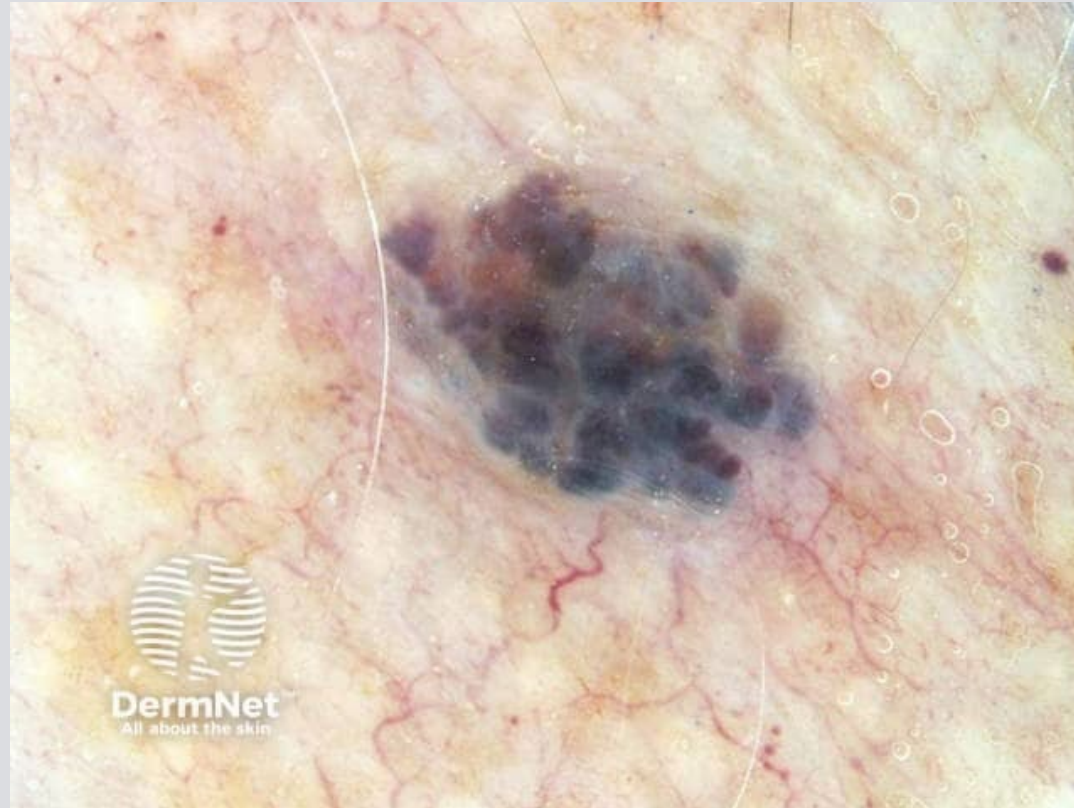


<https://dermnetnz.org/imagedetail/6653-cherry-angioma-dermoscopy>



<https://dermnetnz.org/imagedetail/4959-cherry-angioma-dermoscopy>





<https://dermnetnz.org/imagetdetail/5898-blue-cherry-angioma-dermoscopy>



Dermatofibroma



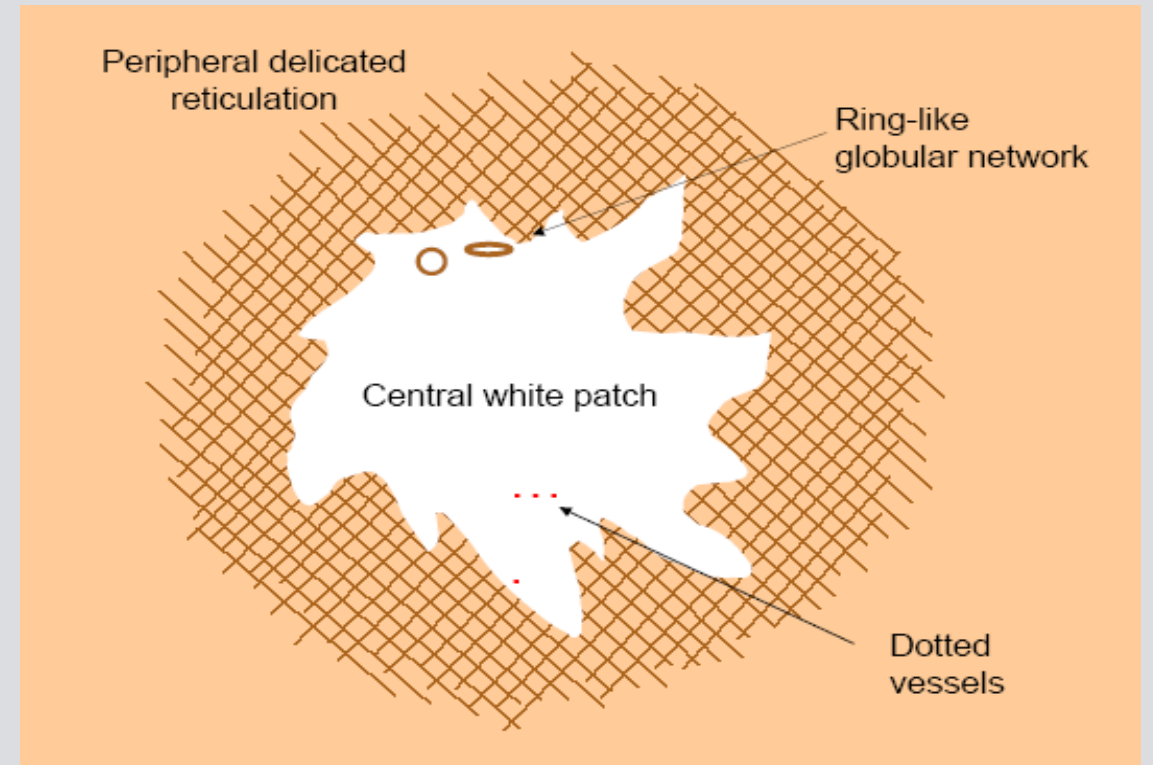
<https://dermnetnz.org/topics/dermatofibroma>

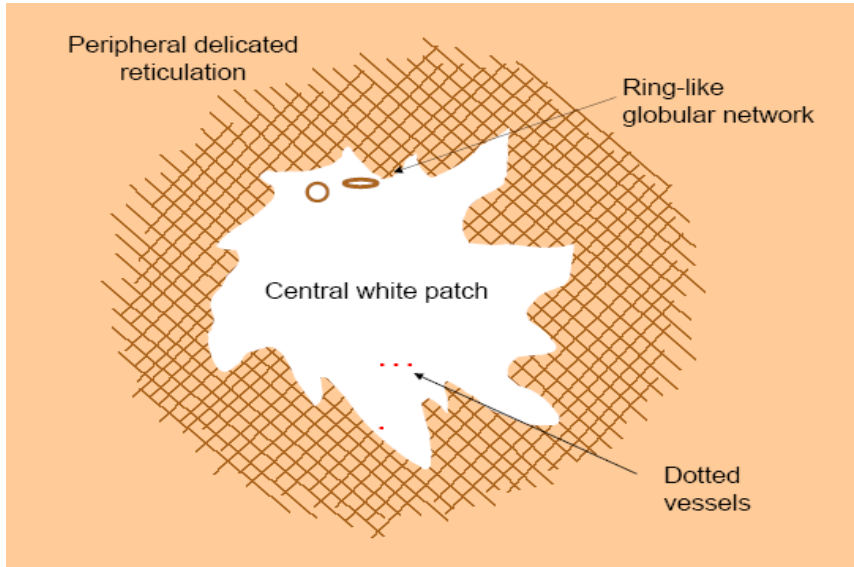
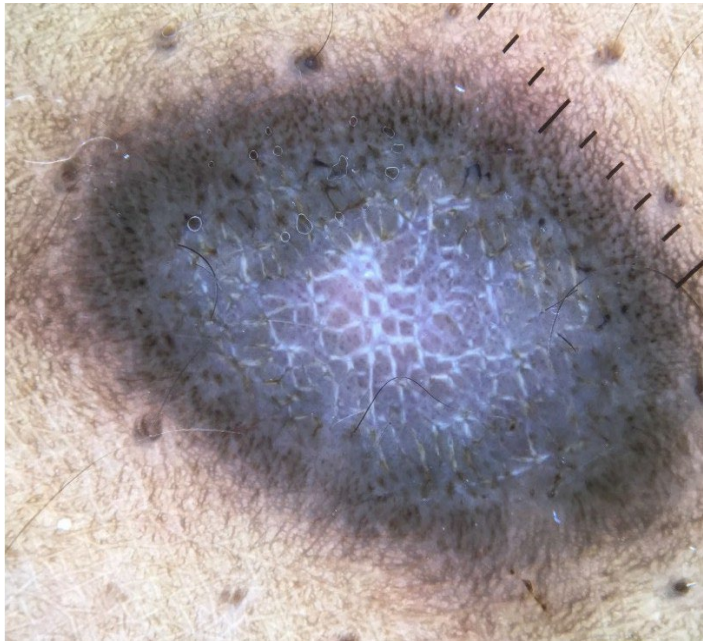
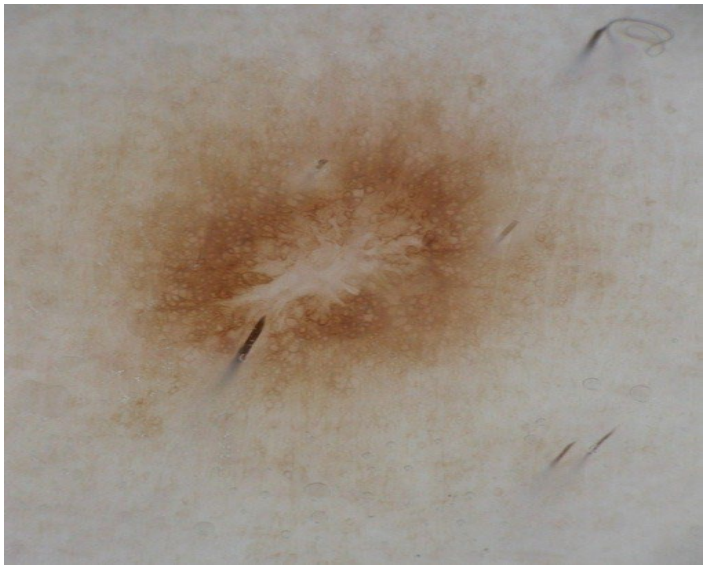


Dermatofibroma under dermoscopy

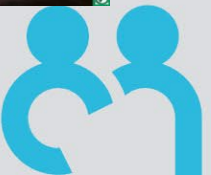
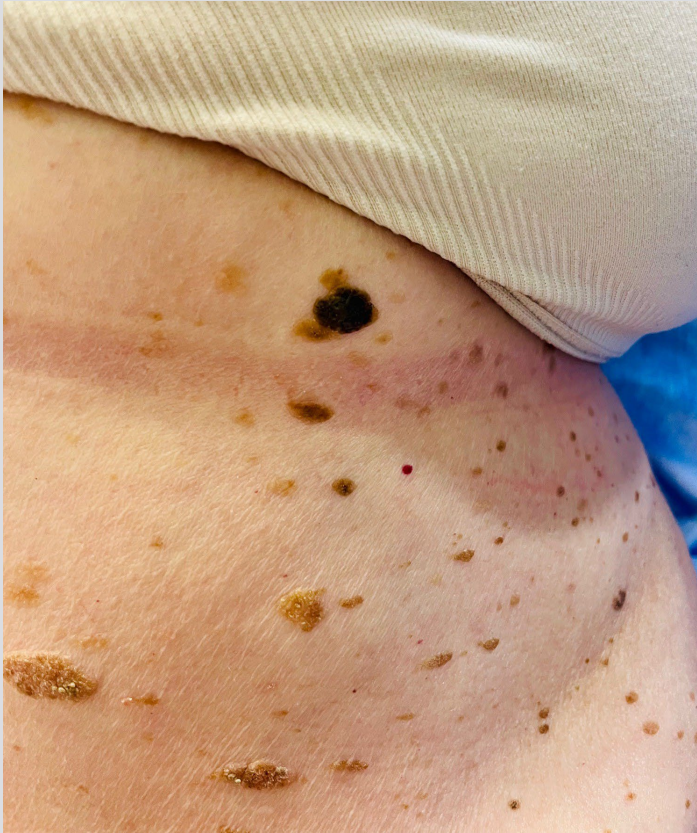
Structures:

- Peripheral fine network
- Central white or pink scar-like area
- Ring-like globules
- Dotted vessels (central or diffuse)





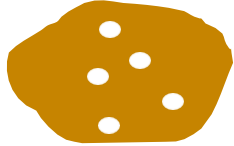
Seborrheic Keratosis



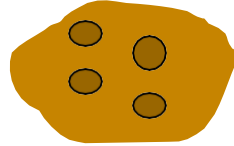
Seborrheic Keratosis Under Dermoscopy

1. Sharply demarcated borders

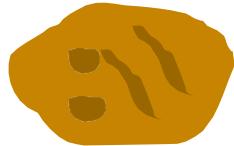
2. Milia-like cyst



3. Comedo-like opening



4. Fissures & ridges (cerebriform)



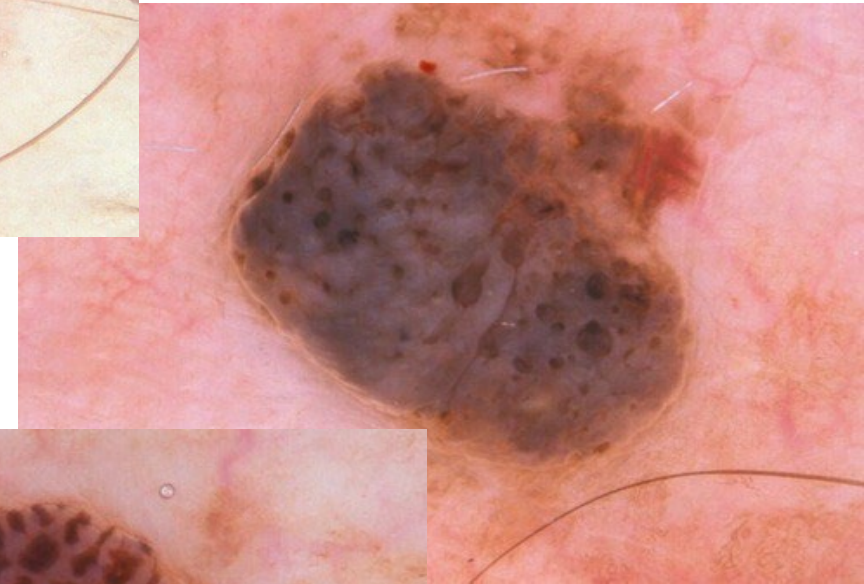
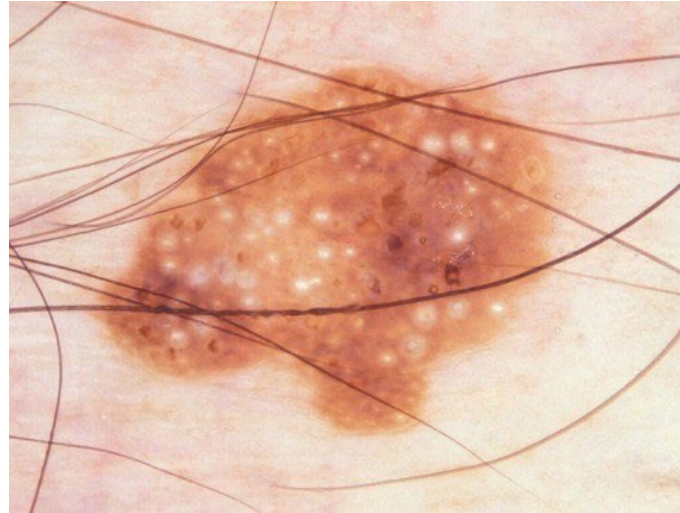
5. Fingerprint-like

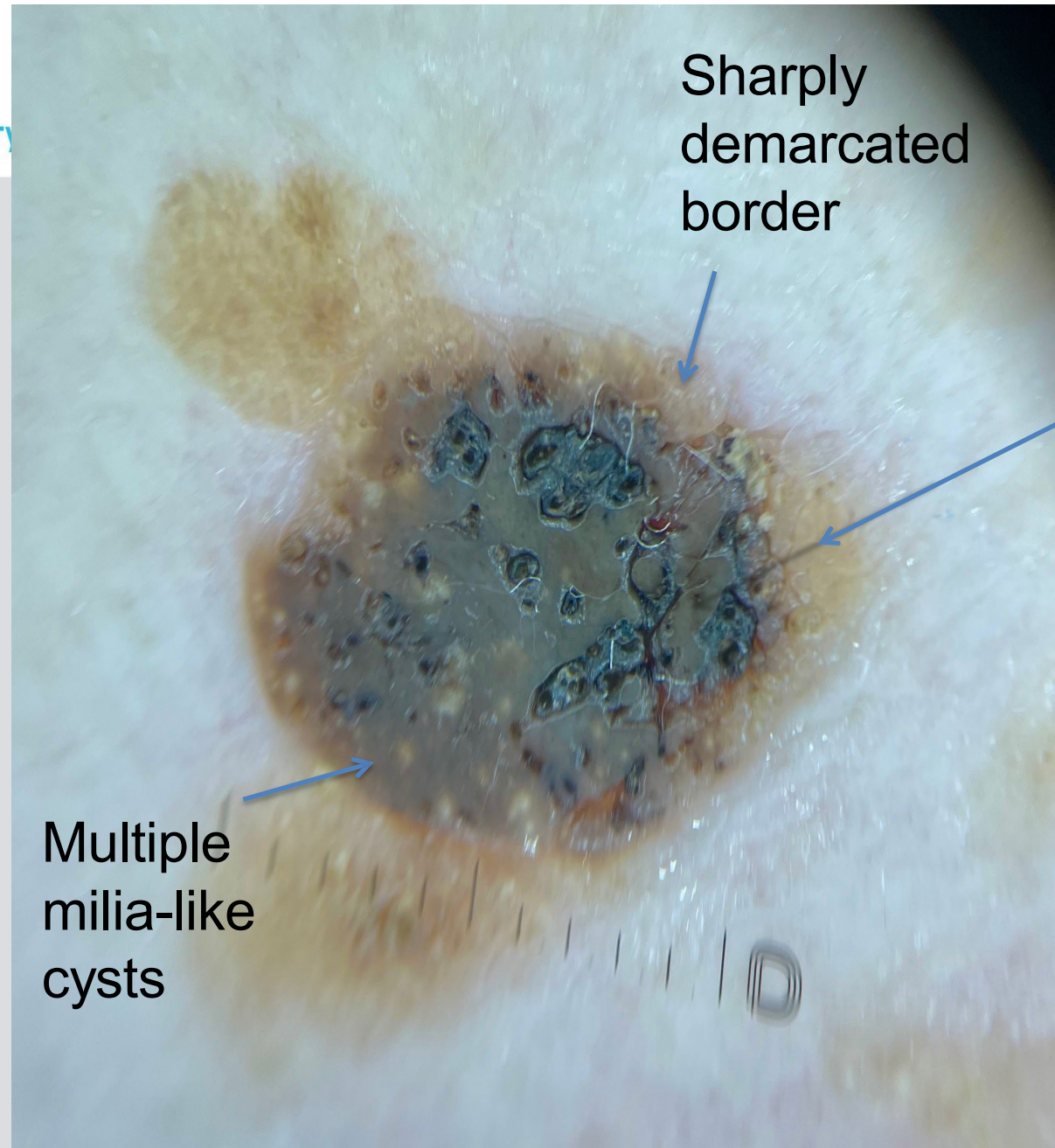


6. Hairpin vessels



7. Moth-eaten borders

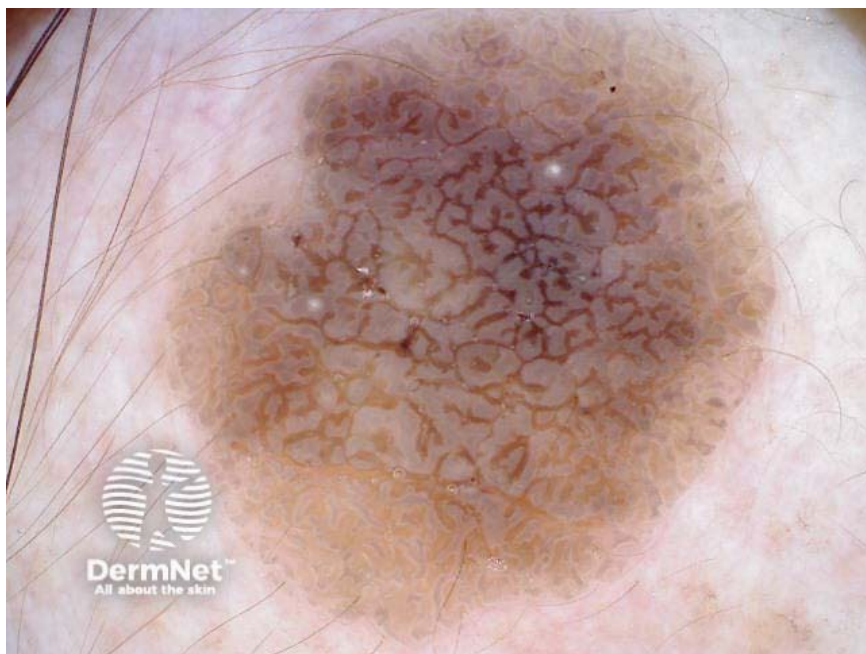
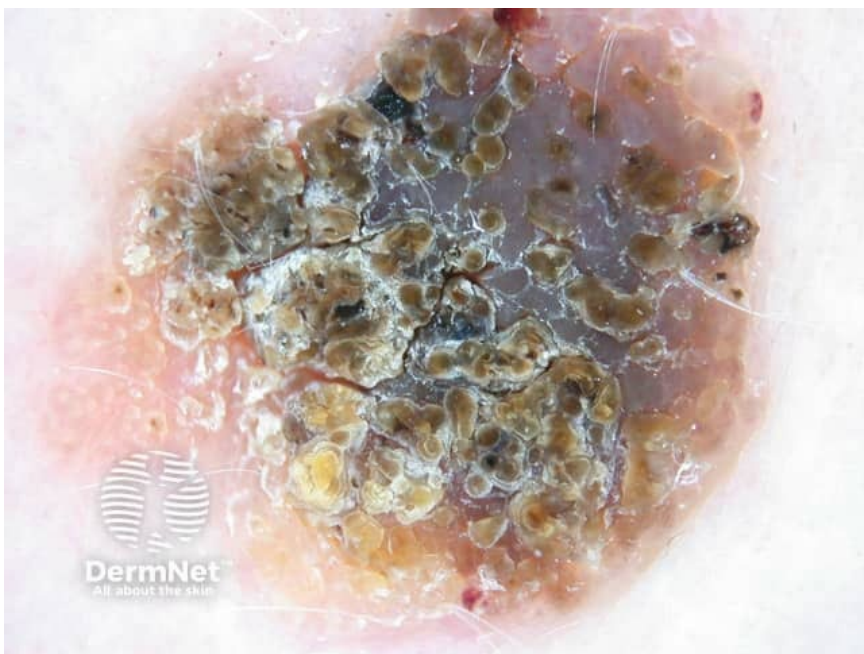
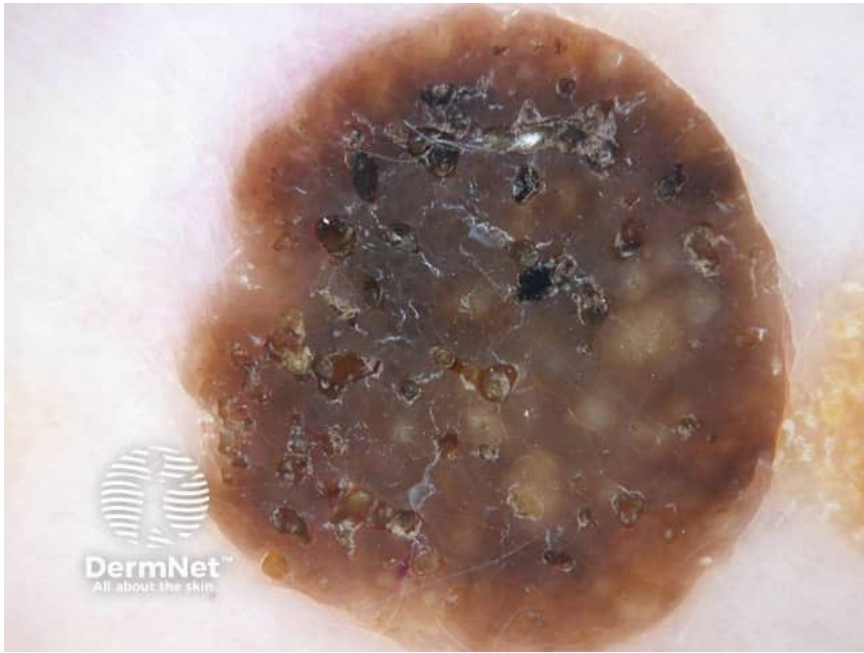


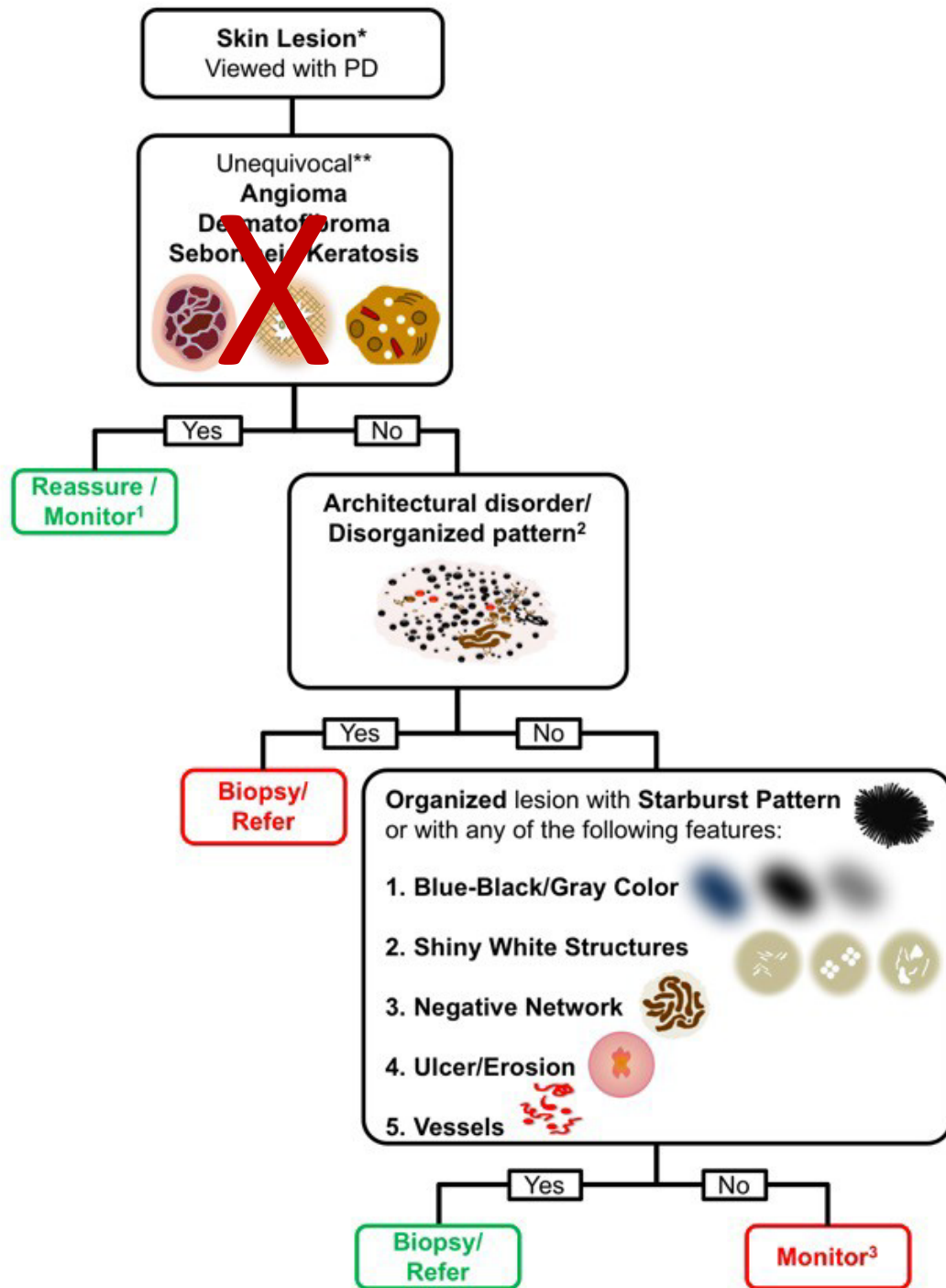


Sharply demarcated border

Comedo-like openings

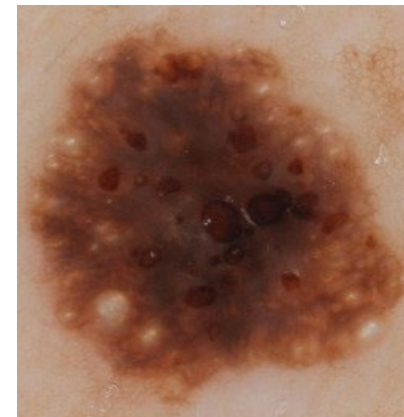
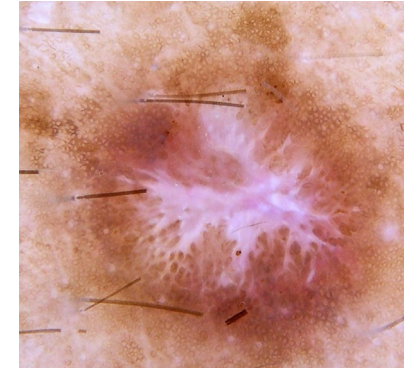
Multiple milia-like cysts





First step:

“Slam dunk” benign lesions filtered out



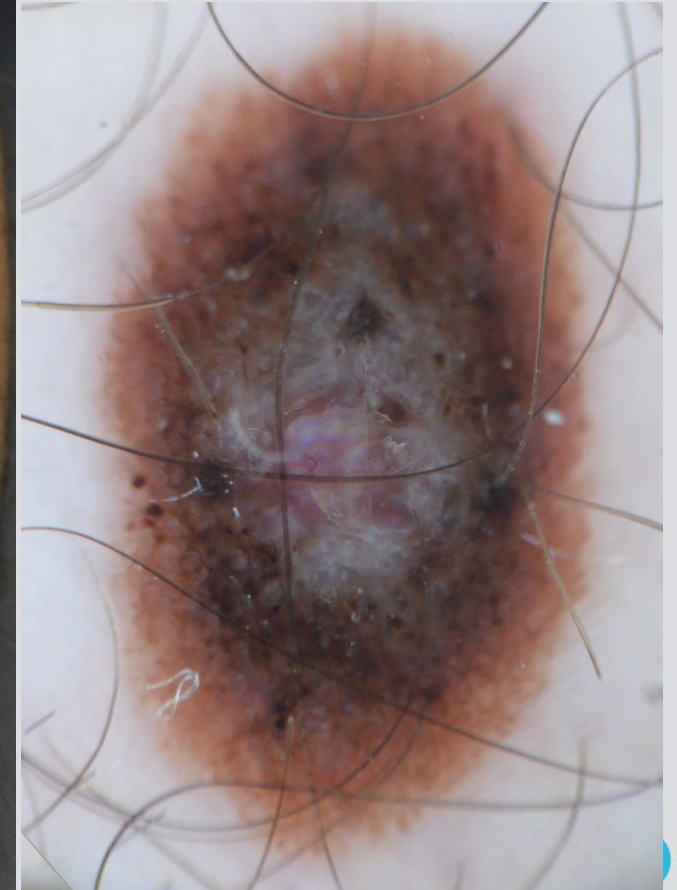
Keep this case in mind: Lower leg, lesion is growing

- Unequivocal angioma, SK, DF?

NO

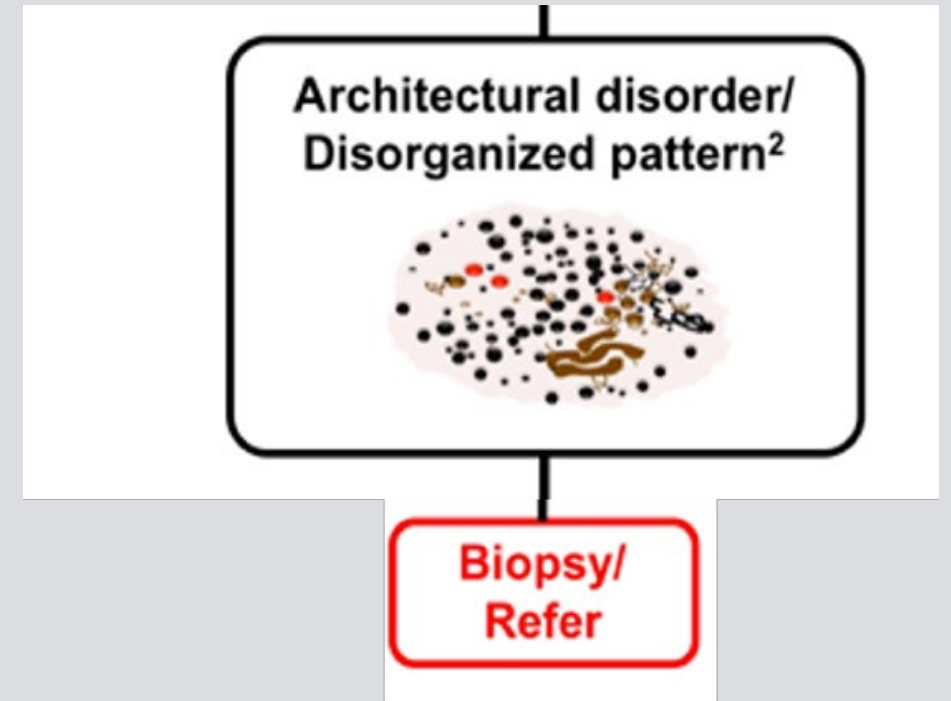
- Is this lesion organized or disorganized?

?



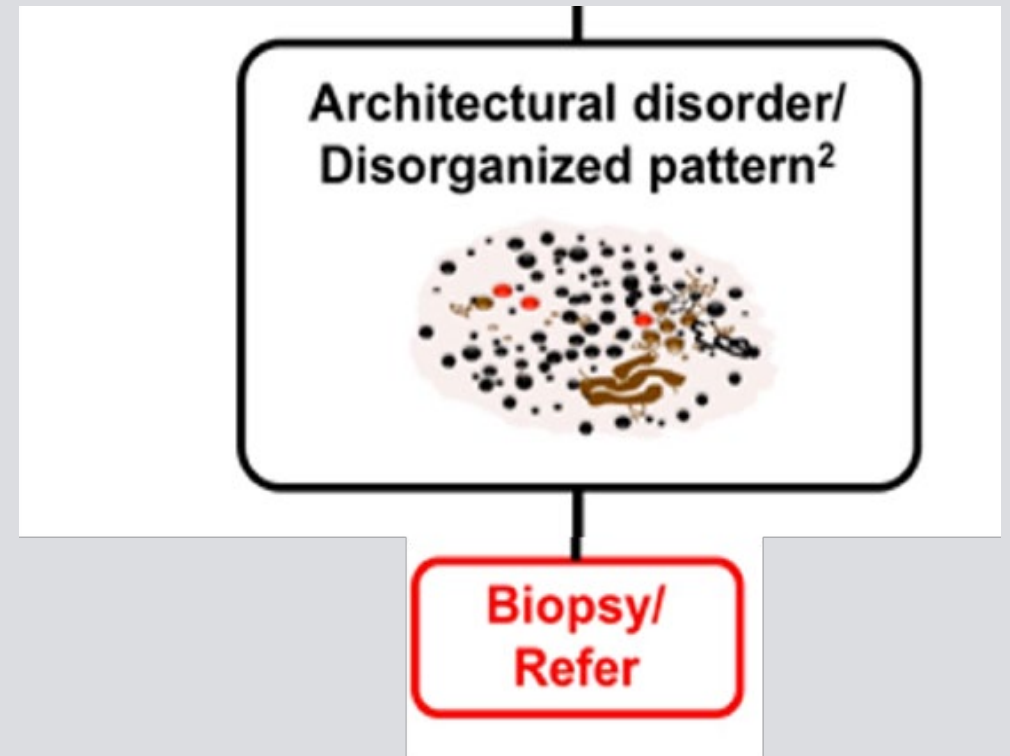
What does disorganization or architectural disorder mean?

- Chaotic distribution of colors and structures within the lesion



Most Skin Cancers are Disorganized

- Vast majority of skin cancers are detected at this level of the algorithm



Disorganization Best Discriminates Nevus vs Melanoma

- Study of the dermoscopic criteria that most reliably discriminate nevi from melanoma
- Participants: Dermatologists, primary care physicians, dermatology residents, medical students
- Criteria related to overall organization had best discriminatory power and interobserver agreement (Odds ratio 3.3-6.6)

Carrera C et al. 2016. Validity and reliability of dermoscopic criteria used to differentiate nevi from melanoma: A web-based International Dermoscopy Society study. 152(7): 798-806.





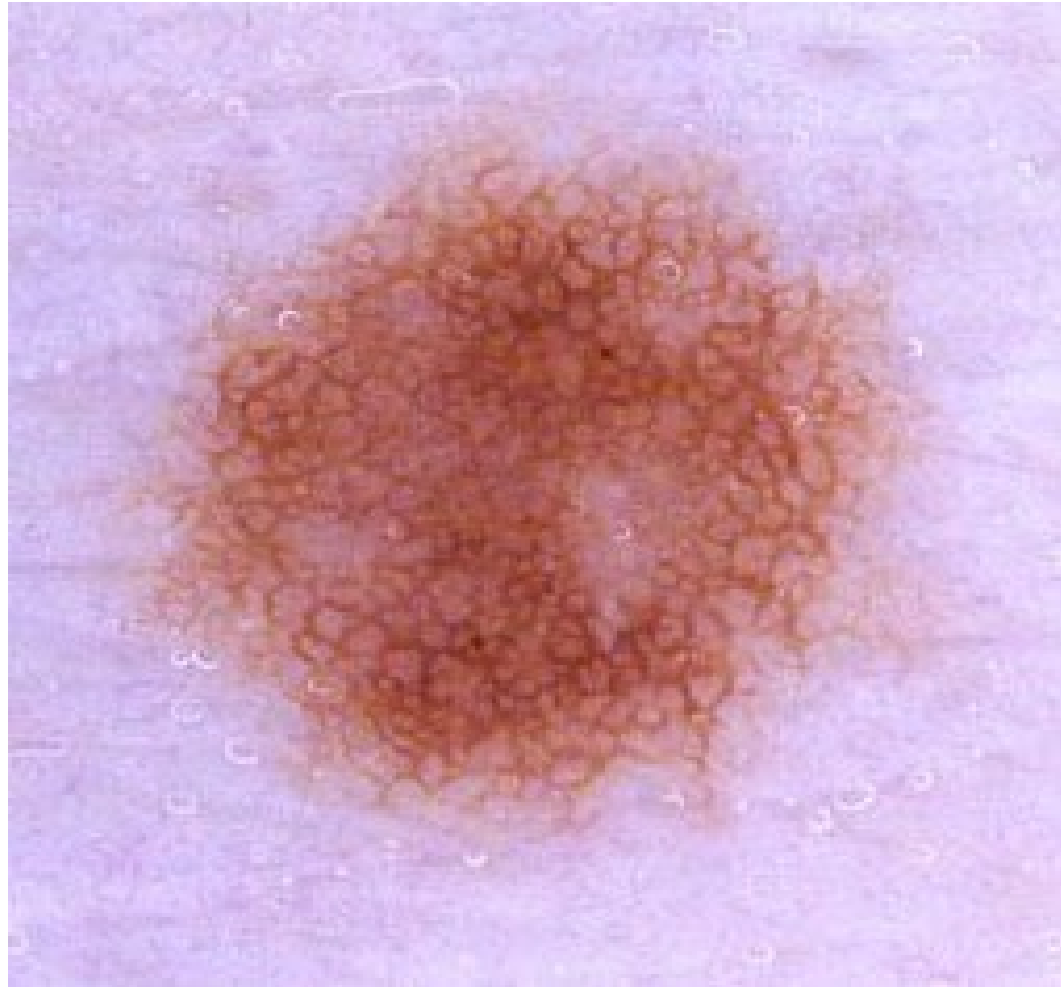
Organized



Disorganized

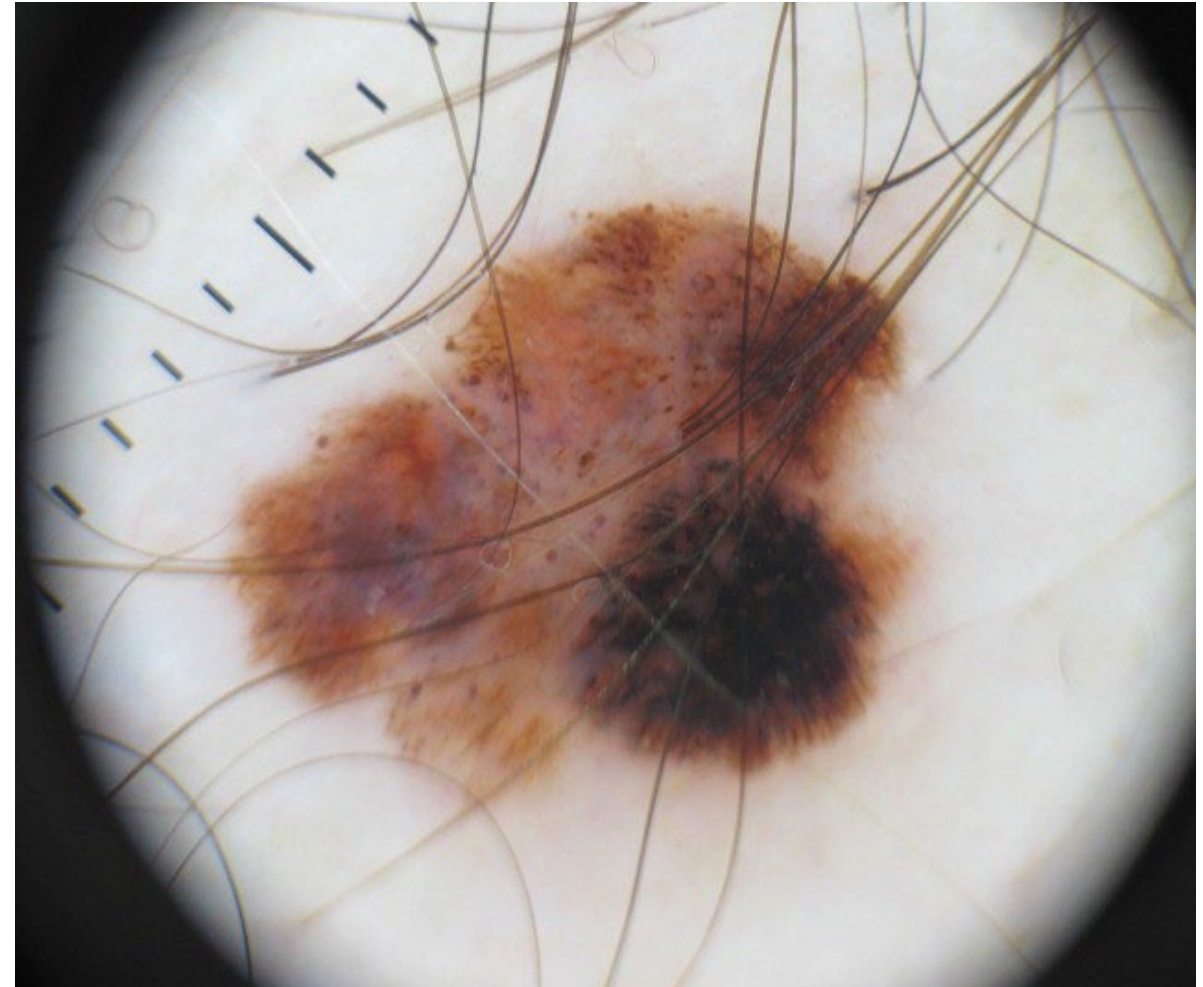
Without naming what's on each desk, we know intuitively which is which

Organized



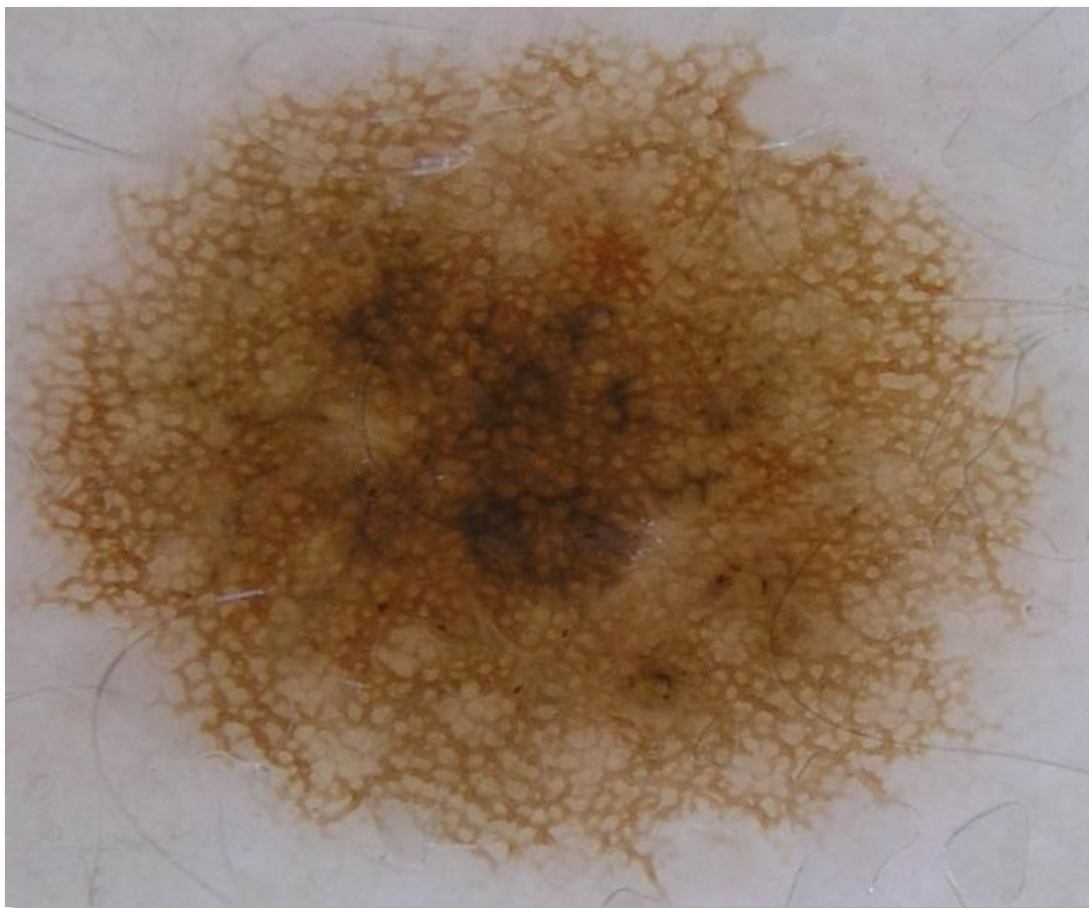
Melanocytic Nevus

Disorganized



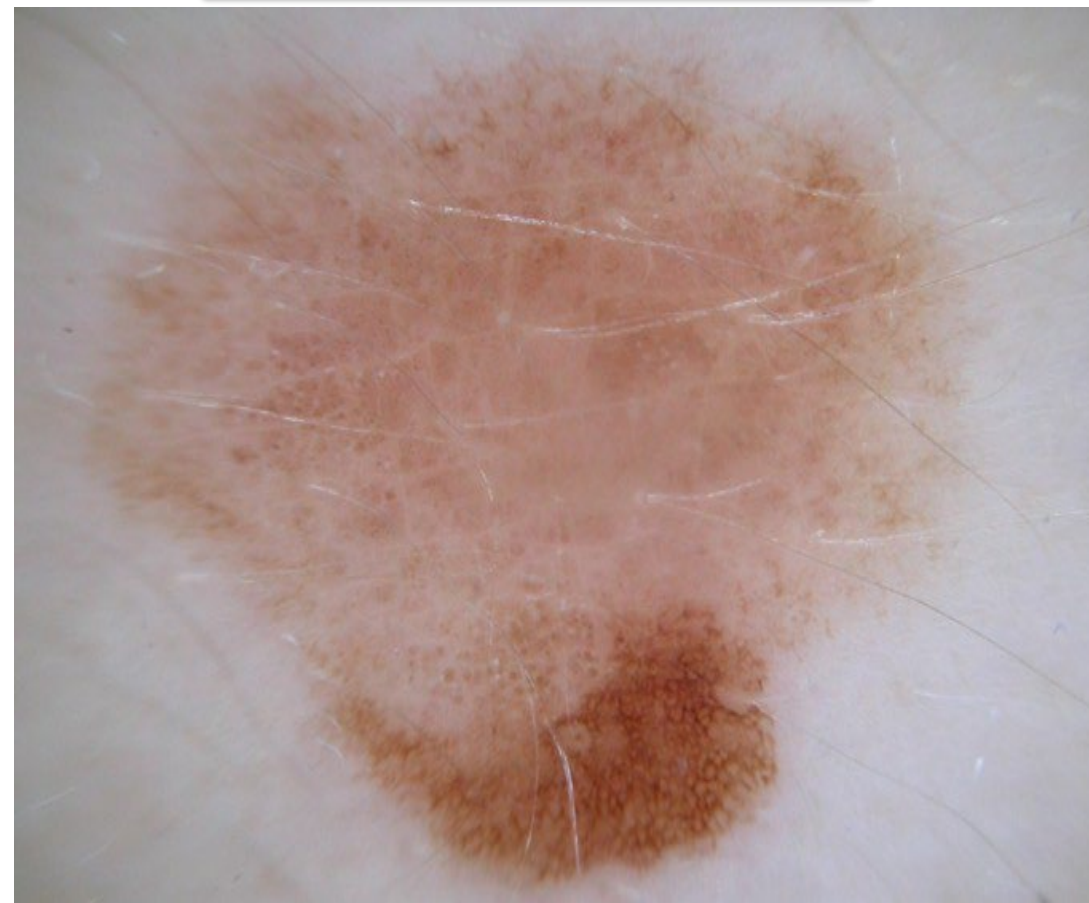
Melanoma

Organized



Melanocytic Nevus

Disorganized



Melanoma

Dermoscopy Focuses on Content (vs Shape)



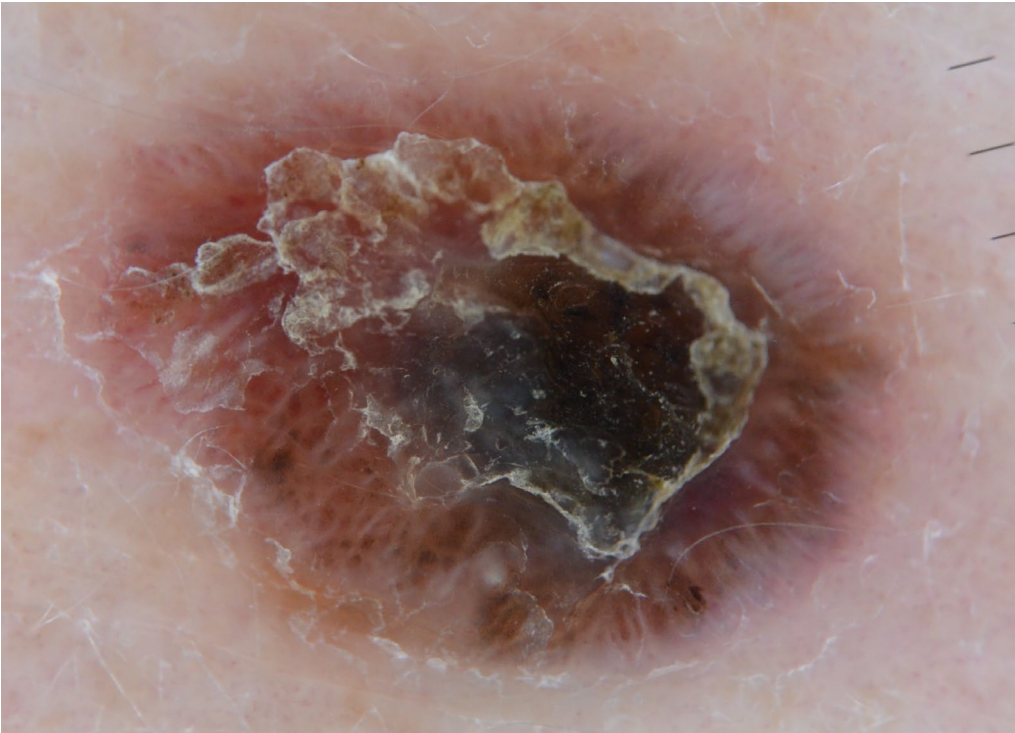
Organized



Disorganized

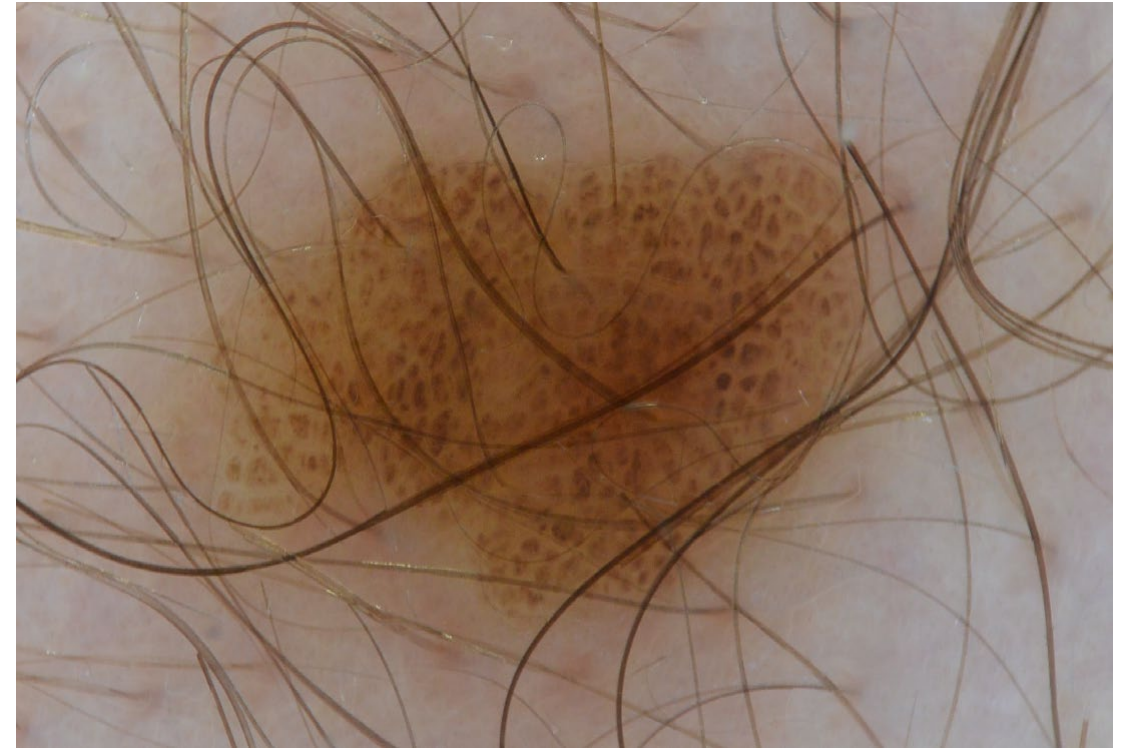
Dermoscopy Focuses on Content not Shape

Disorganized pattern



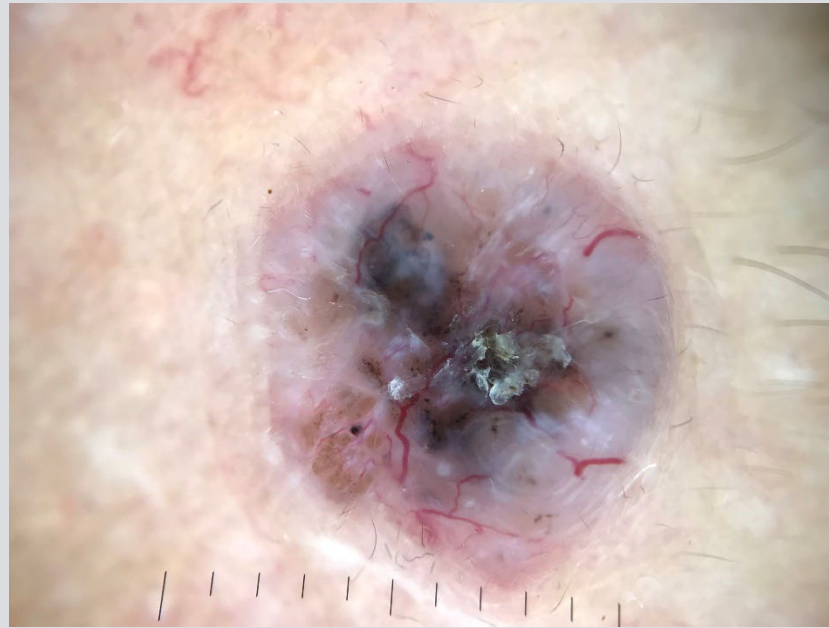
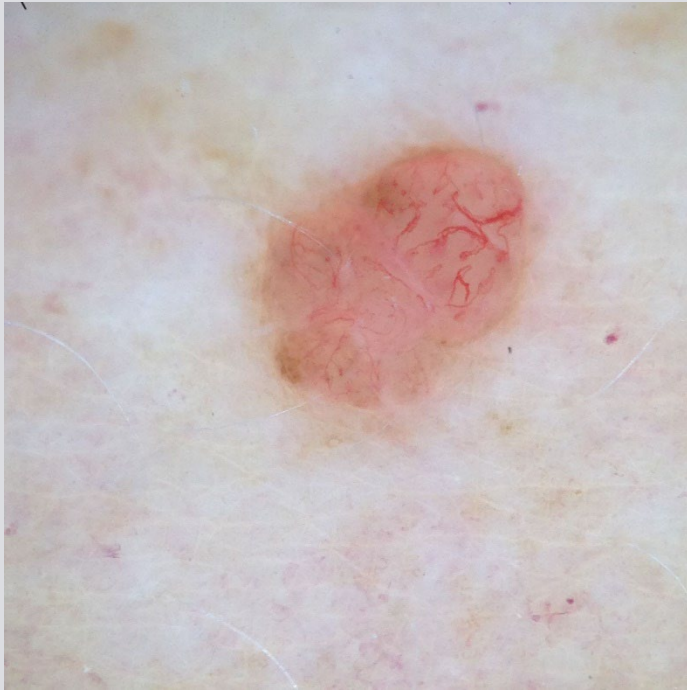
Symmetric shape

Organized pattern



Asymmetric shape

Disorganized: BCC



All images: https://dermosclopedia.org/Glossary:Basal_cell_carcinoma#Related_files_.28images_.2F_graphics.29

Disorganized: SCC



Keratoacanthoma. (2019, June 3). *dermoscopia*. Retrieved 14:33, September 3, 2025
from <https://dermoscopia.org/w/index.php?title=Keratoacanthoma&oldid=16356>.



<https://dermnetnz.org/imagedetail/16237-white-structureless-areas-and-surface-keratin-in-squamous-cell-carcinoma-dermoscopy>



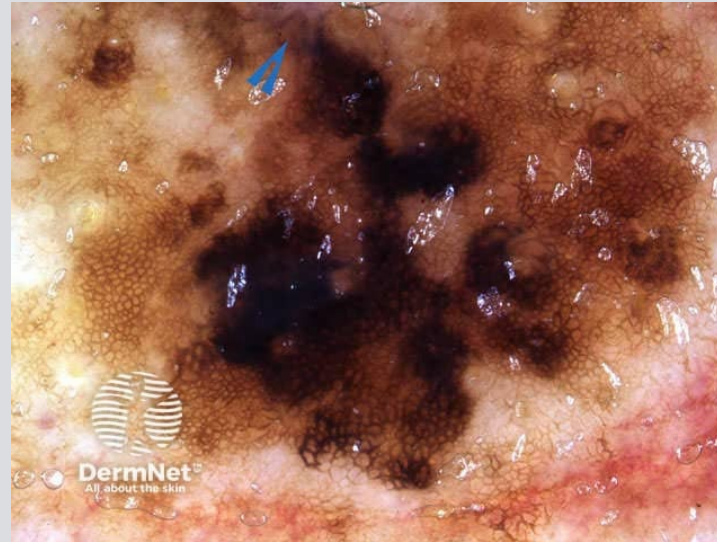
<https://dermnetnz.org/imagedetail/15550-poorly-differentiated-squamous-cell-carcinoma-dermoscopy>



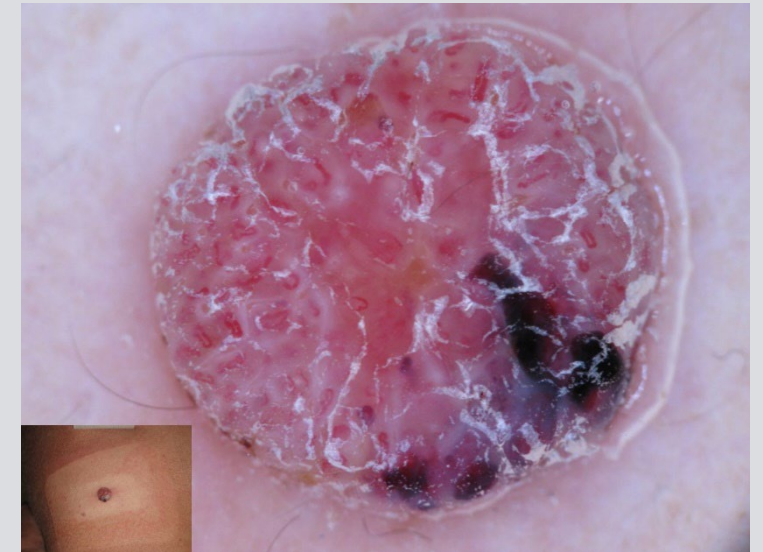
Disorganized: Melanoma



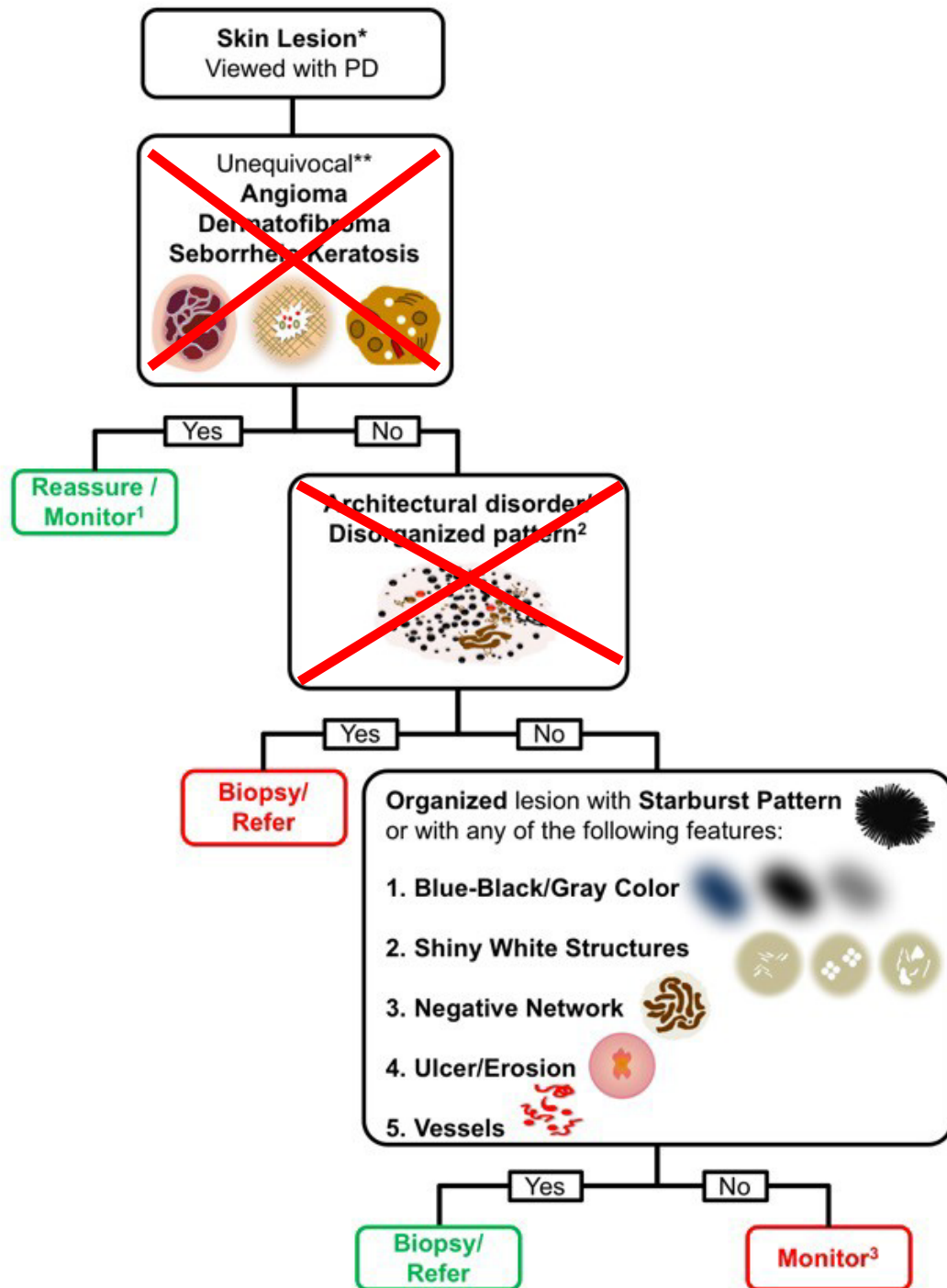
<https://dermnetnz.org/imagedetail/20892-lentiginous-melanoma>



<https://dermnetnz.org/imagedetail/14159-melanoma>

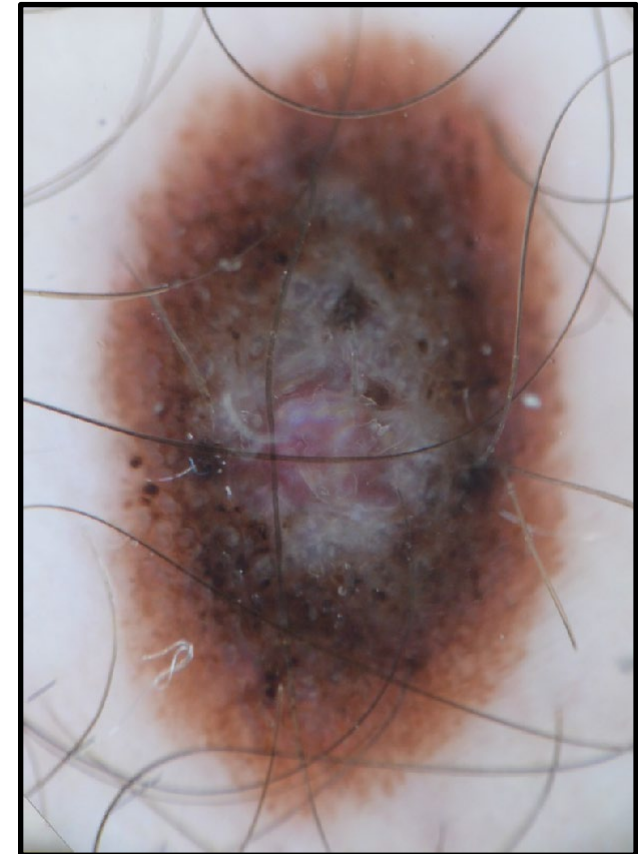


https://dermoscopia.org/Amelanotic/_hypomelanotic_melanoma



If you thought this was
disorganized: Bx/Refer

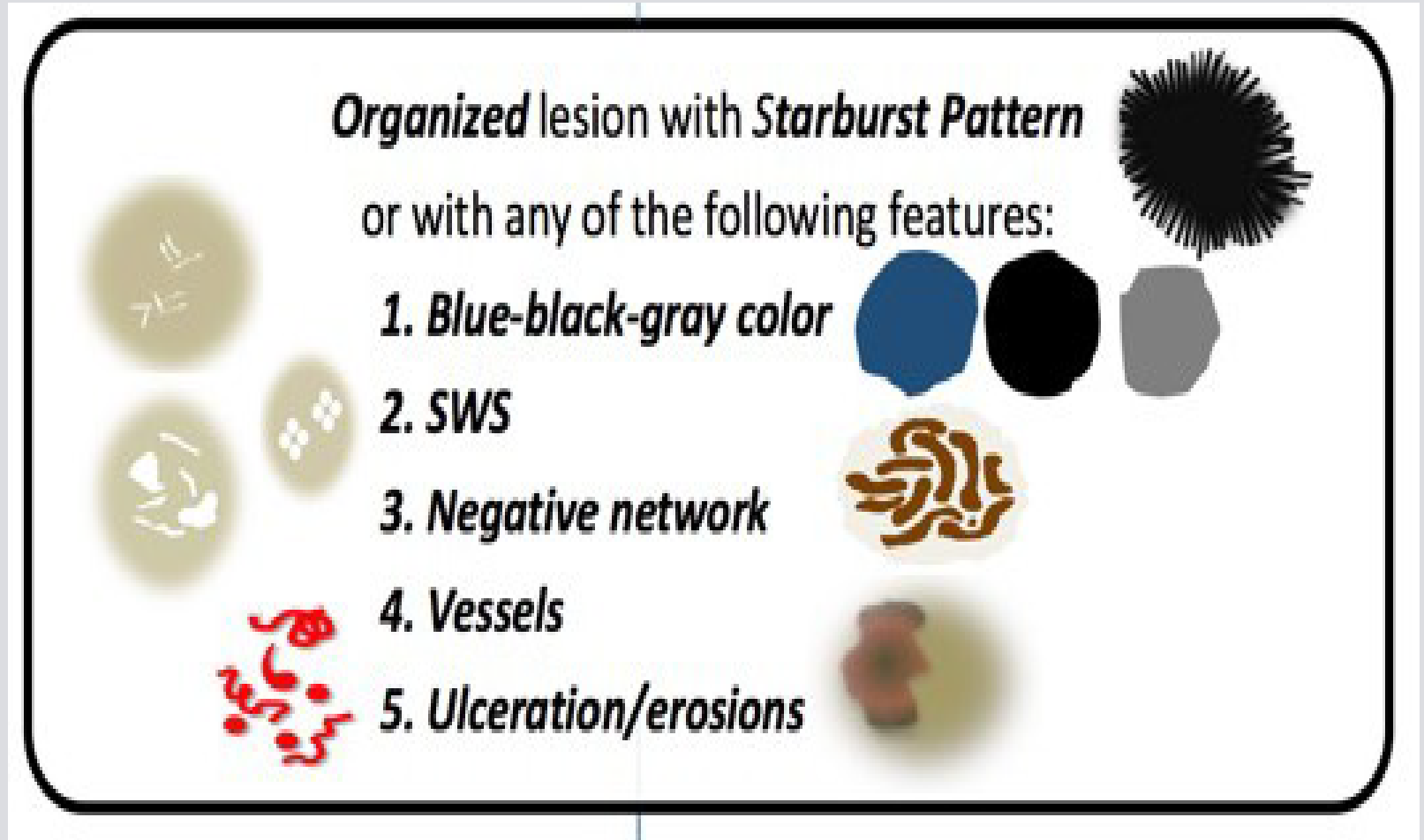
But what if you categorized
this as organized?



Some skin cancers will have more than one of these features

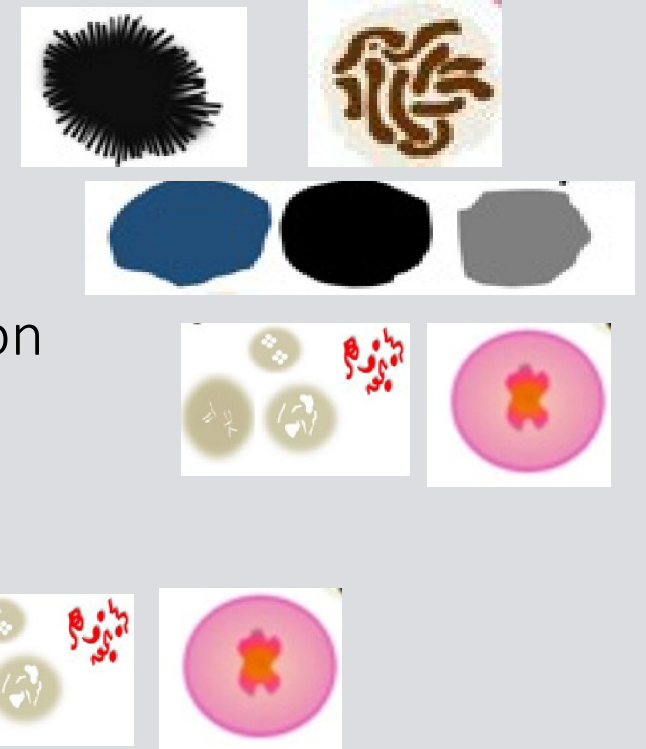
Organized lesion with *Starburst Pattern* or with any of the following features:

- 1. **Blue-black-gray color**
- 2. **SWS**
- 3. **Negative network**
- 4. **Vessels**
- 5. **Ulceration/erosions**



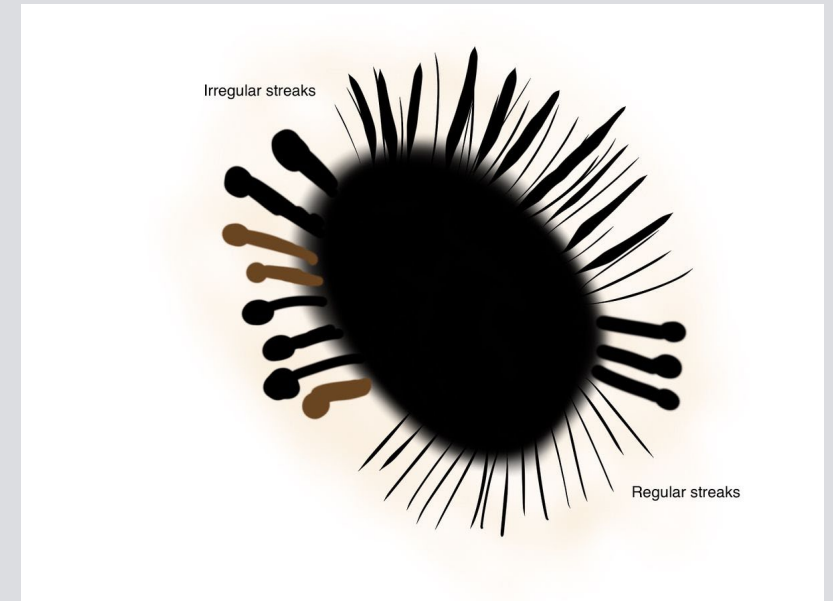
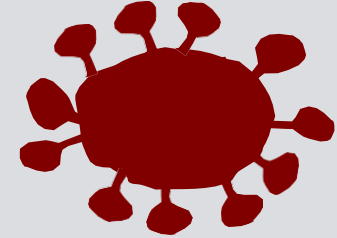
Some Skin Cancers are Organized

- Melanoma
 - Spitzoid: starburst pattern or negative network
 - Nodular/Sun-damaged skin: blue/black/gray color
 - Amelanotic: Shiny white structures, vessels, ulceration
- Some BCC & SCC
 - Shiny white structures, vessels, ulceration



Starburst Pattern

- Linear projections from periphery of lesion
- Whole or partial
- Only seen in melanocytic growths
- Indication of radial growth phase
- **Pseudopods** = bulbous (tennis rackets)
- **Radial streaming** = streaks without knobs on the end



Streaks. (2019, June 9). *dermoscopia*. Retrieved 13:51, September 3, 2025 from <https://dermoscopia.org/w/index.php?title=Streaks&oldid=16559>.



Starburst Pattern



Images courtesy of Ashfaq Marghoob MD

Starburst Pattern



<https://dermnetnz.org/imagedetail/20790-starburst-pattern-dermoscopy>

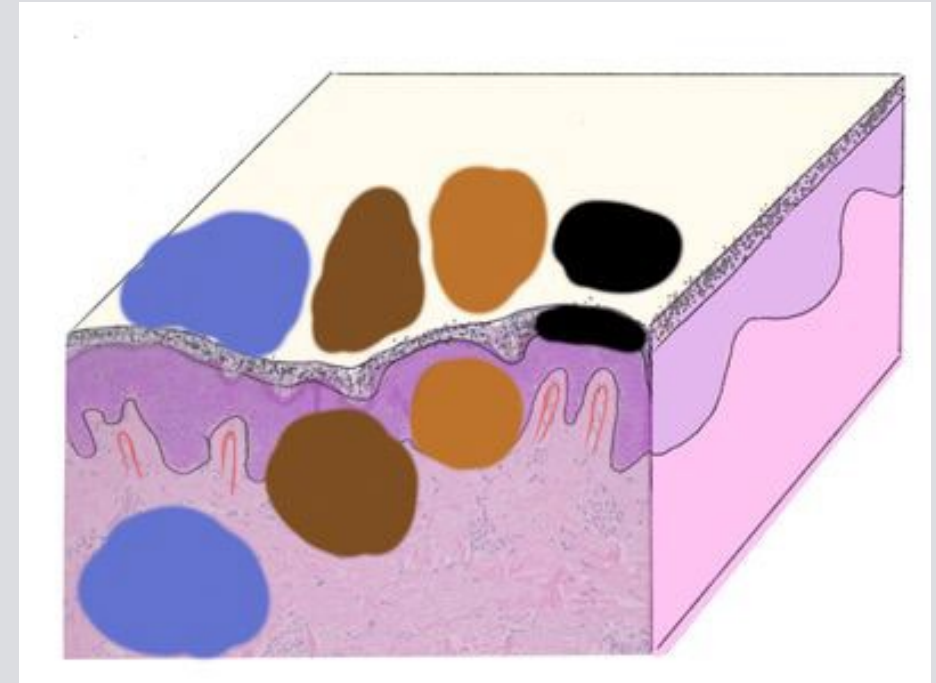


<https://dermnetnz.org/imagedetail/19559-reed-naevus>



Blue, black, gray color

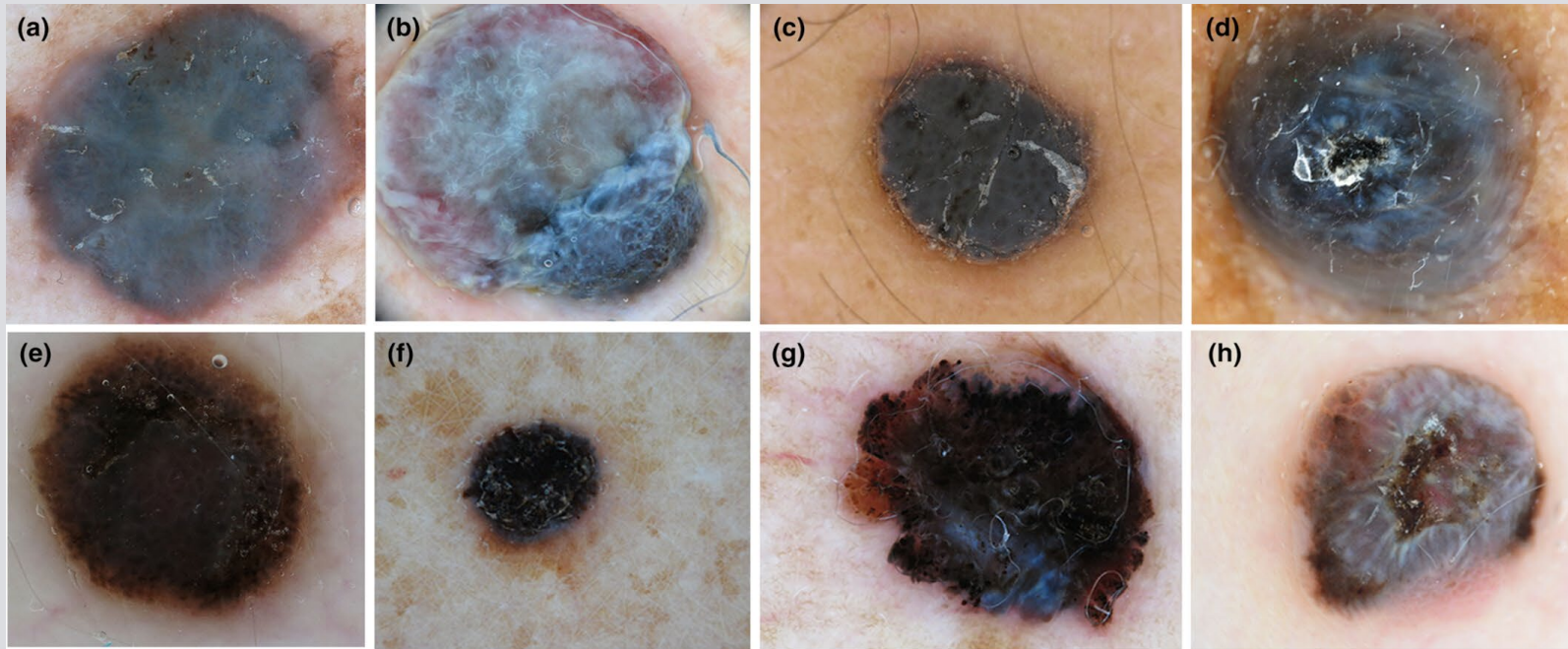
- **Blue/Blue-Gray** = melanin in dermis
- **Black** = melanin in upper epidermis
- **Gray** = clue to inflammatory reaction, may be smudgy



02-Colors. (2023, October 31). *dermoscopedia*. Retrieved 16:59, September 3, 2025 from <https://dermoscopedia.org/w/index.php?title=02-Colors&oldid=21478>.



Blue, black, gray color



Longo C, Pampena R et al. 2023. Dermoscopy of melanoma according to different body sites: Head and neck, trunk, limbs, nail, mucosal and acral. JEADV 37(9):1718-1730, First published: 21 May 2023, DOI: (10.1111/jdv.19221)



Blue, black, gray color



<https://dermnetnz.org/imagedetail/20642-dermoscopy>

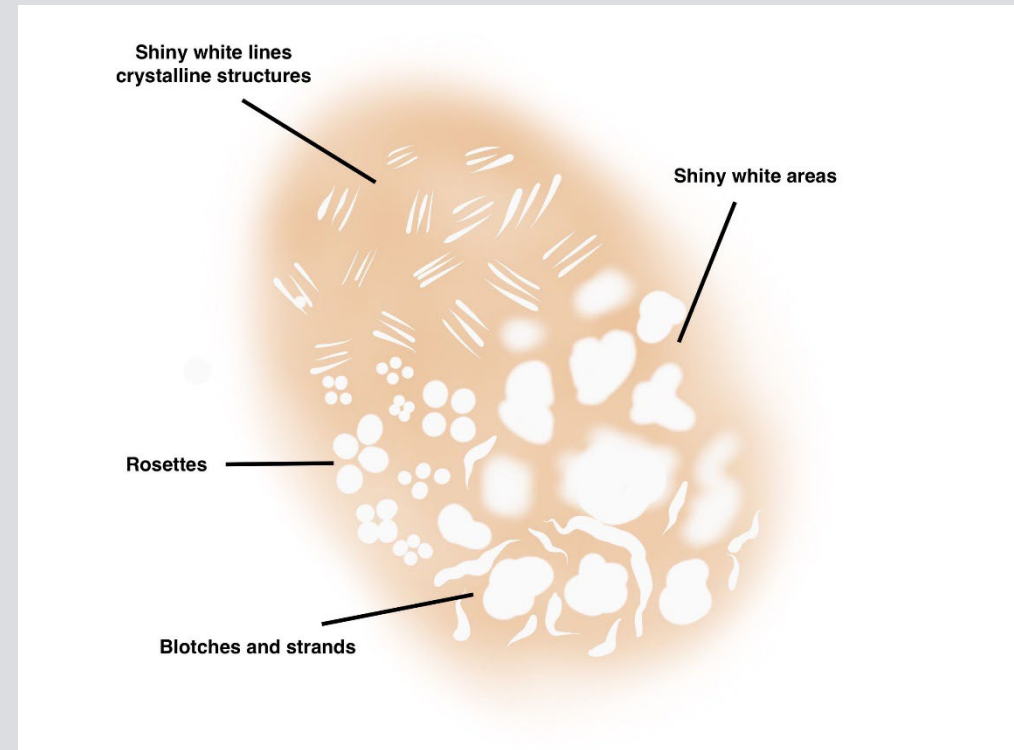


Blue white veil. (2019, May 21). *dermoscopedia*. Retrieved 15:40, September 3, 2025 from https://dermoscopedia.org/w/index.php?title=Blue_white_veil&oldid=15863.



Shiny white structures (SWS)

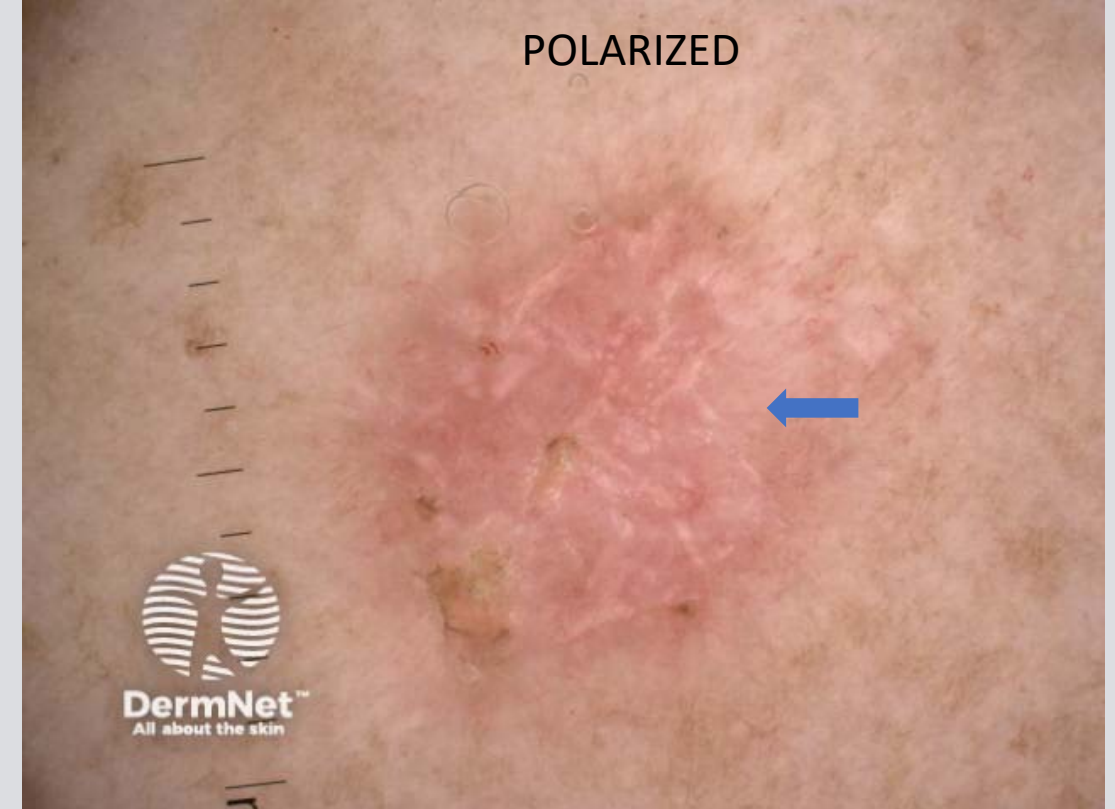
- Only seen with **POLARIZED LIGHT**
- Can be seen in BCC, SCC, and melanoma
- Indicate fibrosis, a marker of dermal invasion



Shiny white structures. (2023, April 17). *dermoscopia*. Retrieved 17:01, September 3, 2025 from https://dermoscopia.org/w/index.php?title=Shiny_white_structures&oldid=20686.



SWS: BCC



<https://dermnetnz.org/topics/perpendicular-white-lines-dermoscopy>



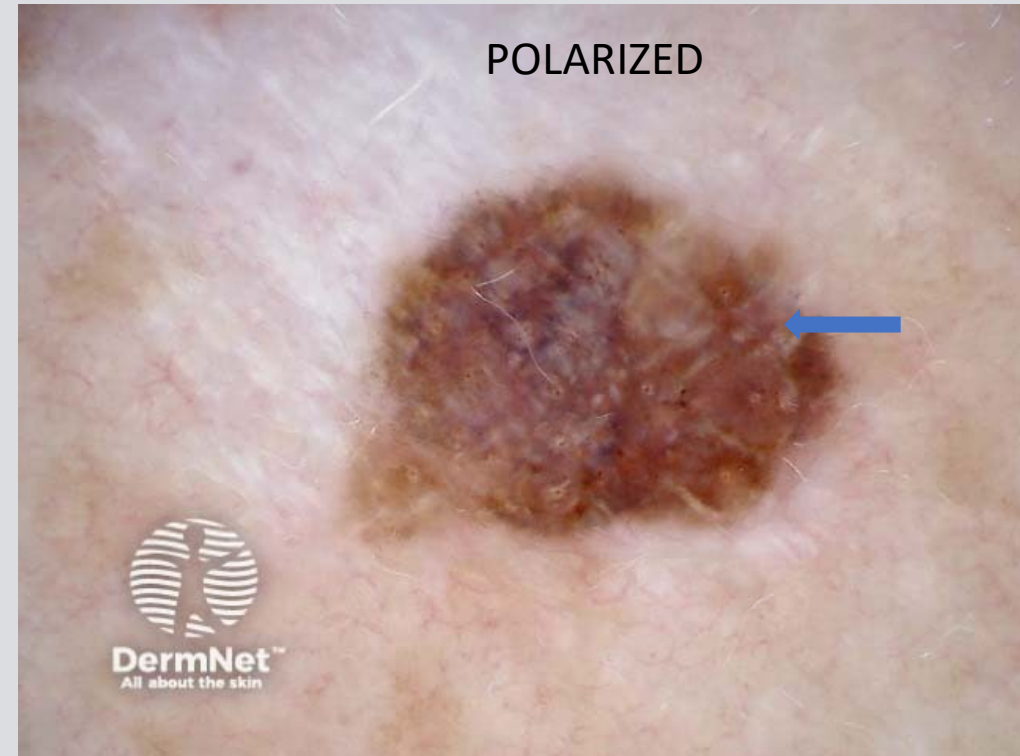
SWS: SCC



<https://dermnetnz.org/topics/squamous-cell-carcinoma-dermoscopy>



SWS: Melanoma



<https://dermnetnz.org/topics/perpendicular-white-lines-dermoscopy>



SWS: What About Dermatofibromas?

- Also have fibrosis, so can see SWS
- Already screened out obvious DFs as benign
- If you've gotten this far, it needs a bx



03-Dermatofibroma. (2023, March 21). *dermoscopedia*. Retrieved 16:31, September 3, 2025 from <https://dermoscopedia.org/w/index.php?title=03-Dermatofibroma&oldid=20458>.



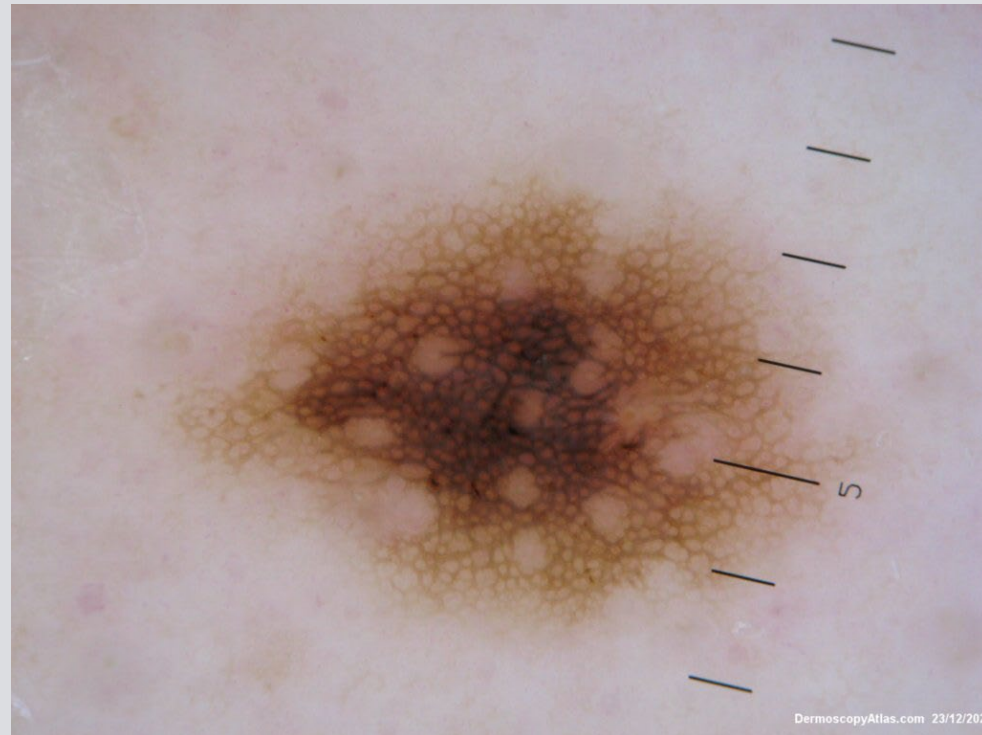
Negative network

- Hypopigmented serpiginous or grid-like lines surrounding irregularly shaped pigmented structures



But first, what is the network?

- Pigment network, as seen in some nevi and dermatofibromas for example
- Intersecting brown lines arranged like a grid or net (reticular)

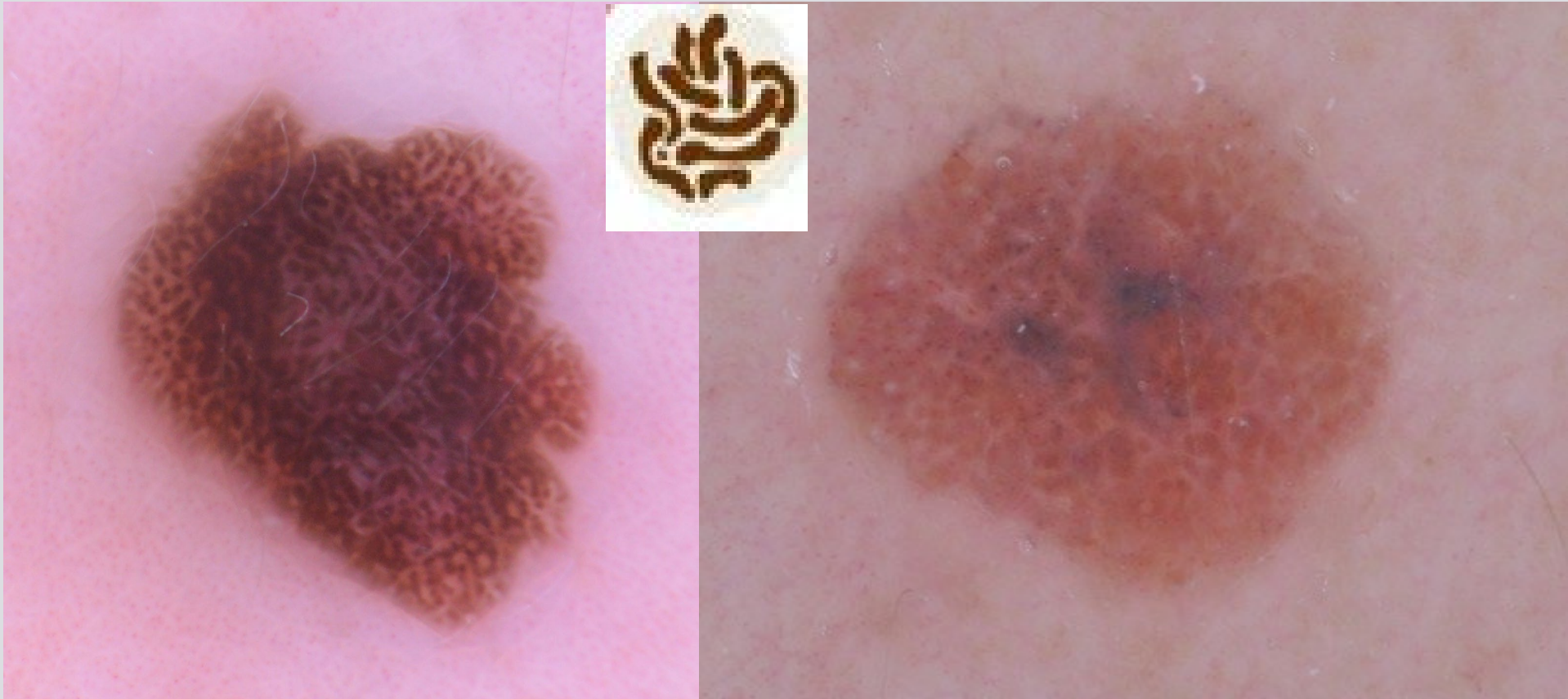


Think of negative network as the inverse of the pigment network

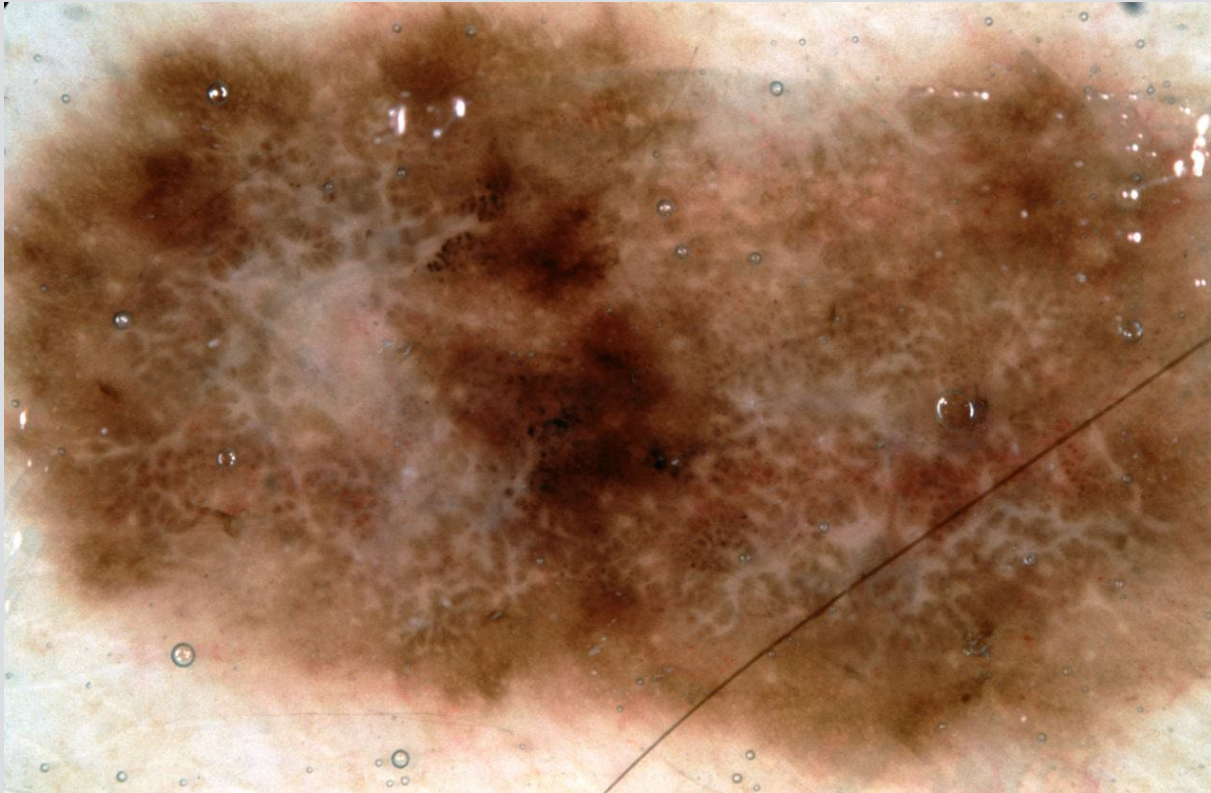
- Here, the net or grid is light and the “holes” are dark



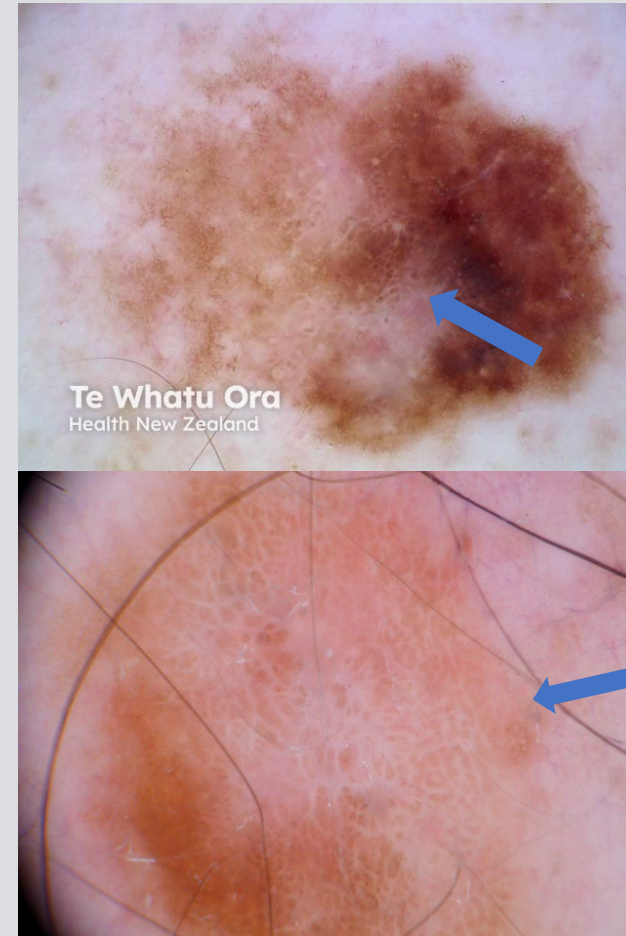
Negative network



Negative network



Negative Pigment Network. (2023, April 17). *dermoscopia*. Retrieved 18:46, August 27, 2025 from https://dermoscopia.org/w/index.php?title=Negative_Pigment_Network&oldid=20723.

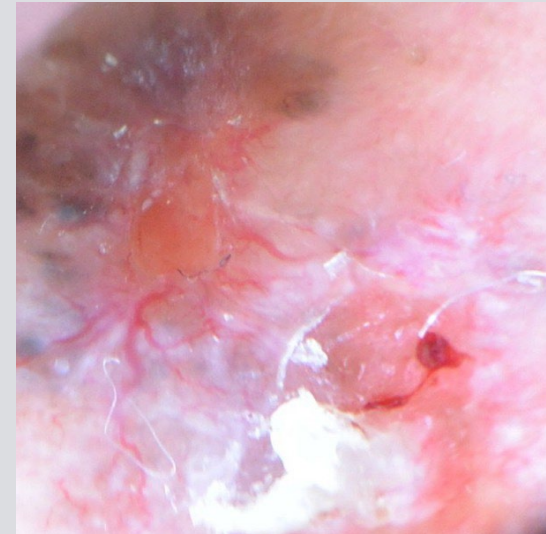
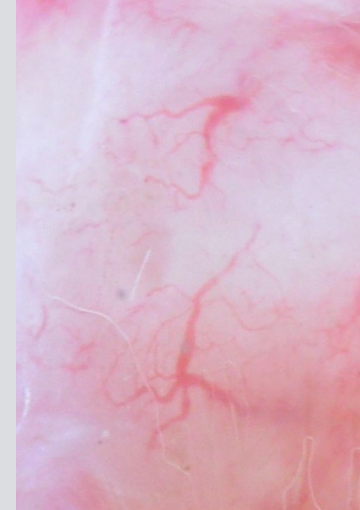


Connolly D et al. 2014.
Dermoscopy and the
negative pigment network
JAAD 70(2): e29-30.

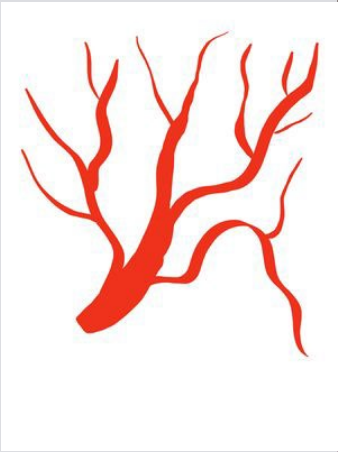


Vessels

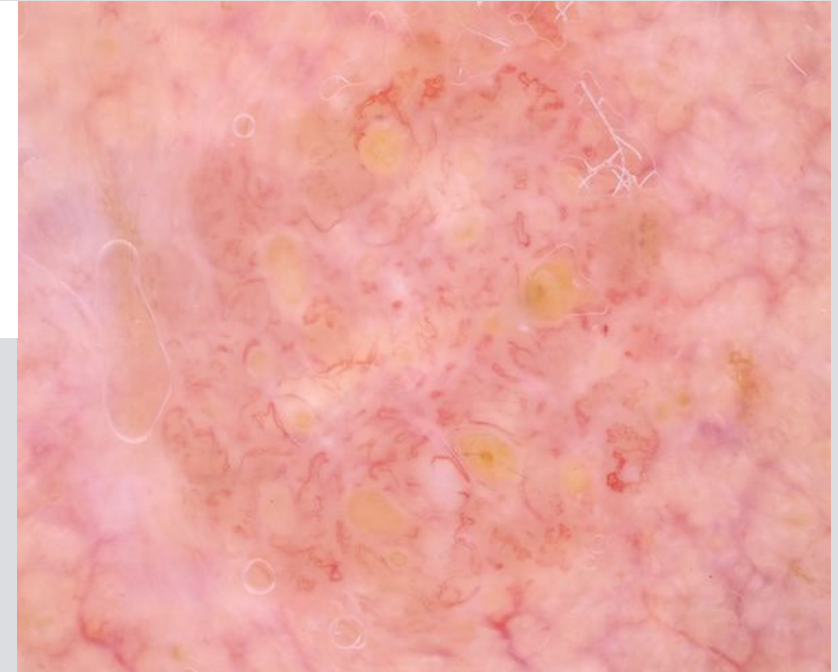
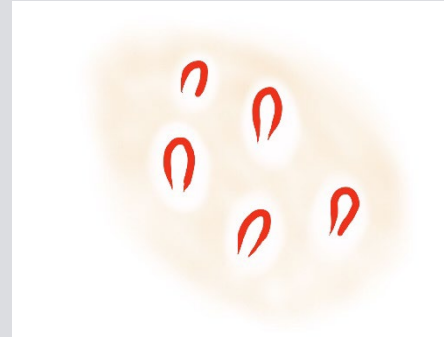
- Cancers need a vascular supply = red flag in a lesion of concern
- Abnormal angiogenesis
- Various vessel patterns
- Types can be mixed
- Dermoscopy Tip: vessels blanch with minimal pressure



Vessels



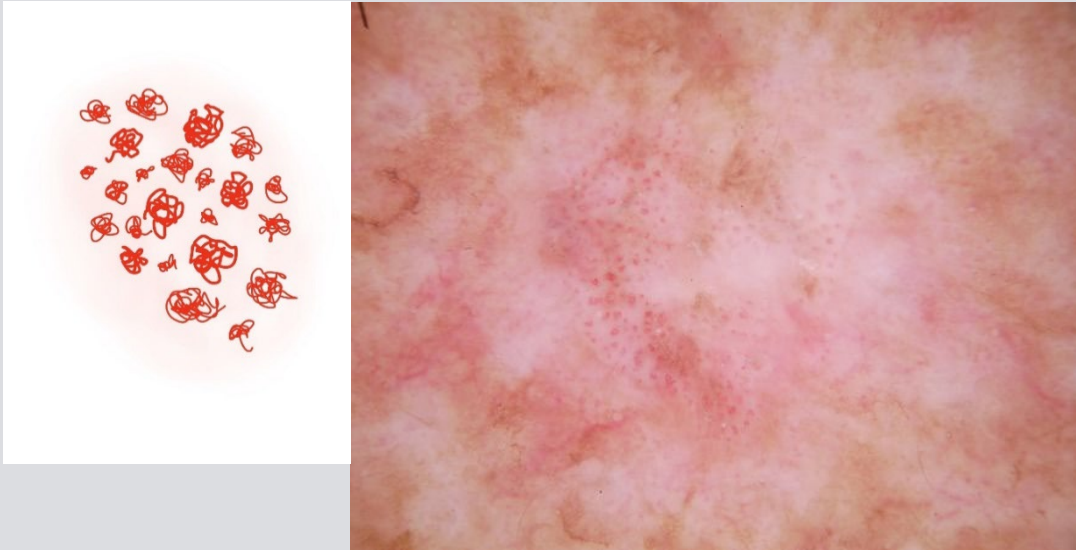
Arborizing (treelike)



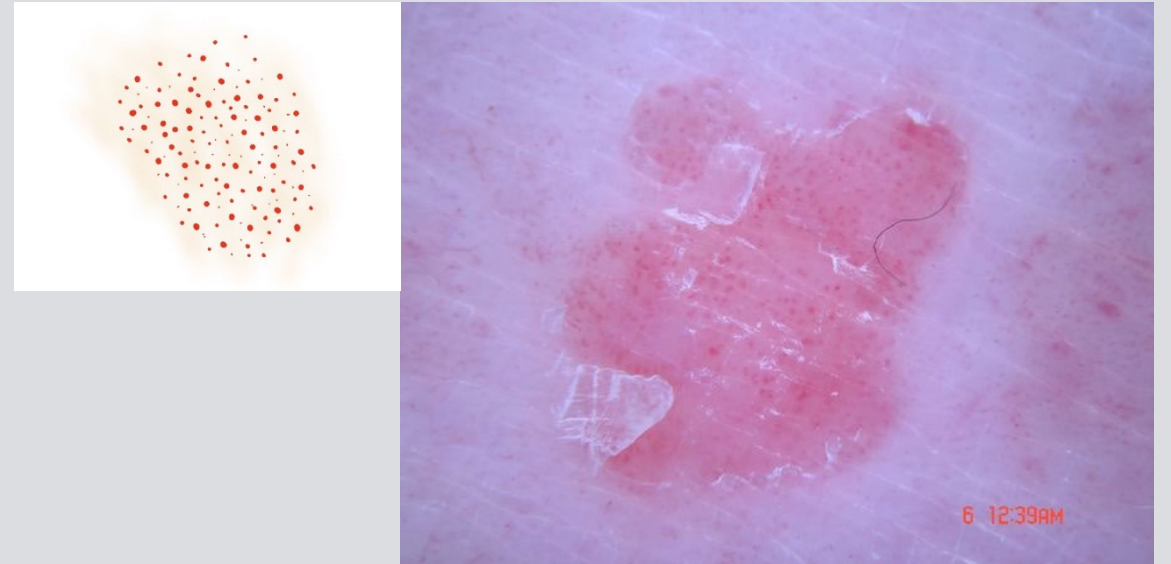
Hairpin



Vessels



Glomerular



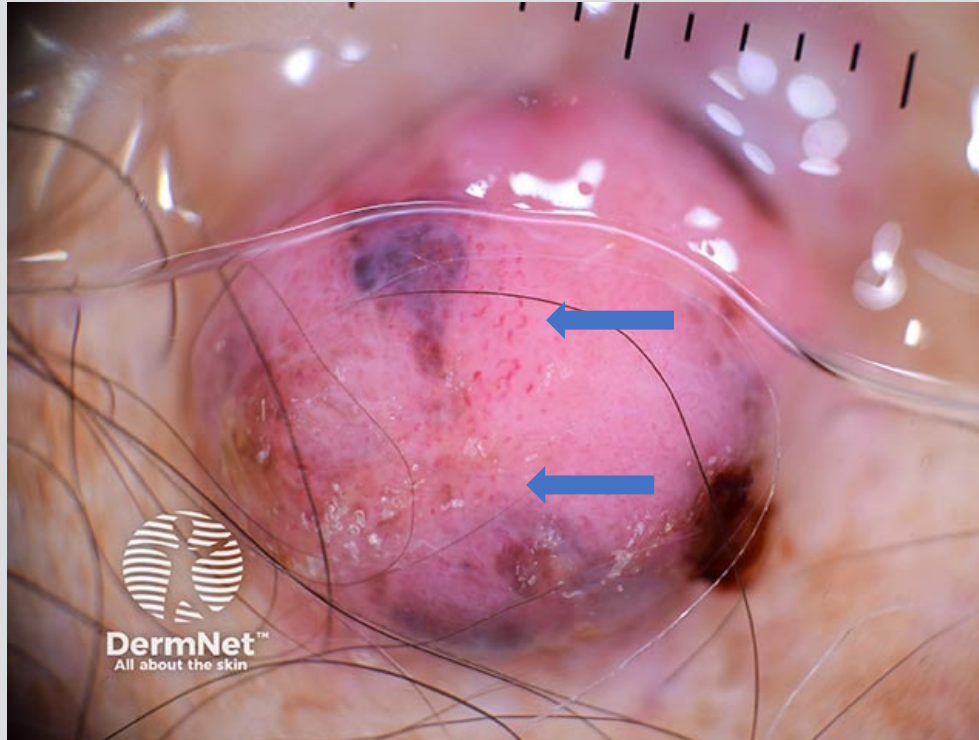
Dotted (end on)



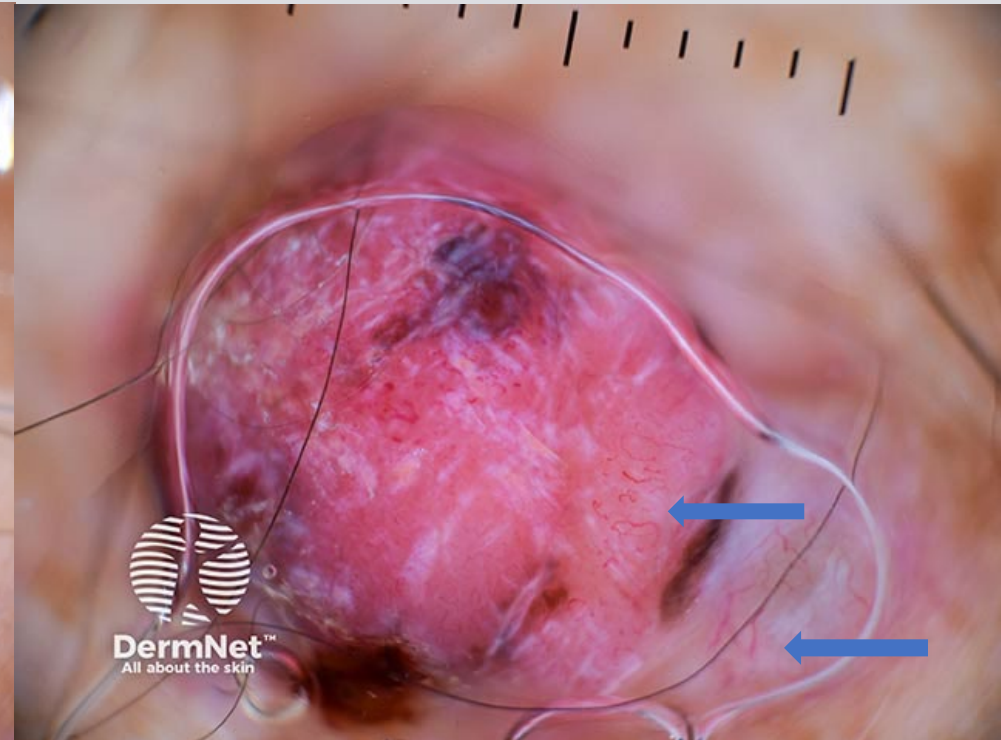
Vessels



Polymorphous



<https://dermnetnz.org/imagedetail/23466-nodular-melanoma>



<https://dermnetnz.org/imagedetail/23467-nodular-melanoma>

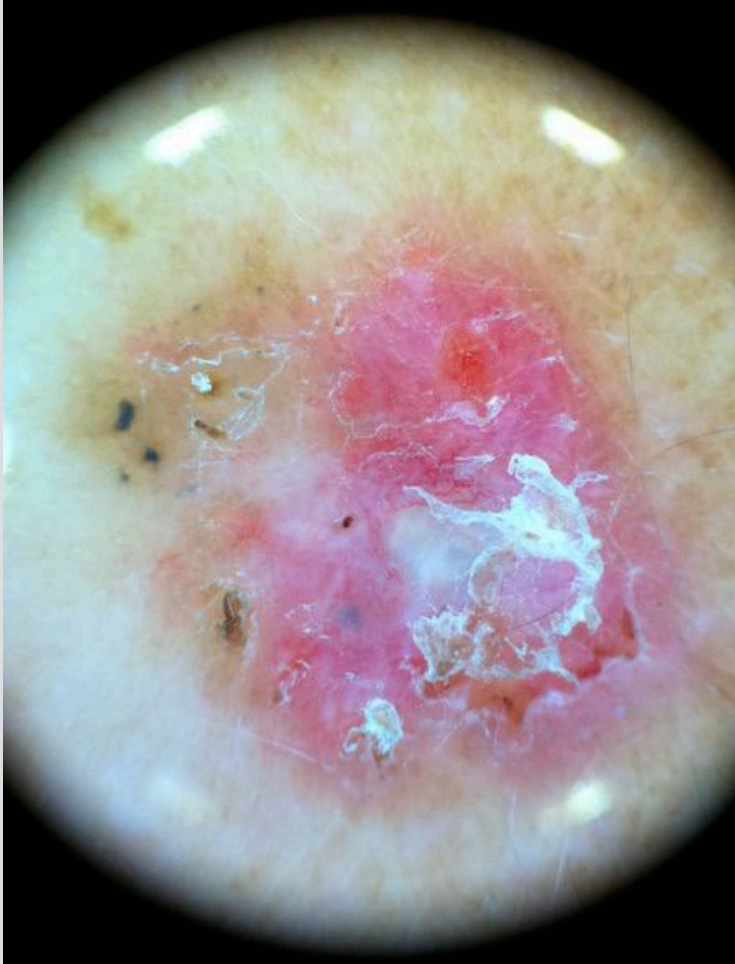


Ulceration

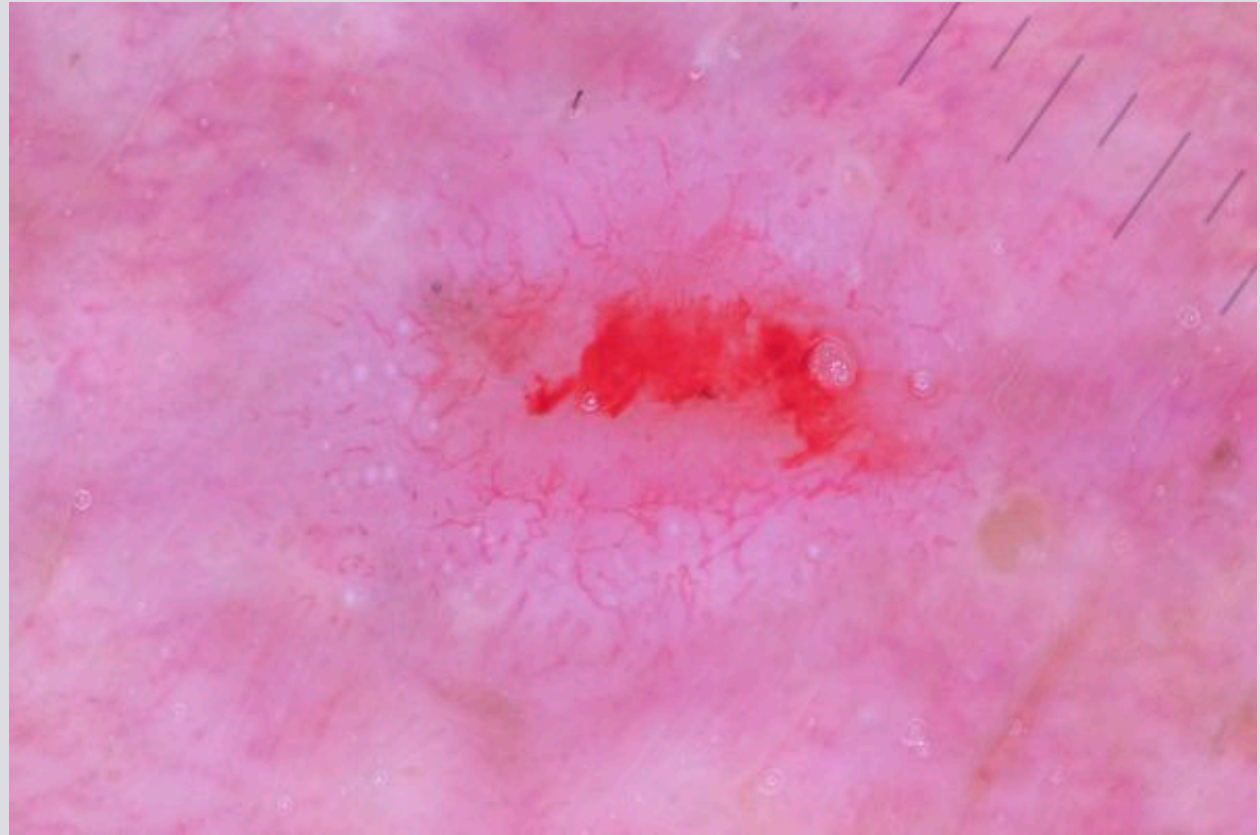
- Tumor growth can outstrip blood supply and damage blood vessels
- And damage epidermis
- May see ulcer, erosion, crust overlying ulcer/erosion



Ulceration



https://dermoscopedia.org/File:BCC_Pigmented_Ulceration_Blue-gray_globules_Branched_vessels.jpg



https://dermoscopedia.org/Basal_cell_carcinoma



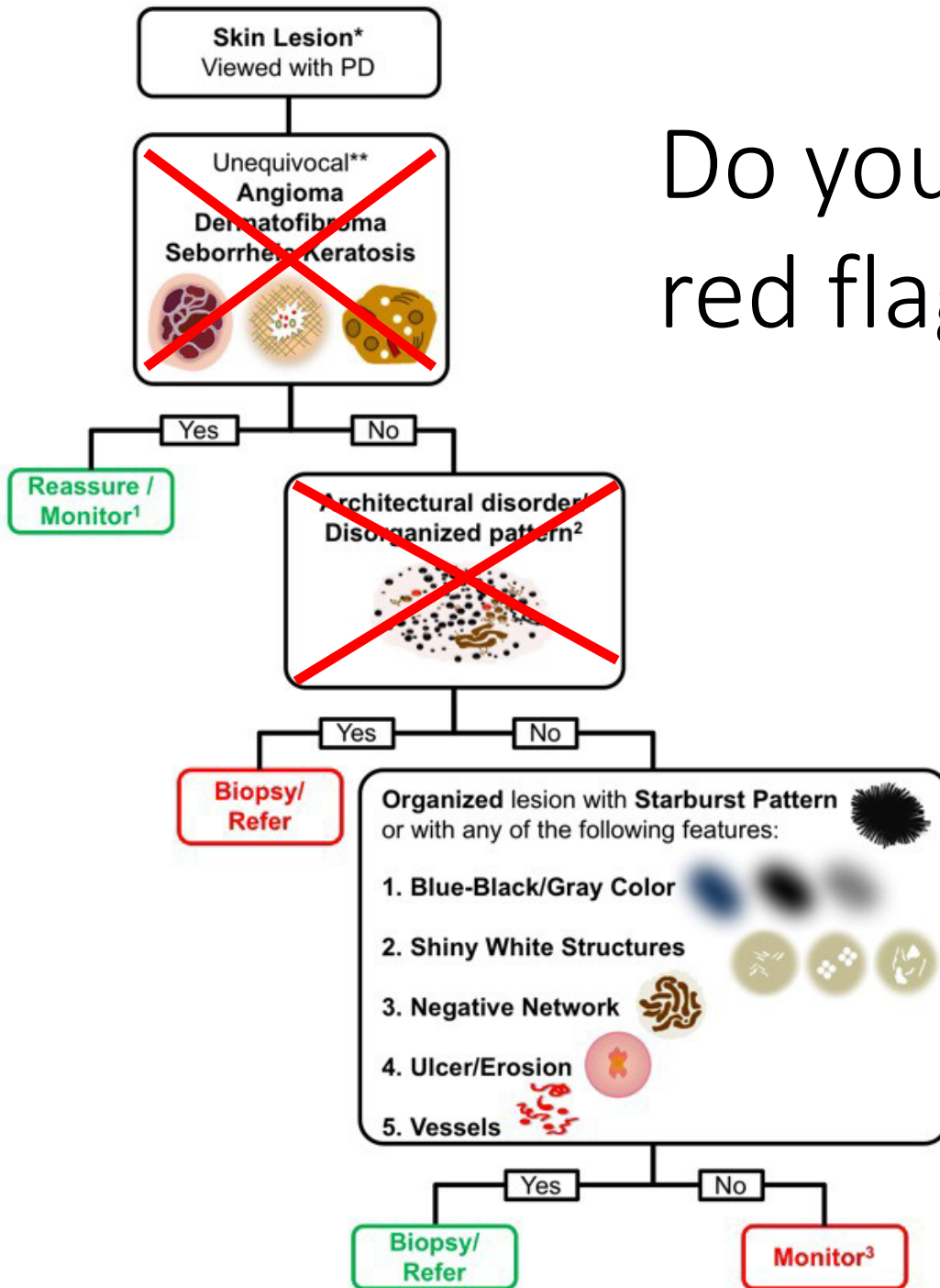
Ulceration: Check history

- What about benign things with ulcer/erosion/crust?
- Bug bites, excoriated acne, etc
- If very recent, give it a few weeks to resolve (biopsy if it doesn't)

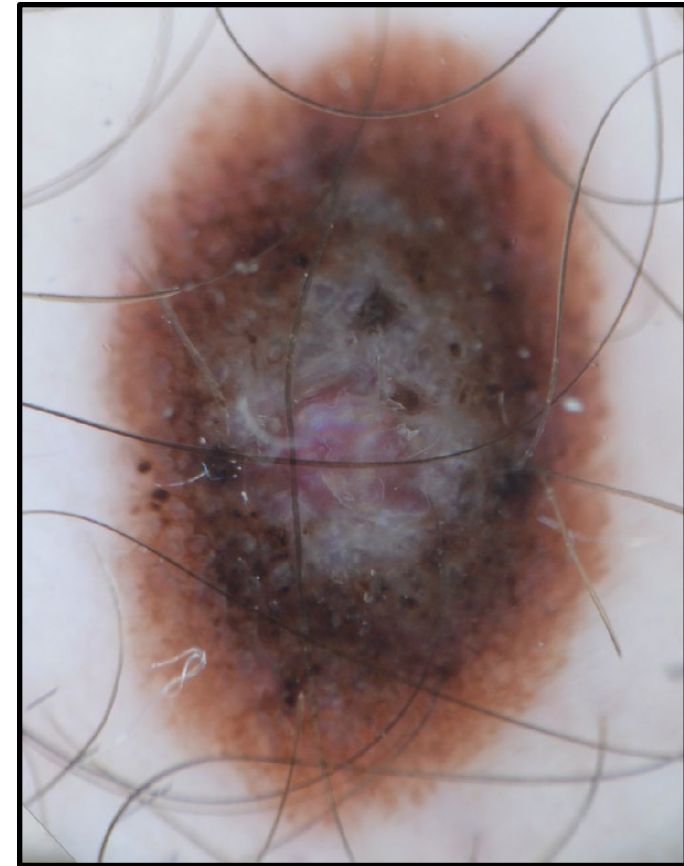


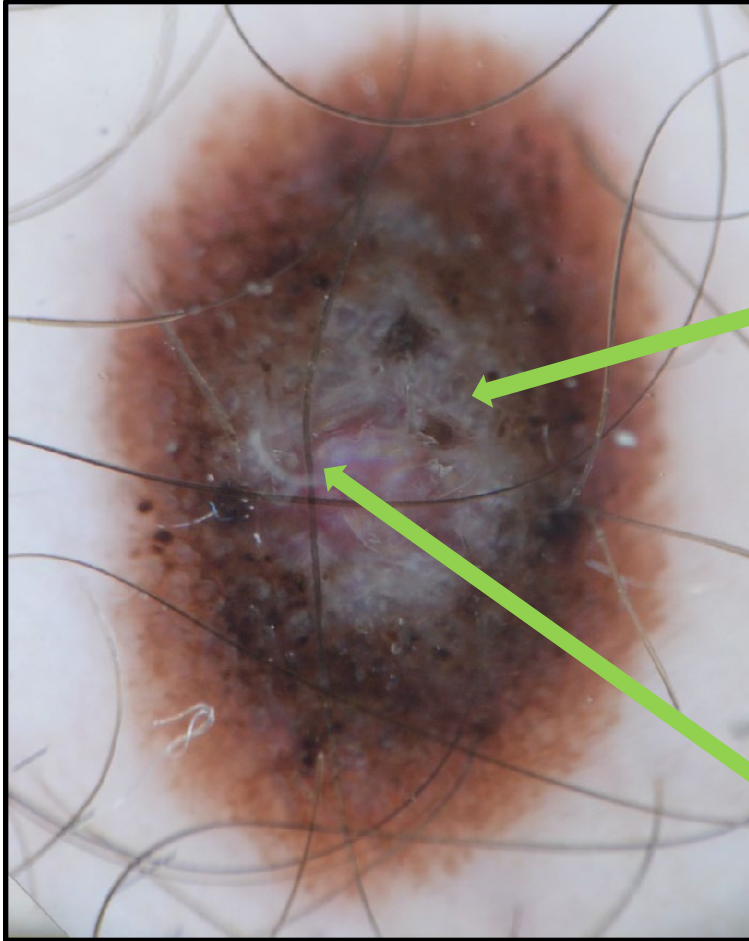
<https://dermnetnz.org/imagetail/4380-compulsive-picking>





Do you see any of the red flags here?

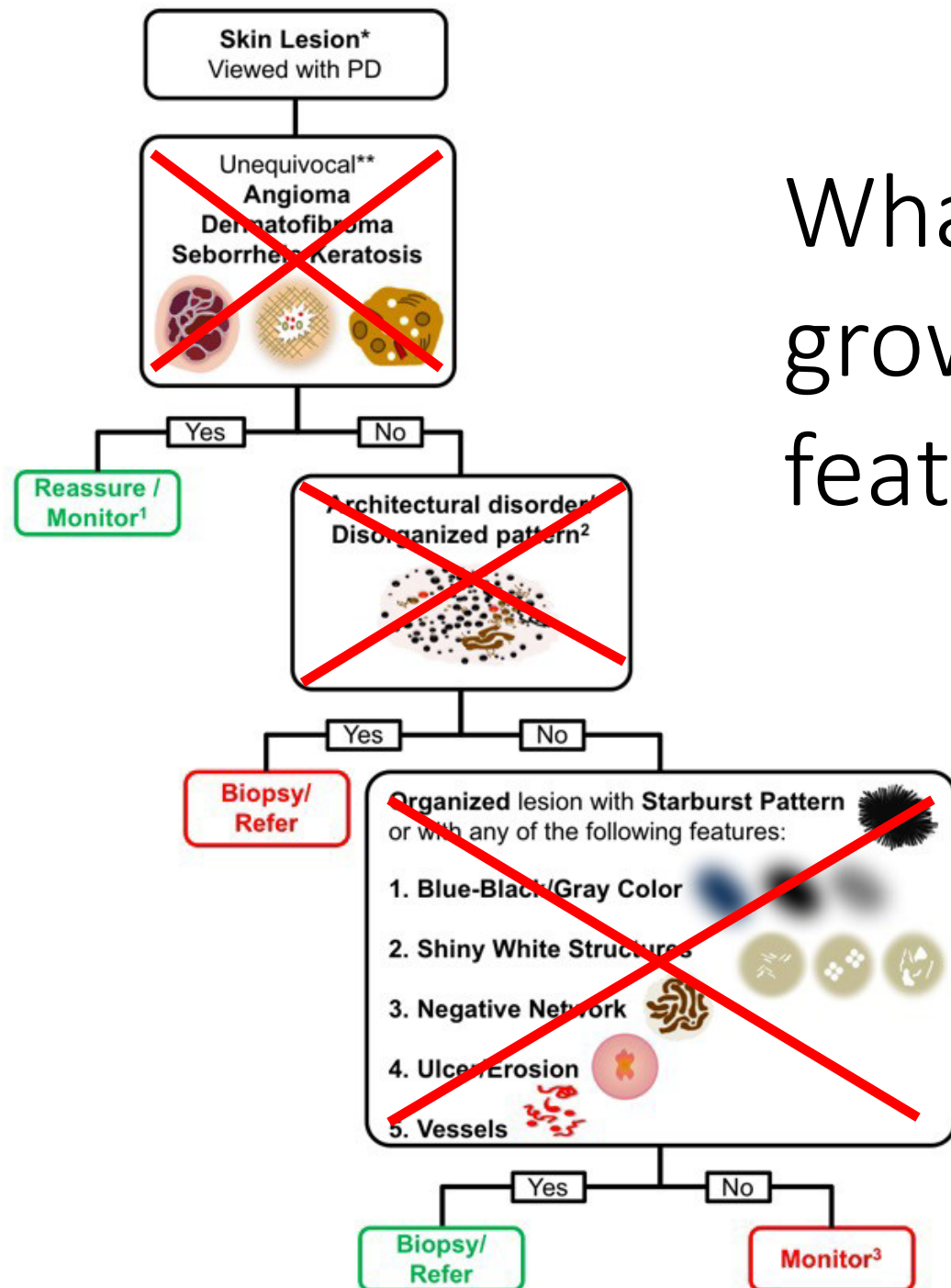




Blue-gray color

Shiny white structures

Melanoma



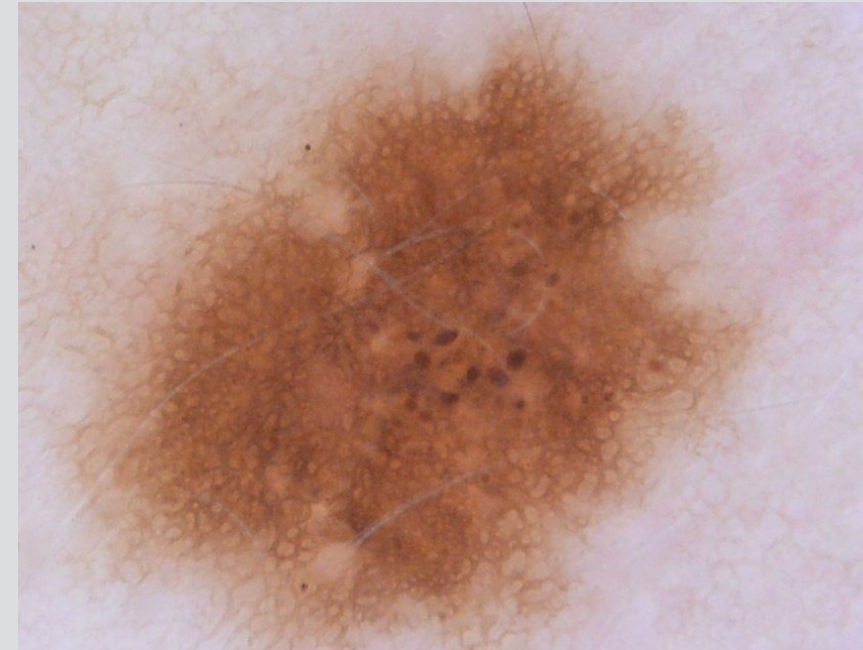
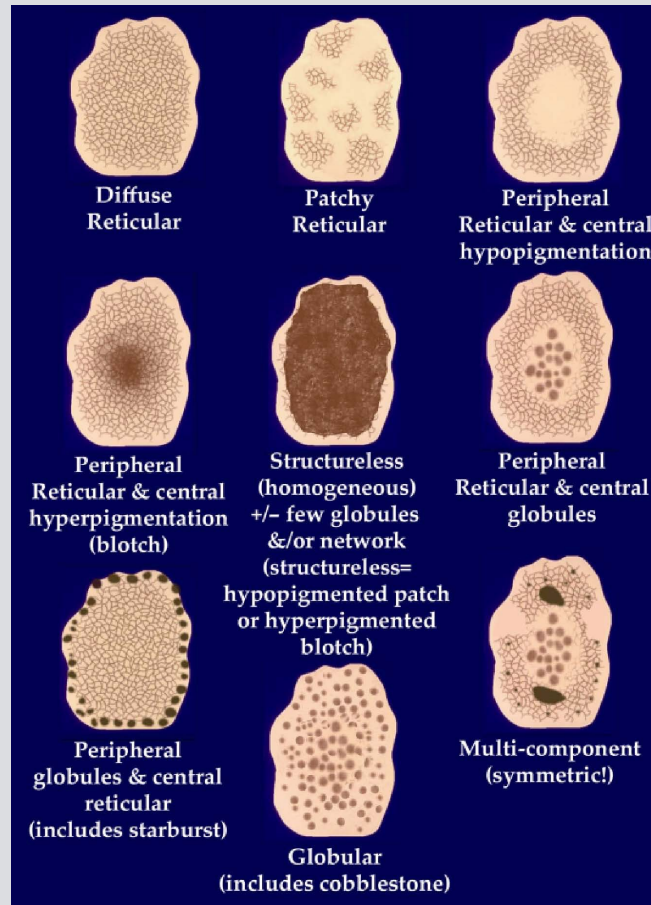
What if it's an organized growth without red flag features?

Majority of the rest are nevi

Nevi in general
should be monitored
(self/clinician/app)

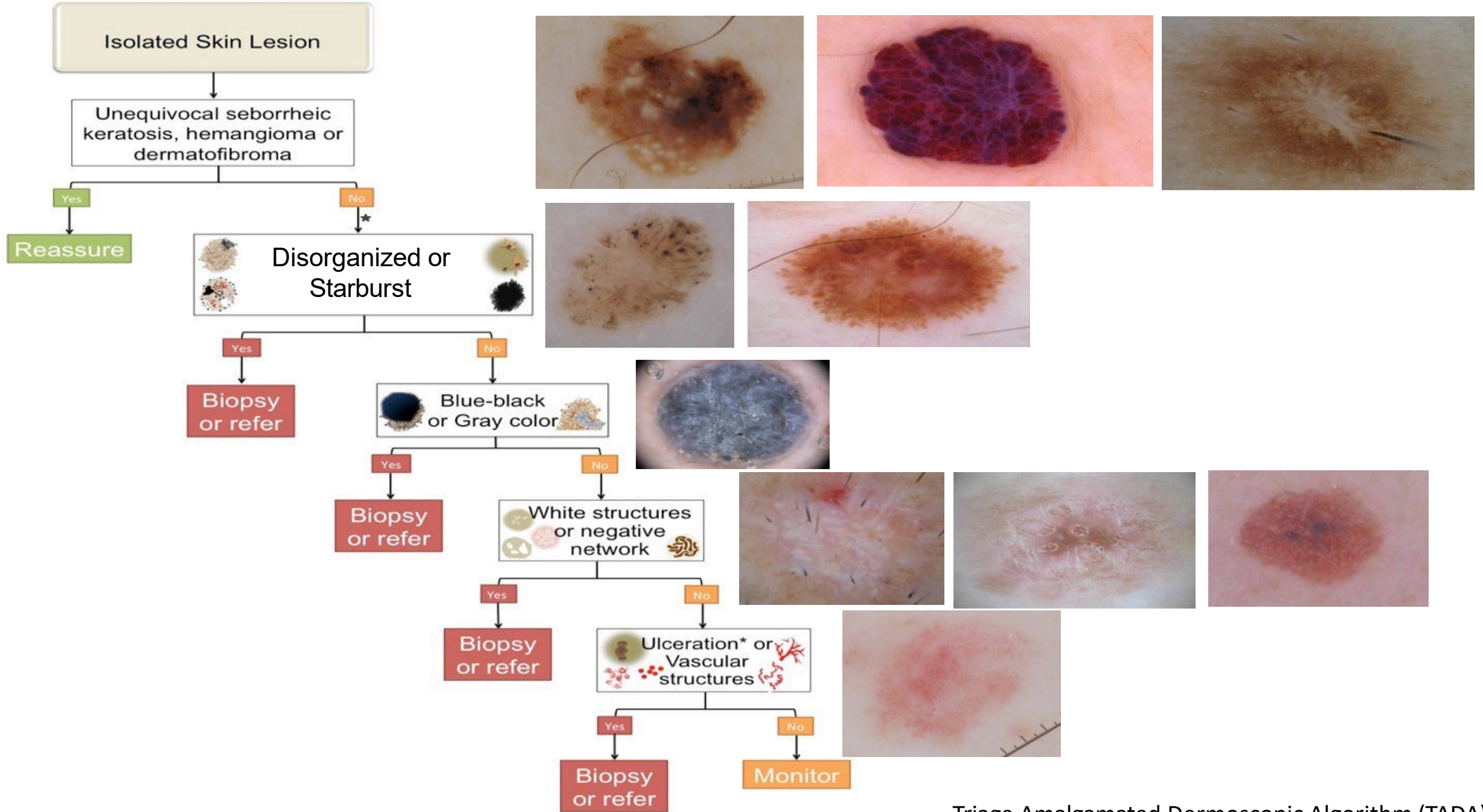
Useful Monitoring Tips

1. Patients should continue self-monitoring & changes in morphology or symptoms should raise concern
2. Monitoring can include short-term, long-term, or self-monitoring for change



The Beauty and the Beast Sign in Dermoscopy. A
Marghoob et al. Derm Surg. Nov 2007





Triage Amalgamated Dermoscopic Algorithm (TADA)

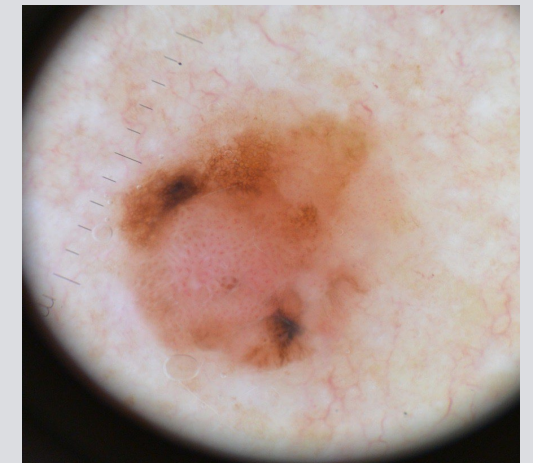
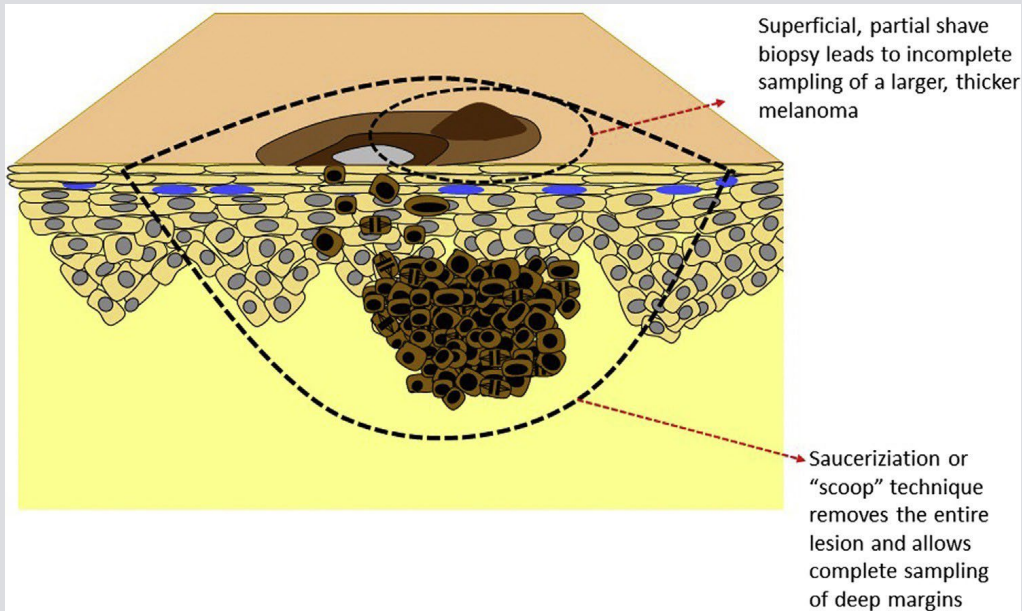
★ Algorithm is based on use of **polarized dermoscopy**

* Ulceration without history of trauma

Exceptions: 1) Any changing lesion in an adult patient
2) Any volar lesion with a parallel ridge pattern

Biopsy

- Photograph and mark the site prior to biopsy
- Avoid partial biopsies of melanocytic growths
- Obtain *breadth & depth* with a "scoop"



Cases



45 year old man with new growth on nose



Dermoscopic Evaluation

- Unequivocal angioma, SK, DF?
 - NO
- Disorganized?
 - YES
- What else do you see?
 - Ulceration
 - Shiny White Structures
 - Vessels



Biopsy

- Basal cell carcinoma

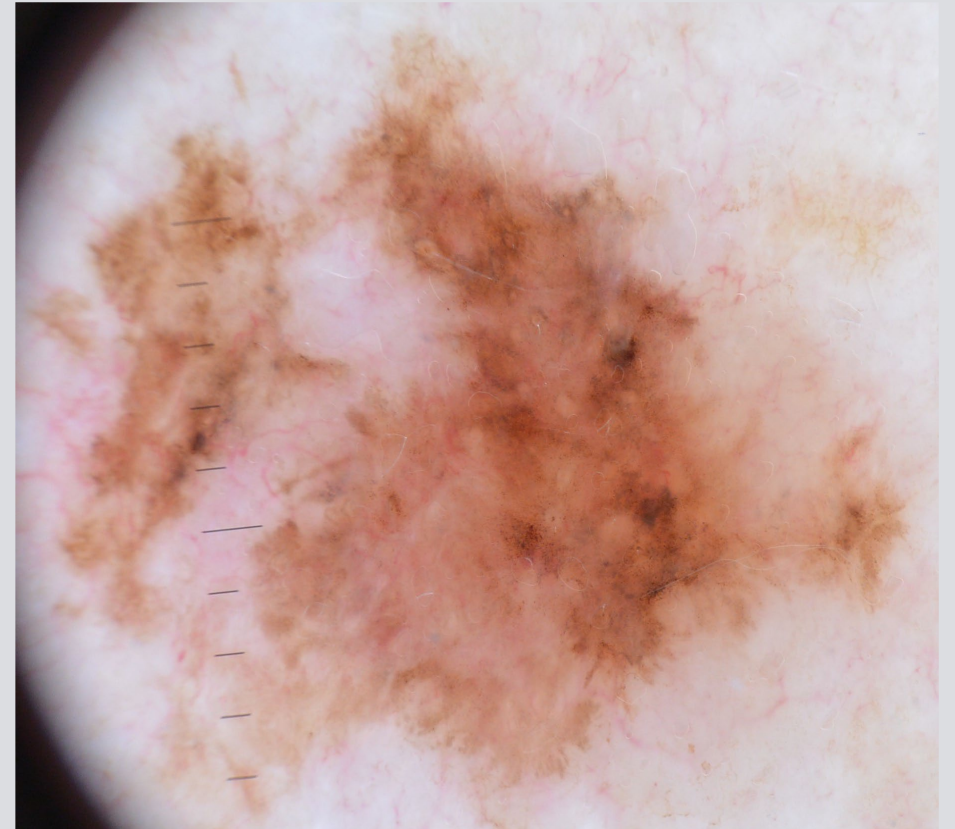


66-year-old woman with enlarging brown macule on left shoulder



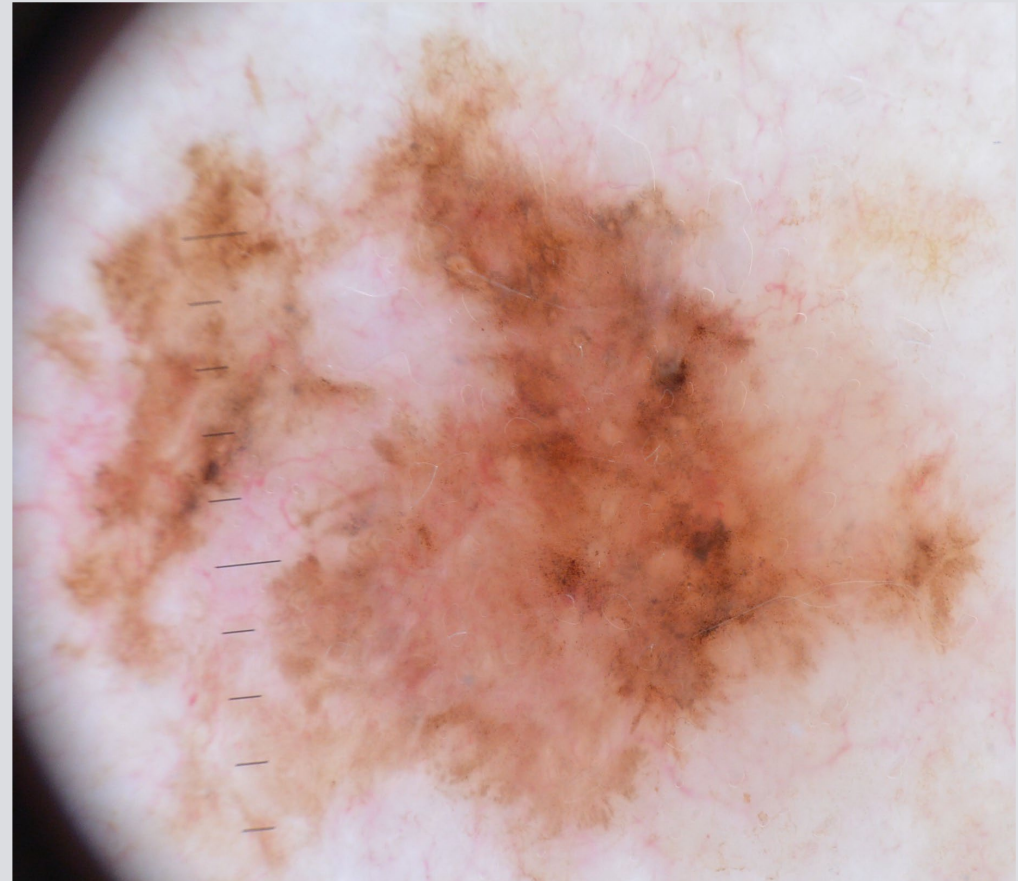
Dermoscopic Evaluation

- Unequivocal angioma, SK, DF?
 - NO
- Disorganized?
 - YES
- What else do you see?
 - Blue/Black/Gray color
 - Shiny White Structures
 - Vessels



Biopsy

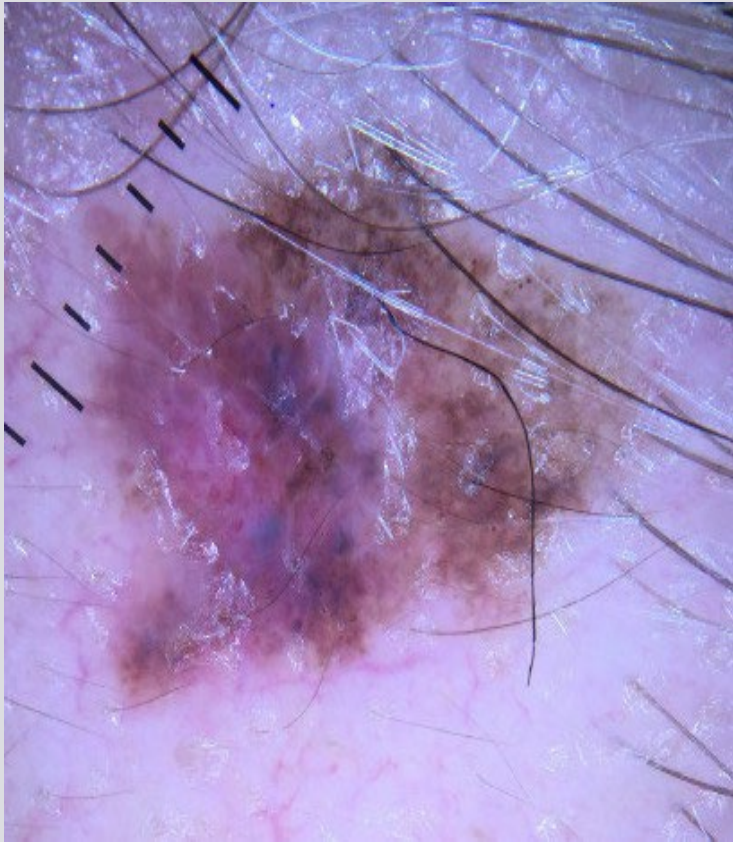
- Melanoma 0.6 mm



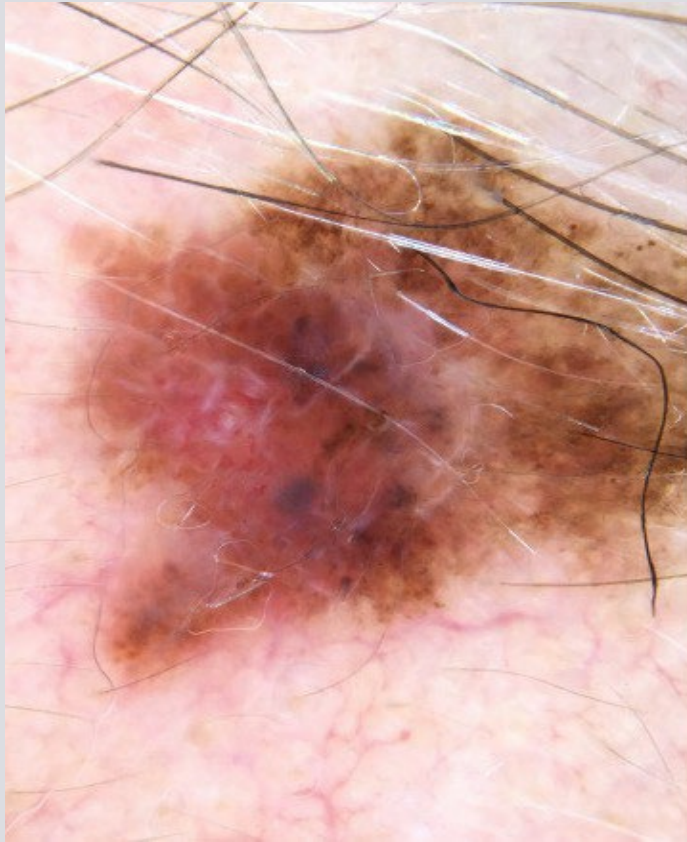
54-year-old man with an
enlarging
growth left temple



Dermoscopy

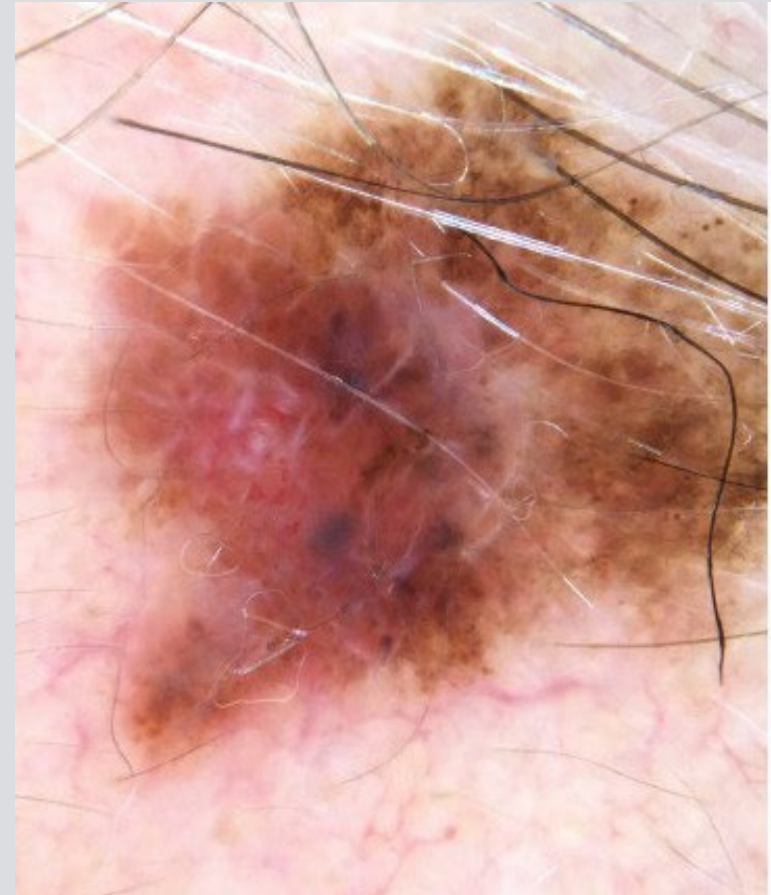


NPD



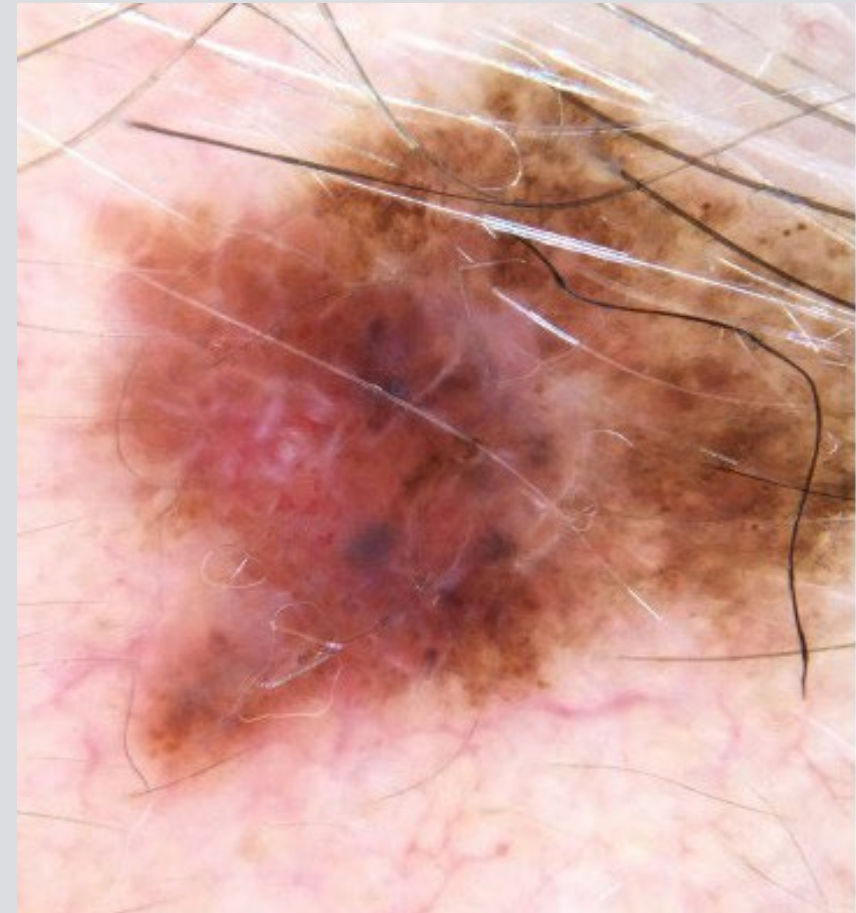
Dermoscopic Evaluation

- Unequivocal angioma, SK, DF?
 - NO
- Disorganized?
 - YES
- What else do you see?
 - Blue/Black/Gray color
 - Shiny White Structures
 - Vessels



Biopsy

- Melanoma 1.9 mm



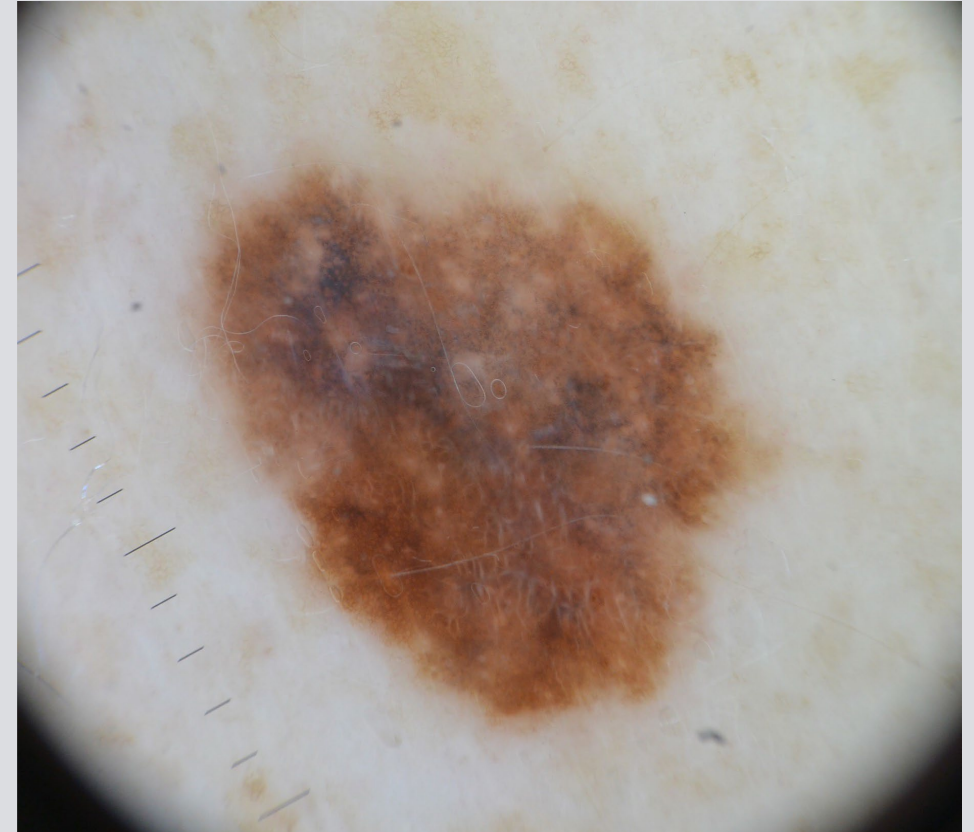
51-year-old man phototype II with a history of melanoma and a new dark growth on the lower back



Lesion in question

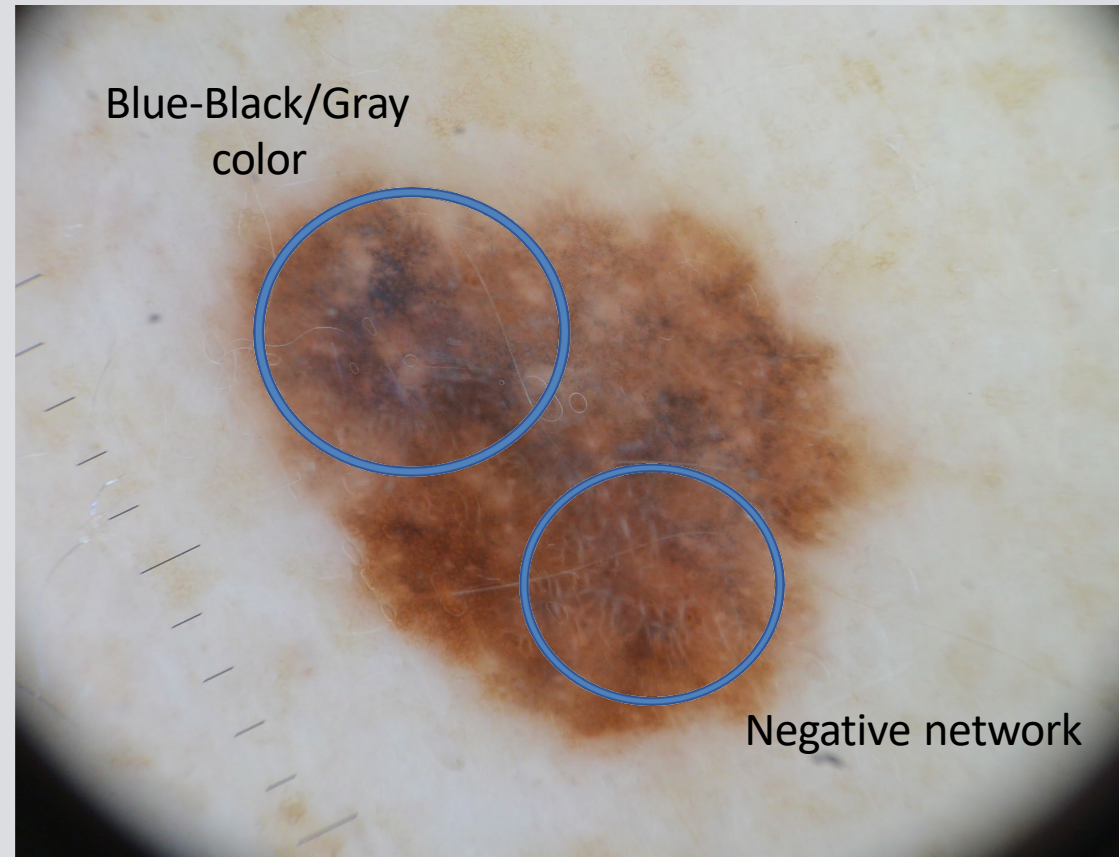
Dermoscopic Evaluation

- Unequivocal angioma, SK, DF?
 - NO
- Disorganized?
 - YES
- What else do you see?
 - Blue/Black/Gray color
 - Negative network

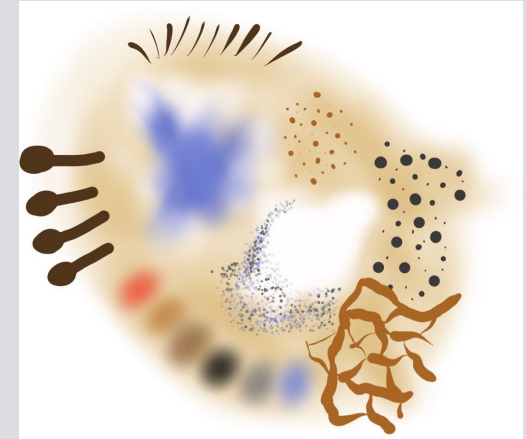
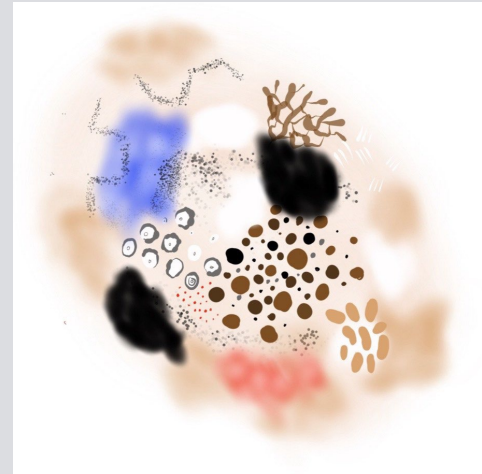
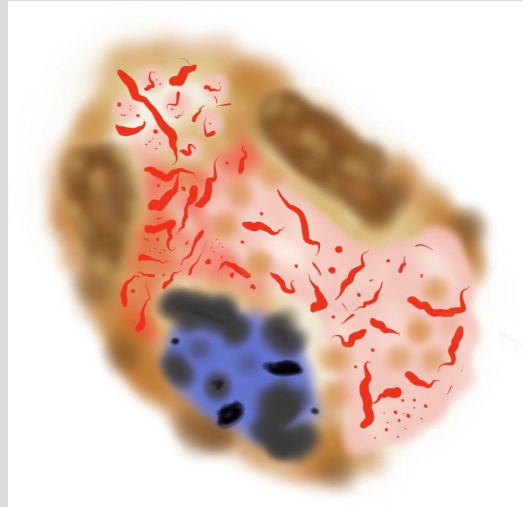
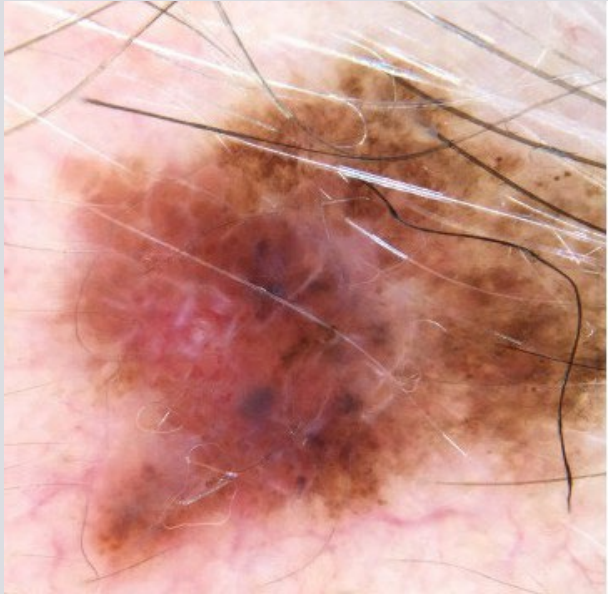


Biopsy

- Melanoma 0.2 mm



Most Melanomas are Disorganized





Thank You! Questions?

Next Session: October 30, 2025:
Rashes and Skin Infections