Slide 1

DERMOSCOPY: THE STETHOSCOPE FOR THE SKIN

Hayden Middleton, DMSc, PA-C (He/Him)

Slide 2

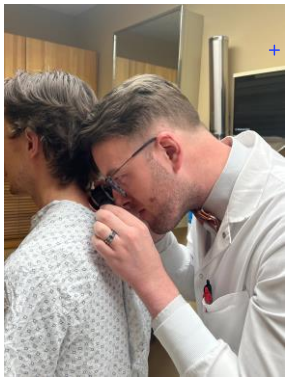
Objectives

- Explain the difference between polarized and nonpolarized dermoscopy.
- Define the two main ways that dermoscopy works.
- Interpret dermoscopy images of angioma, dermatofibroma, and seborrheic keratosis lesions based on their distinct diagnostic criteria.
- Apply TADA successfully to evaluate skin lesions and determine if a biopsy or referral to dermatology is necessary.
- Discuss the effect dermoscopy and TADA have on diagnostic evaluation, prognostication, and treatment of skin lesions.

Slide 3

What is Dermoscopy?

- Dermoscopy is a non-invasive, fast and reliable technique for examining skin lesions that enhances diagnostic acumen in the clinic.[1]
- It utilizes a dermatoscope, which is a handheld instrument consisting of a light source and magnifying optics with polarized and non-polarized light options that allow visualization of subsurface skin structures not readily visible to the naked eye.[1]
- Dermoscopy has been shown to increase diagnostic accuracy when evaluating skin lesions.[2-3]



Slide 4

Why is dermoscopy needed in primary care?

- In the US, skin cancer is the most common type of cancer, with it estimated that 1 in 5 Americans will develop skin cancer, making adequate skin lesion assessment crucial.[4-5]
- The economic burden of skin cancer is large and increasing, making skin cancer prevention and early detection even more important.[5-6]
- Clinical evaluation, specifically using the ABCD method, without dermoscopy can miss a substantial portion of skin cancers, leading to delayed diagnosis, poor prognosis, and higher healthcare cost.[7]

Slide 5

How does a dermatoscope work?

- Two types of dermatoscopes: nonpolarized and polarized scopes.[1]
  - Nonpolarized Scope: Requires a contact medium; Better for visualizing superficial color and cutaneous lesion structures
  - Polarized Scope: No contact medium required; Better for visualizing deep structures like vasculature and collagen; Most commonly used scope in practice
- Visualization is possible by reducing the reflective properties of the stratum corneum allowing visualization of deeper structures, as well as through magnification of the lesion.[1]

Slide 6


DERMOSCOPY INCREASES INDEX FOR SUSPICION – LET'S LOOK AT SOME EXAMPLES

Slide 7

Biopsy/Refer or Reassure?

Dermoscopy *Two Step Algorithm* [Computer Software].Version 2.5. Marghoob AA, Usatine RP, James, N. date unknown. Used with Permission.

Slide 8

Dermatoscope Examination

Dermoscopy *Two Step Algorithm* [Computer Software].Version 2.5. Marghoob AA, Usatine RP, James, N. date unknown.
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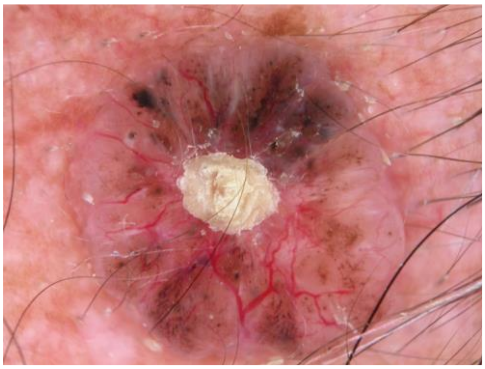
Slide 9

Biopsy/Refer or Reassure?

Dermoscopy *Two Step Algorithm* [Computer Software].Version 2.5. Marghoob AA, Usatine RP, James, N. date unknown. Used with Permission.

Slide 10

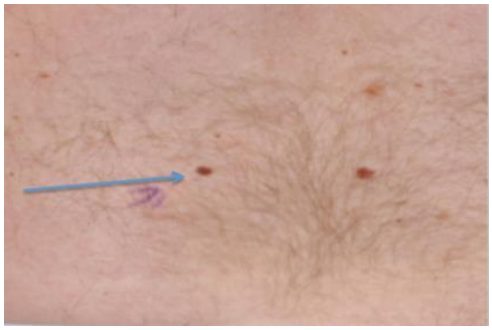
Dermatoscope Examination



Dermoscopy *Two Step Algorithm* [Computer Software].Version 2.5. Marghoob AA, Usatine RP, James, N. date unknown. Used with Permission.

Slide 11

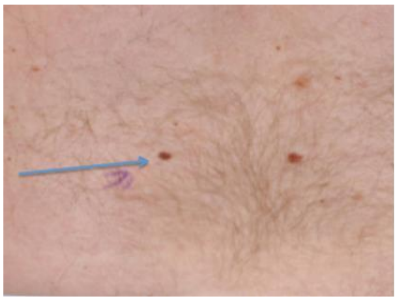
Biopsy/Refer or Reassure?

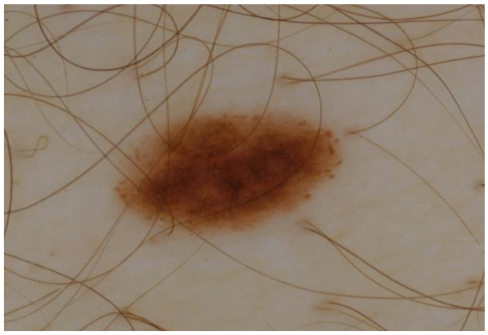


Dermoscopy *Two Step Algorithm* [Computer Software].Version 2.5. Marghoob AA, Usatine RP, James, N. date unknown. Used with Permission.

Slide 12

Dermatoscope Examination





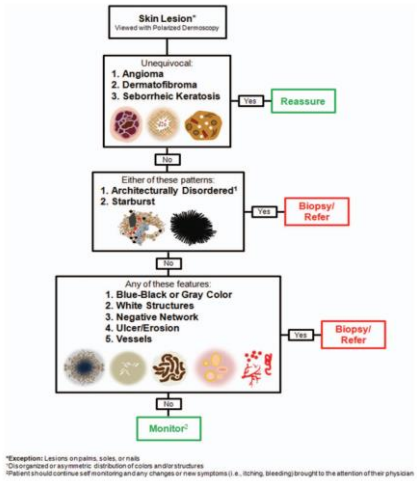
Dermoscopy *Two Step Algorithm* [Computer Software].Version 2.5. Marghoob AA, Usatine RP, James, N. date unknown. Used with Permission.

Slide 13

TADA (triage amalgamated dermoscope algorithm)Method

- Goal of dermoscopy in primary care: Effectively determine if biopsy or referral is needed, not necessarily the exact lesion diagnosis.
- TADA simplifies dermoscopy utilization into three evaluation steps and has been proven to be effective in multiple studies at increasing the diagnostic accuracy of skin lesions.[9-13]
- TADA does require the clinician to recognize three common benign skin lesions: angioma, dermatofibroma, and seborrheic keratosis.[9]
  - Excludes lesions of nails, mucosal surfaces and palmar/plantar surfaces.

Slide 14

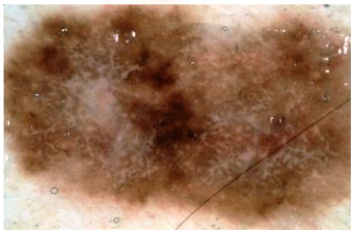


Rogers T, Marino M, Dusza SW, Bajaj S, Marchetti MA, Marghoob A. Triage amalgamated dermoscopic algorithm (TADA) for skin cancer screening. Dermatol Pract Concept. 2017;7(2):39-46. Used with Permission.

Slide 15

What's a negative network??

- An "inverse network" with curvilinear brown structures with hypopigmented background.
- Highly specific for melanoma (95% specific), especially for a melanoma arising in a nevus



From Ralph Braun, Katrin Kerl, Oriol Yelamos. Negative Network. Dermoscopedia. April 17, 2023, 10:59 UTC. Available at: https://dermoscopedia.org/Negative_network. Accessed January 2, 2024. From Dermoscopedia with permission.

Slide 16

Common Benign Skin Lesions

- Essential to recognize three common benign skin lesions when using the TADA method
  - Angioma
  - Dermatofibroma
  - Seborrheic Keratosis

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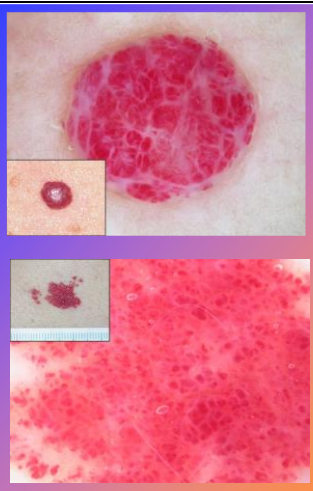

Angioma

- What is an angioma? A group of dilated capillaries at the skin surface.
- Naked eye exam: Bright red, violaceous, or even black elevated lesion.
- Dermoscopic exam: Widespread red-blue lacunes and vascularized homogenous areas.

Adapted with Pedro Zaballos, Ignacio Gómez Martín. Angioma. Dermoscopedia. December 28, 2018, 17:10 UTC. Available at: https://dermoscopedia.org/w/index.php?title=Angioma&oldid=14607. Accessed January 2, 2024. From Dermoscopedia with permission

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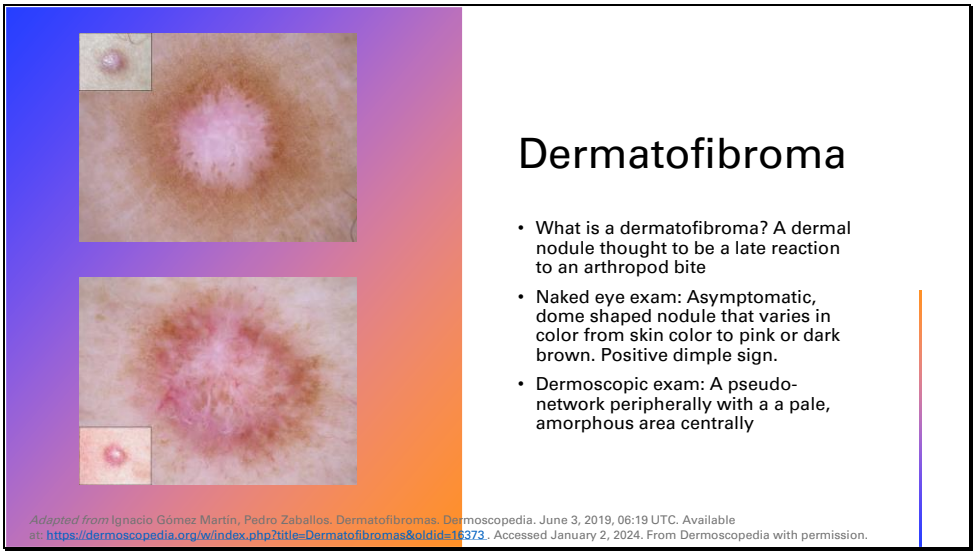
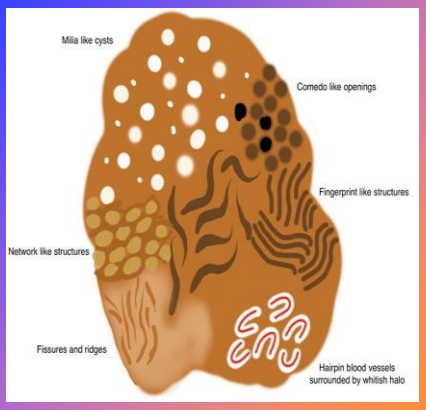

Dermatofibroma
• What is a dermatofibroma? A dermal nodule thought to be a late reaction to an arthropod bite
• Naked eye exam: Asymptomatic, dome shaped nodule that varies in color from skin color to pink or dark brown. Positive dimple sign.
• Dermoscopic exam: A pseudo-network peripherally with a a pale, amorphous area centrally
Adapted from Ignacio Gómez Martín, Pedro Zaballos. Dermatofibromas. Dermoscopedia. June 3, 2019, 06:19 UTC. Available at: https://dermoscopedia.org/w/index.php?title=Dermatofibromas&oldid=16373. Accessed January 2, 2024. From Dermoscopedia with permission.

Slide 19



Seborrheic Keratosis

- What is a seborrheic keratosis? A benign epithelial tumor
- Naked eye exam: Papules, plaques that have a waxy, stuck-on appearance. Variety of color ranging from dark brown to white.
- Dermoscopic exam: Certain distinct features will be seen – milia-like cysts, irregular fissures and ridges, or fingerprint-like features, comedo-like openings, and hairpin blood vessels surrounded by whitish halo.

Adapted from Ralph Braun, Stephanie Nouveau, Sabine Ludwig. Seborrheic keratoses. Dermoscopedia. June 6, 2019, 17:40 UTC. Available at: https://dermoscopedia.org/w/index.php?title=Seborrheic_keratoses&oldid=16505. Accessed January 1, 2024. From Dermoscopedia with permission.

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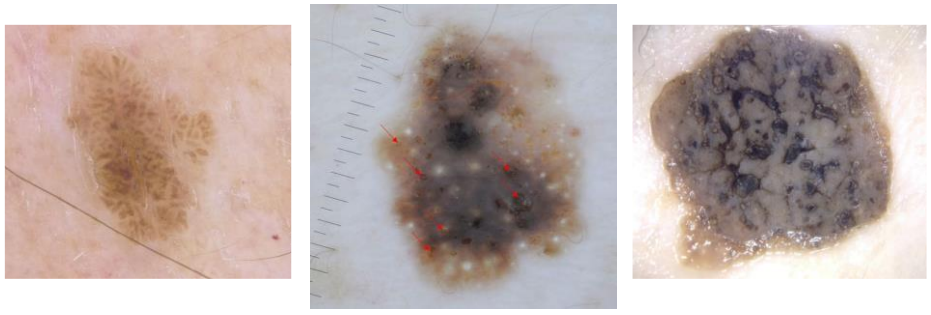
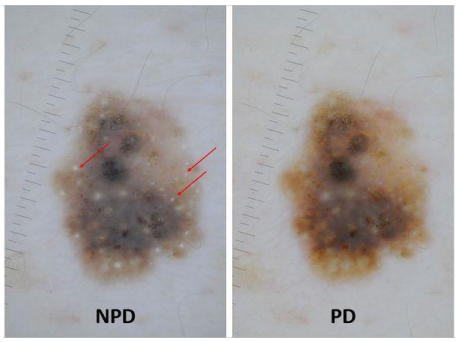


Adapted from Ralph Braun, Stephanie Nouveau, Sabine Ludwig. Seborrheic keratoses. Dermoscopedia. June 6, 2019, 17:40 UTC. Available at: https://dermoscopedia.org/w/index.php?title=Seborrheic_keratoses&oldid=16505. Accessed January 1, 2024. From Dermoscopedia with permission.

Slide 21

Seborrheic Keratosis: NPD vs. PD



Adapted from Alon Scope. Principles of dermoscopy. Dermoscopedia. February 2, 2020, 11:39 UTC. Available at: https://dermoscopedia.org/w/index.php?title=Principles_of_dermoscopy&oldid=17040. Accessed January 2, 2024. From Dermoscopedia with permission.

Slide 22

What do normal moles look?

- "Banal" lesions are subjective; however, there is outlined criteria that help a clinician make this determination.
- Clinical definition: ABCD
- Dermoscopic Definition:
  - Symmetry of color, patterns, and structures.
  - Don't forget ugly duckling sign when using dermoscopy – repetitive patterns are seen in many nevi.
  - Banal patterns: reticular, globular, cobblestone, globular-reticular, homogenous brown, blue, or tan/pink, amongst a few others general patterns.[1]

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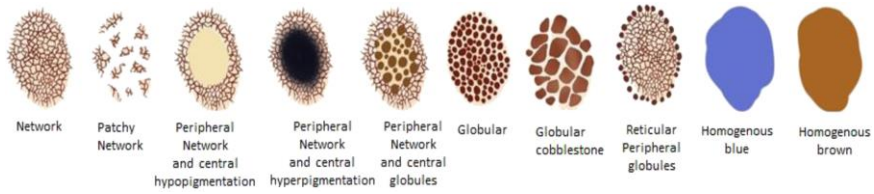
Banal Nevi Patterns



Adapted from Ralph Braun, Aimilios Lallas, Ash Marghoob. Level 1: Nevi. Dermoscopedia. September 10, 2018, 21:39 UTC. Available at: https://dermoscopedia.org/w/index.php?title=Level_1:_Nevi&oldid=13536. Accessed January 2, 2024. From Dermoscopedia with permission.

Slide 24


CASE #1
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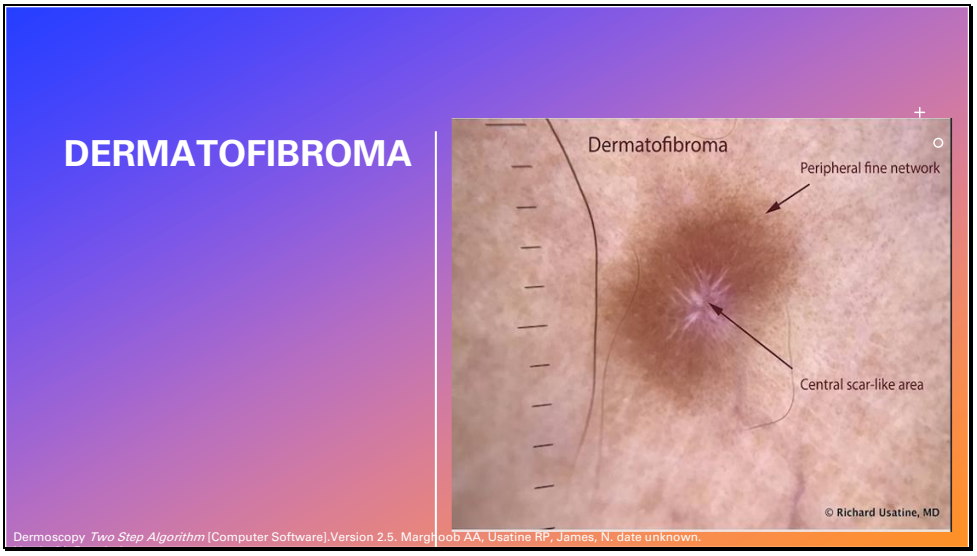
DERMATOFIBROMA
Dermatofibroma
Peripheral fine network
Central scar-like area
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CASE #2
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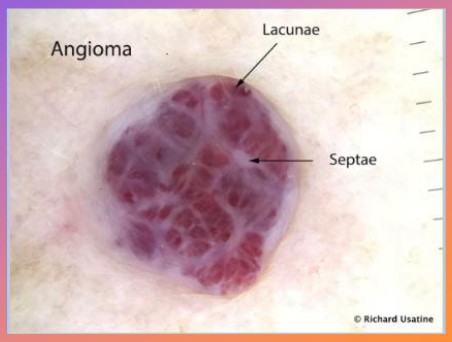
ANGIOMA



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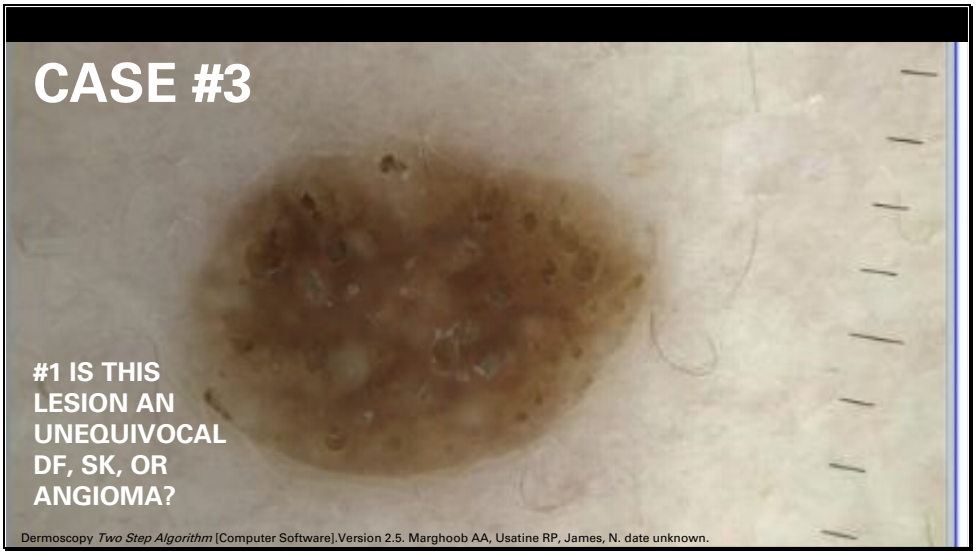
Slide 30


CASE #3
#1 IS THIS LESION AN UNEQUIVOCAL DF, SK, OR ANGIOMA?
Dermoscopy *Two Step Algorithm* [Computer Software].Version 2.5. Marghoob AA, Usatine RP, James, N. date unknown.

Slide 31

SEBORRHEIC KERATOSIS

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Slide 32


CASE #4
CM
1
2
Dermoscopy *Two Step Algorithm* [Computer Software].Version 2.5. Marghoob AA, Usatine RP, James, N. date unknown. Used with Permission.
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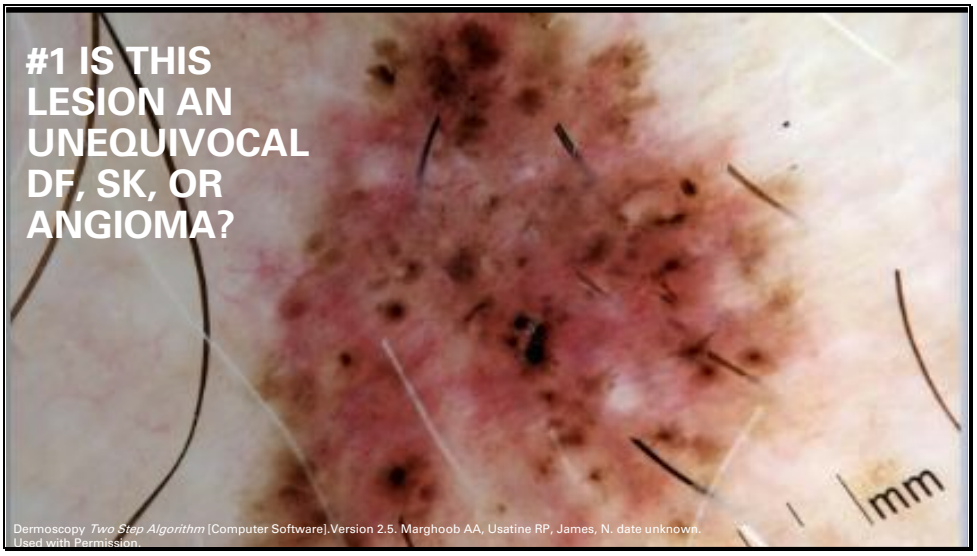

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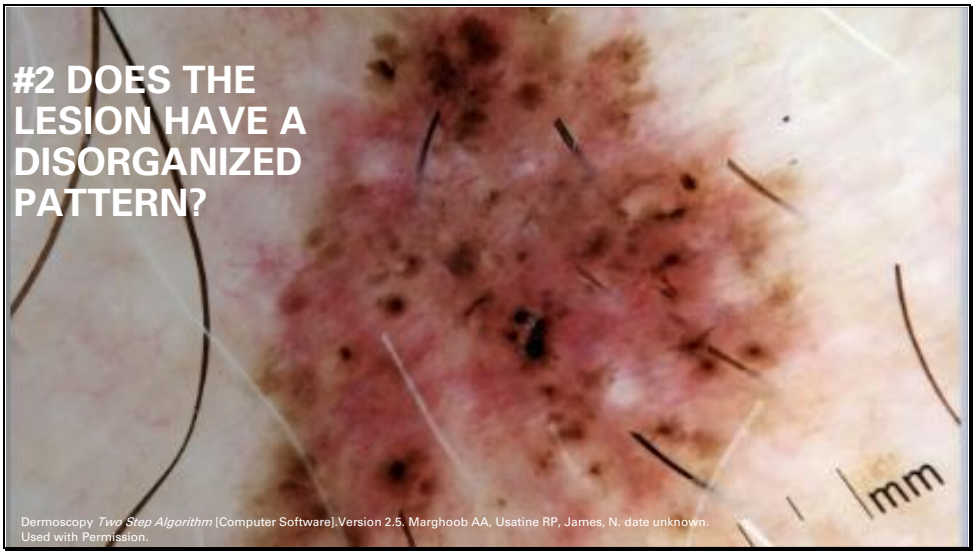
Slide 34



Dermoscopy *Two Step Algorithm* [Computer Software].Version 2.5. Marghoob AA, Usatine RP, James, N. date unknown. Used with Permission.

Slide 35

BASAL CELL CARCINOMA

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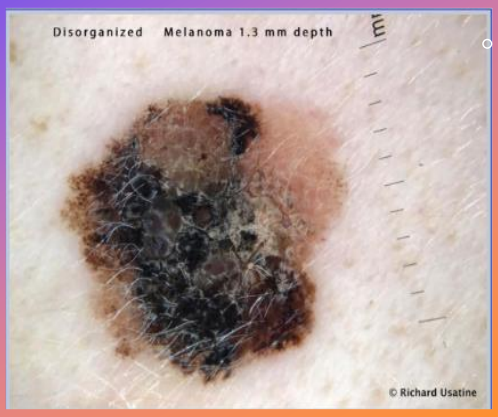
Dermoscopy *Two Step Algorithm* [Computer Software].Version 2.5. Marghoob AA, Usatine RP, James, N. date unknown. Used with Permission.

Slide 39

MELANOMA



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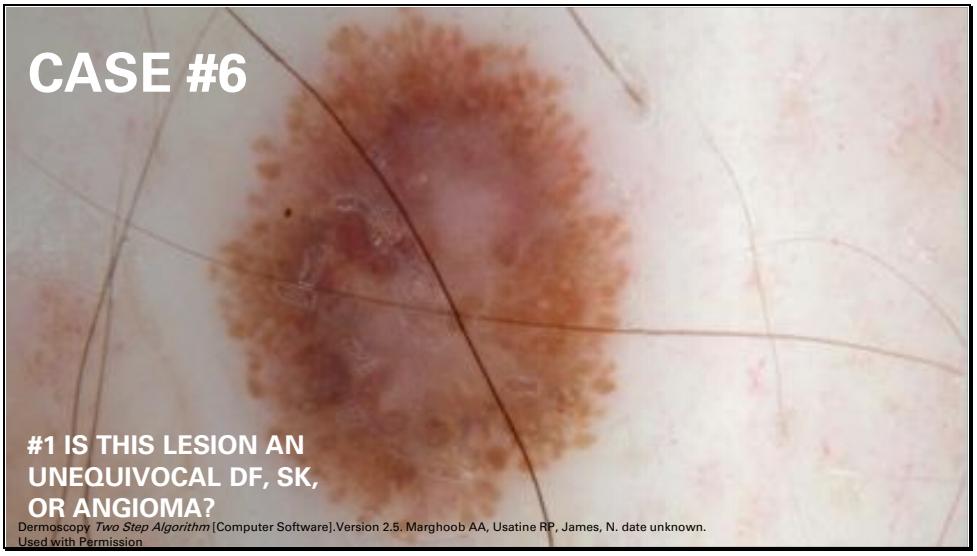

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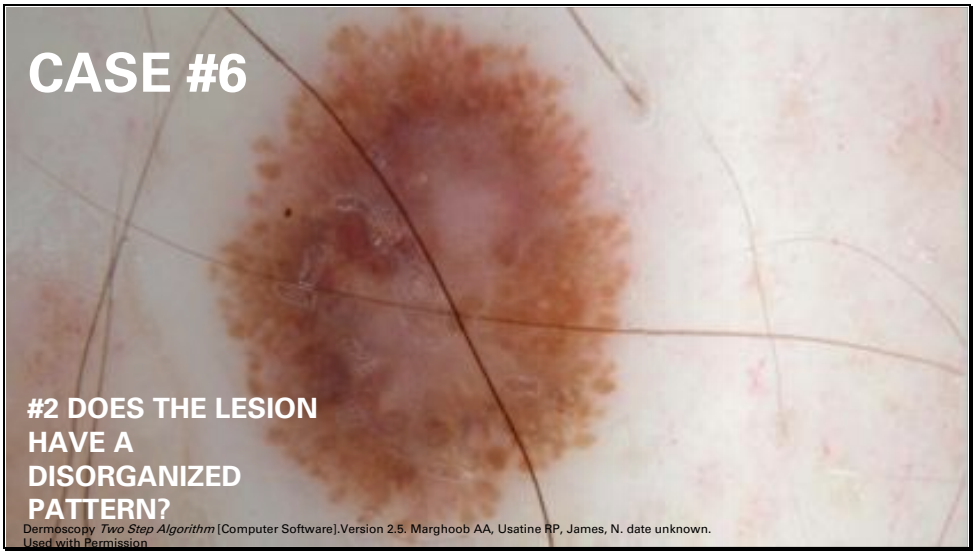

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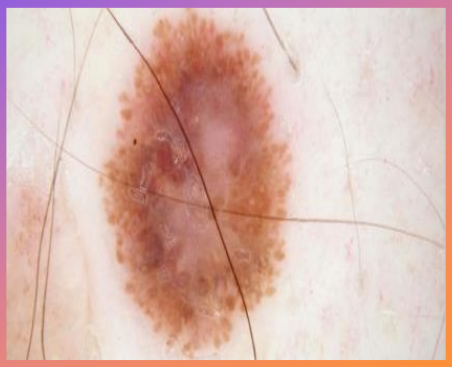
MELANOMA



Dermoscopy *Two Step Algorithm* [Computer Software].Version 2.5. Marghoob AA, Usatine RP, James, N. date unknown. Used with Permission

Slide 43


CASE #7
#1 IS THIS LESION AN UNEQUIVOCAL DF, SK, OR ANGIOMA?
Dermoscopy *Two Step Algorithm* [Computer Software].Version 2.5. Marghoob AA, Usatine RP, James, N. date unknown.
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Slide 44


CASE #7
#2 DOES THE LESION HAVE A DISORGANIZED PATTERN?
Dermoscopy *Two Step Algorithm* [Computer Software].Version 2.5. Marghoob AA, Usatine RP, James, N. date unknown.
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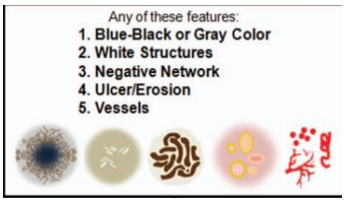
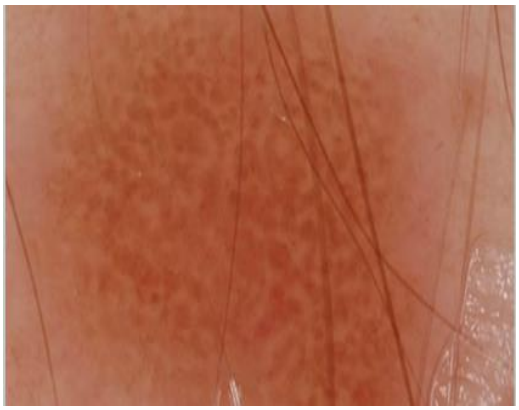
Slide 45

Case #7

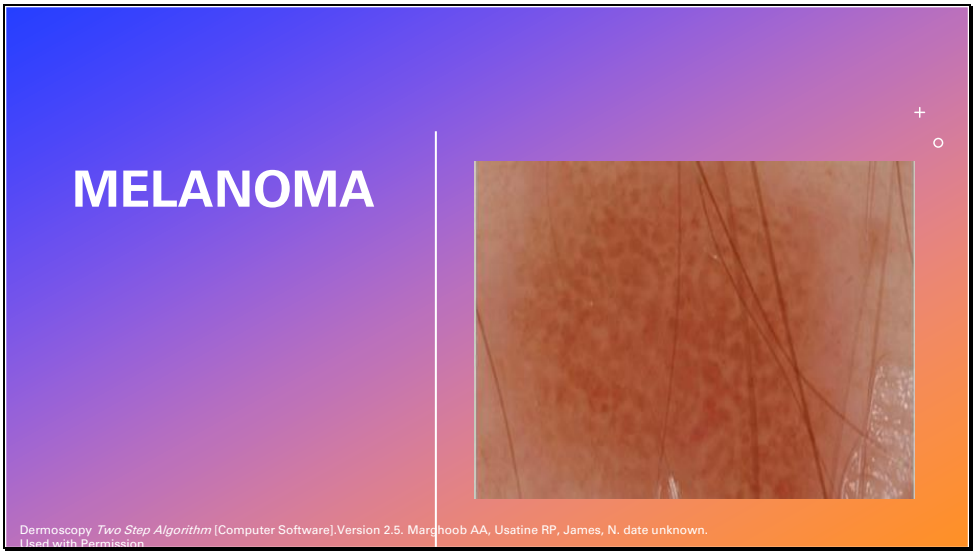
- **#3 DOES LESION HAVE AN ABNORMAL QUALITY?**





Dermoscopy *Two Step Algorithm* [Computer Software].Version 2.5. Marghoob AA, Usatine RP, James, N. date unknown. Used with Permission.

Slide 46


MELANOMA
Dermoscopy *Two Step Algorithm* [Computer Software].Version 2.5. Marghoob AA, Usatine RP, James, N. date unknown.
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Slide 47


CASE #8
Dermoscopy *Two Step Algorithm* [Computer Software]. Version 2.5. Marghoob AA, Usatine RP, James, N. date unknown.
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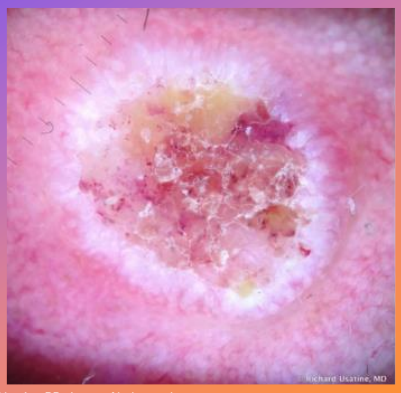
Slide 48

#1 IS THIS LESION AN UNEQUIVOCAL DF, SK, OR ANGIOMA?



Dermoscopy *Two Step Algorithm* [Computer Software].Version 2.5. Marghoob AA, Usatine RP, James, N. date unknown.
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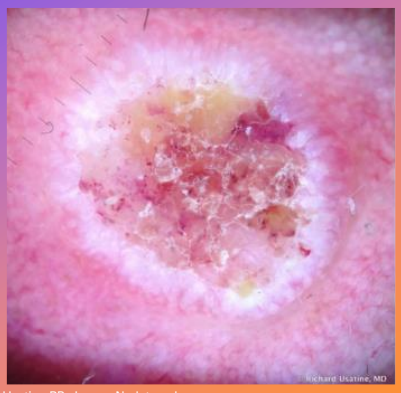
Slide 49

#2 DOES THE LESION HAVE A DISORGANIZED PATTERN?



Dermoscopy *Two Step Algorithm* [Computer Software].Version 2.5. Marghoob AA, Usatine RP, James, N. date unknown.
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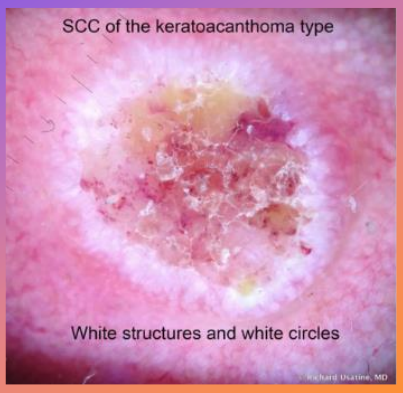
Slide 50

#3 DOES LESION HAVE AN ABNORMAL QUALITY?



Dermoscopy *Two Step Algorithm* [Computer Software].Version 2.5. Marghoob AA, Usatine RP, James, N. date unknown.
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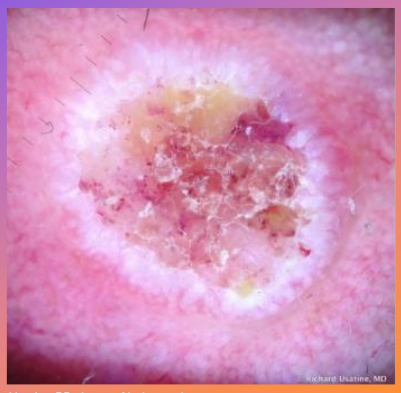
SQUAMOUS CELL CARCINOMA



Dermoscopy *Two Step Algorithm* [Computer Software].Version 2.5. Marghoob AA, Usatine RP, James, N. date unknown.
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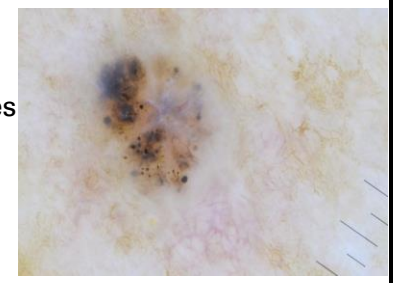
Dermatoscope Exam: Basal Cell Carcinoma

- Arborizing blood vessels
- Brown or blue-gray leaflike structures
- Blue-gray ovoid nests or globules
- Shiny white patches
- Ulceration
- Spoke wheel like structures



From Ash Marghoob, Natalia Jaimes. Basal cell carcinoma. Dermoscopedia. June 8, 2019, 12:10 UTC. Available at: https://dermoscopedia.org/w/index.php?title=Basal_cell_carcinoma&oldid=16531. Accessed January 2, 2024. From Dermoscopedia with permission.

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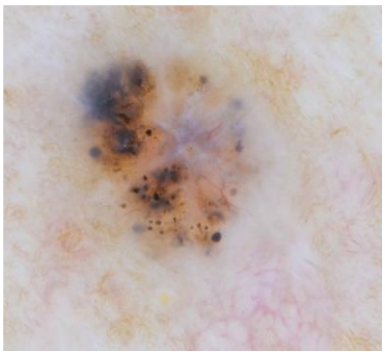
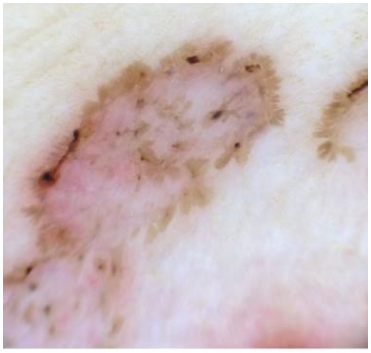
Dermatoscope Exam: Basal Cell Carcinoma





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Dermatoscope Exam: Actinic Keratosis

- Strawberry pattern of erythema surrounding hair follicle that is red-pink
- Wavy blood vessels
- Yellow scale
- Rosette sign: nonspecific white 4-leaf clover-shaped lesion

From Ralph Braun. Strawberry pattern. Dermoscopedia. May 24, 2019, 16:34 UTC. Available at: https://dermoscopedia.org/w/index.php?title=Strawberry_pattern&oldid=16190. Accessed January 2, 2024. From Dermoscopedia with permission.)

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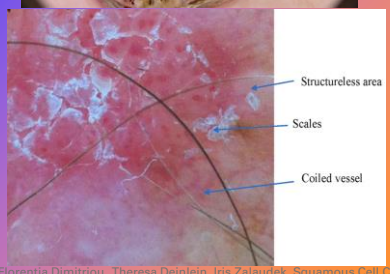

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Dermatoscope Exam: Squamous Cell Carcinoma

- Yellow-white to light brown structureless areas.
- Keratotic plugs over follicular openings.
- Uniform looped, pinpoint, or serpentine vessels
- Ulceration
- Hairpin and serpentine vessels

From Florentia Dimitriou, Theresa Deinlein, Iris Zalaudek. Bowen's disease. Dermoscopedia. June 8, 2019, 11:23 UTC. Available at: https://dermoscopedia.org/w/index.php?title=Bowen%27s_disease&oldid=16542. Accessed January 2, 2024. From Dermoscopedia with permission.

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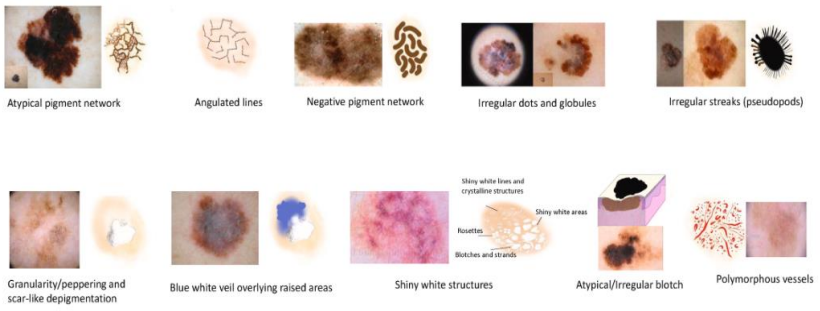
Dermatoscope Exam: Melanoma



Adapted from Ralph Braun, Katrin Kerl. Dermoscopic structures. Dermoscopedia. June 9, 2019, 12:38 UTC. Available at: https://dermoscopedia.org/w/index.php?title=Dermoscopic_structures&oldid=16549 . Accessed January 2, 2024. From Dermoscopedia with permission.

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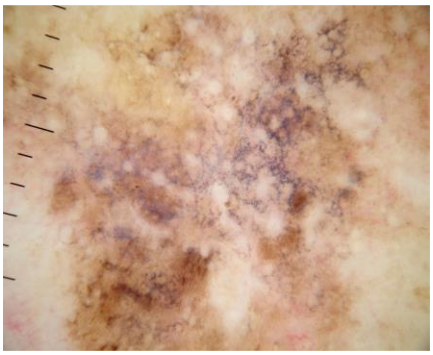
What is the diagnostic melanoma feature(s)?



From Ralph Braun, Katrin Kerl. Dermoscopic structures. Dermoscopedia. June 9, 2019, 12:38 UTC. Available at: https://dermoscopedia.org/w/index.php?title=Dermoscopic_structures&oldid=16549. Accessed January 2, 2024. From Dermoscopedia with permission.

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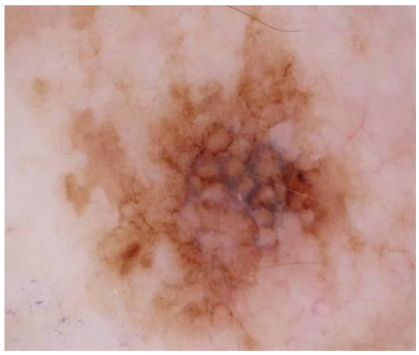
What is the diagnostic melanoma feature(s)?



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Conclusion

- Overall, dermoscopy has been shown to be effective in increasing diagnostic accuracy
- Lack of training is often cited as a barrier to dermatoscope utilization so hopefully today helped!
- I hope you feel more comfortable with dermoscopy and diagnosing skin lesions!!

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