Common Skin Diseases in the Elderly

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“Everyman desire to live long but none wants to be old”

Alexander Pope
OBJECTIVES

Know and understand:

• Normal skin structures
• Normal age-related changes in skin
• Photoaging
• Recognize common skin conditions in older adults
Normal Structure of the Skin

Skin consists of 15–20% of the total body weight

**Epidermis**

**Dermis**
- Collagen, elastic fibers
- Contains hair follicles, sebaceous gland, blood vessels, nerves

**Subcutaneous layer**
- Connective tissue attached to muscles
- Contains blood vessels, lymphatic channels, hair follicles, and sweat glands
Normal Function of the Skin

Protection
Regulation of immune functions
Thermoregulation
Vitamin synthesis
Sensory receptor for CNS
Skin Changes Associated with Aging: Epidermis

- Thinning
- Reduced moisture leading to a dry, rough appearance
- Rete ridges flatten
- Increased risk of skin breakdown
- Reduced melanocytes
- Delay wound healing
- Increased risk of infection
Skin Changes Associated with Aging: Dermis

Decreased thickness and function begin in 3rd decade of life

Collagen decreases in quantity and organization causes wrinkles

Elastin decreases in quality causes sagging

Reduced vascularity causing paler complexion

Capillaries thin and are easily damaged
Senile Purpura

Dermal epidermal separation – easily torn skin & superficial abrasion following minor trauma

In female a sharp decline in number of interdigation occur between 40 - 60 yrs
Skin Changes Associated with Aging:
Subcutaneous layer

- Tissue thins in the face, neck, hands, and lower legs
- Hypertrophy of tissue in certain body areas
  - Increased body fat
  - Increased body fat in abdomen and thighs
Hair Changes with Aging

Reduced number of functioning melanocytes: gray hair

Increased baldness

Hormone levels decline
- Loss of hair in pubic and axillary areas
- Growth of facial hair in women
- Growth of nasal and ear hair in men
Hair Loss
Nail Changing with Aging

- Color changes
  - Dull
  - Yellowing or grayness
- Slowed growth
  - Thicker nails due to decreased blood flow
- Longitudinal striations
- Longitudinal pigmented bands
  - Single or multiple brown or black bands
Aging Nail

Subungual hyperkeratosis

Onychocryptosis and subungual hyperkeratosis

Onychogryphosis (exaggerated growth in an upward and lateral direction), subungual hyperkeratosis
Differential diagnosis of Aging nail

Onychomycosis

Psoriasis
Glandular Changes with Aging

- **Eccrine or sweat glands**
  - Decreased number; decreased ability to regulate body temperature

- **Sebaceous glands**
  - Increased size
  - Decreased activity; increased water evaporation causes cracked, dry skin
Old hair follicle:
- Melanin is replaced with colorless air bubbles.

Young hair follicle:
- Melanin
- Melanocyte

Younger vs. Older:
- Nails thickened, ridged, and split.
How does the skin age?

- **Intrinsic**: Chronology & heredity
- **Extrinsic**: Photoaging (UV)
  - smoking
  - wind
  - toxin known, unknown
<table>
<thead>
<tr>
<th>Intrinsic aging</th>
<th>Extrinsic aging (primary UV light)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slight epidermis thickness</td>
<td>Freckle</td>
</tr>
<tr>
<td>Flat rete ridge</td>
<td>Solar lentigo</td>
</tr>
<tr>
<td>Thinning, ridge nail</td>
<td>Wrinkling</td>
</tr>
<tr>
<td>Decrease dermal collagen (1% per year)</td>
<td>Elastosis (yellowish skin)</td>
</tr>
<tr>
<td>Loss or increase subcut fat (site dependent)</td>
<td>Telangiectasis</td>
</tr>
<tr>
<td></td>
<td>Altered keratinocyte maturation (xerosis)</td>
</tr>
<tr>
<td></td>
<td>Senile purpura</td>
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<tr>
<td></td>
<td>Venous lake</td>
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<td></td>
<td>Comedone</td>
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<td></td>
<td>Sebaceous hyperplasia</td>
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Sun Protection
Common Skin Diseases in the Aging
Common skin conditions in the elderly

1. Xerosis and Pruritis
2. Inflammatory disorders
3. Infections and Infestation
4. Autoimmune disease
5. Benign and malignant neoplasm
Xerosis (Dry Skin) and Pruritus
Xerosis

- Dryness of the skin

- Causes: reduced water content and reduced barrier function of aging epidermis

- Exacerbated by environmental factors
  - Decreased humidity from cold weather/central heat
  - Irritation by hot water, harsh soaps

- Skin findings often more on legs

- Rough itchy skin or scales; if severe, may manifest as xerotic eczema
Xerosis and Itching
Xerosis and Itching
Xerotic Eczema

Dry, erythematous, fissured, and cracked skin was seen on the lower legs of this patient.
Treatment of Xerosis

- Avoid environmental triggers
- Take tepid, not hot, showers
- Use emollients immediately after bathing eg petrolatum
- Use moisturizing agents containing lactic acid or \( \alpha \)-hydroxy acids to reduce roughness
- Use mild topical corticosteroids episodically for irritation or inflammation
Pruritus

- Most common in elderly
- Xerosis - low humid, frequent bathing, irritant
- 10-50% - metabolic/endocrine disorder – DM, renal failure, thyroid disease, hepatic diseases
- Malignant neoplasm - lymphoma, leukemia
- Hematologic – polycythemia vera
- Adverse drug reaction
- Scabies
Inflammatory disorders
A 50-year-old woman developed itching and blisters after applying Bejin baofuling (compound camphor) cream for 5 days.
Dermatitis or eczema

• Pattern of cutaneous inflammation that presents with erythema, vesiculation, and pruritus in its acute phase
Eczema

**acute**

**subacute**
Dermatitis or eczema

• The chronic phase is characterized by dryness, scaling, lichenification, fissuring, and pruritus
Chronic eczema
Contact Dermatitis

Skin condition created by a reaction to an externally applied substance

Two types of contact dermatitis

Irritant Contact Dermatitis (ICD)
Allergic Contact Dermatitis (ACD)
<table>
<thead>
<tr>
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<th>Irritant CD</th>
<th>Allergic CD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Symptoms</strong></td>
<td>Acute: Stinging, smarting → itching</td>
<td>Itching → pain</td>
</tr>
<tr>
<td></td>
<td>Chronic: Itching/pain</td>
<td>Itching/pain</td>
</tr>
<tr>
<td><strong>Lesions</strong></td>
<td>Acute: Erythema → vesicles → erosions → crusts → scaling</td>
<td>Erythema → papules → vesicles → erosions → crust → scaling</td>
</tr>
<tr>
<td></td>
<td>Chronic: Papules, plaques, fissures, scaling, crusts</td>
<td>Papules, plaques, scaling, crusts</td>
</tr>
<tr>
<td><strong>Margination and site</strong></td>
<td>Acute: Sharp, strictly confined to site of exposure</td>
<td>Sharp, confined to site of exposure</td>
</tr>
<tr>
<td></td>
<td>Chronic: Ill-defined</td>
<td>but spreading in the periphery; usually tiny papules; may become generalized</td>
</tr>
<tr>
<td><strong>Evolution</strong></td>
<td>Acute: Rapid (few hours after exposure)</td>
<td>Not so rapid (12–72 h after exposure)</td>
</tr>
<tr>
<td></td>
<td>Chronic: Months to years of repeated exposure</td>
<td>Months or longer; exacerbation after every reexposure</td>
</tr>
<tr>
<td><strong>Causative agents</strong></td>
<td>Dependent on concentration of agent and state of skin barrier; occurs only above threshold level</td>
<td>Relatively independent of amount applied, usually very low concentrations sufficient but depends on degree of sensitization</td>
</tr>
<tr>
<td><strong>Incidence</strong></td>
<td>May occur in practically everyone</td>
<td>Occurs only in the sensitized</td>
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Irritant contact dermatitis:

Paederus dermatitis
Irritant Contact Dermatitis
Nickel allergy
What is the best test to confirm the diagnosis?

A. Patch testing
B. Prick skin testing
C. Radioallergosorbent test (RAST)
Patch Testing
48 hours later

Positive patch test
Eczema treatment

- **Acute eczema**  →  Wet compression, topical or systemic short course steroids.

- **Subacute eczema**  →  Topical steroids

- **Chronic eczema**  →  Potent topical steroids or occlusion, keratolytic, emollient.

Avoid contact with exogenous substances for contact dermatitis
Stasis dermatitis

- Stasis dermatitis presents with erythema, scale, pruritus, erosions, exudate, and crust.
- Usually located on the lower third of the legs, superior to the medial malleolus.
- Can occur bilaterally or unilaterally.
- Edema and varicose veins is often presented.
Stasis dermatitis is a marker of venous insufficiency.

Normally, venous blood returns from the superficial venous system via perforating veins into the deep venous system.

Venous stasis occurs when the valves in the deep or perforating veins become incompetent, causing reflux into the superficial system (venous hypertension).
Venous hypertension from venous reflux and calf muscle pump dysfunction
Stasis dermatitis: treatments

Treat both the dermatitis and the underlying venous insufficiency

Application of super-high and high potency steroids to area of dermatitis
Elevation (to reduce edema)
Compression therapy with leg wraps
Change wraps weekly, or more often if the lesion is very weepy
Venous stasis ulcer of the medial leg. Note the characteristic features of beefy red base, venous blush of wound edges, and varicosities.
Venous Ulcers

Distention of capillary from venous insufficiency

↓

leakage of fibrinogens

↓

fibrin cuffs around capillaries deprive $O_2$

↓

ulceration
Venous insufficiency: risks

- Heredity
- Age (older)
- Female
- Pregnancy
- Obesity
- Prolonged standing
- Greater height

Chronic venous disease is extremely common and is associated with a reduced quality of life secondary to pain, decreased physical function, and mobility.
Venous insufficiency: treatment

Patient education is crucial in successful treatment.

Avoid topical antibiotics in order to prevent development of contact dermatitis.

Cleanse the wound with saline.

Avoid products like betadine and hydrogen peroxide to prevent skin breakdown.
Venous insufficiency: treatment

Avoid frequent manipulation of the wound. Dressings can be changed as infrequently eg. weekly. Once healed, avoid development of ulcers with regular use of compression stockings.

Patients with venous ulcers that do not demonstrate response to treatment (reduction in size) after 6 weeks should be referred to dermatology.
Infections and Infestations
Infections and Infestations

Viral Infection
- Herpes zoster infection

Fungal Infection
- Dermatophyte infestation
- Scabies

Infestation
Varicella infection (Chickenpox)

Herpes zoster (Shingles, zoster)
Zoster

Prodrome
- Pain
- Paresthesia
- Itching
- Tingling
- Burning

Dermatome innervation

Erythematous macules & papules
- 12-24 hrs

vesicles
- 3rd day

pustules
- 7-10 days

Dry & form crusts
- Persist 2-3 wks

Rash
- Several days
Rose-colored Macules & papules

- vesicles
- pustules
- crusts
Herpes zoster (shingles)
Herpes zoster (shingles)
Herpes zoster (shingles)

Caused by latent varicella zoster virus (VZV)

Clue to diagnosis

- Dermatomal eruption on one side of the face, body, extremity
- Group of vesicles on an erythematous base
- Most often on the trunk but can be anywhere
- Preceded by pain or burning
Treatments

Antiviral therapy

Anti-inflammatory therapy

Post Herpetic Neuralgia caused by inflammation of sensory ganglion

Glucocorticoid (during acute phase)
reduce acute pain
prevent PHN
Herpes zoster (shingles): Antiviral

Immunocompetent adult
- Acyclovir 800 mg po 5 times per day for 7 days
- Valacyclovir 1 g po every 8 hr for 7 days
- Famciclovir 1 g po every 8 hr for 7 days

Immunocompromized (severe)
- Acyclovir 10 mg/kg IV for 7-10 days
60 years old man present with two months history of itching rash on his back.
Branching septate hyphae

10%KOH preparation
Dermatophytosis

A clinical condition caused by dermatophyte infection of keratinized tissue (e.g., skin, hair, nail)

Dermatophytes
- *Trichophyton sp.*
- *Microsporum sp.*
- *Epidermophyton sp.*
Pathogenesis

Incubation period in humans is 1-2 weeks
Transmission

Direct contact

- **Anthropophilic**: person to person
- **Zoophilic**: animal to human
- **Geophilic**: environment eg soil
Tinea coporis
Tinea capitis
Tinea pedis
Treatment

• Topical antifungal agents: NON extensive skin infection

• Systemic antifungal agents: extensive skin infection, infection of HAIR and NAIL

• Azoles: ketoconazole, fluconazole, itraconazole

• Allylamines: terbinafine

• Others: griseofulvin
Dermatophytosis treatment

Tinea ungium

Tinea capitis

Systemic antifungal agents
Topical antifungal agents for dermatophytosis

- Azoles: clotrimazole, ketoconazole
- Allylamines: terbinafine
- Others: ciclopirox olamine, tolnaftate

Apply at least 3 cm beyond advancing margin for at least 4 weeks
Infestation

Scabies
Sarcoptes scabiei var. homonis
Ova of Sarcoptes scabiei mite
Stratum granulosum
Scabies Infestation

- Intractable pruritus at night
- Web space, flexor area (wrist, axilla), periumbilical, sacral, buttock, penis and scrotum
- Pathognomonic lesion - **burrow**
Crust scabies

- Advanced age
- Debility
- Down’s syndrome
- Immunosuppression
Scabies infestation: treatment

Two approaches;
• The patient and the environment must both be treated.

• Environmental care includes washing all clothing and linens in hot water, sealing items which may not be washed in bags for two weeks, and vacuuming.
<table>
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<tr>
<th>Therapy</th>
<th>Use</th>
<th>Risks/Side effects</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>5% permethrin cream</td>
<td>Apply from the neck down, leave on overnight</td>
<td>Low, only 2% systemic absorption. May burn or sting on application.</td>
<td>First-line treatment in patients over 2 months old. Pregnancy category B</td>
</tr>
<tr>
<td>5-10% precipitated sulfur</td>
<td>Apply for three days, then wash off</td>
<td>Greasy, strong odor, stains clothing</td>
<td>Safe in pregnancy and children under 2 months. Must be compounded</td>
</tr>
<tr>
<td>Oral Ivermectin</td>
<td>200mcg/kg by mouth, repeat dose two weeks later</td>
<td>Diarrhea, itching, joint pain, skin irritation</td>
<td>Most useful for immunocompromised patients or when topical therapy is impractical (outbreaks). Not recommended for pregnant or lactating women.</td>
</tr>
</tbody>
</table>

For difficult to treat or severe scabies, refer to a dermatologist
Autoimmune Diseases
A 70 year-old woman with 2 month history of itchy rash at neck, arms, and legs. Recent onset of generalized blistering. **NO MUCOSAL INVOLVEMENT**
Bullous Pemphigoid

Majority are older than 60

Tense blistering on normal or erythematous skin

Marked pruritus

Common: lower abdomen, thighs, flexor, anywhere

Mucous Membrane: 10-35%
SUBEPIDERMAL BULLAE

*EOSINOPHILS,
*NEUTROPHILS,
*LYMPHOCYTES

BULLOUS PEMPHIGOID
DIRECT IF:
LINEAR BMZ DEPOSITS OF **C3 & IGG**

INDIRECT IF:
CIRCULATING **IGG** ANTI-BMZ ANTIBODIES DETECTED ON NHS.

THE SPLIT SKIN:

MAPPING TO THE ROOF
Treatment

Localized BP
- Topical steroid
- Topical tacrolimus

Extensive BP
- Prednisolone
- Azathioprine
- MTX
- Cyclophosphamide
Skin Tumors
Benign Tumors

- Benign tumors are characteristics of aging
- Acrochordon (skin tag)
- Cherry angiomas
- Seborrhic keratosis
- Lentigines

Begin to appear in middle age & numerous in nearly every adult > 65 yrs
Skin Tag

Asymptomatic skin-colored lesions
Seborrheic keratosis

- Number increase with aging, independent sun exposure
- Biomarker of intrinsic aging
Lentigines
Cherry Angiomas
Malignant Tumors

- Basal Cell Carcinoma (BCC)
- Squamous Cell Carcinoma (SCC)
Basal Cell Carcinoma
Most common skin cancer

**Etiology**

Ultraviolet radiation induces DNA damage

*PTCH (tumor suppressor gene) mutation*

*Spontaneous/acquired mutations from UV-induced DNA damage*
Basal Cell Carcinoma: risk factors

Skin types I, II (fairer skin types)*
History of intense or prolonged ultraviolet light exposure
History of ionizing radiation exposure or arsenic ingestion
Immune suppression (transplant patients, systemic immunosuppressive medications)
Genetic conditions that increase skin cancer risk
Basal Cell Carcinoma: treatments

There are several surgical and non-surgical treatment options. The best option is selected after consideration of clinical and histologic features.

To select the optimum therapy, refer to a dermatologist.
Basal Cell Carcinoma: treatments

**Surgical Treatment Options:**
- Curette and Desiccation
- Cryosurgery
- Excision with standard 3-4mm margins
- Mohs micrographic surgery

**Non-Surgical Treatment Options:**
- Imiquimod cream
- 5% fluorouracil cream
- Photodynamic therapy
- Radiation
Squamous Cell Carcinoma
Squamous Cell Carcinoma

Most commonly occurs among people with white/fair skin

Commonly located on the head, neck, forearms, and dorsal hands (sun-exposed areas)

SCC has increased associated mortality compared to basal cell carcinoma, mostly due to a higher rate of metastasis
Squamous Cell Carcinoma

Cumulative UV exposure
Causeing genetic alterations

SCC arising in *non sun-exposed areas may be related to chemical carcinogen exposure (e.g. arsenic)*
Squamous Cell Carcinoma: treatments

**Surgical Treatment Options**
- Surgical excision
- Mohs micrographic surgery
- Curette and Desiccation (reserved for in situ SCC)

**Non-surgical Treatment Options**
- Radiation therapy for poor surgical candidates
- 5-Fluorouracil cream, imiquimod cream, photodynamic therapy
บบแล้ว
ลบคู่ณครับ