Introduction to Dermoscopy
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Overview

• What is dermoscopy
• Brief history
• Types of dermoscopy
• General approach to lesion of interest
  • 2 step algorithm
  • 3-point checklist
• Practice
• Conclusions
What is Dermoscopy

• Non-invasive diagnostic technique for the in-vivo observation of pigmented skin lesions.

• Permits the recognition of morphologic structures not visible by the naked eye.
1663: J. C. Kohlhaus: First observation of vessels of nail matrix with a microscope.

1893 - G. Unna: For the first time the term “Diaskopie” is used when studying a case of lupus vulgaris with a drop of immersion oil and a glass-slide.

1920 - I. Saphier: The term “Dermatoskopie” is coined and capillaries of normal and pathologic skin are studied for the first time.

1951 - L. Goldman: Analysis of nevi and melanomas using different monocular epiluminescence tools.

1958 - L. Goldman: The first portable dermatoscope is produced.

1981 - P. Fritsch and R. Pechlaner: Benign and malignant skin lesions are differentiated on the basis of various pigment network features.

1989 - H.P. Soyer et al.: Dermoscopic criteria are correlated with underlying histopathologic structures.

Type of Dermoscopy

- Non-polarized light
  - Requires liquid interface
  - Requires contact w/ skin
- Polarized light
  - Non-contact
  - Contact
Differences: NPD & PD

- Colors
- Sharper w/ NPD
- Brown/Blue darker w/ PD
- Reds better seen w/ PD
Differences: NPD & PD

- Structures
- Vasculature better seen with PNCD
- Milia-like cysts (horn cysts) better with NPD
Differences: NPD & PD

- Features
  - Vessel shape better w/ PNCD
  - “Pepperling” better w/ NPD
Your Dermatoscope
Technique

• Interface fluid (mineral oil, water, alcohol)
• Roll contact plate
• Eye close to eye piece
• Adjust focusing ring
Approach to Pigmented Lesions

- 2 Step Algorithm
  1. Melanocytic vs. Non-melanocytic
  2. Benign vs. Malignant
Step 1: Melanocytic vs. Non-Melanocytic

- Features of melanocytic lesions?
- Pigment network
Reticular Network
Dermatofibroma
Step 1: Melanocytic vs. Non-Melanocytic

- Features of melanocytic lesions?
  - Pigment network
  - Aggregated globules
Step 1: Melanocytic vs. Non-Melanocytic

• Features of melanocytic lesions?
• Pigment network
• Aggregated globules
• Branched streaks
Branched Streaks
Step 1: Melanocytic vs. Non-Melanocytic

- Features of melanocytic lesions?
  - Pigment network
  - Aggregated globules
  - Branched streaks
  - Homogenized blue
Homogenous Blue
Step 1: Melanocytic vs. Non-Melanocytic

• Features of melanocytic lesions?
  • Pigment network
  • Aggregated globules
  • Branched streaks
  • Homogenized blue
  • Parallel pattern (acral)
Parallel Pattern
Step 1: Melanocytic vs. Non-Melanocytic

- Features of seborrheic keratosis?
- Milia-like cysts
Milia-Like Cysts
Step 1: Melanocytic vs. Non-Melanocytic

• Features of seborrheic keratosis?
  • Milia-like cysts
  • Comedo-like openings
Comedo-like Openings
Step 1: Melanocytic vs. Non-Melanocytic

- Features of seborrheic keratosis?
  - Milia-like cysts
  - Comedo-like openings
  - Fissures/ridges
Fissures/Ridges
Step 1: Melanocytic vs. Non-Melanocytic

• Features of seborrheic keratosis?
  • Milia-like cysts
  • Comedo-like openings
  • Fissures/ridges
  • Light brown fingerprint-like structures
Fingerprint-like Structures
Step 1: Melanocytic vs. Non-Melanocytic

Features of Basal Cell Carcinoma?

- Absent pigment network & one of the following:
  - Arborizing vessels
Arborizing Vessels
Step 1: Melanocytic vs. Non-Melanocytic

• Features of Basal Cell Carcinoma?
• Absent pigment network & one of the following:
  • Arborizing vessels
  • Leaf-like structures
Leaf-like Structures
Leaf-like Structures
Step 1: Melanocytic vs. Non-Melanocytic

- Features of Basal Cell Carcinoma?
  - Absent pigment network & one of the following:
    - Arborizing vessels
    - Leaf-like structures
    - Large blue-grey ovoid nests
Blue-grey Ovoid Nests
Step 1: Melanocytic vs. Non-Melanocytic

- Features of Basal Cell Carcinoma?
  - Absent pigment network & one of the following:
    - Arborizing vessels
    - Leaf-like structures
    - Large blue-grey ovoid nests
Multiple Blue-grey Globules
Multiple Blue-grey Globules
Step 1: Melanocytic vs. Non-Melanocytic

• Features of Basal Cell Carcinoma?
  • Absent pigment network & one of the following:
    • Arborizing vessels
    • Leaf-like structures
    • Large blue-grey ovoid nests
    • Multiple blue-grey globules
    • Spoke wheel areas
Spoke-wheel Areas
Spoke-wheel Areas
Step 1: Melanocytic vs. Non-Melanocytic

- Features of Basal Cell Carcinoma?
  - Absent pigment network & one of the following:
    - Arborizing vessels
    - Leaf-like structures
    - Large blue-grey ovoid nests
    - Multiple blue-grey globules
    - Spoke wheel areas
    - Ulceration (exception: can be seen in melanoma)
Ulceration
Step 1: Melanocytic vs. Non-Melanocytic

- Features of vascular lesion?
- Red-blue lacunae
Red-Blue Lacunae
Step 1: Melanocytic vs. Non-Melanocytic

- Features of vascular lesion?
  - Red-blue lacunae
  - Red-blue to blue-black homogenous areas
Red-black Homogenous Areas
Step 1: Melanocytic vs. Non-Melanocytic

• None of the aforementioned criteria? = Melanocytic
Step 2: Benign vs. Malignant Melanocytic Lesion?

- Several algorithms
- 3-point checklist*
- Pattern Analysis
- Menzies
- ABCD
- 7-point checklist
3-point Checklist

• Distinguish malignant from benign
• Screening tool
• Novice dermoscopists
3-point Checklist

- Asymmetry
- Color & Structure
- Atypical network
- Blue-white structures
Pattern Analysis

• Complex
• Requires practice
• More advanced
Pattern Analysis

- 5 Global Patterns for melanocytic nevi
- 5 Patterns for Acral melanocytic nevi
- 5 Melanoma-specific local criteria
- 5 Site-specific melanoma-specific criteria
- 6 Criteria for non-melanocytic lesions
5 Patterns of Acral Melanocytic Nevi

• Parallel Furrow
Parallel Furrow
5 Patterns of Acral Melanocytic Nevi

- Parallel Furrow
- Lattice-like
Lattice-like
5 Patterns of Acral Melanocytic Nevi

- Parallel Furrow
- Lattice-like
- Fibrillar
Fibrillar
5 Patterns of Acral Melanocytic Nevi

• Parallel Furrow
• Lattice-like
• Fibrillar
• Parallel Ridge
Parallel Ridge
5 Patterns of Acral Melanocytic Nevi

- Parallel Furrow
- Lattice-like
- Fibrillar
- Parallel Ridge
- Non-specific
Practice!
Conclusions

• Dermoscopy is well entrenched
• Practice is required to improve
• 3-point checklist is easy to implement
Resources

- www.dermoscopy.org
- Advanced Course Next Year?