Malignant non-melanocytic lesions

Course C023: Fundamentals of Dermoscopy
March 4, 2019, 11:20 AM - 11:50 PM
Room: 146B

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DISCLOSURE OF RELATIONSHIPS WITH INDUSTRY

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DISCLOSURES
I do not have any relevant relationships with industry.
Malignant Non-Melanocytic Lesions

1. Basal-cell carcinoma
   non-pigmented & pigmented

2. Solar (Actinic) Keratosis
   non-pigmented & pigmented

3. Squamous-cell carcinoma in-situ (Bowen’s disease)

4. Keratoacanthoma/Squamous-cell carcinoma
Basal-Cell Carcinoma (BCC)

ONE OF THE MOST USEFUL APPLICATION OF DERMATOSCOPY!
Non-Pigmented Basal-Cell Carcinoma

Dermatoscopic features

✓ (semi) translucency
✓ white structures (crystalline, rosette, dot, strand, blotch)
✓ prominent vessels
  • arborizing vessels
  • short fine vessels
✓ shallow ulcers
✓ white to pink to reddish background

= Non-Pigmented Basal-Cell Carcinoma
Nodular Basal-Cell Carcinoma

- (Semi)-translucency more prominent
- Larger caliber vessel
Nodular Basal-Cell Carcinoma
telangiectasia
ulceration
translucency
white streaks
pink to reddish background
Nodular BCC
Nodular BCC
Nodular BCC
Though crystalline structures are the best known white structure associated with BCC, other white structures are also observed.
Nodular BCC
Nodular BCC
BCC
- change in vascular pattern from the background vasculature
- change is skin color, appearing semi-translucent
Superficial Basal-Cell Carcinoma

- (Semi)-translucency less prominent
- Smaller caliber vessel
- White structures more prominent
  - White streaks—crystalline structures
  - White rosettes (clover)
  - White dots
  - White structureless areas/blotches
Superficial BCC

- Crystalline structures
  - orthogonal bright white streaks
  - visualized under *polarized* dermatoscopy
- Small vessels
- Small ulcerations
- Pink red background
Superficial BCC

ulceration

white streaks
Superficial BCC
Superficial BCC
• No dermatoscopic structures are pathognomonic.

• Dermatoscopic structures need to be interpreted in the context of the patient.
  • Given the dermatoscopic findings associated with BCC, the pretest probability of BCC is much higher in patients with significant photodamage, history of skin cancer, Fitzpatrick skin phototype I & II, etc.
Dermatoscopic simulators of BCC

- Adnexal neoplasms
- Lichen planus-like keratosis
- Scar
- Dermatofibroma
- Melanocytic nevus

- Solar (actinic) keratosis
- Melanocytic nevus
- Melanoma
- Hemangioma
- Ruptured cyst/folliculitis
BCC

Palisaded Encapsulated Neuroma
Scar

- prominent vascularity
- pink white background
In non-referral centers, it's impact on non-melanocytic lesions was more dramatic

Sensitivity for non-melanocytic lesions

- 98.6% for basal cell carcinoma
- 86.5% for pigmented squamous cell cancer
- 79.3% melanoma
- 10% LPLK (90.5% false+)

Lichen Planus-Like Keratosis (LPLK)

Dermatoscopic findings

- Pigmented granules
- Variable pink to light brown background color
- Look for remnant of a solar lentigo
- Lacks ulcer and characteristic BCC vascular pattern
Lichen Planus-Like Keratosis
LPLK

- pigmented granules
- pink to light brown background
- surface scale
sBCC

Fine vessels

LPLK
Dermatoscopic simulators of BCC

- Adnexal neoplasms
- Lichen planus-like keratosis
- Scar
- Dermatofibroma
- Melanocytic nevus
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- Ruptured cyst/folliculitis
Pigmented Basal-Cell Carcinoma

Dermatoscopic features

- (semi) translucency
- White structures (crystalline, rosette, dot, strand, blotch)
- Prominent vessels
  - Arborizing vessels
  - Short fine vessels
- Shallow ulcers
- White to pink to reddish background

Non-Pigmented Basal-Cell Carcinoma

Pigmented Islands
- “Blue-gray nests”
- “Blue-gray globules”

Pigmented Basal-Cell Carcinoma
## Pigmented Basal-Cell Carcinoma

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<th>Frequency</th>
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<td>55%</td>
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<td>2. arborizing “treelike” vessels</td>
<td>52%</td>
</tr>
<tr>
<td>3. multiple blue-gray globules</td>
<td>27%</td>
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<tr>
<td>4. ulceration</td>
<td>27%</td>
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<tr>
<td>5. maple leaf-like areas</td>
<td>17%</td>
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<td>6. spoke wheel-like structures</td>
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### Pigmented Basal-Cell Carcinoma

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Large blue-gray ovoid nest
Blue-gray globules
Pigmented Nodular & Superficial BCC

- Pigmented islands
- Translucent area
- Telangiectasia
- Ulceration

Pigmented Nodular & Superficial Basal Cell Carcinoma
Pigmented Nodular BCC

- Pigmented islands
- Translucent area
- Telangiectasia
Pigmented Nodular BCC
Spoke wheel-like areas

Submerged leaf-like areas
Pigmented Nodular BCC

ulceration

translucent area + telangiectasia

pigmented islands
Dermatoscopic Findings

- white-network
- sharp circumscription
- polymorphous vascular pattern
  - hairpin loops
  - curvilinear
- comedo-like opening
- pink background with patchy pigmentation

Pinkus BCC
Malignant Non-Melanocytic Lesions

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4. Keratoacanthoma/Squamous-cell carcinoma
Solar (Actinic) Keratosis

- red (pseudo) network
- keratotic surface scale
Solar (Actinic) Keratosis

- red network
- surface scale
- small white circles (halo, targetoid)
- white rosettes (4 leaf clover)

• N=63 of 6108 (1%) showed rosettes
• Smaller rosettes were found to be caused by polarizing horny material in adnexal openings.
• Larger rosettes were found to be caused by perifollicular fibrosis.

Rosettes observed in
BCC
SCC
DF
Nevus
Melanoma
Molluscum
Dilated pore
[Solar (actinic) keratosis]
Collision:
- solar keratosis and solar lentigo

Dermatoscopic features
- solar (actinic) keratosis
- solar lentigo (most common)
Pigmented Solar (Actinic) Keratosis
On the right, note the red and brown network accompanied by keratotic scale. As a collision lesion, the proportion of the red and brown network will depend on the proportion of the 2 (or in some cases 3) lesions that make up the pigmented solar keratosis.
Pigmented Solar (Actinic) Keratosis
Pigmented Solar (Actinic) Keratosis

white rosettes
Pigmented Solar (actinic) keratosis
Pigmented Solar (actinic) keratosis

white circles

white rosette
Pigmented AK vs Lentigo Maligna

Conclusion: All the dermatoscopic structures observed in MIS may be also observed in pigmented actinic keratosis, except for black blotches.

There is significant overlap of dermatoscopic features between a pigmented solar (actinic) keratosis and MIS on the face. If in doubt, biopsy.
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Bowen’s Disease

Dermatoscopic findings

- coiled (glomerular) > dotted vessels
- surface scale
- pink to red background
<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
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<tr>
<td>1</td>
<td>Arborizing microvessels</td>
</tr>
<tr>
<td>2</td>
<td>Arborizing vessels</td>
</tr>
<tr>
<td>3</td>
<td>Atypical red vessels</td>
</tr>
<tr>
<td>4</td>
<td>Comma vessels</td>
</tr>
<tr>
<td>5</td>
<td>Corkscrew vessels</td>
</tr>
<tr>
<td>6a</td>
<td>Clustered vascular pattern</td>
</tr>
<tr>
<td>6b</td>
<td>Scattered vascular pattern</td>
</tr>
<tr>
<td>7</td>
<td>Glomerular vessels</td>
</tr>
<tr>
<td>8</td>
<td>Hairpin vessels</td>
</tr>
<tr>
<td>9</td>
<td>Red globular rings</td>
</tr>
<tr>
<td>10</td>
<td>Red dots and globules</td>
</tr>
<tr>
<td>11</td>
<td>Telangiectatic vessels</td>
</tr>
</tbody>
</table>

Pan Y et al. JAAD 2008
Common Vascular Structures

- arborizing vessels: basal-cell carcinoma
- hairpin vessels: seborrheic keratosis
- dotted vessels: melanocytic neoplasms, psoriasis, porokeratosis, Bowen disease
- coiled vessels (glomerular): Bowen disease

If one is relying on a dermatoscope with only a 10x magnification, the smaller caliber vessels are difficult to evaluate.
dotted vessels

coiled (glomerular) vessels

J Am Acad Dermatol 2010;63:361-74
Bowen’ Disease

- dotted vessels
- surface scale
Bowen’s Disease

- dotted vessels
- surface scale
- ulceration
Bowen’s Disease

dotted vessels (20x mag)
Bowen’s Disease
Coiled Vessels of Bowen’s Disease
Psoriasiform Keratosis
Psoriasis
Bowen’s Disease

Dotted and coiled vessels may be seen in other diseases

1. **Psoriasis**: regularly dotted vessels
2. **Psoriasiform keratosis**: regularly dotted vessels
3. **Pale-cell acanthoma**: regularly dotted vessels sometimes in linearly dotted pattern ("pearls in a line")
4. **Porokeratosis**: dotted vessels
Bowen’s Disease

Dermatoscopic findings

• surface scale
• coiled (glomerular) > dotted vessels
• pink to red background
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Keratoacanthoma

- white circles
- coiled vessels
- keratin
- blood spots

Keratoacanthoma

- white circles
- coiled vessels
- keratin
- Blood spots
Key to Success

- Correctly interpret the observed structures
- Look for *presence* and *absence* of dermatoscopic structures
- Do not rely on any one dermatoscopic finding
- Clinical context is important
- Look at all lesions
The End