## Approach to the Dermatology Patient

- **History**
- **Physical Exam**

## Definitions

- **Primary Morphological Lesions**
- **Secondary Morphological Lesions**
- **Other Morphological Lesions**

## Useful Differential Diagnoses

- **Differential Diagnosis by Morphology**
- **Differential Diagnosis by Location**

## Common Skin Lesions

- **Hyperkeratotic**
- **Fibrous**
- **Cysts**
- **Vascular**
- **Melanocytic Nevi**
- **Miscellaneous**

## Acneiform Eruptions

- **Acne Vulgaris/Common Acne**
- **Rosacea**
- **Perioral Dermatitis**

## Dermatitis (Eczema)

- **Contact Dermatitis**
- **Atopic Dermatitis**
- **Seborrhelic Dermatitis**
- **Stasis Dermatitis**
- **Nummular Dermatitis**
- **Dyshydrotic Dermatitis**
- **Diaper Dermatitis**

## Infections

- **Bacterial**
  - Superficial Skin (Epidermal)
  - Deeper Skin (Dermal)
  - Hair Follicles
  - Periungal Region
  - Sexually Transmitted Infections
- **Viral Infections**
- **Dermatophytosis**
- **Yeast**
- **Parasitic**

## Papulosquamous Diseases

- **Psoriasis**
- **Psoriasis Arthritis**
- **Lichen Planus**
- **Pityriasis Rosea**

## Vesiculobullous Diseases

- **Pemphigus Vulgaris**
- **Bullous Pemphigoid**
- **Dermatitis Herpetiformis (DH)**
- **Porphyria Cutanea Tarda**
- **Differential of Primary Bullous Disorder**

## Drug Eruptions

- **Exanthematous Eruptions**
- **Urticaria**
- **Fixed Drug Eruption**
- **Delayed Hypersensitivity Syndrome**
- **Photosensitivity Eruptions**
- **Serum Sickness - Like Reaction**

## Erythema Multiforme (EM), Stevens-Johnson Syndrome (SJS) and Toxic Epidermal Necrolysis (TEN)

## Erythema Nodosum

## Malignant Skin Tumours

- **Basal Cell Carcinoma (BCC)**
- **Squamous Cell Carcinoma (SCC)**
- **Malignant Melanoma**
- **Others**

## Heritable Disorders

- **Ichthyosis Vulgaris**
- **Neurofibromatosis (NF)**
- **Vitiligo**

## Skin Manifestations of Internal Conditions

- **Autoimmune Disorders**
- **Endocrine Disorders**
- **HIV**
- **Malignancy**
- **Others**
- **Pruritus**

## Wounds and Ulcers

## Alopecia (Hair Loss)

- **Non-Scarring (Non-Cicatricial) Alopecia**
- **Scarring (Cicatricial) Alopecia**

## Nails

## Topical Therapy

- **Vehicles**
- **Topical Steroids**
- **Dry Skin Therapy**

## Cosmetic Dermatology

- **Chemical Peel**
- **Laser Therapy**

## Sunscreens and Preventive Therapy

## References
APPROACH TO THE DERMATOLOGY PATIENT

HISTORY
- age, race, occupation (especially exposures), hobbies
- details of skin eruption should include:
  - location, onset, duration (persistent versus intermittent eruption)
  - alleviating and aggravating factors (plant contact, cosmetic/jewellery use, exposure to heat/cold/sunlight, relationship to foods/spices)
  - associated skin symptoms
    - changes in sensation (itchiness, burning, pain)
  - changes in surface (dryness versus discharge)
  - past history including investigations and therapy
- associated systemic symptoms (weight loss, malaise, fever, diarrhea, arthralgias, muscle weakness)
- medications and allergies
- past dermatological history
- family history of atopy, skin cancer, psoriasis

PHYSICAL EXAM (How to describe a Lesion)
- S ize
- C olour (e.g. hyperpigmented, hypopigmented, erythematous)
- A rrangement (e.g. solitary, linear, reticulated, grouped, herpetiform)
- L esion morphology (see Table 2)
- D istribution (e.g. dermatomal, intertriginous, symmetrical/asymmetrical, follicular)
- Always check hair, nails, mucous membranes and intertriginous areas

Table 1. Skin Phototypes

<table>
<thead>
<tr>
<th>Phototypes</th>
<th>Colour of Skin Without Sun Exposure</th>
<th>Skin's Response to Sun Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>White</td>
<td>Always burns, never tans</td>
</tr>
<tr>
<td>II</td>
<td>White</td>
<td>Always burns, little tan</td>
</tr>
<tr>
<td>III</td>
<td>White</td>
<td>Slight burn, slow tan</td>
</tr>
<tr>
<td>IV</td>
<td>Pale Brown</td>
<td>Slight burn, faster tan</td>
</tr>
<tr>
<td>V</td>
<td>Brown</td>
<td>Rarely burns, dark tan</td>
</tr>
<tr>
<td>VI</td>
<td>Dark brown/black</td>
<td>Never burns, dark tan</td>
</tr>
</tbody>
</table>

DEFINITIONS

PRIMARY MORPHOLOGICAL LESIONS

Table 2. Types of Lesions

<table>
<thead>
<tr>
<th>Lesion Type</th>
<th>&lt; 1 cm Diameter</th>
<th>≥ 1 cm Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raised Superficial Lesion</td>
<td>Papule (e.g. wart)</td>
<td>Plaque (e.g. psoriasis)</td>
</tr>
<tr>
<td>Palpable Deep (dermal) Lesion (not necessarily raised)</td>
<td>Nodule (e.g. dermatofibroma)</td>
<td>Tumour (e.g. lipoma)</td>
</tr>
<tr>
<td>Flat Lesion</td>
<td>Macule (e.g. freckle)</td>
<td>Patch (e.g. vitiligo)</td>
</tr>
<tr>
<td>Elevated Fluid-filled Lesions</td>
<td>Vesicle (e.g. herpes simplex virus (HSV))</td>
<td>Bulla (e.g. bullous pemphigoid)</td>
</tr>
</tbody>
</table>

- primary lesion: an initial lesion that has not been altered by trauma or manipulation, and has not regressed
- pustule: a vesicle containing purulent exudate (white, yellow, green)
- cyst: a nodule containing semisolid or fluid material
- erosion: a disruption of the skin involving the epidermis alone
- ulcer: a disruption of the skin that extends into the dermis or deeper
- wheal: a special form of papule or plaque that is blanchable and transient, formed by edema in the dermis (e.g. urticaria)
- scar: replacement fibrosis of dermis and subcutaneous tissue

SECONDARY MORPHOLOGICAL LESIONS

- develop during the evolutionary process of skin disease, or are created by manipulation or complication of primary lesion lesion (e.g. rubbing, scratching, infection)
- crust: dried serum, blood, or purulent exudate originating from a lesion (e.g. impetigo)
- scale: exces keratin (e.g. seborrheic dermatitis)
DEFINITIONS...CONT.

- **fissure**: a linear slit-like cleavage of the skin
- **excoriation**: a scratch mark
- **lichenification**: thickening of the skin and accentuation of normal skin markings (e.g. chronic atopic dermatitis)
- **xerosis**: dryness of skin, eyes and mouth
- **atrophy**: histological decrease in size and number of cells or tissues resulting in thinning or depression of the skin

OTHER MORPHOLOGICAL LESIONS

- **comedones**: collection of sebum and keratin
  - open comedone (blackhead)
  - closed comedone (whitehead)
- **purpura**: extravasation of blood into dermis resulting in hemorrhagic lesions
  - **petechiae**: small pinpoint purpura
  - **ecchymoses**: large flat purpura
- **telangiectasia**: dilated superficial blood vessels; blanchable

USEFUL DIFFERENTIAL DIAGNOSES

<table>
<thead>
<tr>
<th>Red Scaling Lesions (epidermal cells produced from excessive and abnormal keratinization and shedding)</th>
<th>Dermatitis</th>
<th>Nondermatitis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atopic Dermatitis (flexural folds)</td>
<td></td>
<td>Psoriasis (elbows/knees/scalp, nail pits, Koebner’s)</td>
</tr>
<tr>
<td>Contact Dermatitis (history)</td>
<td></td>
<td>Discoid Lupus (don’t see hair follicles)</td>
</tr>
<tr>
<td>Nummular Eczema (coin-like, isolated)</td>
<td></td>
<td>Drug reaction (e.g. gold)</td>
</tr>
<tr>
<td>Seborrheic Dermatitis (scalp/naeobulbar folds/chest)</td>
<td></td>
<td>Lichen Planus (flat surface, lacy lines on surface)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Discrete Red Papules (elevated/solid lesion &lt; 1 cm)</th>
<th>Inflammatory</th>
<th>Proliferative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acne (teenager, face/chest/back)</td>
<td></td>
<td>Dermatofibromas (“dimple sign”)</td>
</tr>
<tr>
<td>Bites/Stings (history of outdoors, central punctum)</td>
<td></td>
<td>Hemangioma (blanching)</td>
</tr>
<tr>
<td>Folliculitis (in hair follicle)</td>
<td></td>
<td>Psoiasis</td>
</tr>
<tr>
<td>Furuncle (very painful, central plug)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hives (whitish border, pruritic)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflamed Epidermal Cyst (mobile under skin)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflamed Seborrheic Keratosis (stuck-on appearance)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lichen Planus (purple, polygonal papules with flat surface)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Millaria Rubra (heat/overbuilding of child)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pyogenic Granuloma (bleeds easily)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scabies (burrow, interdigital groin, family members)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urticaria</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flat Brown Macule (circumscribed flat and discoloured area)</th>
<th>Viral</th>
<th>Nonviral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actinic/Solar Lentigo (sun-damaged area)</td>
<td></td>
<td>Acute Contact Dermatitis (e.g. poison ivy)</td>
</tr>
<tr>
<td>Congenital Nevus (contain hair)</td>
<td></td>
<td>(exposure history)</td>
</tr>
<tr>
<td>Cafe-au-Lait (present in childhood, very light brown)</td>
<td></td>
<td>Cat-Scratch Disease</td>
</tr>
<tr>
<td>Hyper/hyopigmentation (e.g. posttraumatic, Addison’s)</td>
<td></td>
<td>Dyshydrotic Eczema (sides of fingers/palms/soles)</td>
</tr>
<tr>
<td>Freckle (sun-exposed areas, disappears in winter)</td>
<td></td>
<td>Dermatitis Herpetiformis (VERY itchy, gluten history)</td>
</tr>
<tr>
<td>Junctional Nevus (regular shape)</td>
<td></td>
<td>Impetigo</td>
</tr>
<tr>
<td>Lentigines associated with underlying disorders (LEOPARD, LAMB, Peutz-Jegher’s)</td>
<td></td>
<td>Porphyria Cutanea Tarda</td>
</tr>
<tr>
<td>Lentigo Maligna (irregular, varied pigmentation)</td>
<td></td>
<td>(hypertrichosis, heliotrope lesion around eyes, alcohol ingestion)</td>
</tr>
<tr>
<td>Malignant Melanoma (characteristic Shypai)</td>
<td></td>
<td>Scabies</td>
</tr>
<tr>
<td>Pigmented Basal Cell Carcinoma</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simple Lentigo (non-sun exposed area, irregular)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stasis Dermatitis</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vesicles (circumscribed collection of free fluid &gt; 1 cm)</th>
<th>Viral</th>
<th>Nonviral</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSV (mouth, genitals)</td>
<td></td>
<td>Acute Contact Dermatitis (e.g. poison ivy)</td>
</tr>
<tr>
<td>Zoster (dermatomal, painful)</td>
<td></td>
<td>(exposure history)</td>
</tr>
<tr>
<td>Varicella (generalized, itchy)</td>
<td></td>
<td>Cat-Scratch Disease</td>
</tr>
<tr>
<td>Molluscum (umbilicated)</td>
<td></td>
<td>Dyshydrotic Eczema (sides of fingers/palms/soles)</td>
</tr>
<tr>
<td>Cossacke (painful, hand-foot-mouth, summer)</td>
<td></td>
<td>Dermatitis Herpetiformis (VERY itchy, gluten history)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bullae (circumscribed collection of free fluid &gt; 1 cm)</th>
<th>Viral</th>
<th>Nonviral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bullous Impetigo (children, other family members)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bullous Pemphigoid (tense, lower limb)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug eruption</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EM/SIS/TEN (target lesions)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lupus Erythematosus (American Rheumatology Association (ARA) criteria)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pemphigus Vulgaris (fissicid, easy bleeding)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Porphyria Cutanea Tarda (photodistribution, fragile skin, hyperpigmentation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermatitis Herpetiformis (extensor surfaces, symmetrically grouped)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute dermatitis</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 3. Differential Diagnosis by Morphology (continued)

| Pustules (elevated, contains purulent fluid, varying in size) | Acne (teenager, face/chest/back)  
| | Acne Rosacea (forties, telangiectatic, no comedones)  
| | Candida (satellite pustules, areas of skin folds)  
| | Dermatophyte infection  
| | Dyshidrotic Eczema (sides of fingers/palms/soles)  
| | Folliculitis (in hair follicle)  
| | Hidradenitis suppurativa  
| | Impetigo (honey-crust)  
| | Sebopsis (e.g. staph, gonococcal)  
| | Pustular Psoriasis (psoriasis)  
| | Rosacea  
| | Varicella |

| Ulcer (break in the skin that extends to the dermis, or deeper) | Common: Arterial, Venous, Neurotrophic, Pressure  
| Uncommon: “CHIP IN” mnemonic  
| Cancer (e.g. SCC), Chromosomal (e.g. XXY)  
| Hemoglobinopathy (e.g. Sickle Cell)  
| Inflammatory (e.g. RA, SLE, Vasculitis, Raynaud's)  
| Pyoderma Gangrenosum (e.g. ulcerative colitis, RA)  
| Infectious (syphilis, TB, tularemia, plague)  
| Necrobiosis Lipoidica Diabeticorum (DM) |

### Table 4. Differential Diagnosis by Location

<table>
<thead>
<tr>
<th>Location</th>
<th>Common</th>
<th>Less Common and Rare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scalp</td>
<td>Seborrheic dermatitis, contact dermatitis, psoriasis, folliculitis, pediculosis, tinea, SCC</td>
<td>Pemphigus, DH</td>
</tr>
<tr>
<td>Ears</td>
<td>Seborrheic dermatitis, psoriasis, infectious eczematoid dermatitis, actinic keratoses</td>
<td>Fungal infection</td>
</tr>
<tr>
<td>Face</td>
<td>Acne, rosacea, impetigo, contact dermatitis, seborrheic dermatitis, folliculitis, herpes simplex, BCC, SCC, actinic keratoses, sebaceous hyperplasia</td>
<td>Lupus, actinic dermatitis, dermatomyositis, lentigo maligna melanoma</td>
</tr>
<tr>
<td>Eyelids</td>
<td>Contact dermatitis (fingernail polish, hairspray), seborrheic dermatitis, atopic eczema, xanthelasma</td>
<td></td>
</tr>
<tr>
<td>Posterior Neck</td>
<td>Neurodermatitis (LSC), seborrheic dermatitis, psoriasis, contact dermatitis</td>
<td>Acne keloidalis in black patients, acanthosis nigricans</td>
</tr>
<tr>
<td>Mouth</td>
<td>Aphthae, herpes simplex, geographic tongue, contact dermatitis</td>
<td>Syphilis, lichen planus, pemphigus</td>
</tr>
<tr>
<td>Axillae</td>
<td>Contact dermatitis, seborrheic dermatitis, hidradenitis suppurativa</td>
<td>Erythrasma, acanthosis nigricans, inverse psoriasis, Fox-Fordyce disease</td>
</tr>
<tr>
<td>Chest and Back</td>
<td>Seborrheic keratosis, dysplastic nevi, tinea versicolour, pityriasis rosea, acne, seborrheic dermatitis, psoriasis, Herpes Zoster cherry angiomata, BCC, melanoma</td>
<td>Secondary syphilis, Grover's disease, inverse psoriasis</td>
</tr>
<tr>
<td>Groin and Crural Areas</td>
<td>Tinea, Candida, bacterial intertrigo, scabies, psoriasis, pediculosis, granuloma inguinale, lichen simplex</td>
<td></td>
</tr>
<tr>
<td>Penis</td>
<td>Contact dermatitis, fusospirochetal and candidal balanitis, chancreoid, herpes simplex, Condylomata (HPV), scabies</td>
<td>Primary and secondary syphilis, balanitis xeroderma obliterans, lichen planus</td>
</tr>
<tr>
<td>Hands</td>
<td>Contact dermatitis, dyshydrotic eczema, Tinea manis, (one-hand two feet), warts, atopic eczema, psoriasis, actinic keratoses, solar lentigo</td>
<td>Pustular psoriasis, granuloma annulare, erythema multiforme, secondary syphilis (palms) and fungal infection</td>
</tr>
<tr>
<td>Cubital Fossae and Popliteal Fossae</td>
<td>Atopic eczema, contact dermatitis and prickly heat</td>
<td></td>
</tr>
<tr>
<td>Elbows and Knees</td>
<td>Psoriasis, xanthomas</td>
<td>Atopic eczema, DH</td>
</tr>
<tr>
<td>Legs</td>
<td>Contact dermatitis, stasis dermatitis, ulcers, nummular eczema, melanoma, ichthyosis</td>
<td>Pyoderma gangrenosum, erythema nodosum, leukocytoclastic vasculitis, HSP and other vasculitides</td>
</tr>
<tr>
<td>Feet</td>
<td>Fungal infection, primary or secondary bacterial infection, contact dermatitis, atopic eczema, warts</td>
<td>Psoriasis, erythema multiforme, secondary syphilis (soles), acral lentiginous melanoma (soles)</td>
</tr>
</tbody>
</table>
COMMON SKIN LESIONS

HYPERKERATOTIC

Seborrheic Keratosis (Senile Keratosis) (see Colour Atlas D8)
- **definition:** benign neoplasm of epidermal cells
- **epidemiology**
  - > 30 years, M>F
  - autosomal dominant inheritance
  - more common with increasing age
- **differential diagnosis**
  - solar lentigo
  - spreading pigmented actinic keratosis
  - pigmented basal cell carcinoma
  - malignant melanoma (lentigo maligna, nodular melanoma)
  - melanocytic nevi
- **signs and symptoms**
  - round/oval, well demarcated discrete waxy papule/plaque, +/- pigment, warty surface, "stuck on" appearance
  - sites: face, trunk, upper extremities
  - usually asymptomatic
- **clinical course**
  - over time, increase in pigmentation, "stuck on" plaque appears warty, "horny cysts"
- **investigations**
  - biopsy only if diagnosis uncertain
- **management**
  - no treatment usually needed
  - liquid nitrogen for cosmetic reasons

Actinic Keratosis (Solar Keratosis) (see Colour Atlas D19)
- **definition:** premalignant epithelial neoplasm
- **epidemiology**
  - middle age and elderly (except in sunny climates)
  - M>F, skin phototypes I-III (see Table 1)
  - melanin is protective
- **pathophysiology**
  - UV radiation damage to keratinocytes (especially UVB)
  - pleomorphic keratinocytes, parakeratosis and atypical keratinocytes
- **differential diagnosis**
  - chronic cutaneous lupus erythematosus
  - Bowen’s Disease
  - SCC in situ
  - superficial BCC
- **signs and symptoms**
  - discrete yellow-brown, scaly patches on a background of sun damaged skin (sand-like on palpation)
  - < 1 cm, round/oval
  - sites: areas of sun exposure - face (forehead, nose, cheeks, lips, temples), ears, scalp if bald, neck, forearms, hands, shins
- **clinical course**
  - may transform into SCC
- **management**
  - 5-FU (fluorouracil) cream applied for 2-3 wks
  - liquid nitrogen
  - biopsy lesions that are refractory to treatment

Keratoacanthoma (see Colour Atlas D18)
- **definition**
  - benign epithelial neoplasm with atypical keratinocytes
- **epidemiology**
  - > 50 years, rare under 20 years
  - skin phototypes I-III
- **etiology**
  - associated with human papilloma virus (HPV)
  - associated with UV radiation and chemical carcinogens (tar, pitch, mineral oil)
- **pathophysiology**
  - proliferation of atypical keratinocytes in epidermis
- **differential diagnosis**
  - squamous cell carcinoma (SCC) (grows slower – months)
- **signs and symptoms**
  - red/skin coloured, firm, dome-shaped nodule with central keratin-filled crater
  - sites: sun-exposed skin
- **clinical course**
  - rapidly grow to ~2.5 cm in 6 weeks, with keratotic plug in centre of nodule by 6 weeks
  - attains full size in < 4 months, spontaneously regresses in < 10 months
  - disfiguring scar after regression
- **management**
  - surgical excision
  - curettage and electrocautery
  - if on lip treat as SCC
FIBROUS

Dermatofibroma
- definition
  • button-like benign dermal tumour
- epidemiology
  • adults, F>M
- etiology
  • unknown
  • often associated with history of trauma or insect bites
- pathophysiology
  • fibroblast proliferation in dermis
- differential diagnosis
  • malignant melanoma, blue nevus, Kaposi's sarcoma, dermatofibrosarcoma protruberans
- signs and symptoms
  • firm, red-brown, solitary, well demarcated dermal papules or nodules with central dimpling and hyperpigmentation at centre
  • site: legs > arms > trunk
  • Fitzpatrick's sign: pressure causes skin retraction (dimple)
- management
  • no treatment usually needed (excise if bothersome or diagnosis uncertain)

Skin Type Tags (papilloma, acrochordon, fibroepithelial polyp)
- definition
  • benign outgrowth of skin
- epidemiology
  • middle-aged and elderly, F>M, obese
- signs and symptoms
  • small, soft, skin-coloured or tan, pedunculated papule or papilloma, 1-10 mm
  • sites: neck, axillae, and trunk
- management
  • clipping, cautery

CYSTS

Epidermal Cysts (see Colour Atlas D11)
- definition
  • keratin-containing cyst lined by epidermis
- epidemiology
  • most common cutaneous cyst • youth to middle age adult
- signs and symptoms
  • round, yellow/flesh coloured, slow growing, mobile, firm, fluctuant nodule/tumour
  • mobile over deeper structures
  • sites: scalp, face, upper trunk, buttocks
- clinical course
  • central punctum may rupture (foul, cheesy odour, creamy colour) and produce inflammatory reaction
  • increase in size and number over time, especially in pregnancy
- management
  • excise completely before becomes infected

Pilar Cysts
- definition
  • thick-walled cyst lined with stratified squamous epithelium and filled with dense keratin
- epidemiology
  • secnd most common cutaneous cyst
  • F > M
- etiology
  • idiopathic, post-trauma (e.g. EEG)
- signs and symptoms
  • hard, pea to grape-sized nodules under scalp
  • multiple lesions often present
- clinical course
  • may rupture and produce inflammatory reaction
- management
  • excision

Dermoid Cysts
- definition
  • rare, congenital hamartomas
  • thick-walled cyst filled with dense keratin
- pathophysiology
  • arise from inclusion of epidermis along embryonal cleft closure lines
- signs and symptoms
  • most common at lateral third of eyebrow and midline under nose
- management
  • excision
COMMON SKIN LESIONS . . . CONT.

Ganglion
- definition: cystic lesion originating from joint or tendon sheath
- management:
  - drainage +/- steroid injection if painful
  - excise if bothersome

VASCULAR

Hemangiomas
- definition: benign proliferation of vessels in the dermis
- red or blue nodules that blanch with pressure
- management options: argon laser, tattooing, cosmetics, excision with skin expansion

Nevus Flammeus (Port-Wine Stain)
- definition: vascular malformation of dermal capillaries
- epidemiology:
  - 0.3% incidence
- etiology:
  - congenital
  - associated with Sturge Weber syndrome (V1, V2 distribution)
- signs and symptoms:
  - red to blue macule present at birth
  - dermatomal distribution, rarely crosses midline
  - most common site: nape of neck
- clinical course:
  - papules/nodules may develop in adulthood, no involution
- management:
  - laser or make-up

Cavernous Hemangioma
- definition: deeply situated proliferation of thick-walled blood vessels
- signs and symptoms:
  - soft, compressible bluish subcutaneous mass
  - feels like a “bag of worms”
  - site: anywhere (distribution may indicate underlying cranial abnormality)
- clinical course:
  - can ulcerate
  - 80% without scarring or discoloration
- management:
  - may require surgical removal

Angiomatous Nevus (Strawberry Nevus)
- congenital
- appears by age 9 months, increases in size over months, then regresses
- resolves spontaneously by age 6 years
- benign vascular proliferation of endothelial lining
- can excise if not gone by school age

Spider Angioma
- definition: central arteriole with slender branches resembling legs of a spider
- epidemiology:
  - associated with hepatocellular disease, pregnancy, oral contraceptives (OCP)
- differential diagnosis:
  - hereditary hemorrhagic telangiectasia, ataxia telangiectasia, telangiectasia in systemic scleroderma
- signs and symptoms:
  - faintly pulsatile, blanchable, red macule
  - sites: face, forearms and hands
- management:
  - electro or laser surgery

Cherry Hemangioma (Senile Hemangioma, Campbell Demorgan Spot)
- definition:
  - bright red, dome-shaped vascular papules, 1-5 mm
  - site: trunk
- epidemiology:
  - > 30 years
  - more common with increasing age
- clinical course:
  - increase in number over time
- management:
  - no treatment usually needed
  - laser or electrocautery for small lesions
  - excisions of large lesions if necessary
COMMON SKIN LESIONS... CONT.

PIGMENTED LESIONS

Melanocytic Nevi (Moles) (see Table 5)
- Be suspicious of new pigmented lesions in individuals over age 40
- Average number of moles per person: 18-40

Solar Lentigo (Aging Spots, Liver Spots)
- Definition:
  - Benign melanocytic proliferation in an area of previous sun damage
- Epidemiology
  - Most common in Caucasians
  - Along dermal-epidermal junction
  - > 40 years old
  - Skin phototype I-III
- Pathophysiology
  - Increased number of melanocytes in dermal-epidermal junction due to chronic sun exposure
- Signs and symptoms
  - Well demarcated brown/black macules with an irregular outline
  - Sites: Sun-exposed skin especially dorsum of hands and face
- Management
  - Laser therapy
  - Shave excisions
  - Cryotherapy
- Differential
  - Lentigo maligna
  - Seborrheic keratosis
  - Pigmented solar keratosis

Seborrheic Keratosis

Mongolian Spot
- Definition:
  - Congenital hyperpigmented macule
- Epidemiology
  - 99% occurs in Asian and aboriginal infants
- Pathophysiology
  - Ectopic melanocytes in dermis
- Signs and symptoms
  - Gray-blue macule
  - Commonly on lumbar and sacral area, usually a single lesion
- Clinical course
  - Disappears in early childhood

Freckles (Ephelides)
- Definition:
  - Commonly acquired hyperpigmented macules secondary to sun exposure
- Epidemiology
  - Skin phototypes I and II
  - Most common in blonde and red haired individuals
- Signs and symptoms
  - Sharply demarcated light brown-ginger macules
  - Usually < 5 mm
  - Lesions multiply and grow darker with sun exposure

Becher's Nevus
- Definition:
  - Asymptomatic pigmented hamartoma
- Epidemiology
  - M>F
  - Often becomes noticeable at puberty
- Pathophysiology
  - Increased melanin in basal cells
- Signs and symptoms
  - Light brown macule with a papular verrucous surface and sharply demarcated borders
  - Sites: Trunk and shoulders
  - Hair growth follows onset of pigmentation and is localized to areas of pigmentation
- Clinical course
  - Lesion extends for 1-2 years and then remains stable, only rarely fading
  - No malignant potential
- Management
  - Cosmetic management as desired
  - No treatment required
MISCELLANEOUS

**Keloid**
- **definition**
  - excessive proliferation of collagen following trauma to skin
- **epidemiology**
  - predilection for Blacks and Orientals
  - M=F
- **signs and symptoms**
  - skin coloured or red or bluish papules or nodules with clawlike extensions
  - firm and smooth
  - different from a hypertrophic scar
  - may continue to expand in size for years
  - sites: earlobes, shoulders, sternum, scapular area
- **management**
  - intralesional steroid injections
  - cryotherapy
  - silicone compression

**Pyogenic Granuloma**
- **definition**
  - rapidly developing hemangioma
- **epidemiology**
  - < 30 years
- **pathophysiology**
  - proliferation of capillaries with erosion of epidermis and neutrophilia
- **differential diagnosis**
  - nodular malignant melanoma
  - SCC, nodular BCC
  - glomus tumour
- **signs and symptoms**
  - bright red dome shaped sessile or pedunculated nodule
  - sites: fingers, lips, mouth, trunk, toes
- **clinical course**
  - lesions bleed frequently and persist for months
- **management**
  - surgical excision with histologic examination
  - electrocautery
  - laser
  - cryotherapy
### Table 5. Melanocytic Nevi Classification

<table>
<thead>
<tr>
<th>Type</th>
<th>Age of Onset</th>
<th>Description</th>
<th>Histology</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Congenital Nevus</strong></td>
<td>• Birth</td>
<td>• Sharply demarcated pigmented brown plaque with regular/irregular contours</td>
<td>• Nevomelanocytes in epidermis (clusters) and dermis (strands) contours +/- coarse hairs</td>
<td>• Surgical excision if suspicious, due to increased risk of developing plaque melanoma</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• &gt; 1.5 cm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Rule out leptomeningeal involvement if on head/neck</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Acquired Melanocytic Nevus</strong></td>
<td>Early childhood to age 40</td>
<td>• Benign neoplasm of pigment forming nevus cells</td>
<td>Melanocytes at dermal-epidermal junction above basement membrane</td>
<td>Excisional biopsy required if on scalp, soles, mucous membranes, anogenital area, or if variegated colours; irregular borders, pruritic, bleeding, exposed to trauma</td>
</tr>
<tr>
<td></td>
<td>• Involute by age 60</td>
<td>• Well circumscribed, round, uniformly pigmented macules/papules</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• &lt; 1.5 cm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Can be classified according to site of nevus cells (see below)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Junctional Nevus</strong></td>
<td></td>
<td>• Flat, irregularly bordered, uniformly tan-dark brown, sharply demarcated smooth macule</td>
<td>Melanocytes at dermal-epidermal junction above basement membrane</td>
<td>Same as above</td>
</tr>
<tr>
<td><strong>Compound Nevus</strong></td>
<td></td>
<td>• Domed, regularly bordered, smooth, round, tan-dark brown papule</td>
<td>Melanocytes at dermal-epidermal junction; migration into dermis</td>
<td>Same as above</td>
</tr>
<tr>
<td>(see Colour Atlas D22)</td>
<td></td>
<td>• Face, trunk, extremeties, scalp</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• NOT found on palms or soles</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dermal Nevus</strong></td>
<td></td>
<td>• Soft, dome-shaped, skin-coloured to tan/brown papules or nodules often with telangiectasia</td>
<td>Melanocytes exclusively in dermis</td>
<td>Same as above</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Sites: face, neck</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dysplastic Nevus</strong> (Clark's Melanocytic Nevus)</td>
<td>Childhood</td>
<td>• Variegated macule/papule with irregular indistinct borders and focal elevation</td>
<td>Hyperplasia and proliferation of melanocytes in the basal cell layer</td>
<td>Follow q 2-6 months with colour photographs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• &gt; 6 mm</td>
<td></td>
<td>Excisional biopsy if lesion changing or highly atypical</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Risk factors: positive family history 100% lifetime risk of malignant melanoma with 2 blood relatives with melanoma (0.8% risk for general population)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Halo Nevus</strong></td>
<td>First 3 decades</td>
<td>• Brown papules surrounded by hypomelanosis</td>
<td>Dermal or compound neocellular nevus (NCN) surrounded by hypomelanosis, lymphocytes, histocytes</td>
<td>None required</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Oval or round</td>
<td></td>
<td>Excision if colour variegated or irregular borders</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Same sites as neocellular nevus (NCN)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Associated with vitiligo, metastatic melanoma</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Spontaneous involution with regression of centrally located pigmented nevus</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Blue Nevus</strong></td>
<td>Childhood and late adolescence</td>
<td>• Uniformly blue to blue-black macule/papule with smooth border</td>
<td>Pigmented melanocytes and melanophages in dermis</td>
<td>Remove if suddenly appears or has changed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• &lt; 6 mm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ACNEIFORM ERUPTIONS

ACNE VULGARIS/COMMON ACNE (see Colour Atlas D5)

Definition and Clinical Features
- a common inflammatory pilosebaceous disease categorized with respect to severity of acne
  - Type I – comedonal, sparse, no scarring
  - Type II – comedonal, papular, moderate +/- little scarring
  - Type III – comedonal, papular, and pustular, with scarring
  - Type IV – nodulocystic acne, risks of severe scarring
- predilection sites: face, neck, upper chest, back
- epidemiology
  - common during teen years
  - severe disease affects males 10x more frequently than females
  - incidence decreases in adult life

Pathogenesis
- increased sebum production
- sebum is comedogenic, an irritant, and is converted to free fatty acids (FFA) by microbial lipases made by anaerobic diphtheroid Propionibacterium acnes
- free fatty acids + bacteria – inflammation + delayed hypersensitivity reaction
  -> hyperkeratinization of follicle lining with resultant plugging

Exacerbating Factors
- menstruation/hormonal factors
- oral contraceptives (OCP): specifically those containing progestins with significant androgenic effects
  (norethindrone acetate, levo/norgestrel)
- topical acnegenic agents
  - workplace - heavy oils, grease, tars
  - topical drugs - steroids, tars, ointment vehicles
  - cosmetics - especially those containing cocoa butter, fatty acids, isopropyl myristate
- systemic meds: lithium, phenytoin, steroids, halogens (chloracne), androgens, iodides, bromides, danazole
- NB: foods are not a major aggravating factor

Differential Diagnosis
- rosacea
- folliculitis
- perioral dermatitis
- keratosis pilaris (arms, face)

Table 6. Acne Types and Treatments

<table>
<thead>
<tr>
<th>Acne Type</th>
<th>Treatment Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type I - Comedonal</td>
<td>Benzoyl Peroxide (2.5%, 5%, 10%) – apply qd/bid</td>
</tr>
<tr>
<td></td>
<td>Adapalene (Differin) gel/cream; apply qhs sparingly</td>
</tr>
<tr>
<td></td>
<td>Tretinoin (Retin-A); apply qhs</td>
</tr>
<tr>
<td></td>
<td>• start with 0.01% and increase to 0.025% after one month</td>
</tr>
<tr>
<td></td>
<td>Tazarotene (Tazorac) (0.5%; 0.1% gel), apply qhs sparingly</td>
</tr>
<tr>
<td>Type II - Pustular</td>
<td>Topical Antibiotic (clindamycin, erythromycin); apply bid</td>
</tr>
<tr>
<td></td>
<td>Benzoyl Peroxide</td>
</tr>
<tr>
<td></td>
<td>Tretinoin/ Adapalene gel/cream</td>
</tr>
<tr>
<td></td>
<td>Benzamycin gel (kept in patient’s refrigerator)</td>
</tr>
<tr>
<td>Type III - Papular</td>
<td>Topical Antibiotic</td>
</tr>
<tr>
<td></td>
<td>Benzoyl Peroxide</td>
</tr>
<tr>
<td></td>
<td>Tretinoin</td>
</tr>
<tr>
<td></td>
<td>Oral Antibiotic (tetracycline, minocycline, erythromycin)</td>
</tr>
<tr>
<td>Type IV - Nodulocystic</td>
<td>Isotretinoin (Accutane)</td>
</tr>
<tr>
<td></td>
<td>• 0.5 to 1.0 mg/kg/day for duration required to give</td>
</tr>
<tr>
<td></td>
<td>cumulative dose of 120-150 mg/kg</td>
</tr>
</tbody>
</table>
ACNEIFORM ERUPTIONS . . . CONT.

Table 7. Acne Treatments and Mechanisms of Action

<table>
<thead>
<tr>
<th>Medication</th>
<th>Mechanism of Action and Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzoyl Peroxide</td>
<td>Bactericidal - for mild inflammatory lesions</td>
</tr>
<tr>
<td></td>
<td>May bleach fabrics</td>
</tr>
<tr>
<td>Adapalene</td>
<td>Comedolytic - for comedones</td>
</tr>
<tr>
<td></td>
<td>Less irritating than tretinoin</td>
</tr>
<tr>
<td></td>
<td>No interaction with sun</td>
</tr>
<tr>
<td></td>
<td>Expensive</td>
</tr>
<tr>
<td>Tretinoin/</td>
<td>Comedolytic - for comedones</td>
</tr>
<tr>
<td>Tazarotene</td>
<td>Causes sun sensitivity and irritation</td>
</tr>
<tr>
<td>Topical Antibiotic</td>
<td>Bacteriostatic and anti-inflammatory - for inflamed lesions</td>
</tr>
<tr>
<td></td>
<td>Well tolerated</td>
</tr>
<tr>
<td>Oral Antibiotic</td>
<td>Decreased bacterial and fatty acid levels; anti-inflammatory; inhibits leukocytic chemotaxis</td>
</tr>
<tr>
<td></td>
<td>Beware interaction between tetracycline and dairy products and antacids</td>
</tr>
<tr>
<td></td>
<td>Tetracycline can cause photosensitivity</td>
</tr>
<tr>
<td>Isotretinoin</td>
<td>Most effective treatment for acne. reserved for severe cases</td>
</tr>
<tr>
<td></td>
<td>Reduces sebum production and causes atrophy of sebaceous glands,</td>
</tr>
<tr>
<td></td>
<td>increases skin cell turnover (comedolytic), inhibits bacterial growth in skin</td>
</tr>
<tr>
<td></td>
<td>Baseline CBC, pregnancy test, LFTs, TG, and cholesterol prior to start of therapy</td>
</tr>
<tr>
<td></td>
<td>Repeat tests at 2/6/10/14 weeks</td>
</tr>
<tr>
<td></td>
<td>Side effects: teratogenic, skin and mucous membrane dryness, hyperlipidemia,</td>
</tr>
<tr>
<td></td>
<td>reversible alopecia, abnormal LFTs</td>
</tr>
</tbody>
</table>

Other Treatments
- cryotherapy (for cysts)
- intralesional steroids (for cysts)
- dermabrasion
- chemical peel
- CO2 laser
- spironolactone – antiandrogen
- Diane-35 OCP (cyproterone acetate + ethinyl estradiol)
- high-estrogen OCP
- autovaccine (benefits not fully understood)

ROSACEA (see Colour Atlas D6)
- definition
  - capillary vasodilation, papules, and pustules
- epidemiology
  - 30-50 years old
  - F>M
- pathophysiology
  - unknown
- signs and symptoms
  - vascular: intermittent than persistent erythema/flushing, telangiectasias
  - acneiform: papules, pustules, cysts; no comedones; symmetrical distribution on forehead, cheeks, nose, chin
  - ocular: conjunctivitis, blepharitis, keratitis
  - rhinophyma: progressive enlargement of nose with sebaceous hyperplasia
  - differentiated from acne by its absence of comedones
- exacerbating factors
  - heat, cold, wind, sun, stress, drinking hot liquids, alcohol, caffeine, spices (triggers of vasodilatation)
- clinical course
  - prolonged course common, recurrences common, may disappear spontaneously
ACNEIFORM ERUPTIONS . . . CONT.

- management
  - avoid exacerbating factors
  - topical
    - antibiotics (metronidazole 0.75% gel or 0.75% - 10% cream, clindamycin or erythromycin have anti-inflammatory mechanisms; apply all bid)
  - systemic
    - tetracycline or erythromycin 250 mg qid until flare controlled then as needed,
    - maintenance dose 250 mg qd or every other day
  - alternatives: minocycline, doxycycline
  - others
    - lasers for telangiectasias
    - surgical “shaving”, CO2 laser for rhinophyma
    - camouflage makeup for erythema
    - treatment of H. pylori in affected individuals has been shown to decrease rosacea severity
    - Rosacea Awareness Program (RAP)
      - educational resources for physicians and rosacea patients
      - accessible through physician offices and by toll-free telephones (in Canada)

- differential diagnosis
  - systemic lupus erythematosus (SLE)
  - carcinoid syndrome
  - acne vulgaris
  - perioral dermatitis

PERIORAL DERMATITIS

- definition
  - distinctive pattern of discrete erythematous micropapules that often become confluent,
    forming inflammatory plaques on perioral and periorbital skin

- epidemiology
  - 15 to 40 years old
  - predominantly females

- signs and symptoms
  - initial lesions usually in nasolabial folds
  - symmetry common
  - rim of sparing around vermilion border of lips

- exacerbating factors
  - inappropriate use of potent topical corticosteroids

- management
  - topical
    - metronidazole 0.75% gel or 0.75% - 10% cream to area bid
  - systemic
    - tetracycline 500 mg bid until clear, then 500 mg daily for one month, then 250 mg daily
    - for one additional month

DERMATITIS (ECZEMA)

- definition
  - inflammation of the skin

- pathophysiology
  - spongiosis, aka intercellular epidermal edema, with lymphocytic and eosinophilic infiltrates
    in epidermis and dermis

- signs and symptoms
  - symptoms include pruritus and pain
  - acute dermatitis: papules, vesicles
  - subacute dermatitis: scaling, crusting
  - chronic dermatitis: after lots of scratching, lichenification, xerosis and fissuring

CONTACT DERMATITIS (see Colour Atlas D2)

- definition
  - cutaneous inflammation from interaction between external agent(s) and skin

- classification
  1. irritant contact dermatitis
    - toxic injury to the skin
    - majority of contact dermatitis
    - will occur in anyone given a sufficient concentration of irritants
    - non-immune
    - may be acute - quick reaction, sharp margins (e.g. from acid/alkali exposure)
    - may be from cumulative insult - slow to appear, poorly defined margins (e.g. from soap)
    - palmar surface of hand usually involved
    - irritants include: soaps, weak alkali, detergents organic solvents, alcohol, oils
    - management
      - avoidance of irritants, compresses, topical and oral steroids
2. allergic contact dermatitis
   • cell-mediated delayed (Type IV) hypersensitivity reaction
   • minority of contact dermatitis
   • often discrete area of skin involvement
   • patient acquires susceptibility to allergen, and persists indefinitely
   • many allergens are irritants, so may coincide with irritant dermatitis
   • dorsum of hand usually involved
   • management
     • avoid allergen and its cross reactants
     • wet compresses soaked in Burow’s solution (a drying agent)
     • change q3h, steroid cream (hydrocortisone 1%, betamethasone valerate 0.05% or 0.1% cream applied bid)
     • systemic corticosteroids for extensive cases (prednisone 1mg/kg and reduce over 2 weeks)

ATOPIC DERMATITIS (ECZEMA) (see Colour Atlas D3)

- definition
  • subacute and chronic eczematous reaction caused by Type I (IgE-mediated) hypersensitivity reaction (release of histamine) producing prolonged severe pruritus

- etiology
  • associated with personal or family history of atopy (asthma, hay fever, anaphylaxis, eosinophilia)
  • polygenic inheritance: one parent > 60% chance for child; two parents > 80% chance for child

- signs and symptoms
  • inflammation, lichenification, excoriations are secondary to relentless scratching
  • atopic palms: prominent palmar creases
  • associated with
    • keratosis pilaris (hyperkeratosis of hair follicles, “chicken skin”)
    • xerosis
    • occupational hand dryness

### Table 8. Phases of Atopic Dermatitis

<table>
<thead>
<tr>
<th>Phase</th>
<th>Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant (onset at 2-6 months old)</td>
<td>Face, scalp, extensor surfaces</td>
</tr>
<tr>
<td>Childhood (&gt;18 months)</td>
<td>Flexural surfaces</td>
</tr>
<tr>
<td>Adult</td>
<td>Hands, feet, flexures, neck, eyelids, forehead, face, wrists</td>
</tr>
</tbody>
</table>

- management
  • bath additive (Aveeno oatmeal) followed by application of unscented emollients, or menthol (cooling agent)
  • topical corticosteroids with oral antihistamines
    • avoid prolonged potent dose; hydrocortisone cream for maintenance
    • alternate with lubricants or tar solution
  • avoid systemic corticosteroids
  • antibiotic therapy if 2º infection by S. aureus e.g. fusidic acid cream
    • Tacrolimus ointment for resistant atopic dermatitis in children (0.03%) and adults (0.1%); main side effect is stinging for the first few applications

- prognosis
  • 50% clear by age 13, few persist > 30 years of age

- complications
  • may present as flares of dermatitis
  • corticosteroid reaction
  • bacterial superinfection (staph or strep)
  • eczema herpeticum (HSV colonization of lesions)
Seborrheic Dermatitis (see Colour Atlas D4)

- **Definition**: Greasy, erythematous, yellow, non-pruritic scaling papules and plaques occur in areas rich in sebaceous glands.

- **Epidemiology**: Common in infants (“cradle cap”) and at puberty. Increased incidence in immunocompromised patients. In adults, can cause dandruff (pityriasis sicca). Sites: scalp, eyebrows, eyelashes, beard, face (flush areas, behind ears, forehead), trunk, body folds, genitalia.

- **Etiology**: Possible etiologic association with the yeast *Pityrosporum ovale*. Possibly a pre-psoriatic state.

- **Signs and Symptoms**: Infants - one possible cause of “cradle cap”. Children - may be generalized with flexural and scalp involvement. Adults - scalp: diffuse in areas of scalp margin with yellow to white flakes, pruritis, and underlying erythema. Face: eyebrows, sides of nose, posterior ears, globella. Chest: over sternum.

- **Management**: Face: Nizoral cream od + non-fluorinated steroid cream, e.g. hydrocortisone 1%, tridesilon cream applied od – bid. Scalp: salicylic acid in olive oil or Derma-Smoothe FS lotion (peanut oil, mineral oil, fluocinolone acetonide 0.01%) to remove dense scales; 2% ketoconazole shampoo (Nizoral), low potency steroid lotion e.g. betamethasone valerate 0.1% lotion bid.

Stasis Dermatitis (see Colour Atlas D1)

- **Definition and Clinical Features**: Persistent skin inflammation of the lower legs with a tendency toward brown pigmentation, erythema, and scaling. Associated with venous insufficiency.

- **Management**: Support stocking. Rest and elevate legs. Moisturizer to treat xerosis. Mild topical corticosteroids to control inflammation. Surgical vein stripping for cosmetic reasons only.

- **Complications**: Secondary bacterial infections, ulceration (common in medial malleolus).

Nummular Dermatitis


- **Treatment**: Potent corticosteroid ointment e.g. Cyclocort ointment bid or intralesional triamcinolone injection if severe.

Dyshydrotic Dermatitis

- **Definition**: “Tapioca pudding” papulovesicular dermatitis of hands and feet, followed by painful fissuring. NOT related to sweating.

- **Pathophysiology**: Often associated with atopy and dyshydrotic dermatitis.

- **Signs and Symptoms**: Acute vesicular lesions that coalesce into plaques. Plaques dry with local scale. Acute stage often very itchy. Secondary infection common. Lesions heal with desquamation and may lead to chronic lichenification. Sites: palms and soles +/- dorsal surfaces of hands and feet.

- **Management**: Topical - high potency corticosteroid with saran wrap occlusion to increase penetration. Intralesional triamcinolone. Systemic - prednisone in severe cases. Antibiotics for 2° S. aureus infection.

Diaper Dermatitis (see Pediatrics Chapter)
INFECTIONS

BACTERIAL
- often involve the epidermis, dermis, hair follicles or periungual region
- may also be systemic

SUPERFICIAL SKIN (EPIDERMAL)

Impetigo Vulgaris (see Colour Atlas F5)
- definition and clinical features
  - acute purulent infection which appears vesicular and progresses to a golden yellow crust surrounded by erythema
  - sites: commonly involves the face, arms, legs and buttocks
- epidemiology
  - preschool and young adults living in crowded conditions, poor hygiene, neglected minor trauma
- etiology
  - agent: Group A β hemolytic Streptococcus, S. aureus, or both
- differential diagnosis
  - infected eczema, herpes simplex (HSV), varicella
- management
  - remove crusts and use saline compresses, plus topical antiseptic soaks bid
  - topical antibacterials such as 2% mupirocin or fucidin tid, continued for 7-10 days after resolution
  - systemic antibiotics such as cloxacillin 250-500 mg qid or cephalaxin 250 mg qid for 7-10 days
- complication
  - post-streptococcal glomerulonephritis

Bullous Impetigo
- definition and clinical features
  - scattered, thin walled bullae arising in normal skin and containing clear yellow or slightly turbid fluid with no surrounding erythema
  - sites: trunk, intertriginous areas, face
- epidemiology
  - neonates and older children, epidemic especially in day care
- etiology / pathophysiology
  - S. aureus group II elaborating exfoliating toxin
- differential diagnosis
  - bullous drug eruption
  - pemphigus
- investigations
  - gram stain and culture of blister fluid or biopsy
- management
  - cloxacillin 250-500 mg qid for 7-10 days
  - topical antibacterials such as fucidin and mupirocin, continued for 7-10 days
- complication
  - high levels of toxin in immunocompromised or young children may lead to generalized skin peeling or staphylococcal scalded skin syndrome (SSSS)

Erythrasma
- definition and clinical features
  - infection of the stratum corneum that manifests as a sharply demarcated, irregularly shaped brown, scaling patch
  - sites: intertriginous areas of groin, axillae, intergluteal folds, submammary, toes
- epidemiology
  - obese, middle-aged, blacks, diabetics, living in warm humid climate
- etiology
  - Corynebacterium minutissimum
- diagnosis
  - "coral-red" fluorescence under Wood's light (365 nm) because of a water-soluble porphyrin
- differential diagnosis
  - tinea cruris (positive scraping for hyphae)
  - seborrheic dermatitis (no fluorescence)
- management
  - showers with providone-iodine soap
  - topical econazole cream or 2% erythromycin solution applied bid for 7 days
  - erythromycin (250 mg qid for 14 days) for refractory cases or recurrences
## INFECTIONS...CONT.

### DEEPER SKIN (DERMAL)

**Table 9. Comparison of Erysipelas and Cellulitis**

<table>
<thead>
<tr>
<th>Erysipelas (see Colour Atlas ID8)</th>
<th>Cellulitis</th>
</tr>
</thead>
</table>
| **Lesion** | • Upper dermis  
• May be confluent, erythematous, raised, warm plaque  
often with vesicles  
• Very painful (once called St. Anthony’s fire) | • Lower dermis/Subcutaneous fat  
• Unilateral erythematous flat lesion poorly demarcated, not uniformly raised  
• Tender |
| **Distribution** | • Face and legs | • Commonly legs |
| **Etiology** | • GAS | • GAS, *S. aureus* (large sized wounds),  
*H. influenzae* (peri orbital),  
*Pasteurella multocida* (dog/cat bite) |
| **Systemic symptoms** | • Fever, chills, headache, weakness (more serious) | • Fever, leukocytosis, lymphadenopathy (less common) |
| **Complications** | • Scarlet fever, streptococcal gangrene, fat necrosis, coagulopathy  
• Spreads through lymphatics – if recurrent may cause elephantiasis | • Less likely |
| **Treatment** | • First line: Penicillin, Cloxacillin or Ancef  
• Second line: Clindamycin or Keflex  
• If penicillin allergic use erythromycin | • First line: Cloxacillin or Ancef/Keflex  
• Second line: Erythromycin or Clindamycin  
• Children: Cefuroxime  
• DM (foot infections): TMP/SMX and Flagyl |

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**Superficial Folliculitis**

- **Definition**
  - superficial infection of the hair follicle
  - pseudofolliculitis: inflammation of follicle due to friction, irritation or occlusion

- **Etiology**
  - normal non-pathogenic bacteria (*Staphylococcus, Pseudomonas*)

- **Signs and Symptoms**
  - acute lesion consists of a dome-shaped pustule at the mouth of hair follicle
  - pustule ruptures to form a small crust
  - sites: primarily scalp, shoulders, anterior chest, upper back, other hair-bearing areas

- **Management**
  - topical antibacterial (fucidin, mupirocin or erythromycin)
  - oral cloxacillin for 7-10 days
  - mupirocin bid for *S. aureus* in nostril and on involved hairy area

- **Differential Diagnosis**
  - keratosis pilaris
  - HIV eosinophilic folliculitis
  - pityrosporum yeast

**Furuncles (Boils)**

- **Definition**
  - red, hot, tender, inflammatory nodules involving subcutaneous tissue that evolves from a folliculitis

- **Etiology**
  - *S. aureus*

- **Signs and Symptoms**
  - develops as a red, tender nodule that is tense for 2-4 days and then fluctuant
  - yellowish point, which firms over summit, ruptures with discharge of tissue
  - sites: hair follicles and areas of friction and sweat (nose, neck, face, axillae, buttocks)

- **Investigations**
  - if recurrent, rule out diabetes or hidradenitis suppurativa (if in groin or axillae)

- **Management**
  - see ‘Carbuncles’

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**Check for history of trauma, bites, saphenous vein graft, etc., but often no inciting cause identified**

**Rarely skin/blood culture; clinical diagnosis. If suspecting necrotizing fasciitis, do immediate biopsy and frozen section histopathology.**

**DDx: deep vein thrombosis (DVT) (less red, less hot, smoother), superficial phlebitis, RSD**
INFECTIONS... CONT.

Carbuncles
- **definition**
  - deep seated abscess formed by multiple coalescing furuncles
  - lesions drain through multiple points to the surface
- **etiology**
  - *S. aureus*
- **management**
  - incise and drain large carbuncles to relieve pressure and pain
  - if afebrile: hot wet packs, topical antibiotic
  - if febrile/cellulitis: culture blood and aspirate pustules (Gram stain and C&S)
  - cloxacillin 250-500 mg qid for 1 to 2 weeks

SEXUALLY TRANSMITTED INFECTIONS

Syphilis
- **definition and clinical features**
  - sexually transmitted infection caused by *Treponema pallidum*
  - characterized by a painless ulcer (chancre)
  - transmitted sexually, congenitally, or rarely, by transfusion
  - following inoculation, becomes a systemic infection with secondary and tertiary stages
- **primary syphilis** (see Colour Atlas ID11)
  - single red, indurated, PAINLESS, round / oval, indolent, chancre, (Hunterian Chancre, [button-like papule]) that develops into painless ulcer with raised border and scanty serous exudate
  - chancre develops at site of inoculation after 3 weeks of incubation and heals in 4-6 weeks; chancres may also develop on lips or anus
  - regional non-tender lymphadenopathy appears < 1 week after onset of chancre
  - M:F = 2:1
  - **diagnosis**
    - cannot be based on clinical presentation alone
    - VDRL negative – repeat weekly for 1 month
    - fluorescent treponemal antibody-absorption (FTA-ABS) test has greater sensitivity and may detect disease earlier in course
    - darkfield examination - spirochete in tissue fluid from chancre or lymph node aspirate
  - **management**
    - benzathine penicillin G 2.4 million units IM, single dose
    - if allergic to penicillin, alternatives include doxycycline, tetracycline PO, or ceftriaxone IM
- **secondary syphilis** (see Colour Atlas ID13)
  - appears 2-10 weeks after initial chancre, and 2-6 months after primary infection (patient may not recall presence of primary chancre)
  - associated with generalized lymphadenopathy, splenomegaly, “acute illness” syndrome – headache, chills, fever, arthralgia, myalgia, malaise and photophobia
  - lesions heal in 1-5 weeks, and may recur for 1 year
  - types of lesions
    - (1) macules and papules, round to oval, flat top, scaling, non-pruritic, sharply defined, circular (annular) rash
      - trunk, head, neck, palms, soles, mucous membranes
      - DDx: pityriasis rosea, tinea corporis, drug eruptions, lichen planus
    - (2) condyloma lata: moist papules around genital/perianal region
      - exudate filled with spirochetes
      - DDx includes condyloma acuminata
    - (3) mucous patches: macerated patches mainly found in oral mucosa
      - associated findings: pharyngitis, iritis, periostosis
  - **diagnosis**
    - VDRL positive
    - FTA-ABS +ve; –ve after 1 year following appearance of chancre
    - TPI +ve; darkfield +ve in all secondary syphilis except macular exanthem
    - serologic test may be –ve if undiluted serum, or if HIV-infected
  - **management - as for primary syphilis**
- **tertiary syphilis**
  - extremely rare
  - 3-7 years after secondary
  - main skin lesion: ‘Gumma’ - a granulomatous non-tender nodule
  - independent of other tertiary syphilis manifestations
  - **diagnosis**
    - VDRL: blood positive, CSF negative
    - treatment: benzathine penicillin G 2.4 million units IM weekly
Gonococcemia

- **definition**
  - disseminated gonococcal infection
- **etiology**
  - gram negative diplococcus *Neisseria gonorrhoeae*
- **signs and symptoms**
  - pustules on a purpuric erythematous base, and pustules that are hemorrhagic, tender, and necrotic (also known as “arthritis-dermatitis syndrome”)
  - petechiae which may evolve into purpura and ecchymosis (see Colour Atlas ID1)
  - associated with fever, asymmetric oligoarticular arthritis, urethritis, proctitis, pharyngitis and tenosynovitis
  - conjunctivitis if infected via birth canal
  - site: distal aspects of extremities
  - NB - do not confuse with skin lesion of meningococcemia
- **management**
  - examine contacts and notify authorities
  - look for syphilis and other STDs
  - advise patient to avoid intercourse until cultures are negative
  - ceftriaxone 125 mg IM or cefixime 400 mg po (drug of choice)

VIRAL INFECTIONS

**Herpes Simplex**

- **clinical features**
  - grouped umbilicated vesicles (herpetiform arrangement) on an erythematous base, caused by Herpes Simplex virus (HSV)
  - transmitted via contact with erupted vesicles
  - vesicles located on skin or mucous membranes
  - **primary**
    - children and young adults
    - usually asymptomatic
    - may have high fever, regional lymphadenopathy, malaise
    - followed by antibody formation and latency of virus (in posterior root ganglion [Gasserian ganglion of trigeminal nerve or sacral ganglion])
  - **secondary**
    - recurrent form seen in adults
    - prodrome of tingling, pruritus, pain
    - much more commonly diagnosed than primary
    - triggers for recurrence: fever sunburn, physical trauma, menstruation, emotional stress, upper respiratory tract viral infection

**Classification**

- 2 biologically and immunologically different subtypes: HSV-1 and HSV-2
- **HSV-1**
  - most commonly “cold sores” (grouped vesicles which quickly burst and commonly occur at the muco-cutaneous junction)
  - recurrent on face, lips
  - rarely on mucous membranes (rule out aphthous ulcer)
  - differential diagnosis
    - impetigo
    - eczema
- **HSV-2**
  - incubation 2-20 days
  - gingivostomatitis (entire buccal mucosa involved with erythema and edema of gingiva)
  - vulvovaginitis (edematous, erythematous, extremely tender, profuse vaginal discharge)
  - urethritis (watery discharge in males)
  - recurrent on vulva, vagina, penis, lasting 5-7 days
  - sexually transmitted
  - 8% risk of transmission to neonate via birth canal if mother is asymptomatic
  - **diagnosis**
    - –ve darkfield, –ve serology for syphilis, –ve bacterial cultures
    - Tzanck smear shows multinucleated giant epithelial cells with Giemsa stain
    - tissue culture and electron microscopy on vesicular fluid
    - skin biopsy (intraepidermal, ballooning degeneration, giant cells)
    - antibody titres increase one week after primary infection
      - NB - increase in titres are not diagnostic of recurrence
  - **differential diagnosis of genital ulcerations**
    - multiple syphilitic chancres
    - chancreoid
    - *Candida balanitis*
    - lymphogranuloma inguinale
INFECTIONS . . . CONT.

- **management of HSV**
  - rupture vesicle with sterile needle
  - tepid wet dressing with aluminum subacetate solution, Burow's compression, or betadine solution
  - acyclovir: 200 mg PO, 5 times a day for 10 days for 1st episode
  - topical therapy is generally not as effective
  - famciclovir and valacyclovir may be substituted
  - in case of herpes genitalis, look for and treat any other sexually transmitted infections

- **complications**
  - dendritic corneal ulcers
  - stromal keratitis
  - erythema multiforme (EM)
  - herpes simplex encephalitis
  - HSV infection on atopic dermatitis causing Kaposi's varicelliform eruption (eczema herpeticum)

**Herpes Zoster (Shingles)**

- **definition**
  - a localized infection caused by varicella zoster virus (VZV) in a person who has already had the primary infection chicken pox

- **etiology**
  - occurs when cellular and humoral immunity to VZV is compromised
  - risk factors: old age, immunosuppression, occasionally associated with hematologic malignancy

- **distribution**
  - thoracic (50%), trigeminal (10-20%), cervical (10-20%); disseminated in HIV patients

- **signs and symptoms**
  - unilateral and dermatomal eruption occurring day 3-5 after pain and paresthesia of a dermatome
  - vesicles, bullae and pustules on an erythematous, edematous base
  - lesions may become eroded/ulcerated and last days-weeks
  - pain is pre-herpetic, synchromas with rash, or post-herpetic (may persist for months and years)
  - severe post-herpetic neuralgia often occurs in elderly
  - involvement of tip of nose indicates eye involvement (conjunctivitis, keratitis, scleritis, iritis)

- **management**
  - compresses with normal saline, Burow's, or betadine solution
  - analgesics (NSAIDs, amitriptyline)
  - for patients over 50 years old, with severe acute pain or ophthalmic involvement
    - famciclovir 500 mg tid X 7 days or
    - valacyclovir 1,000 mg tid X 7 days or
    - acyclovir 800 mg 5x day for 7 days (if immunocompromised)

**Clinical Pearl**

- In Herpes Zoster, antiviral treatment must be started within 72 hours of the onset of rash unless there is ophthalmic involvement.

- **differential diagnosis**
  - myocardial infarction (MI), pleural disease, acute abdomen, vertebral disease
  - contact dermatitis
  - localized bacterial infection
  - zosteriform herpes simplex virus (more pathogenic for the eyes than varicella zoster)

**Hand-Foot-and-Mouth Disease**

- **definition and clinical features**
  - highly contagious vesicular eruption in hands, feet, and mouth caused by coxsackie A16
  - grey vesicles in parallel alignment to palmar and plantar creases of hands, feet and diaper area
  - a painful ulcerative exanthem over buccal mucosa and palate
  - 3-6 day incubation, resolves in 7-10 days

- **epidemiology**
  - commonly affects young children

- **management**
  - xylocaine gel as analgesic
Molluscum Contagiosum (see Colour Atlas ID3)
- **definition and clinical features**
  - discrete dome-shaped and umbilicated pearly white papules
  - caused by DNA pox virus (molluscum contagiosum virus (MCV))
- **epidemiology**
  - afflicts both children and adults; M>F, MCV-1
  - seen in 8-18% of symptomatic HIV and AIDS patients
  - sites: eyelids (may cause conjunctivitis), beard (likely spread by shaving), neck, axillae, trunk, perineum, buttocks
  - transmission: direct contact, auto-inoculation, sexual
- **management**
  - topical cantharidin (painless application, blisters within days)
  - liquid nitrogen cryotherapy (10-15 seconds)
  - curettage
- **differential diagnosis**
  - fibromata, nevi, keratoacanthoma, basal cell carcinoma

Verruca Vulgaris (Common Warts) (see Colour Atlas ID4)
- **definition and clinical features**
  - hyperkeratotic, elevated discrete epithelial growths with papillated surface
  - caused by human papilloma virus (HPV) – at least 80 types are known
  - located at trauma sites: fingers, hands, knees of children and teens
  - paring of surface reveals punctate red-brown specks (dilated capillaries)
- **management**
  - 65-90% resolve spontaneously over several years
  - 40% salicylic acid paste under occlusion (keratolytic)
  - cryotherapy with liquid nitrogen (10-30 seconds); no scar but hypopigmentation
  - light electrodesiccation, curettage with local anesthesia
- **differential diagnosis**
  - seborrheic keratosis, molluscum contagiosum

Verruca Plantaris (Plantar Warts) and Verruca Palmaris (Palmar Warts)
- **definition and clinical features**
  - hyperkeratotic, shiny, sharply marginated papule/plaque
  - caused by HPV 1, 2, 4, 10
  - located at pressure sites: heads of metatarsal, heels, toes
  - paring of surface reveals red-brown specks (capillaries), interruption of epidermal ridges
- **management**
  - none if asymptomatic, disappears in 6 months
  - if tender on lateral pressure, 40% salicylic acid plaster for 1 week then cryotherapy
- **differential diagnosis**
  - need to scrape (“pare”) lesions to differentiate wart from callus and corn
  - callus: paring reveals uniformly smooth surface with no interruption of epidermal ridges
  - corn (caused by underlying bony protuberance): paring reveals shiny keratinous core, painful to vertical pressure

Verruca Planae (Flat Wart)
- **definition and clinical features**
  - multiple discrete, skin coloured, flat topped papules occurring grouped or in linear configuration
  - common in children
  - sites: face, dorsa of hands, shins, knees
- **management**
  - electrodesiccation
  - cryotherapy

Condylomata Acuminata (Genital Warts)
- **definition and clinical features**
  - skin coloured pinhead papules to soft cauliflower like masses in clusters
  - caused by HPV that is immunologically distinct from HPV of verruca vulgaris
    - types 6 and 11 are the most common causes
    - types 16, 18, 31, 33 cause cervical dysplasia, squamous cell cancer and invasive cancer of vagina and penis
    - asymptomatic, lasts months to years
    - sites: genitalia and perianal areas
    - female: from cervix to labia and perineum
    - male: from meatus to scrotum
- **epidemiology**
  - young adults, infants, children
  - highly contagious, transmitted sexually and non-sexually (e.g. Koebner phenomenon via scratching, shaving)
  - can spread without clinically apparent lesions
  - children delivered vaginally by infected mothers are at risk for anogenital condylomata and respiratory papillomatosis
INFECTIONS... CONT.

- investigations
  - acetowhiteness: subclinical lesions seen with 5% acetic acid x 5 minutes and hand lens
    (tiny white papules)
  - false positives due to psoriasis, lichen planus

- management
  - podophyllin (contraindicated in pregnancy)
  - imiquimod
  - 5-FU
  - salicylic acid
  - liquid nitrogen, electrocautery
  - trichloroacetic acid (80-90%), intralesional interferon
  - surgery only needed for giant lesions

- complications
  - fairy-ring warts, ie. satellite warts at periphery of treated area of original warts

- differential diagnosis
  - condylomata lata (secondary syphilitic lesion, darkfield strongly + ve)
  - molluscum contagiosum
  - lichen planus
  - pearly penile papules

DERMATOPHTHOSIS

- definition
  - infection of skin, hair and nails caused by a species of dermatophyte (fungi that live within the epidermal keratin and do not penetrate deeper structures)

- etiology
  - Trichophyton, Microsporum, Pityrosporum, Epidermophyton species

- pathophysiology
  - digestion of keratin by dermatophytes results in scaly skin, broken hairs, crumbling nails

- investigations
  - skin scrapings, hair, and nail clippings analyzed with potassium hydroxide (KOH) prep
    (since these fungi live as molds, look for hyphae, and mycelia)

- management
  - topicals may be used as first line agents for tinea corporis/cruris and tinea pedis (interdigital type),
    e.g. clotrimazole or terbinafine cream applied bid, continued till one week after complete resolution of lesions
  - oral therapy is indicated for onychomycosis, tinea capitus, e.g. terbinafine (Lamisil) or itraconazole (Sporanox)
  - itraconazole is a P-450 inhibitor. It alters metabolism of non-sedating antihistamines, cisapride, digoxin, and HMG CoA reductase inhibitors

Tinea Capitis (see Colour Atlas D10)

- definition
  - non-scarring alopecia with scale

- etiology
  - Trichophyton tonsurans and Microsporum species

- epidemiology
  - affects children (mainly black), immunocompromised adults
  - very contagious and may be transmitted from barber, hats, theatre seats, pets

- signs and symptoms
  - round, scaly patches of alopecia
  - may see broken off hairs
  - if tissue reaction is acute, a Kerion (boggy, elevated, purulent inflamed nodule/plaque)
    may form - this may be secondarily infected by bacteria and result in scarring

- investigations
  - Wood's light examination of hair: green fluorescence only for microsporum infection
  - culture of scales/hair shaft may be done on Sabourad's agar
  - microscopic examination of a KOH preparation of scales or infected hair shafts reveal characteristic hyphae

- management
  - griseofulvin 15-20 mg/kg/day x 8 weeks or terbinafine (Lamisil) 250 mg od x 2-4 weeks
    (vary dose by weight)

- differential diagnosis
  - psoriasis, seborrhoeic dermatitis, alopecia areata, trichotillomania
INFECTIONS . . . CONT.

Tinea Corporis (Ringworm)
- definition and clinical features
  - pruritic, scaly, round/oval plaque with erythematous margin and central clearing
  - single or multiple lesions
  - peripheral enlargement of lesions
  - site: trunk, limbs, face
- etiology
  - *T. rubrum, E. floccosum, M. canis, T. cruris*
- epidemiology
  - most common in farm children and those with infected pets
- investigations
  - microscopic examinations of KOH prep of scales scraped from active margin shows hyphae
  - scales may be cultured on sabourad's agar
- differential diagnosis
  - psoriasis
  - seborrheic dermatitis
  - nummular dermatitis
  - pityriasis rosea

Tinea Cruris (“Jock Itch”)
- definition and clinical features
  - scaly patch/plaque with a well-defined, curved border and central clearing on medial thigh
  - does not involve scrotum
  - pruritic, erythematous, dry/macerated
- etiology
  - *T. rubrum, T. mentagrophytes, E. floccosum*
- epidemiology
  - most common in adult males
- investigations
  - same as for Tinea corporis
- differential diagnosis
  - candidiasis (involvement of scrotum and has satellite lesions)
  - erythrasma (coral-red fluorescence with Wood's lamp)
  - contact dermatitis

Tinea Pedis (Athlete’s Foot)
- definition
  - pruritic scaling and/or maceration of the webspaces and powdery scaling of soles
- clinical features
  - white vesicles, bullae, scale maceration
  - interdigital
- etiology
  - *T. rubrum, T. mentagrophytes, E. floccosum*
- epidemiology
  - chronic infections are common in atotics
  - heat, humidity, occlusive footwear are predisposing factors
- signs and symptoms
  - acute infection - red/white scales, vesicles, bullae, often with maceration
  - may present as flare-up of chronic tinea pedis
  - frequently become secondarily infected by bacteria
  - chronic: non-pruritic, pink, scaling keratosis on soles, and sides of foot, often in a “moccasin” distribution
  - sites: interdigital, especially in 4th webspaces
- investigations
  - microscopic examination of a KOH prep of scales from roof of a vesicle or powdery scaling area
  - culture of scales on sabourad's agar
- differential diagnosis
  - dyshydrotic dermatitis
  - allergic contact dermatitis (dorsum/heel)
  - atopic dermatitis
  - erythrasma, intertrigo (interdigital)
  - psoriasis (soles or interdigital)

Tinea Manuum
- clinical features
  - acute: blisters at edge of red areas on hands
  - chronic: single dry scaly patch
  - primary fungal infection of the hand is actually quite rare; usually associated with tinea pedis
    - with one hand and two feet affected = “1 hand 2 feet” syndrome
- etiology
  - same as in tinea pedis
- differential diagnosis
  - contact dermatitis, atopic dermatitis, psoriasis (all three commonly mistaken for fungal infections)
  - granuloma annulare (annular)
Tinea Unguium (Onychomycosis) (see Colour Atlas D9)
- definition and clinical features
  - crumbling, distally dystrophic nails; yellowish, opaque with subungual herperkeratotic debris
  - toenail infections usually precede fingernail infections
- etiology
  - T. rubrum (90% of all toenail infections)
- investigation
  - KOH prep of scales from subungual scraping shows hyphae on microscopic exam
  - subungual scraping may be cultured on Sabourad’s agar
- management
  - terbinafine (Lamisil) 250 mg od (6 weeks for fingernails, 12 weeks for toenails) or pulse itraconazole (Sporanox) at 200mg bid x 7d, then 3 weeks off (2 pulses for fingernails, 3 pulses for toenails)
- differential diagnosis
  - psoriasis (pitting, may have psoriasis elsewhere)
  - trauma
  - lichen planus

Pityriasis (tinea) Versicolour (see Colour Atlas ID7)
- definition
  - chronic asymptomatic superficial fungal infection with brown/white scaling macules
- etiology
  - P. ovale
- pathophysiology
  - Malassezia furfur (Pityrosporum orbiculare) that produces cicarboxylic acid —> inflammatory reaction and inhibited melanin production, yielding variable pigmentation
- epidemiology
  - P. ovale also associated with folliculitis and seborrheic dermititis
  - young adults, M=F
  - predisposing factors: summer, tropical climates, Cushing’s syndrome, prolonged corticosteroid use
- signs and symptoms
  - affected skin darker than surrounding skin in winter, lighter in summer (doesn’t tan)
  - sites: upper trunk most common seen on face in dark skinned individuals
- investigations
  - direct microscopic exam of scales for hyphae and spores (“spaghetti and meatballs”) prepared in KOH
  - Wood’s lamp (faint yellow-green fluorescence)
- management
  - scrub off scales with soap and water
  - selenium sulfide
  - ketoconazole cream or 200mg PO daily for 10 days

YEAST
Candidiasis (see Colour Atlas ID10)
- Candidal paronychia: painful red swellings of periungual skin
- Candidal intertrigo
  - macerated/eroded erythematous patches that may be covered with papules and pustules, located in intertriginous areas
  - peripheral “satellite” pustules
  - often under breast, groin, interdigital
  - predisposing factors - obesity, diabetes, systemic antibiotics, immunosuppression, malignancy
  - intertrigo starts as non-infectious maceration from heat, moisture and friction; evidence that it has been infected by Candida is a pustular border
- management
  - keep area dry, miconazole cream bid until rash clears
- mucus membranes - glossitis (thrush), balanitis, vulvo-vaginitis

PARASITIC
Scabies (see Colour Atlas ID2)
- definition
  - a transmissible parasitic skin infection (Sarcoptes scabiei, a mite), characterized by superficial burrows, intense pruritus and secondary infection
- signs and symptoms
  - secondary lesions: small urticarial crusted papules, eczematous plaques, excoriations
  - intractable pruritus worse at night (mite more active; pruritus is also worse at night)
  - sites: axillae, cubitus, wrist, side of palm, web spaces, groin, buttocks, back of ankle, toes, penis; sparing of head and neck, except in infants
- differential diagnosis
  - dermatitis herpetiformis: see vesicles, urticaria, eosinophilia, no burrows
  - astematotic eczema (“winter itch”)
  - neurotic excoriation

Clinical Pearl
- Intractable pruritus worse at night.
INFECTIONS...CONT.

- **epidemiology**
  - risk factors: sexual promiscuity, crowding, poverty, nosocomial
  - immunocompromised: Norwegian Scabies = Crusted Scabies; all over body
  - scabies mite remains alive 2-3 days on clothing/sheets
  - incubation = 1 month, then begin to itch
  - re-infection followed by hypersensitivity in 24 hours

- **investigations**
  - microscopic examination of root and content of burrow with KOH for mite, eggs, feces

- **management**
  - bathe then apply Permethrin 5% cream (i.e. Nix) or Kwellada P from head (not neck) down to soles of feet (must be left on for 8 hours)
    - Nix and Kwellada P preferred in children (seizures reported with Kwellada's old formulation)
    - may require second treatment 7 days after first treatment
  - change underwear and linens; wash with detergent in hot water cycle then dry with machine
  - +/- antihistamine
  - treat family and contacts
  - pruritus may persist for 2-3 weeks due to prolonged hypersensitivity reaction

Lice (Pediculosis)

- **definition and clinical features**
  - intensely pruritic red excoriations, morbilliform rash, caused by louse which is a parasite
    - scalp lice: nits on hairs; caused by *Pediculus capitus*
    - red excoriated skin with secondary bacterial infection, lymphadenopathy
    - pubic lice: nits on hairs; caused by *Pthirus pubis*
    - excoriations
      - rarely in chronic cases: “maculae ceruleae”= bluish grey, pea-sized macules
      - NB: large portion of patients with pubic hair lice also have other STDs
    - body lice: nits and lice in seams of clothing; caused by *Pediculus corporis*
    - excoriations and secondary infection
    - mainly on shoulders, belt-line and buttocks

- **differential diagnosis**
  - bacterial infection of scalp: responds rapidly to antibiotic
  - seborrheic dermatitis: flakes of dandruff readily detached
  - hair casts: pulled off more easily than nits, no eggs on microscopy

- **management**
  - oral ivermectin 200 mg/kg very effective
  - Permethrin 1% (Nix) cream rinse (ovicidal)
  - Kwellada shampoo (kills newly hatched nits)
  - comb hair with fine-toothed comb using dilute vinegar solution to remove nits
  - repeat in 7 days
  - bedding, clothing and towels should be changed and washed with detergent in hot water cycle then dried in dryer
  - in body lice, clothing must be washed

PAPULOSQUAMOUS DISEASES

PSORIASIS (see Colour Atlas D7 and RH23)

- **types**
  - plaque psoriasis
  - guttate psoriasis
  - erythrodermic psoriasis
  - pustular psoriasis
  - psoriatic arthritis

- **differential**
  - seborrhoeic dermatitis
  - chronic dermatitis
  - mycosis fungoides (cutaneous T-cell lymphoma)

Plaque Psoriasis

- **definition**
  - a common chronic and recurrent disease characterized by well circumscribed erythematous papules/plaques with silvery white scales, mostly at sites of repeated trauma

- **epidemiology**
  - multifactorial inheritance: 30% with family history and HLA markers

- **pathophysiology**
  - decreased epidermal transit time from basal to horny layers and shortened cell cycle of psoriatic and normal skin

- **signs and symptoms**
  - worse in winter (lack of sun and humidity)
  - Koebner phenomenon (isomorphic response): induction of new lesion by injury (e.g. in surgical wounds)
  - Auspitz's sign: bleeds from minute points when scale is removed
  - sites: scalp, extensor surfaces of elbows and knees, trunk, nails, pressure areas
Table 10. Topical Treatment of Psoriasis

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mechanism</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lubricants</td>
<td>Reduce fissure formation</td>
<td>Petroleum is effective</td>
</tr>
<tr>
<td>Salicylic acid 1-12%</td>
<td>Remove scales</td>
<td></td>
</tr>
<tr>
<td>Anthralin .1%, .2%, .4%</td>
<td>Increase cell turnover</td>
<td>Stains and irritates normal skin</td>
</tr>
<tr>
<td>Tar (Liquor carbonis detergent)</td>
<td>Inhibits DNA synthesis, increase cell turnover</td>
<td>Poor longterm compliance</td>
</tr>
<tr>
<td>Calcipotriol (vit. D derivative; Dovenex) 1, 25-dihydroxyvitamin D₃</td>
<td>Binds to skin to inhibit keratinocyte proliferation</td>
<td>Not to be used on face or skin folds</td>
</tr>
<tr>
<td>Corticosteroid ointment</td>
<td>Reduce scaling and thickness</td>
<td>Use appropriate potency steroid in different areas and degree of psoriasis</td>
</tr>
<tr>
<td>Tazarotene</td>
<td>Retinoid derivative</td>
<td></td>
</tr>
<tr>
<td>Goekermann regimen: UVB + tar</td>
<td></td>
<td>UVB 290-320 nm</td>
</tr>
</tbody>
</table>

Table 11. Systemic Treatment of Psoriasis

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Adverse Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methotrexate</td>
<td>Bone marrow toxicity, hepatic cirrhosis</td>
</tr>
<tr>
<td>Steroids</td>
<td>Rebound effect when withdrawn</td>
</tr>
<tr>
<td>PUVA (8 methoxy-psoralen and UVA 360-440 nm)</td>
<td>Pruritus, burning, cataracts, skin cancer</td>
</tr>
<tr>
<td>Acetretin</td>
<td>Alopecia, chelitis, teratogenicity, epistaxis, xerosis, hypertriglyceridemia</td>
</tr>
<tr>
<td>Cyclosporine</td>
<td>Renal toxicity, hypertension, immunosuppression</td>
</tr>
</tbody>
</table>

Guttate Psoriasis (“drop-like”)
- definition and clinical features
  - discrete, scattered salmon-pink scaling papules
  - sites: generalized (mainly trunk and proximal extremeties), sparing palms and soles
  - often antecedent streptococcal pharyngitis
- treatment
  - UVB phototherapy, sunlight, lubricants
  - penicillin V or erythromycin if Group A beta-hemolytic Streptococcus on throat culture

Erythrodermic Psoriasis
- definition and clinical features
  - generalized erythema with fine desquamative scale on surface, with islands of spared skin
  - may present in patient with previous mild plaque psoriasis
  - aggravating factors: lithium, beta-blockers, NSAIDs, antimalarials, phototoxic reaction, infection
  - associated symptoms: worse arthralgia, severe pruritus
- treatment
  - hospitalization, bed rest, IV fluids, sun avoidance, monitor fluid and electrolytes
  - treat underlying aggravating condition
  - methotrexate, PUVA and retinoids

Pustular Psoriasis
- definition and clinical features
  - sudden onset of erythematous macules and papules which evolve into pustules rapidly
  - can be generalized (von Zumbusch type) or localized (acropustulosis or pustulosis of palms and soles)
  - uncommon variant
    - patient may have no history of psoriasis, or was recently inappropriately withdrawn from steroid therapy; may occur in the 3rd trimester of pregnancy (impetigo herpetiformis)
    - associated symptoms: fever, arthralgias, diarrhea, increased WBCs
- treatment
  - bed rest, withdraw exacerbating medications, monitor electrolytes
  - methotrexate and etretinate (start with low dose)
  - localized PUVA for pustulosis of palms and soles
PAPULOSQUAMOUS DISEASES . . . CONT.

PSORIATIC ARTHRITIS (see Colour Atlas RH22)

- 5 categories
  - asymmetric oligoarthropathy
  - distal interphalangeal (DIP) joint involvement is predominant
  - rheumatoid pattern – symmetric polyarthropathy
  - psoriatic arthritis mutilans
  - predominant spondylitis or sacroileitis

<table>
<thead>
<tr>
<th>Table 12. Psoriasis by distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
</tr>
<tr>
<td>Scalp</td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
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<tr>
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<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Nails</td>
</tr>
<tr>
<td>Palms and Soles</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

LICHEN PLANUS

- definition and clinical features
  - acute or chronic inflammation of mucous membranes or skin characterized by distinctive papules that have a predilection for flexural surface
- epidemiology
  - precipitating factor: severe emotional stress
  - associated with hepatitis C
- signs and symptoms
  - pathognomonic papule: small, polygonal, flat-topped, shiny, violet; Wickham's striae (greyish lines over surface)
  - resolves to leave hyperpigmented macules
  - mucous membrane lesions - lacy, whitish network, milky white plaques/papules; may be ulcerative and erosive in mouth and genitalia
  - nails - longitudinal ridging; pterygium; dystrophic, striae, graves
  - scalp - scarring alopecia
  - spontaneously resolves in weeks or lasts for years (mouth and shin lesions)
  - Koebner phenomenon: trauma
  - sites: wrists, ankles, mucous membranes (mouth, vulva, glans), nails, scalp
  - mnemonic “6 P’s”: Purple, Pruritic, Polygonal, Papules, Penile

- treatment
  - topical corticosteroids with occlusion or intradermal steroid injections
  - topical corticosteroids with occlusion or intradermal steroid injections
  - short courses of oral prednisone (rarely)
  - PUVA for generalized or resistant cases
  - oral retinoids for erosive lichen planus in mouth

- differential
  - skin
    - drug eruption (chloroquine or gold salts)
    - lichenoid graft vs. host disease
    - lupus erythematosus
    - contact with colour film development chemicals
  - mucous membranes
    - leukoplakia
    - thrush
    - HIV associated hairy leukoplakia
    - lupus erythematosus

PITYRIASIS ROSEA (see Colour Atlas ID6)

- definition and clinical features
  - acute self-limiting erythematous eruption characterized by red, oval plaques/patches and papules with marginal collarette of scale (inward pointing scales - do not extend to edge of lesion)
  - sites: trunk, proximal aspects of arms and legs
  - long axis of lesions follow lines of cleavage producing “Christmas tree” pattern on back
  - varied degree of pruritus
  - most start with a “herald” patch which precedes other lesions by 1-2 weeks
  - clears spontaneously in 6-12 weeks

- etiology
  - human herpes virus 7

- treatment
  - no treatment needed unless itchy
  - UBV in first week of eruption (5 exposures) may help pruritis
VESICULOBULLOUS DISEASES

PEMPHIGUS VULGARIS

- **definition**
  - autoimmune blistering disease characterized by flaccid, non-pruritic bullae/vesicles on an erythematous or normal skin base
- **epidemiology**
  - 40-60 years old, patients are often Jewish or Mediterranean
- **etiology**
  - autoimmune
  - associated with thymoma, myasthenia gravis, malignancy, D-penicillamine
- **pathophysiology**
  - IgG produced against epidermal desmoglein 3 leads to acantholysis (epidermal cells separated from each other) which produces intraepidermal bullae
- **signs and symptoms**
  - may present with erosions and secondary bacterial infection
  - sites: mouth (90%), scalp, face, chest, axillae, groin, umbilicus
  - Nikolsky's sign: pressure on skin induces lesion
  - Asboe-Hanson sign: bulla extends with finger pressure
- **investigations**
  - immunofluorescence shows IgG and C3 deposited in epidermal intercellular spaces

BULLOUS PEMPHIGOID

- **definition**
  - chronic autoimmune bullous eruption characterized by pruritic, tense, subepidermal bullae on an erythematous or normal skin base
- **epidemiology**
  - 60-80 years old
- **etiology**
  - autoimmune
  - associated with malignancy in some
- **pathophysiology**
  - IgG produced against dermal-epidermal basement membrane
- **signs and symptoms**
  - sites: flexor aspect of forearms, axillae, medial thighs, groin, abdomen, mouth (33%)
- **investigations**
  - direct immunofluorescence shows deposition of IgG and C3 at basement membrane
  - anti-basement membrane antibody (IgG)
- **clinical course**
  - generalized bullous eruption
  - healing without scars if no infection
- **management**
  - prednisone 50-100 mg/day (to clear) +/- steroid sparing agents such as azathioprine
  - tetracycline 500-1 000 mg/day +/- nicotinamide is effective for some cases
  - dapsone 100-150 mg/day for milder cases

DERMATITIS HERPETIFORMIS

- **definition**
  - intensely pruritic grouped papules/vesicles/urticarial wheals on an erythematous base
- **etiology**
  - 90% have HLA B8, DR3, DOWZ
  - 90% associated with gluten sensitive enteropathy (80% are asymptomatic), 30% have thyroid disease, and some have intestinal lymphoma
  - iron or folate deficiency
- **epidemiology**
  - 20-60 years old, M:F = 2:1
- **signs and symptoms**
  - sites: extensor surfaces of elbows/knees, sacrum, buttocks, scalp
  - lesions grouped in bilateral symmetry
  - pruritus, burning, stinging
- **investigations**
  - immunofluorescence: granular IgA and complement deposition in dermis
- **clinical course**
  - lesions last days - weeks
- **management**
  - dapsone 50-200 mg/day for pruritus, multiple side effects include hemolytic anemia, peripheral neuropathy, toxic hepatitis, aplastic anemia
  - gluten free diet
Table 13. Vesiculobullous Diseases

<table>
<thead>
<tr>
<th></th>
<th>Pemphigus Vulgaris</th>
<th>Bullous Pemphigoid</th>
<th>Dermatitis Herpetiformis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antibody</td>
<td>IgG</td>
<td>IgG</td>
<td>IgA</td>
</tr>
<tr>
<td>Site</td>
<td>Intercellular space</td>
<td>Basement membrane</td>
<td>Dermal</td>
</tr>
<tr>
<td>Infiltrate</td>
<td>Eosinophils and neutrophils</td>
<td>Eosinophils</td>
<td>Neutrophils</td>
</tr>
<tr>
<td>Treatment</td>
<td>High dose steroids</td>
<td>Moderate dose steroid</td>
<td>Gluten-free diet/dapsone</td>
</tr>
<tr>
<td>association</td>
<td>Thymoma, myasthenia gravis, malignancy</td>
<td>Cyclophosphamide</td>
<td>Thyroid disease</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cyclophosphamide</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Intestinal lymphoma</td>
</tr>
</tbody>
</table>

PORPHYRIA CUTANEA TARDA

- **definition**
  - autosomal dominant or sporadic skin disorder associated with the presence of excess heme characterized by tense vesicles/bullae in photoexposed areas subjected to trauma
- **epidemiology**
  - 30-40 years old, M>F
- **etiology**
  - associated with alcohol abuse, DM, drugs (estrogen therapy, NSAID), HIV, hepatitis C, increased iron
- **signs and symptoms**
  - facial hypertrichosis, brown hypermelanosis, "heliotrope" around eyes, conjunctival injection
  - vesicles and bullae in photodistribution (dorsum of hands and feet)
  - may complain of fragile skin on dorsum of hands
  - sites: light-exposed areas subjected to trauma dorsum of hands and feet, nose, upper trunk
- **investigations**
  - Wood’s lamp of urine + 5% HCl shows orange-red fluorescence
  - 24 hour urine for uroporphyrins (elevated)
  - stool contains elevated coproporphyrins
  - immunofluorescence shows IgE at dermal-epidermal junctions
- **management**
  - discontinue aggravating substances (alcohol, estrogen therapy)
  - phlebotomy to decrease body iron load
  - low dose hydroxychloroquine if phlebotomy contraindicated

DIFFERENTIAL OF PRIMARY BULLOUS DISORDERS

- Drug eruptions
- Erythema multiforme (EM) and related disorders
- Infections – bullous impetigo
- Infestations – scabies (dermatitis herpetiformis)
- Inflammation – acute eczema
EXANTHEMATOUS ERUPTIONS
(MACULOPAPULAR ERUPTIONS/MORBILLIFORM)
- symmetrical, widespread, erythematous patches or plaques with or without scales
- the “classic” adverse drug reaction
- often starts on trunk or on areas of sun exposure
- may progress to generalized exfoliative dermatitis especially if the drug is continued
- penicillin, sulfonamides, phenytoin (in order of decreasing probability)
- incidence of ampicillin eruption is > 50% in patients with mononucleosis, gout or chronic lymphocytic leukemia (CLL)

URTICARIA (also known as “Hives”)
- transient, red, pruritic well-demarcated wheals
- second most common type of drug reaction
- due to release of histamine from mast cells in dermis
- lasts less than 24 hours
- can also result after contact with allergen

ANIOEDEMA
- deeper swelling of the skin involving subcutaneous tissues often with swelling of the eyes, lips, and tongue
- may or may not accompany urticaria
- hereditary angioedema - does not occur with urticaria
  - onset in childhood; 80% have positive family history
  - recurrent attacks; 25% die from laryngeal edema
  - triggers: minor trauma, emotional upset, temperature changes
  - diagnosis: reduced C1 esterase inhibitor level (in 85%) or reduced function (in 15%), diminished C4 level
- acquired angioedema
  - autoantibodies to C1 esterase inhibitor
  - consumption of complement in lymphoproliferative disorder
  - diagnosis: C1 esterase inhibitor deficiency, decreased C1 (unique to acquired form), diminished C4 level
- treatment: prophylaxis with danazol or stanozolol
  - Epinephrine pen to temporize until patient reaches hospital in acute attack

FIXED DRUG ERUPTION
- sharply demarcated erythematous oval patches on the skin or mucous membranes
  - sites: face, genitalia
  - with each exposure to the drug, the patient develops erythema at the same location as before (fixed location)
  - antimicrobials (tetracycline, sulfonamides) anti-inflammatories, psychoactive agents (barbituates), phenolphthalein

DELAYED HYPERSENSITIVITY SYNDROME
- initial fever, followed by symmetrical bright red exanthematous eruption and may lead to internal organ involvement (hepatitis, arthralgia, carditis, interstitial nephritis, interstitial pneumonitis, lymphadenopathy, and/or hematologic abnormalities)
  - classically the patient has a first exposure to a drug and develops the syndrome 10 days later
  - symmetric
  - sites: trunk, extremities
  - siblings at risk
  - sulfonamides, anticonvulsants, etc.
  - 10% mortality if undiagnosed and untreated

PHOTOSENSITIVITY ERUPTIONS
- phototoxic reaction: “an exaggerated sunburn” confined to light exposed areas
- photoallergic reaction: an eczematous eruption that may spread to areas not exposed to light
- chlorpromazine, doxycycline, thiazide diuretics, procainamide

SERUM SICKNESS - LIKE REACTION
- a symmetric drug eruption resulting in fever, arthralgia, lymphadenopathy, and skin rash
  - usually appears 5-10 days after drug
  - skin manifestations: usually urticaria; can be morbilliform
  - cefaclor

ERYTHEMA MULTIFORME (EM), STEVENS-JOHNSON SYNDROME (SJS), TOXIC EPIDERMAL NECROLYSIS (TEN) (see D32)
### Table 13. Classification of Urticaria

<table>
<thead>
<tr>
<th>Type</th>
<th>Provocative agents/tests</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acute Urticaria</strong></td>
<td>• Foods (nuts, shellfish, eggs, fruits)</td>
<td>• Attack lasts &lt;6 weeks</td>
</tr>
<tr>
<td></td>
<td>• Insect stings</td>
<td>• Each lesion lasts &lt;24 hrs</td>
</tr>
<tr>
<td></td>
<td>• Drugs (especially aspirin, NSAID's)</td>
<td>• Occurs with or without angioedema</td>
</tr>
<tr>
<td></td>
<td>• Contacts – cosmetics, work exposures</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Infection – viral (hepatitis, upper respiratory), bacterial, parasitic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Systemic diseases – SLE, endocrinopathy (TSH), neoplasm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Stress</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Idiopathic</td>
<td></td>
</tr>
<tr>
<td><strong>Chronic Urticaria</strong></td>
<td>• Most commonly idiopathic</td>
<td>• Attack lasts &gt; 6 weeks</td>
</tr>
<tr>
<td></td>
<td>• Aggravating and causative factors may be similar to those in acute urticaria</td>
<td>• Each lesion lasts &lt;24 hrs</td>
</tr>
<tr>
<td><strong>Cholinergic Urticaria</strong></td>
<td>• Increased core body temperature</td>
<td>• Tiny flesh coloured wheals with surrounding red flare</td>
</tr>
<tr>
<td></td>
<td>• Hot shower, exercise</td>
<td></td>
</tr>
<tr>
<td><strong>Contact Urticaria</strong></td>
<td>• Latex rubber – patch test, allergy test</td>
<td></td>
</tr>
<tr>
<td><strong>Physical Urticarias</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aquagenic urticaria</td>
<td>• Exposure to water</td>
<td></td>
</tr>
<tr>
<td>Adrenergic urticaria</td>
<td>• Stress</td>
<td>• Can be life threatening</td>
</tr>
<tr>
<td>Cold urticaria</td>
<td>• Ice cube, swimming pool</td>
<td>• Immediate and possible delayed types</td>
</tr>
<tr>
<td>Dermographism</td>
<td>• Friction, rubbing skin</td>
<td></td>
</tr>
<tr>
<td>Heat urticaria</td>
<td>• Local heat</td>
<td>• Immediate and delayed types</td>
</tr>
<tr>
<td>Pressure urticaria</td>
<td>• Located over pressure areas of body (shoulder strap, buttocks)</td>
<td></td>
</tr>
<tr>
<td>Solar urticaria</td>
<td>• Caused by a specific wavelength of UV radiation</td>
<td></td>
</tr>
<tr>
<td>Vibratory urticaria</td>
<td>• Vibration</td>
<td></td>
</tr>
<tr>
<td>Vasculitic urticaria</td>
<td>• Infections – hepatitis</td>
<td>• Painful non-pruritic lesions</td>
</tr>
<tr>
<td></td>
<td>• Autoimmune diseases – SLE</td>
<td>• Lesions last &gt; 24 hrs</td>
</tr>
<tr>
<td></td>
<td>• Drug hypersensitivity</td>
<td>• Must biopsy these lesions</td>
</tr>
</tbody>
</table>
**Table 14. Comparison of Erythema Multiforme, Stevens-Johnson Syndrome and Toxic Epidermal Necrolysis**

<table>
<thead>
<tr>
<th>Lesion</th>
<th>Erythema Multiforme (EM) (see Colour Atlas D16)</th>
<th>Stevens-Johnson Syndrome (SJS)</th>
<th>Toxic Epidermal Necrolysis (TEN) (see Colour Atlas D14)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Macules/papules with central vesicles</td>
<td>• EM with more mucous membrane involvement, and blistering</td>
<td>• Severe mucous membrane involvement</td>
</tr>
<tr>
<td></td>
<td>• Classic bull’s-eye pattern of concentric light and dark rings (target lesions)</td>
<td>• “Atypical lesions” - red circular patch with dark purple center</td>
<td>• “Atypical lesions” – 50% have no target lesions</td>
</tr>
<tr>
<td></td>
<td>• Bilateral and symmetric</td>
<td>• “Sicker” (high fever)</td>
<td>• Diffuse erythema then necrosis and sheet-like epidermal detachment in &gt;30%</td>
</tr>
<tr>
<td></td>
<td>• EM minor - no mucosal involvement, bullae, or systemic symptoms</td>
<td>• Sheet-like epidermal detachment in &lt;10%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• EM major – mucosal involvement, bullae, systemic symptoms, usually drug induced</td>
<td>• Nikolsky sign</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Nikolsky sign (see pemphigus vulgaris)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sites</td>
<td>• Mucous membrane involvement (oral, genital, conjunctival)</td>
<td>• Generalized with prominent face and trunk involvement</td>
<td>• Generalized</td>
</tr>
<tr>
<td></td>
<td>• Extremities with face &gt; trunk</td>
<td>• Palms and soles may be spared</td>
<td>• Nails may also shed</td>
</tr>
<tr>
<td></td>
<td>• Involvement of palms and soles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other organs/Complications</td>
<td>• Corneal ulcers, keratitis, anterior uveitis, stomatitis, vulvitis, balanitis</td>
<td>• Complications: scarring, eruptive nevomelanocytic nevi, corneal scarring, blindness, phymosis and vaginal synechiae</td>
<td>• Tubular necrosis and acute renal failure, epithelial erosions of trachea, bronchi, GI tract</td>
</tr>
<tr>
<td>Constitutional symptoms</td>
<td>• Lesions in trachea, pharynx, larynx</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Fever, weakness, malaise</td>
<td>• Prodrome 1-3 days prior to eruption with fever and flu-like illness</td>
<td>• High fever &gt; 38ºC</td>
</tr>
<tr>
<td>Etiology</td>
<td>• Drugs – sulfonamides, NSAIDs, anticonvulsants, penicillin, allopurinol</td>
<td>• 50% are drug related</td>
<td>• 80% are definitely drug related</td>
</tr>
<tr>
<td></td>
<td>• Infection – herpes, mycoplasma</td>
<td>• Occurs up to 1-3 weeks after drug exposure with more rapid onset upon rechallenge</td>
<td>• &lt; 5% are due to viral infection, immunization</td>
</tr>
<tr>
<td></td>
<td>• Idiopathic - &gt;50%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pathology/Pathophysiology</td>
<td>• Perivascular PMN infiltrate in dermis and epidermis, edema of upper dermis</td>
<td>• Cytotoxic cell-mediated attack on epidermal cells</td>
<td>• Same as Stevens-Johnson Syndrome</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• No dermal infiltrate</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Epidermal necrosis and detachment above basement membrane</td>
<td></td>
</tr>
<tr>
<td>Differential diagnosis</td>
<td>• EM minor – urticaria, viral exanthems</td>
<td>• Scarlet fever, phototoxic eruption, GVHD, SSSS, exfoliative dermatitis</td>
<td>• Scarlet fever, phototoxic eruption, GVHD, SSSS, exfoliative dermatitis</td>
</tr>
<tr>
<td>Course and Prognosis</td>
<td>• EM major – SSSS, pemphigus vulgaris, bullous pemphigoid</td>
<td>• Scarlet fever, phototoxic eruption, GVHD, SSSS, exfoliative dermatitis</td>
<td>•</td>
</tr>
<tr>
<td>Treatment</td>
<td>• Lesions last 2 weeks</td>
<td>• &lt; 5% mortality</td>
<td>• 30% mortality due to fluid loss, secondary infection</td>
</tr>
<tr>
<td></td>
<td>• Prevention – drug avoidance</td>
<td>• Regrowth of epidermis by 3 weeks</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Symptomatic treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Corticosteroids in severely ill (controversial)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Withdraw suspect drug</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>• Intravenous fluids</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Corticosteroids – controversial</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Infection prophylaxis</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• As for Stevens-Johnson syndrome</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Admit to burn unit</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Debride frankly necrotic tissue</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SSSS = Staphylococcal Scalded Skin Syndrome  
GVHD = Graft versus Host Disease
ERYTHEMA NODOSUM
(see Colour Atlas D15)

- definition
  - acute or chronic inflammation of panniculus and venules in the subcutaneous fat

- epidemiology
  - 15-30 years old, F:M = 3:1
  - lesions last for days and spontaneously resolve in 6 weeks

- etiology
  - infections: Group A Streptococcus, primary TB, coccidioidomycosis, histoplasmosis, Yersinia
  - drugs: sulfonamides, oral contraceptives (also pregnancy), analgesics, trans-retinoic acid
  - inflammation: sarcoidosis, Crohn’s > Ulcerative Colitis
  - malignancy: acute leukemia, Hodgkin’s lymphoma
  - 40% are idiopathic

- differential diagnosis
  - superficial thrombophlebitis, panniculitis, erysipelas, panarteritis nodosa, pretibial myxedema

- signs and symptoms
  - round, red, tender, poorly demarcated nodules
  - sites: asymmetrically arranged on lower legs, knees, arms
  - associated with arthralgia, fever, malaise

- investigations
  - chest x-ray (to rule out chest infection and sarcoidosis), throat culture, ASO titre, PPD skin test

- management
  - symptomatic: bed rest, compressive bandages, wet dressings
  - NSAIDs
  - treat underlying cause

MALIGNANT SKIN TUMOURS

BASAL CELL CARCINOMA (BCC) (see Colour Atlas D21)

- definition
  - malignant proliferation of basal cells of the epidermis
  - subtypes: noduloulcerative; pigmented; superficial; sclerosing

- epidemiology
  - 75% of all malignant skin tumours > 40 years, increased prevalence in the elderly
  - M>F, skin phototypes I and II, prolonged sun exposure
  - usually due to UV light, therefore > 80% on face
  - may also be caused by scar formation, radiation, trauma or arsenic exposure

- differential diagnosis
  - nodular malignant melanoma (biopsy)
  - sebaceous hyperplasia
  - eczema
  - tinea corporis
  - squamous cell carcinoma (SCC)
  - intradermal melanocytic nevus

- signs and symptoms
  - noduloulcerative (typical)
    - skin-coloured papule/nodule with rolled, translucent (“pearly”) telangiectatic border and depressed/eroded/ulcerated centre
  - pigmented (variant)
    - flecks of pigment in translucent lesion with surface telangiectasia
    - may mimic malignant melanoma
  - superficial (variant)
    - scaly plaque with fine telangiectasia at margin
  - sclerosing (variant)
    - flesh/yellowish-coloured, shiny papule/plaque with indistinct borders
  - sites: sun-exposed regions (mainly head and neck)

- clinical course
  - 95% cure rate if lesion is less then 2 cm in diameter
  - slow growing lesion, locally invasive and rarely metastatic (< 0.1%)

- management
  - surgical excision +/- MOHS
  - radiotherapy
  - cryotherapy
  - electrodessication and curettage
  - carbon dioxide laser
  - lifelong follow-up
SQUAMOUS CELL CARCINOMA (SCC) (see Colour Atlas D17)

- **definition**
  - a malignant neoplasm of keratinocytes
- **epidemiology**
  - primarily on sun exposed skin in the elderly, M>F, skin phototypes I and II, chronic sun exposure
  - predisposing factors include UV radiation, ionizing radiation therapy/exposure, immunosuppression, PUVA, atrophic skin lesions, chemical carcinogens such as arsenic, coal tar and topical nitrogen mustards, Marjolin’s ulcers in burn scars
- **differential diagnosis**
  - BCC
  - melanoma
  - numular eczema
  - psoriasis
  - Bowen’s disease
  - Paget’s disease
- **signs and symptoms**
  - indurated erythematous nodule/plaque with surface scale/crust, and eventual ulceration
  - more rapid enlargement than BCC
  - sites: face, ears, scalp, forearms, dorsum of hands
- **clinical course**
  - prognostic factors include: immediate treatment, negative margins, and small lesions
  - SCCs that arise from solar keratosis metastasize less frequently (≤1% of cases) than other SCCs (e.g. arising de novo in old burns) (2-5% of cases)
  - overall control is 75% over 5 years, 5-10% metastasize
- **management**
  - surgical excision with primary closure, skin flaps or grafting
  - lifelong follow-up

Bowen’s Disease (Squamous Cell Carcinoma in situ)

- **definition**
  - erythematous plaque with a sharply demarcated red and scaly border
- **signs and symptoms**
  - often 1-3 cm in diameter and found on the skin and mucous membranes
  - evolves to SCC in 10-20% of cutaneous lesions and >20% of mucosal lesions
- **management**
  - biopsy required for diagnosis
  - as for basal cell carcinoma
  - topical 5-fluorouracil (Efudex) used if extensive and as a tool to identify margins of poorly defined tumours

MALIGNANT MELANOMA (see Colour Atlas D23)

- **definition**
  - malignant neoplasm of pigment forming cells (melanocytes and nevus cells)
- **epidemiology**
  - incidence 1:100
  - risk factors: numerous moles, fair skin, red hair, positive personal/family history, people who burn but do not tan, large congenital nevi, familial dysplastic nevus syndrome (100%)
  - most common sites: back (M), calves (F)
  - worse prognosis if: male, on scalp, hands, feet, late lesion
  - better prognosis if: pre-existing nevus present
- **signs and symptoms**
  - malignant characteristics of a mole include (ABCDE)
    - A - Asymmetry
    - B - Border (irregular)
    - C - Colour (varied)
    - D - Diameter (increasing or >6 mm)
    - E - Enlargement, elevation
  - sites: skin, mucous membranes, eyes, CNS
- **classification of invasion** (Plastic Surgery Chapter)
  - Breslow’s Thickness of Invasion
    - 1. <0.76 mm - mets in 0%
    - 2. 0.76-1.5 mm - mets in 25%
    - 3. 1.5-3.99 mm - mets in 50%
    - 4. >4 mm - mets in 66%
  - Clark’s Levels of Cutaneous Invasion
    - Level I - above basement membrane - rare mets
    - Level II - in papillary dermis - mets in 2-5%
    - Level III - to junction of papillary and reticular dermis - mets in up to 20%
    - Level IV - into reticular dermis - mets in 40%
    - Level V - into subcutaneous tissue - mets in 70%

Superficial Spreading Melanoma

- atypical melanocytes initially spread laterally in the epidermis then invade the dermis
- irregular, indurated, enlarging plaques with red/white/blue discoloration, focal papules and nodules
- ulcerate and bleed with growth
- 60-70% of all melanomas
Nodular Melanoma
- atypical melanocytes that initially grow vertically with little lateral spread
- uniformly ulcerated, blue-black, and sharply delineated plaque or nodule
- rapidly fatal
- 30% of melanomas

Lentigo Maligna (Premalignant Lesion)
- malignant melanoma in situ (normal and malignant melanocytes confined to the epidermis)
- 2-6 cm, tan/brown/black uniformly flat macule or patch with irregular borders
- lesion grows radially and produces complex colours
- sites: face, sun exposed areas
- 1/3 evolves into lentigo maligna melanoma

Lentigo Maligna Melanoma
- malignant melanocytes invading into the dermis
- flat, brown, stain-like that gradually enlarges with loss of skin surface markings
- raised focal papules and nodules within the lesion
- with time, colour changes from uniform brown --> dark brown with black and blue hues
- found on all skin surfaces, especially those chronically exposed to sun
- 15% of all melanomas
- not associated with preexisting acquired nevi

Acrolentiginous Melanoma
- ill-defined dark brown, blue-black macule
- palmar, plantar, subungual skin
- histologic picture as lentigo-maligna melanoma
- metastasize via lymphatics and blood vessels
- melanomas on mucous membranes have poor prognosis
- 5% of melanomas

Management
- excisional biopsy preferable, otherwise incisional biopsy
- remove full depth of dermis and extend beyond edges of lesion only after histologic diagnosis
- lymph node dissection shows survival advantage if nodes uninvolved
- chemotherapy (cis-platinum, BCG) for stage II (regional) and stage III (distant) disease
- radiotherapy is curative for uveal melanomas, palliative for bone and brain metastases

OTHERS

Leukoplakia
- definition
  - white patch/plaque on lower lip, floor of mouth, buccal mucosa, tongue border or retromolarly
- epidemiology
  - 40-70 years old, M > F, fair-skinned
  - premalignant lesion arising from chronic irritation or inflammation
- differential diagnosis
  - lichen planus
  - oral hairy leukoplakia
- management
  - excision
  - cryotherapy

Cutaneous T-Cell Lymphoma (Mycosis Fungoides)
- definition
  - T cell lymphoma, first manifested in skin
- epidemiology
  - etiology: human t-cell lymphotrophic virus (HTLV)
  - > 50 years old
  - Sezary’s syndrome - erythroderma, lymphadenopathy, WBC > 20,000 with Sezary cells, hair loss, pruritus
- differential diagnosis
  - psoriasis
  - nummular dermatitis
  - “large plaque” parapsoriasis
- signs and symptoms
  - characterized by erythematous patches/plaques/nodules/tumours which could be pruritic
  - eventually invades internal organs
- management
  - PUVA
  - topical nitrogen mustard
  - radiotherapy --> total skin election beam radiation
HERITABLE DISORDERS

ICHTHYOSIS VULGARIS

- **definition**
  - a generalized disorder of hyperkeratosis leading to dry skin, associated with atopy and keratosis pilaris

- **epidemiology**
  - 1:300 incidence
  - autosomal dominant inheritance
  - "2 A.D."; atopic dermatitis and autosomal dominant

- **signs and symptoms**
  - "fish-scale" appearance especially on extremities with sparing of flexural creases, palms and soles, scaling without inflammation

- **management**
  - Immersion in bath and oils
  - Emollient or humectant creams, creams and oils containing urea

NEUROFIBROMATOSIS (NF; VON RECKLINGHAUSEN'S DISEASE)

- **definition**
  - Autosomal dominant disorder with excessive and abnormal proliferation of neural crest elements

- **epidemiology**
  - Autosomal dominant inheritance
  - NF gene at 17q11.1 (inactivation of ras/p21 oncogene)
  - Incidence 1:3,000

- **signs and symptoms**
  - Characterized by cafe-au-lait macules, axillary freckling, Lisch nodules and neurofibromas
  - Diagnostic criteria include
    1) More than 6 cafe-au-lait spots > 1.5 cm in an adult, and more than 5 cafe-au-lait spots > 0.5 cm in a child under age 5
    2) Axillary freckling
    3) Iris hamartomas (Lisch nodules)
    4) Optic gliomas
    5) Neurofibromas, and others
  - Associated with pheochromocytoma, astrocytoma, bilateral acoustic neuromas, bone cysts, scoliosis, precocious puberty, developmental delay, renal artery stenosis

- **management**
  - Follow closely for malignancy, transformation of neurofibroma to neurofibrosarcoma
  - Excise suspicious or painful lesions

VITILIGO (see Colour Atlas D13)

- **definition**
  - Primary pigmentary disorder characterised by hypopigmentation and depigmentation

- **epidemiology**
  - 1% incidence, polygenic
  - 30% with +ve family history
  - Associated with autoimmune disease especially thyroid disease, DM, Addison's disease, pernicious anemia
  - May be precipitated by trauma, sunburn

- **signs and symptoms**
  - Acquired destruction of melanocytes characterized by sharply margined white patches
  - Sites: extensor surfaces and perionificial areas (mouth, eyes, anus, genitalia)
  - Associated with streaks of depigmented hair, chorioretinitis
  - May be generalized or segmented

- **investigations**
  - Do blood work to rule out thyroid dysfunction, pernicious anemia, Addison's disease, DM
  - Wood's lamp to detect lesions in fair-skinned patients

- **management**
  - Camouflage preparations
  - PUVA (psoralens and UVA)
  - Minigrafting
  - "Bleaching" normal pigmented areas (total white colour)
    - Done in widespread loss of pigmentation
  - Sun avoidance and protection
PRURITUS

definition
- a sensation provoking a desire to scratch
- careful history is important, since a medical workup may be indicated in 20% of cases

etiology
- dermatologic - generalized
  - winter itch or ‘xerotic eczema’ = dry and cracked skin
  - senile pruritus (may not have dry skin, any time of year)
  - infestations - scabies, lice
  - drug eruptions - ASA, antidepressants, opiates
- psychogenic states
- dermatologic - local
  - atopic and contact dermatitis, lichen planus, urticaria, insect bites, dermatitis herpetiformis
  - infection – varicella, candidiasis
  - neurodermatitis (lichen simplex chronicus, vicious cycle of itching and scratching leads to excoriated lichenified plaques)
- systemic disease - usually generalized
  - obstructive biliary disease, (e.g. PBC, chlorpromazine induced biliary cholestasis)
  - chronic renal failure, cholestatic liver disease of pregnancy, uremia secondary to hemodialysis
  - hematologic - Hodgkin’s lymphoma, multiple myeloma, leukemia, polycythemia vera, mycosis fungoides, hemochromatosis, Fe2+ deficiency, anemia
  - carcinoma - lung, breast, gastric
  - endocrine - carcinoid, DM, hypothyroid/thyrotoxicosis
  - infectious - HIV, onchocerciasis, trichinosis, echinococcosis
  - psychiatric - depression

management
- treat underlying cause and itch (minimize irritation and scratching)
- topical corticosteroid and antipuritics such as menthol, camphor or phenol
- systemic antihistamines - H1 blockers are most effective
- avoid topical anaesthetics which may sensitize the skin
- phototherapy with UVB or PUVA for uremia, obstructive biliary disease
- Danazol for myeloproliferative disorders and other systemic illnesses
## Table 16. Skin Manifestations of Internal Conditions

<table>
<thead>
<tr>
<th>Disease</th>
<th>Related Dermatoses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AUTOIMMUNE DISORDERS</strong></td>
<td></td>
</tr>
<tr>
<td>Systemic lupus erythematosus (SLS) (see Colour Atlas RH1)</td>
<td>Malar erythema, discoid rash, (erythematous papules or plaques with keratotic scale, follicular plugging, atrophic scarring on face, hands, and arms), hemorrhagic bullae, palpable purpura, urticarial purpura, patchy/diffuse alopecia, mucosal ulcers, photo sensitivity</td>
</tr>
<tr>
<td>Cutaneous lupus erythematosus</td>
<td>Sharply marginated annular or psoriiform bright red plaques with scales, telangiectasia, marked scarring, diffuse non-scarring alopecia</td>
</tr>
<tr>
<td>Scleroderma (see Colour Atlas RH8)</td>
<td>Raynaud's, nonpitting edema, waxy/shiny/tense atrophic skin (morphea), ulcers, cutaneous calcification, periungual telangiectasia, acrosclerosis</td>
</tr>
<tr>
<td>Dermatomyositis (see Colour Atlas MRH2 and RH4)</td>
<td>Periorbital and perioral violaceous erythema, heliotrope with edema, Gottron's papules (violaceous flat-topped papules with atrophy), periungual erythema, telangiectasia, calcinosis cutis</td>
</tr>
<tr>
<td>Polyrteritis nodosa</td>
<td>Polyrteritic nodules, stellate purpura, erythema, gangrene, splinter hemorrhages, livedo reticularis</td>
</tr>
<tr>
<td>Ucerative colitis (UC)</td>
<td>Pyoderma gangrenosum</td>
</tr>
<tr>
<td>Rheumatic fever</td>
<td>Petechiae, urticaria, erythema nodosum, erythema multiforme, rheumatic nodules</td>
</tr>
<tr>
<td>Buerger's disease</td>
<td>Superficial migrane thrombophlebitis, pallor, cyanosis, gangrene, ulcerations</td>
</tr>
<tr>
<td><strong>ENDOCRINE DISORDERS</strong></td>
<td></td>
</tr>
<tr>
<td>Cushing's syndrome (see Colour Atlas E1)</td>
<td>Moon facies, purple striae, acne, hyperpigmentation, hirsutism, atrophic skin with telangiectasia</td>
</tr>
<tr>
<td>Hyperthyroid (see Colour Atlas E2 and E3)</td>
<td>Moist, warm skin, seborrhea, acne, nail atrophy, hyperpigmentation, toxic alopecia, pretilial myxedema acropathy, onycholysis</td>
</tr>
<tr>
<td>Hypothyroid</td>
<td>Cool, dry, scaly, thickened, hyperpigmented skin; toxic alopecia with dry, coarse hair, brittle nails, myxedema, loss of lateral 1/3 eyebrows</td>
</tr>
<tr>
<td>Addison's disease</td>
<td>Generalized hyperpigmentation or limited to skin folds, buccal mucosa and scars</td>
</tr>
<tr>
<td>Diabetes mellitus (DM)</td>
<td>Infections (boils, carbuncles, candidiasis, S. aureus, dermatophytoses, tinea pedis and cruris, infectious eczematoïd flat-topped papules), pruritis, eruptive xanthomas, necrobiosis, lipoidica diabeticorum, granuloma annulare, diabetic foot, diabetic bullae, acanthosis nigricans, calciphylaxis</td>
</tr>
<tr>
<td><strong>HIV</strong></td>
<td>Viral (HSV, HZV, HPV, CMV, molluscum contagiosum, oral hairy leukoplakia), bacterial (impetigo, acneiform folliculitis, dental caries, cellulitis, bacillary epithelioid angiomatosis, syphilis), other (candidiasis)</td>
</tr>
<tr>
<td>Inflammatory dermatoses</td>
<td>Seborrhea, psoriasis, pityriasis rosea, vasculitis</td>
</tr>
<tr>
<td>Malignancies</td>
<td>Kaposi's Sarcoma (see Colour Atlas D20), lymphoma, BCC, SCC, malignant melanoma</td>
</tr>
<tr>
<td><strong>MALIGNANCY</strong></td>
<td></td>
</tr>
<tr>
<td>Adenocarcinoma</td>
<td>Peutz-leghers: pigmented macules on lips/oral mucosa</td>
</tr>
<tr>
<td>Gastrointestinal (GI) Cervix/anus/rectum</td>
<td>Paget's Disease: eroding scaling plaques of perineum</td>
</tr>
<tr>
<td>Carcinoma</td>
<td>Paget's Disease: eczematous and crusting lesions of breast</td>
</tr>
<tr>
<td>Breast</td>
<td>Palmpplanter keratoderma: thickened skin of palms/soles</td>
</tr>
<tr>
<td>Thyroid</td>
<td>Sipple's Syndrome: multiple mucosal neuromas</td>
</tr>
<tr>
<td>Breast/GU/lung/ovary</td>
<td>Dermatomyositis: heliotrope erythema of eyelids and purplish plaques over knuckles</td>
</tr>
<tr>
<td>Lymphoma/Leukemia</td>
<td>Ataxia Telecctasia: telengectasia on pinna, bulbar conjunctiva</td>
</tr>
<tr>
<td>Hodgkin's</td>
<td>Ichthyosis: generalized scaling especially on extremities</td>
</tr>
<tr>
<td>Acute Leukemia</td>
<td>Bloom's Syndrome: butterfly erythema on face, associated with short stature</td>
</tr>
<tr>
<td>Multiple Myeloma</td>
<td>Amyloidosis: large, smooth tongue with waxy papules on eyelids, nasolabial folds and lips, as well as facial petchiae</td>
</tr>
<tr>
<td><strong>OTHERS</strong></td>
<td></td>
</tr>
<tr>
<td>Liver disease</td>
<td>Pruritis, hyperpigmentation, spider nevi, palmar erythema, white nails, porphyria cutanea tarda, xanthomas, hair loss</td>
</tr>
<tr>
<td>Renal disease</td>
<td>Pruritis, pigmentation, half and half nails</td>
</tr>
<tr>
<td>Pruritic urticaria papules and Plaques of pregnancy (PUPPP)</td>
<td>Erythematous papules or urticarial plaques in distribution of striae distensae: buttocks, thighs, upper inner arms and lower backs</td>
</tr>
<tr>
<td>Cryoglobulinemia</td>
<td>Palpable purpura in cold-exposed areas, Raynaud's, cold urticaria, acral hemorrhagic necrosis, bleeding disorders, related to hepatitis C infection</td>
</tr>
</tbody>
</table>
## WOUNDS AND ULCERS

### Table 17. Different Types of Ulcers and Management

<table>
<thead>
<tr>
<th>Ulcer Type</th>
<th>Symptoms and signs</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arterial</td>
<td>Wound at tip of toes, cold feet with claudication, gangrene, distal hyperemia, decreased pedal pulses</td>
<td>1. Doppler study&lt;br&gt;2. If ankle: brachial ratio &lt; 0.4, may consider amputation&lt;br&gt;3. If gangrenous, paint with betadine&lt;br&gt;4. Otherwise promote moist interactive wound healing</td>
</tr>
<tr>
<td>Venous</td>
<td>Wound at malleolus, stasis change, edema, previous venous injury</td>
<td>1. Local wound dressing: moist interactive healing&lt;br&gt;2. Compression: preferably four layer&lt;br&gt;3. After wound heals, support stocking for life</td>
</tr>
<tr>
<td>Neurotropic</td>
<td>Wound at pressure point or secondary to unknown trauma</td>
<td>1. Pressure downloading by using proper shoes or seats&lt;br&gt;2. Promote moist interactive wound healing</td>
</tr>
<tr>
<td>Vasculitic</td>
<td>Livedo reticularis, petechiae, extreme tenderness, delayed healing</td>
<td>1. Biopsy to determine vasculitis&lt;br&gt;2. Serum screening for vasculitis&lt;br&gt;3. Treat vasculitis&lt;br&gt;4. Local moist interactive wound healing</td>
</tr>
</tbody>
</table>

## ALOPECIA (HAIR LOSS)

### NON-SCARRING (NON-CICATRICIAL) ALOPECIA

#### Mnemonic (TOPHAT)

- T: telogen effluvium, tinea capitis
- O: out of Fe²⁺, Zn²⁺
- P: physical - trichotillomania, “corn-row” braiding
- H: hormonal - hypothyroidism, androgenic
- A: autoimmune - SLE, alopecia areata
- T: toxins - heavy metals, anticoagulants, chemotherapy, Vit. A

#### Physiological

- male-pattern alopecia (androgenetic alopecia)
- epidemiology: early 20’s-30’s (female androgenetic alopecia is diffuse and occurs in 40’s and 50’s)
- pathophysiology: action of testosterone on hair follicles
- signs and symptoms: temporal areas progressing to vertex, entire scalp may be bald
- clinical course: relentless hair loss
- management: minoxidil lotion to reduce rate of loss/partial restoration<br>spironolactone in women<br>hair transplant<br>finasteride 1 mg/d in men

#### Physical

- trichotillomania: impulse-control disorder characterized by compulsive hair pulling with irregular patches of hair loss, and with remaining hairs broken at varying lengths<br>traumatic (e.g. tight “corn-row” braiding of hair)

#### Telogen Effluvium

- definition: uniform decrease in hair density secondary to an increased number of hairs in telogen phase (resting phase)<br>15% of hair normally in resting phase, about to shed (telogen)
- precipitating factors: post-partum, high fever, oral contraceptives, malnutrition, severe physical/mental stress, Fe²⁺ deficiency
- clinical course: 2-4 month latent period after stimulus<br>regrowth occurs within few months and may not be complete
ALOPECIA (HAIR LOSS)... CONT.

Alopecia Areata (see Colour Atlas D12)

- **definition**
  - autoimmune disorder characterized by patches of complete hair loss (loss of telogen hairs) localized to scalp, eyebrows, beard, eyelashes
  - alopecia totalis - loss of all scalp hair and eyebrows
  - alopecia universalis - loss of all body hair

- **signs and symptoms**
  - associated with dystrophic nail changes - fine stippling
  - "exclamation mark" pattern (hairs fractured and have tapered shafts, i.e. looks like"!")
  - may be associated with pernicious anemia, vitiligo, thyroid disease, Addison's disease

- **clinical course**
  - spontaneous regrowth may occur within months of first attack (worse prognosis if young at age of onset and extensive loss)
  - frequent recurrence often precipitated by emotional distress

- **management**
  - generally unsatisfactory
  - intralesional triamcinolone acetonide (corticosteroids) can be used for isolated patches (eyebrows, beards)
  - wigs
  - UV or PUVA therapy
  - support groups

Metabolic Alopecia

- **Drugs**: e.g. chemotherapy, Danazol, Vitamin A, retinoids, anticoagulants, thallium, antithyroid drugs, oral contraceptives, allopurinol, propanoid, salicylates, gentamycin, leroedopa

- **Toxins**: e.g. heavy metals

- **Endocrine**: e.g. hypothyroidism

SCARRING (CICATRICIAL) ALOPECIA

- **definition**
  - irreversible and permanent

- **etiology**
  - physical: radiation, burns
  - infections: fungal, bacterial, TB, leprosy, viral (herpes zoster)
  - collagen-vascular
    - discoid lupus erythematosus (treatment with topical/intralesional steroid or antimalarial); note that SLE can cause an alopecia unrelated to discoid lupus lesions which are non-scarring
    - scleroderma - “coup de sabre” with involvement of centre of scalp

- **investigations**
  - biopsy from active border

Clinical Pearl

- **Scarring alopecia**: absent hair follicles on exam; biopsy required
- **Non-scarring alopecia**: intact hair follicles on exam; biopsy not required.
NAILS

Definitions
- hourglass nail/finger clubbing (lung disease, cyanotic heart disease, colitis, etc.)
- koilonychia = hollowing/spoon shaped (iron deficiency, malnutrition, diabetes)
- hypoplastic (fetal alcohol syndrome (FAS), etc.)
- onycholysis = separation of nail plate from nail bed (dermatophytes, psoriasis, etc.)
- onychogryphosis = thickening of nail plate (chronic inflammation, tinea, etc.)
- onychohemia = subungual hematoma (trauma to nailbed most common)
- onychocryptosis = ingrown toenail (bad shoes, bad nail cutting)

Surface Changes
- tranverse ridging (serious acute illness may stop nail growth)
- transverse white lines (poisons, hypoalbuminemia)
- pitting (psoriasis, alopecia areata, inflammation)

Colour Changes
- yellow (tinea, jaundice, tetracycline, etc)
- green (pseudomonas)
- black (melanoma, hematoma)
- brown (nicotine use, psoriasis, poisons)
- splinter hemorrhages (trauma, bacterial endocarditis, blood dyscrasias)
  - due to extravasation of blood from longitudinal vessels of nailbed
  - blood attaches to overlying nail plate and moves distally as it grows
  - NOT specific to subacute bacterial endocarditis

Local Changes
- paronychia = local inflammation of the nailfold around the nailbed,
  - acutely a painful infection and chronically from constant wetting
    (e.g. dishwashing, thumbsucking)

TOPICAL THERAPY

VEHICLES
- for acute inflammation (edema, vesiculation, oozing, crusting, infection) use aqueous drying preparation
- for chronic inflammation (scaling, lichenification, fissuring) use a greasier, more lubricating compound

Powders
- promote drying, increase skin surface area (i.e. cooling)
  - used in intertriginous areas to reduce moisture and friction
  - inert or contain medication

Lotions
- suspensions of powder in water
  - cool and dry as they evaporate
  - leave a uniform film of powder on skin
  - easily applied to hirsute areas

Cream
- semisolid emulsions of oil in water
  - water-soluble, containing emulsifiers and preservatives
  - cosmetically pleasing

Gel
- crystalline with a lattice
  - transparent, colourless, semisolid emulsion with aqueous, acetone, alcohol or propylene glycol base
  - liquefies on contact with skin
  - dries as a thin, greaseless, nonocclusive, nonstaining film

Ointment
- semisolid water in oil emulsions (more viscous than cream)
  - inert bases - petroleum
  - most effective to transport medications into skin
  - retain heat, impede water loss, increase hydration
  - occlusive, not to be used in oozing or infected areas
TOPICAL THERAPY

TOPICAL STEROIDS

<table>
<thead>
<tr>
<th>Relative Potency</th>
<th>Relative Strength</th>
<th>Generic Names</th>
<th>Trade Names</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weak</td>
<td>x1</td>
<td>Hydrocortisone</td>
<td>Emo Cort</td>
<td>Intertriginous areas, children, face, thin skin</td>
</tr>
<tr>
<td>Moderate</td>
<td>x3</td>
<td>Hydrocortisone - 0.2% 17-valerate - 0.2% Desonide Mometasone furoate</td>
<td>Westcort Tridesilon Elocom</td>
<td>Arm, leg, trunk</td>
</tr>
<tr>
<td>Potent</td>
<td>x6</td>
<td>Betamethasone - 0.1% 17-valerate - 0.1% Amicinonide</td>
<td>Betnovate Celestoderm - V Cyclocort</td>
<td>Body</td>
</tr>
<tr>
<td>Very Potent</td>
<td>x9</td>
<td>Betamethasone Dipropionate - 0.05% Fluocinonide - 0.05%</td>
<td>Diprosone Lidex, Topsyngel</td>
<td>Palms and soles</td>
</tr>
<tr>
<td>Extremely Potent</td>
<td>x12</td>
<td>Clobetasol propionate Betamethasone Dipropionate ointment Halobetasol propionate</td>
<td>Dermovate Diprolene Ultravate</td>
<td>Palms and soles</td>
</tr>
</tbody>
</table>

Body site: Relative Percutaneous Absorption

<table>
<thead>
<tr>
<th>Body Site</th>
<th>Relative Absorption</th>
</tr>
</thead>
<tbody>
<tr>
<td>forearm</td>
<td>1.0</td>
</tr>
<tr>
<td>scalp</td>
<td>3.7</td>
</tr>
<tr>
<td>plantar foot</td>
<td>0.14</td>
</tr>
<tr>
<td>forehead</td>
<td>6.0</td>
</tr>
<tr>
<td>palm</td>
<td>0.83</td>
</tr>
<tr>
<td>cheeks</td>
<td>13.0</td>
</tr>
<tr>
<td>scrotum</td>
<td>42.0</td>
</tr>
</tbody>
</table>

Calculation of strength of steroid compared to hydrocortisone on forearm:
relative strength of steroid x relative percutaneous absorption

DRY SKIN THERAPY

- encourage use of humidifier (in summer and winter months)
- decrease excess exposure to water or soap
- use mild soaps such as Dove, Aveeno and bath oils
- apply emollients to moist skin after bathing (petroleum, Eucerin)
- lubricating lotions and creams are occlusive and soften the skin
- humectant agents such as uremol (urea), LacHydrin (lactic acid) and Neostrata (glycolic acid) hold water to skin or affect desquamation of stratum corneum
  - topical steroid ointment for symptomatic dryness with eczema
COSMETIC DERMATOLOGY

CHEMICAL PEELING
(Chemexfoliation, Chemical Resurfacing)

- application of caustic agent(s) to skin to produce a controlled destruction of epidermis or dermis with subsequent re-epithelization
- topical keratolytics are applied 2-3 weeks preoperatively
- 3 different categories of chemical peeling agents used, depending on their depth of cutaneous penetration required:

<table>
<thead>
<tr>
<th>Penetration Type</th>
<th>Peeling Agents</th>
<th>Indications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superficial</td>
<td>AHA (glycolic acid)</td>
<td>Fine wrinkling</td>
</tr>
<tr>
<td></td>
<td>10-30% trichloroacetic acid</td>
<td>Acute actinic damage</td>
</tr>
<tr>
<td></td>
<td>Jessner's solution</td>
<td>Postinflammatory pigment changes</td>
</tr>
<tr>
<td>Medium</td>
<td>CO₂ ice + 35% TCA</td>
<td>Moderate wrinkling</td>
</tr>
<tr>
<td></td>
<td>Jessner's + 35% TCA</td>
<td>Chronic photodamage</td>
</tr>
<tr>
<td></td>
<td>Glycolic acid + 35% TCA</td>
<td>Pigment changes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Epidermal/premalignant lesions</td>
</tr>
<tr>
<td>Deep</td>
<td>Baker-Gordon formula</td>
<td>Severe wrinkling</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chronic photodamage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Superficial neoplasms</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pigment changes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Epidermal lesions</td>
</tr>
</tbody>
</table>

- complications
  - erythema, infection, postinflammatory hyper/hypopigmentation, hypertrophic scars

LASER THERAPY

- wavelength is inversely proportional to absorption and directly proportional to penetration depth
- purpose: to remove/lessen unwanted pigmentation or vascular lesions (capillary hemangiomas, tattoos, epidermal nevi, seborrheic keratoses)
- hemoglobin, water and melanin are the main targets of lasers
- lasers destroy unwanted skin abnormalities based on 3 mechanisms
  - heat energy – absorption of heat with 2º spread to adjacent tissues
  - mechanical energy – rapid thermoelastic expansion destroys target
  - selective photothermolysis – wavelength that is maximally absorbed by target only and does not spread to adjacent tissues
- complications
  - erythema, hyper/hypopigmentation, scarring, infection

SUNSCREENS AND PREVENTATIVE THERAPY

UV Radiation

- UVA (320-400nm)
  - penetrates skin more effectively than UVB or UVC
  - responsible for tanning, burning, wrinkling and premature skin aging
  - penetrates clouds, glass and is reflected off water, snow and cement
- UVB (290-320nm)
  - absorbed by the outer dermis
  - is mainly responsible for burning and premature skin aging
  - primarily responsible for BCC, SCC and melanomas
  - does not penetrate glass and is substantially absorbed by ozone
- UVC (200-290nm)
  - is filtered by ozone layer

Sunburn Prevention

- sunburn
  - definition
    - erythema 2-6 hours post UV exposure often associated with edema, pain and blistering with subsequent desquamation of the dermis and hyperpigmentation
  - differential diagnosis
    - phototoxicity (erythema, immediate, pain) vs. photoallergy (eczema, delayed reaction, pruritis)
  - UV index measures the time to burn for a fair skinned individual
    - < 15 minutes = UV index > 9
    - ~ 20 minutes = UV index 7-9
    - ~ 30 minutes = UV index 4-7
Sunscreens

- SPF = sun protection factor (UVB>UVA): under ideal conditions a SPF of 10 means that a person who normally burns in 20 minutes will burn in 200 minutes following the application of the sunscreen, no matter how often the sunscreen is subsequently applied.
- sunscreens containing PABA esters may promote allergic contact dermatitis.
- topical chemical: requires application, at least 15-60 minutes prior to exposure, absorbs UV light.
  - UVB absorbers: PABA, Salicylates, Cinnamates, Benzylidene camphor derivatives
  - UVA absorbers: Benzophenones, Anthranilates, Dibenzoylmethanes, Benzylidene camphor derivatives
- topical physical: reflects and scatters UV light.
  - Titanium dioxide, Zinc oxide, Kaolin, Talc, Ferric chloride and Melanin all are effective against the UVA and UVB spectrum.
  - less risk of sensitization then chemical sunscreens and waterproof, but may cause folliculitis or miliaria.

Sunburn Treatment

- if significant blistering present, consider treatment in hospital.
- symptomatic therapy
  - cool, wet compresses and baths
  - moisturizers for dryness and peeling
  - oral anti-inflammatory: 400 mg ibuprofen q6h to relieve pain, minimize erythema and edema.
  - topical corticosteroids: soothes and decreases erythema, does not reduce damage.
  - oral steroids and antihistamines have no role.

REFERENCES

Textbooks


Articles

- JAMA patient page. Skin cancer. JAMA 199;281:676.
- Price VH. Treatment of hair loss. NEJM 1999;341:964.
- Roujeau JC. Stevens-Johnson syndrome and toxic epidermal necrolysis are severe variants of the same disease which differs from erythema multiforme. J Dermatol 1997;24-276.
- Whited JD et al. Does this patient have a mole or a melanoma? JAMA 1998;279-676.