EXAMINATION OF SKIN, HAIR AND NAILS

GOALS:
1) Learn to describe skin lesions
2) Learn to identify a few common skin, hair and nail findings

Anatomy

Skin

Epidermis
- Stratum corneum - barrier made up of flat cells without nuclei and keratin
- Cellular strata (3 or 4 layers) - synthesis and maturation of keratin cells
- Melanocytes – scattered in stratum basale – make melanin pigments
  (from tyrosine, via tyrosinase); melanin granules enter keratinocytes
  and cluster over the nucleus to protect DNA

Dermis
- Supporting connective tissue; supports epidermis
- Blood supply (to epidermis via capillary loop in dermal papilla)
- Contains sensory nerve fibers
- Mesenchymal cells in dermis instruct the epithelial cells of the
dermis during development (e.g. ear epidermis placed on heel
dermis develops into thick heel skin)

Appendages

Hair follicles
- Hairs are anuclear and made of keratin, like skin
- Anagen (growth – 2-6 years on scalp) and telogen (rest, 1-3 mos)

Sebaceous glands
- Sebum: fat-filled dead cell; lubricates skin and hair
- In acne:
  - Cells shed in rather than out
  - Plugs in glands - “blackheads” are NOT dirt
  - Bacterial growth causes redness and swelling

Eccrine and apocrine (axillary/perineal) sweat glands
- Subcutaneous fat - a landmark when suturing or during biopsy of skin

Examination of the Skin

Inspection:
Good lighting and exposure are a MUST!

Don’t miss an important lesion in an out-of-the way area: for example, melanoma (cancer) on upper back, back of leg or foot

Assessing and Describing Skin Lesions

- Size
- Color
- Texture
- Shape; type of lesion (name)
- Configuration (linear, annular, grouped, diffuse)
- Location and distribution

**Color:** Erythematous means red
Purple discoloration that does not “blanch” with pressure:
- **Ecchymosis** if caused by trauma (bruise)
- **Purpura** from vasculitis or other causes - > 0.5 cm
- **Petechiae** from similar causes < 0.5 cm

**Texture:** (Palpation)
Some lesions are more easily felt than seen
Example: actinic keratoses
Can help you assess size and depth of lesions
Assessment of hydration status- skin tenting if significantly dehydrated

<table>
<thead>
<tr>
<th>Basic Terms (Names of lesions)</th>
<th>Size</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macule</td>
<td>Flat, any color</td>
<td>&lt; 1cm</td>
</tr>
<tr>
<td>Patch</td>
<td>Flat, any color</td>
<td>&gt; 1cm</td>
</tr>
<tr>
<td>Papule</td>
<td>Elevated</td>
<td>&lt; 1cm</td>
</tr>
<tr>
<td>Plaque</td>
<td>Elevated</td>
<td>&gt; 1cm</td>
</tr>
<tr>
<td>Term</td>
<td>Description</td>
<td>Condition</td>
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<tr>
<td>Wheal</td>
<td>Elevated, transient, irregular</td>
<td>Insect bite</td>
</tr>
<tr>
<td>Nodule</td>
<td>Elevated, deeper in dermis 1-2 cm</td>
<td>Lipoma</td>
</tr>
<tr>
<td>Tumor</td>
<td>Elevated, deeper in dermis &gt; 2 cm</td>
<td>Lipoma</td>
</tr>
<tr>
<td>Vesicle</td>
<td>Elevated, filled with clear fluid &lt; 1 cm</td>
<td>Chickenpox</td>
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<tr>
<td>Bulla</td>
<td>Same &gt; 1 cm</td>
<td>Blister</td>
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<tr>
<td>Pustule</td>
<td>Like vesicle, but fluid is purulent</td>
<td>Acne, furuncle</td>
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<tr>
<td>Cyst</td>
<td>Elevated, deeper in dermis, filled with liquid or semisolid</td>
<td>Sebaceous cyst</td>
</tr>
<tr>
<td>Telangiectasia</td>
<td>Dilated capillaries</td>
<td>Rosacea (adult acne)</td>
</tr>
<tr>
<td>Scale</td>
<td>Flaking, heaped-up keratin</td>
<td>Seborrhea</td>
</tr>
<tr>
<td>Lichenification</td>
<td>Rough, thick epidermis</td>
<td>Chronic eczema</td>
</tr>
<tr>
<td>Crust</td>
<td>Dried serum, blood, or pus</td>
<td>Scab</td>
</tr>
<tr>
<td>Fissure</td>
<td>Crack in dermis</td>
<td>On lips</td>
</tr>
<tr>
<td>Erosion</td>
<td>Loss of epidermis, often after a bulla ruptures</td>
<td></td>
</tr>
<tr>
<td>Ulcer</td>
<td>Loss of epidermis and dermis, often from pressure (decubitus ulcers) or venous stasis</td>
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</tbody>
</table>

**Distribution**

| Psoriasis: scaling plaques, extensor surfaces and hair-bearing areas |
| (common condition; sometimes involves joints, too) |
| Actinic keratoses: scaling papules, easier to feel than see, in sun-exposed areas |
| (sign of high sun exposure; mark of skin cancer risk) |
| Seborrheic dermatitis: greasy scale, nasolabial/ eyebrows/ scalp/ chest |
| (look bad, but harmless) |

**Configuration (shape)**

| Linear- | Contact dermatitis, as in poison ivy |
| Annular- | Erythema Chronicum Migrans (Lyme dz. rash), ringworm |
| Dermatomal- | Herpes Zoster (shingles) |

**Some common skin papules**

| Cherry angiomas: over age 25, flat or raised, cherry red |
| Seborrheic keratoses: over age 25, pigmented, “stuck on”, greasy or warty surface |

| Nevi (moles): good or bad? |
| Common types: Junctional, Intradermal, Compound |
Dysplastic nevi have concerning features, are a marker for increased risk of melanoma

WAYS TO TELL BENIGN MOLES FROM POSSIBLE MELANOMAS

ABCD checklist for diagnosis of melanoma
  Asymmetry Can you divide it in half?
  Border irregularity Uneven or ragged
  Color irregularity 2 or more shades e.g. pink, blue, black
  Diameter over 6mm (pencil eraser size)
  Changes in size, shape, or color
Usefulness of ABCD has not been fully validated

Examination of the Hair

  Inspection and Palpation
  Texture:
    Dry, brittle may suggest hypothyroidism
    Fine, thin may suggest hyperthyroidism

  Hair patterns:
    Male pattern baldness
    Pubic hair distribution:
      Male- diamond, up to umbilicus
      Female- triangle apex down
    Hirsutism (male pattern of body hair growth) in female may be a sign of an endocrine disorder

  Hair loss: check underlying scalp and hair follicles
    Inflammation or scarring- fungal infection, others
    Broken hairs - fungal infection, hair pulling “trichotillomania”
    Smooth skin- alopecia areata
Examination of the Nails

Anatomy of the Nail:
- **Plate**: epidermal cells converted to hard keratin
- **Matrix**: site of growth, extends out to lunula (white crescent)
- **Root**: where nail begins
- **Eponychium** (ep-oh-NICK-e-um)- the “cuticle” that protects
- **Paronychium** (pehr-oh-NICK-e-um)- soft tissue that surrounds nail border

When inflamed/infected, patient is said to have a **paronychia**

**Inspection:** Color, length, symmetry, cleanliness

**Findings** | **Causes**
---|---
Bitten short | Anxiety

**Transverse ridging:**
- One nail: Local trauma
- All nails: Systemic insult- severe illness, surgery

**Note:** Fingernails grow in 3-6 months
- Toenails may take 6-12 months or more

**Pitting** | **Psoriasis**

**Clubbing:**
- Nail base angle normally 160°
- Patient has nail clubbing if angle is near or above 180°
  - Possible causes: lung disease (e.g. cancer), liver cirrhosis

**Local findings:**
- **Onychomycosis**- fungal infection (*tinea unguium*)
- **Subungual** (under the nail) hematoma

**Onycholysis** (onn-ick-oh-LY-sis)
- One nail: Trauma, infection
- All nails: Hyperthyroidism

**Splinter hemorrhages:**
- One nail: Local trauma
- All nails: Endocarditis (heart valve infection)