

Dermoscopy in Family Medicine

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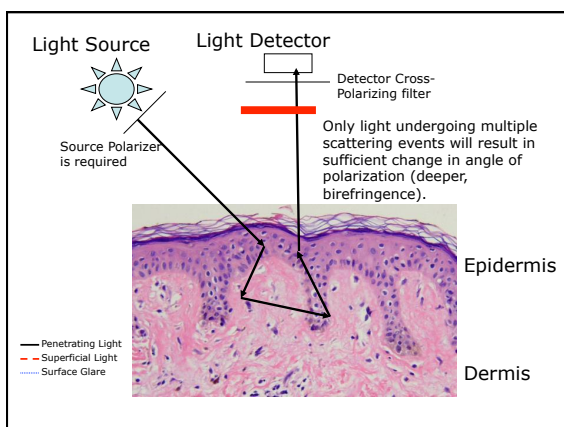
Richard Usatine, M.D.

Goal - Increase the use of dermoscopy throughout FM

- Seminar objectives:
 - Introduce dermoscopy as a method for dermatologic diagnosis
 - Teach methods to identify melanoma using dermoscopy
 - Introduce other methods to identify additional skin conditions
 - Provide resources for learning dermoscopy

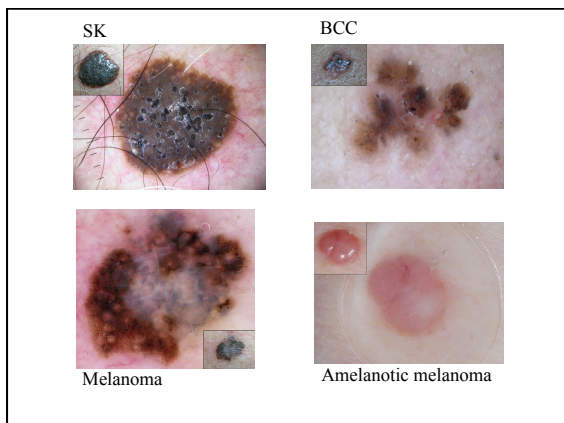
Dermoscopy: Definition

- Use of handheld light-source with magnification to examine surface and **subsurface** morphology of cutaneous lesions
 - Correlates with histology



Why Use Dermoscopy?

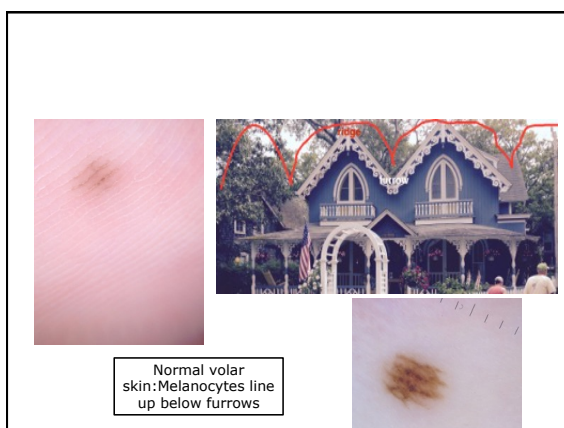
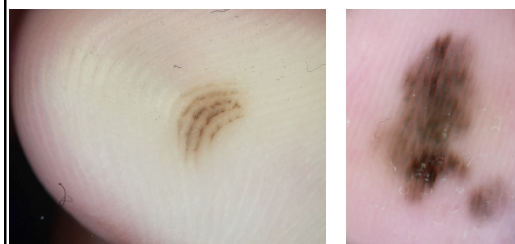
- Advantages
 - Aids in diagnosis of skin cancer and other skin conditions
 - Increases sensitivity and specificity of skin cancer diagnoses
 - Allows digital surveillance and monitoring of patients with many nevi
 - Enhances confidence in clinical diagnosis
 - Reassures patients and physicians
 - Lowers total cost of lesion management by improving accuracy of diagnoses, smarter biopsies



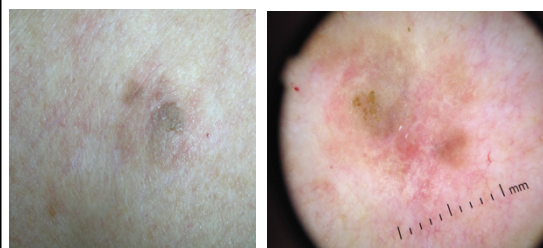
- Parallel pattern (volar skin = palms/soles)

Benign – furrows

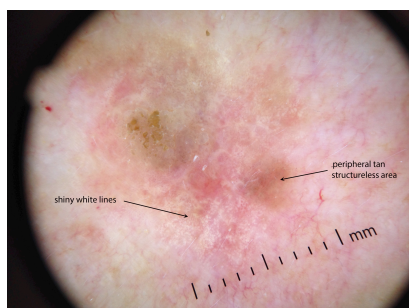
Melanoma - ridges



How dermoscopy helps



Dermoscopic features of melanoma



Research evidence

- Higher diagnostic odds ratio for melanoma of 4.7 (49%) and 3.7 (56%) and 15.6
 - Kittle H, et al. Lancet Oncol 2002;3:159-65
 - Safouni ML, et al. Arch Dermatol 2001;137:1343-50.
 - Vestergaard M, et al. Br J Dermatol 2008;159:669-76
- Reduce benign to malignant excision ratio from 18:1 to 4:1 (Carli P, et al. Br J Dermatol 2004;150:687-92.)
- Reduced rate among PCPs for benign pigmented lesions excised or **referred** by 42% (Carli P, et al. J Am Acad Dermatol 2004; 150:687-92)
- Sensitivity for diagnosing melanoma 38% naked eye vs. 72% with dermoscopy (Menzies SW, et al. Br J Dermatol 2009; 161: 1270-7)

Dermoscope features

10x magnification

Polarized: Non-contact OK

- Pigment/lesion characteristics without light reflection, deeper penetration into dermis

Non polarized view: Must use contact

- Fluid interface: Alcohol or U/S gel
- Surface structures seen best
- Best approach is to have hybrid scope so both views can be used.

Benign or Bad

- Benign or biopsy
- Need to know characteristics of benign and malignant lesions by some method

Methods of Learning Dermoscopy

- Three Point Checklist
- Two-Step Algorithm
- TADA
- Chaos and Clues
- Elephant Method (Pure Pattern Recognition)

Learning

- Learning DERMOSCOPY requires learning a new set of terminology and recognizing new structures.
- While there are many algorithms that one starts with, the goal is for immediate pattern recognition.

Three point checklist to diagnose high risk pigmented lesions

- **Asymmetry in color** and or structures in one or two perpendicular axes
- **Atypical network**: pigmented network with irregular holes and thick lines
- **Blue-White structures**: white scar-like depigmentation and/or blue pepper-like, globular or structure-less areas
- **2 out of 3, 3 out of 3 excise/refer**

Three-point checklist

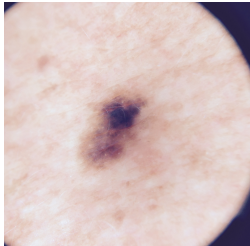
- Soyer HP, Argenziano G, Zalaudek I, Corona R, Sera F, Talamini R, Barbato F, Baroni A, Cicale L, Di Stefani A, Farro P, Rossiello L, Ruocco E, Chimenti S.
- Three-point checklist of dermoscopy. A new screening method for early detection of melanoma. *Dermatology*. 2004;208(1):27-31.

Symmetry

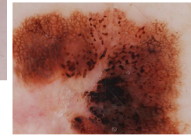
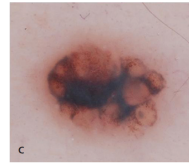
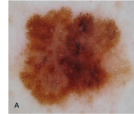
symmetric



asymmetric

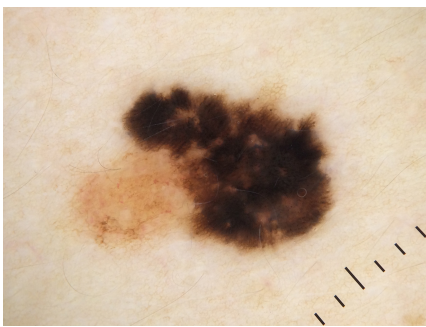


Asymmetry of color and/or structure

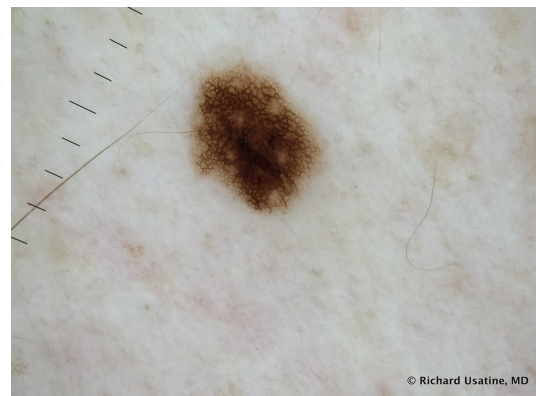


Marghoob, Usatine, Jaiques. AFP 2013;88(7): 441-50

asymmetry

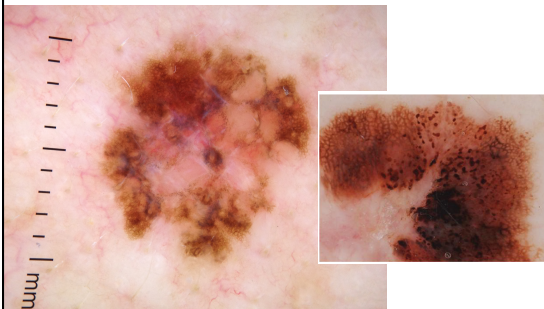


Regular pigment network

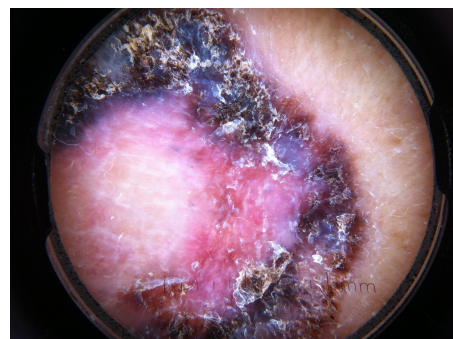


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Irregular pigment network



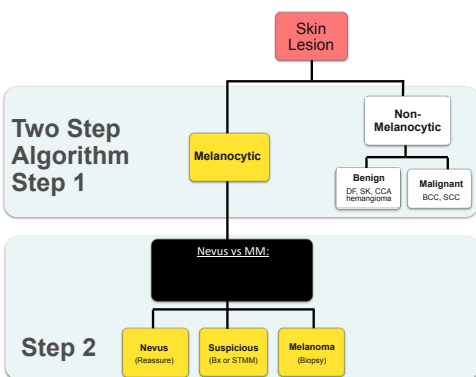
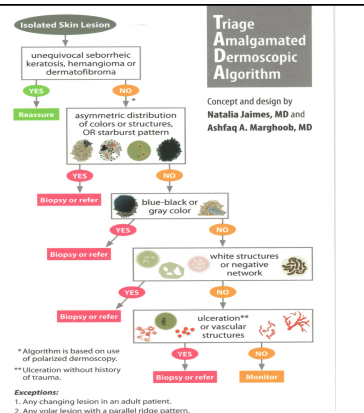
Blue-white structures



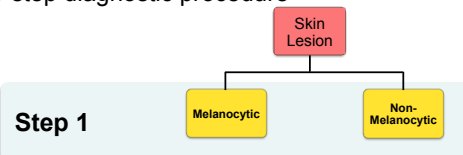
3 Point checklist

- In one study 150 participants looked at photographs of 165 lesions:
 - sensitivity 91%
 - novice sensitivity 87%
 - sensitivity for melanoma 94%
 - overall specificity 79%
- Zalaudek I, Argenziano G, DERMOSCOPY WORKING GROUP.. Three-point checklist of dermoscopy: an open internet study. Br J Dermatol. 2006 Mar;154(3):431-7.

TADA



Two-step diagnostic procedure



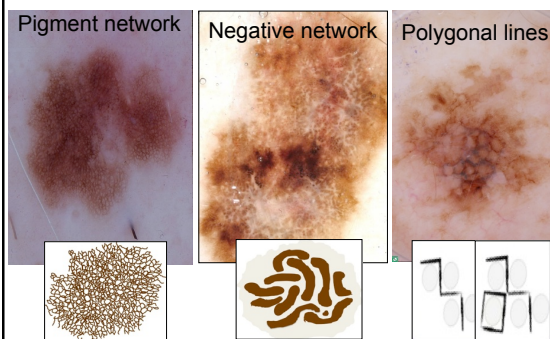
Step 1: Is the lesion a melanocytic tumor?

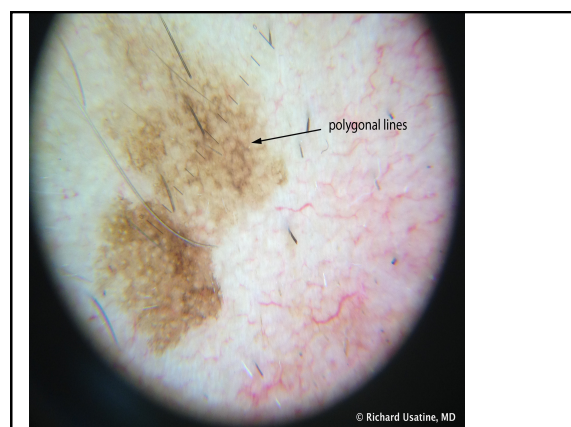
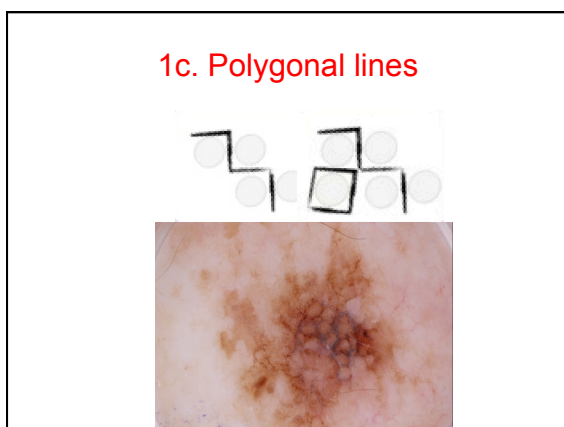
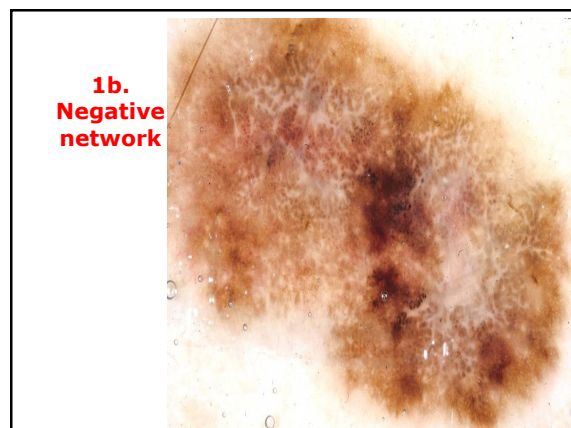
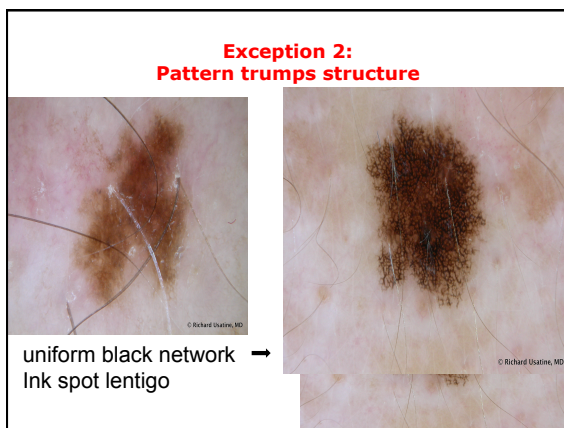
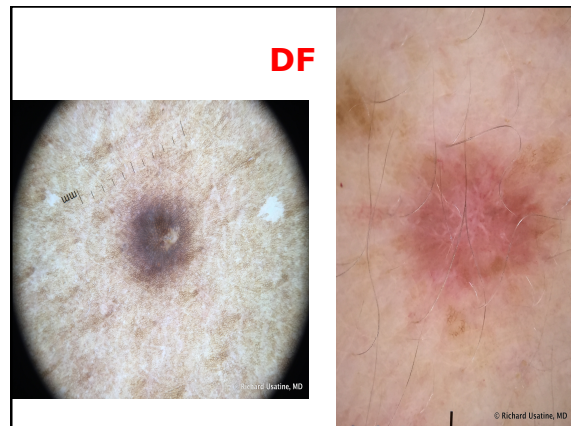
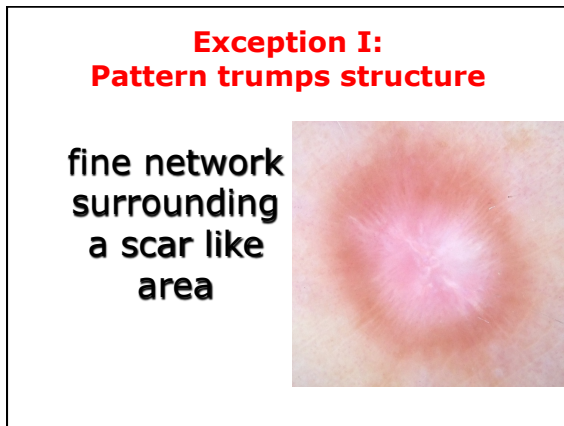
I (any location)

Clues to the presence of a significant number of melanocytes are: (enough to make it a melanocytic tumor)

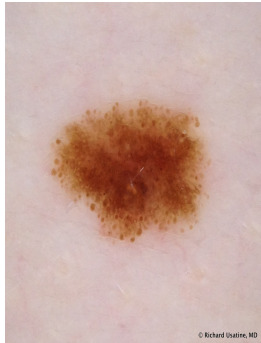
1. Network
2. Aggregated or peripheral rim of globules
3. Streaks
4. Homogeneous blue pigment

1. Network

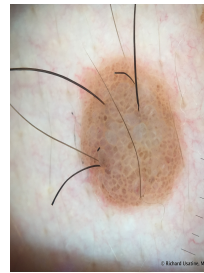




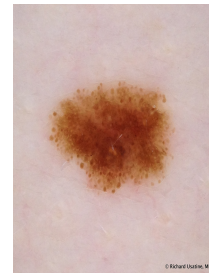
2. Aggregated (3-5, brown) globules



2. Globules



Diffuse



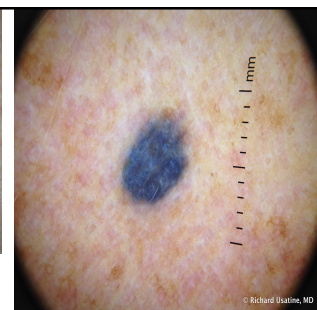
Peripheral rim



3. Streaks

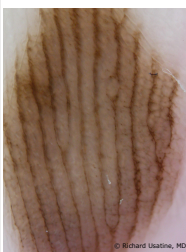


Blue nevus

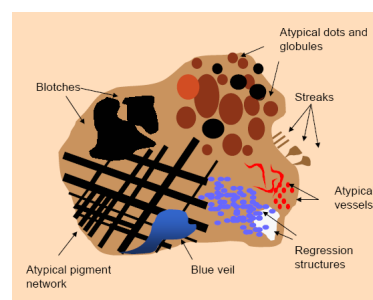


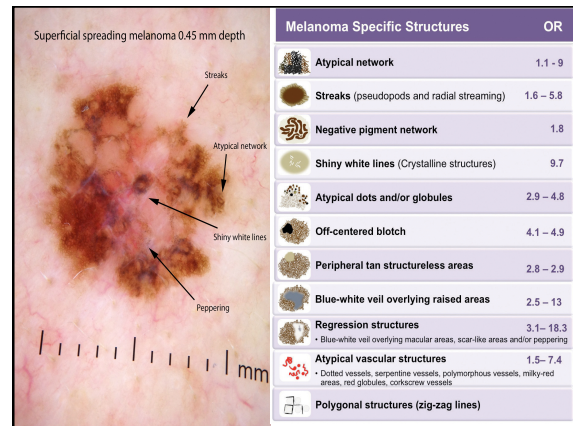
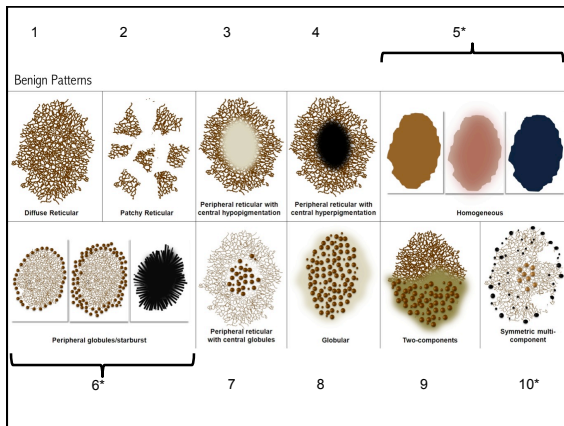
4. Homogeneous blue pigmentation

Parallel pattern (acral)



Nevus vs. Melanoma

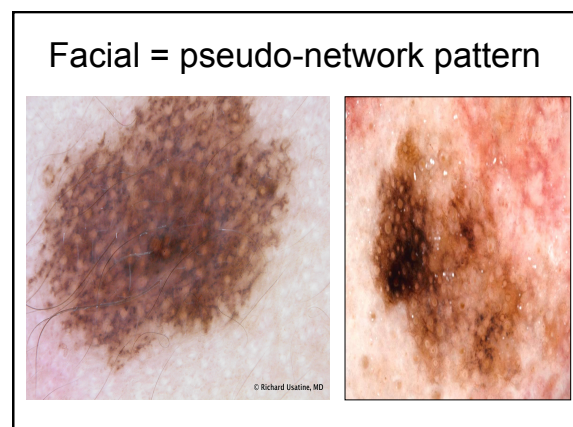
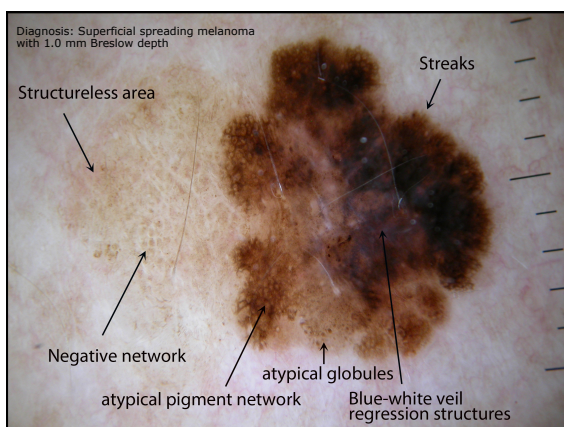


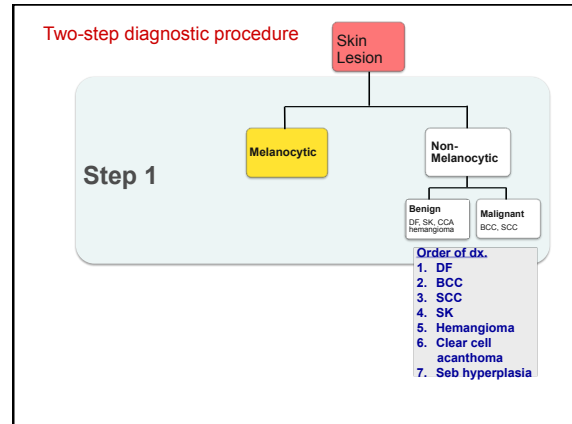
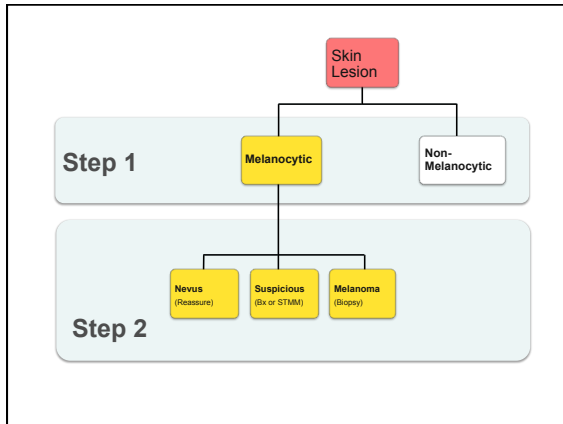


Melanoma

- ✓ Usually deviates from global benign patterns (chaos)
- ✓ Usually has at least one of the melanoma specific features (clues)

Melanoma Specific Structures	OR
Atypical network	1.1 - 9
Streaks (pseudopods and radial streaming)	1.6 - 5.8
Negative pigment network	1.8
Shiny white lines (Crystalline structures)	9.7
Atypical dots and/or globules	2.9 - 4.8
Off-centered blotch	4.1 - 4.9
Peripheral tan structureless areas	2.8 - 2.9
Blue-white veil overlying raised areas	2.5 - 13
Regression structures	3.1 - 18.3
Atypical vascular structures	1.5 - 7.4
Polygonal structures (zig-zag lines)	





1. Dermatofibroma

Delicate network		
Central scar-like/crystalline		
Ring-like globules		
Vessels / blush in center		

2. BCC

Positive features (At least one present):

Large grey-blue ovoid nests		
Multiple grey-blue globules		
Leaflike areas		
Spoke wheel areas		
Arborizing "tree-like" telangiectasia		
Ulceration		

Non pigmented BCC

BCC	
Recurrent BCC/SCAR	

3. SCC

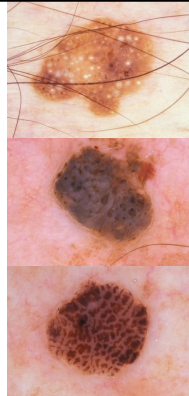
Focally scaly/keratotic and rough

Glomerular vessels <i>focally present at periphery</i>		
Hairpin vessels <i>usually with a white halo</i>		
Keratin pearls & white circles		
Rosettes (strawberry pattern)		
Brown dots/globules aligned in a linear fashion at the periphery		

NB: Pigmented AK can also have structures seen in LMM!

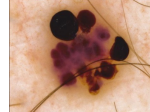
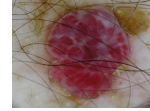
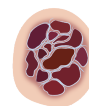
4. SK

- Milia-like cyst
- Comedo-like opening
- Fissures & ridges (gyri & sulci)
- Fingerprint-like
- Hairpin vessels
- Moth-eaten borders

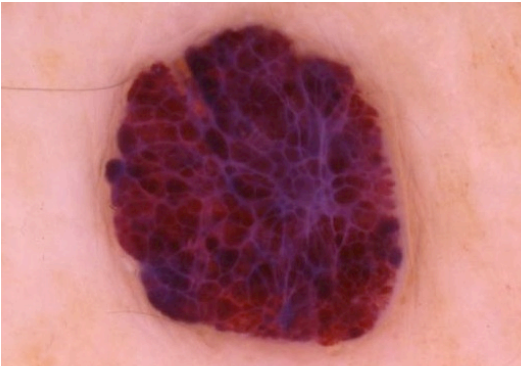


4. Vascular lesion

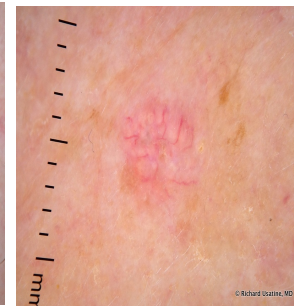
Lacunae separated by BWV septae
red
maroon
blue
black
clear



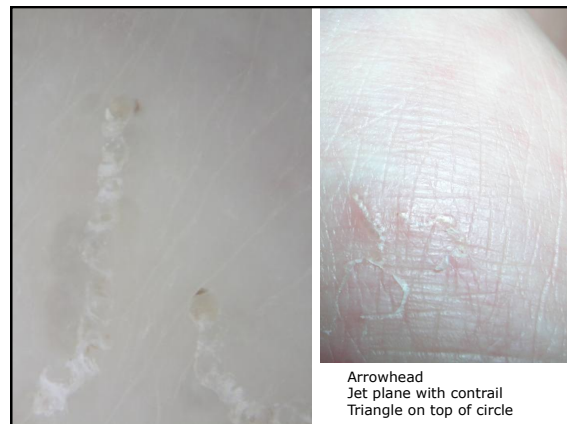
Lacunae in hemangioma



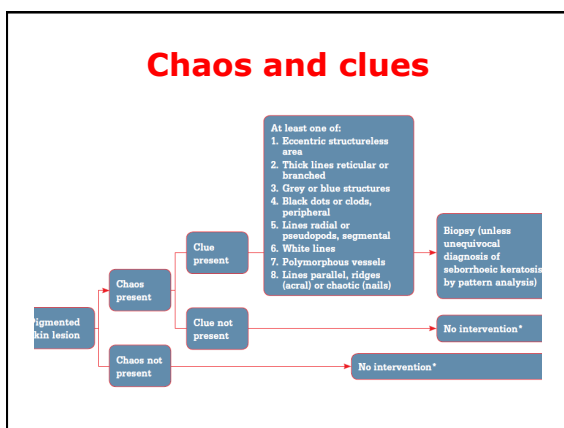
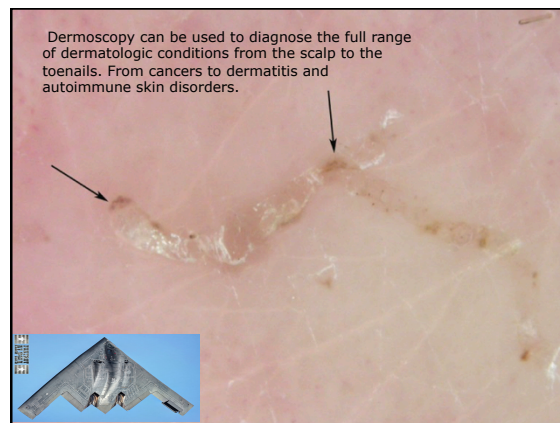
5. Clear cell acanthoma and 6. sebaceous hyperplasia



Young woman with pruritic eruption



Arrowhead
 Jet plane with contrail
 Triangle on top of circle



Dermoscopy Resources

- Dermoscopy. Website from Italy that includes a free dermoscopy tutorial— <http://www.dermoscopy.org/>
- International Dermoscopy Society, <http://www.dermoscopy-ids.org/>
- Johr R, Stolz W. Dermoscopy: An Illustrated Self-Assessment Guide. New York, NY: McGraw-Hill; 2nd edition
- Marghoob AA, Usatine RP, Jaimes N. Dermoscopy for the family physician. Am Fam Physician. 2013 Oct 1;88(7):441-50.
- www.dermnetnz.org
- www.dermoscopyatlas.com
- Atlas of Dermoscopy, Marghoob
- Dermoscopy the Essentials, Soyer
- <https://isic-archive.com/#images> - over 12K images in public domain that are labeled and can be used for teaching and learning

Electronic teaching options

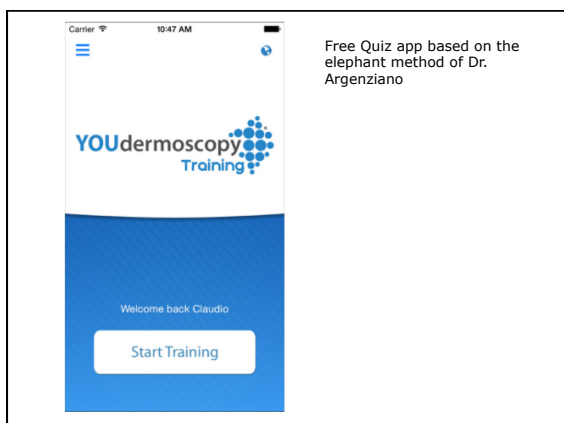
- Videos on dermlite.com website: Under "Resources", click on "Videos". Dr. Usatine's "Watch and Learn: Dermoscopy" gives a introduction to dermoscopy, and the Maui Derm series highlights the 2-Step Algorithm.
- "Dermoscopy Made Simple" videos on YouTube provide an overview of the Chaos and Clues system.

DERMOSCOPY TWO STEP ALGORITHM

Includes:

- Two step algorithm
- All Charts
- 50 Unknown cases
- Many images

dermlite[®] Usatine[®]



Dermoscopy Courses

Short:

- American Academy of Family Physicians (AAFP) yearly fall FMX offers three 3 hour dermoscopy workshops: <http://www.aafp.org/>
- AAFP Skin Course yearly offers a three hour Dermoscopy workshop within four days of concentrated dermatology learning

Longer:

- One day - Vancouver November 20, 2017 www.stpaulscme.org
- Two day - Manhattan every fall
- Three day - National Park every summer

