Dermatology for the Internal Medicine Physician

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What we are going to cover today

- Dermatologic Emergencies
- Common benign skin growths
- Malignant skin tumors
- Common Rashes
- Photoprotection and Cosmetics
Dermatologic Emergencies

- Erythroderma
- Pustular psoriasis
- Pemphigus
- DRESS Syndrome
- SJS / TEN
Erythroderma
Erythroderma

- Generalized redness and scaling of skin involving >90% BSA

- Systemic manifestations
  - Peripheral edema & facial edema
  - Tachycardia
  - Loss of fluids and proteins
  - Disturbed thermoregulation

- Most common etiologies
  - Atopic dermatitis, psoriasis, CTCL, drug reactions
  - Despite intensive evaluation, the cause remains unknown in 25-30%
Pustular psoriasis
Pustular Psoriasis

- Generalized pustular psoriasis
  - Unusual manifestation of psoriasis
- Triggering factors
  - Pregnancy (impetigo herpetiformis)
  - Tapering of corticosteroids (Von Zumbusch reaction)
  - Hypocalcemia
  - Infections
  - Topical irritants
  - Rarely treatment with TNF alpha blockers (palms and soles)
Pemphigus

- Group of chronic autoimmune blistering diseases presenting with painful erosions

- IgG Autoantibodies are directed against the cell surface of keratinocytes
  - Results in blistering in varying areas of the epidermis

- Diagnosis is confirmed with direct immunofluorescence on skin biopsy

- 3 major forms
  - P. vulgaris, P. foliaceus, paraneoplastic

- Do not confuse with Bullous pemphigoid which presents with tense bullae
Pemphigus Vulgaris

- Flaccid blisters which often spontaneously burst to form painful erosions
- Mucosal sites almost always involved
- Peak onset 50-60 years
- Treatment with corticosteroids and steroid sparing immunosuppressants
  - Prior to advent of steroids survival was very low
  - Rituximab is an emerging treatment
Pemphigus Foliaceous

- More superficial blistering than pemphigus vulgaris
  - Results in “cornflake crust” appearance
- Occurs in a seborrheic distribution
- No mucosal involvement
- Chronic course
  - Most cases more benign course than PV
  - Mild cases respond to topical steroids
  - Severe cases require systemic steroids and immunosuppressants
Paraneoplastic Pemphigus

- Classic presentation is unremitting gingivostomatitis with a generalized eruption
  - Eruption may be pemphigus like, pemphigoid like, or erythema multiforme like
- Most commonly associated with non-Hodgkin lymphoma
  - Also associated with CLL, Castleman’s tumor, Waldenstrom hypergammaglobulinemia, thymoma
- Treatment involves high dose corticosteroids, prevention of infection, treatment of underlying malignancy, and immunosuppressants
DRESS Syndrome

- **Drug Rash** with Eosinophilia and Systemic Symptoms

- Life threatening skin reaction with systemic symptoms

- Underlying mechanism likely a defect in drug metabolism (esp. sulfonamides/anticonvulsants)
DRESS Syndrome

- Develops 2-6 weeks after initiation of drug

- Morbiliform eruption that becomes edematous and has follicular accentuation
  - Edema of face is hallmark of DRESS

- Liver is most common visceral organ involved
  - Sometimes have fulminant hepatitis

- Other organs:
  - Myocarditis
  - Interstitial pneumonitis/nephritis
  - Thyroiditis
  - Brain eosinophilia

- Prominent eosinophilia is common and characteristic

- Treatment is withdrawal of offending drug and high dose steroids with a slow taper
DRESS Syndrome Commonly Implicated Drugs

- Phenobarbital
- Carbamazepine
- Phenytoin
- Lamotrigine
- Sulfonamides

- Minocycline
- Allopurinol
- Gold salts
- Dapsone
Stevens Johnson Syndrome and Toxic Epidermal Necrolysis
Stevens-Johnson Syndrome

- Pathogenesis
  - Drugs represent major association
    - Usually within 14-56 days of initiation
    - NSAIDs most frequently implicated
    - Sulfonamides/anticonvulsants/PCN/TCN
  - Prodrome of respiratory symptoms and fever
  - Necrosis of large areas of oral mucosa with hemorrhagic crusts on lips
  - Involvement of two or more mucosal sites
  - May have target-like cutaneous lesions
  - Prolonged course lasting 4-6 weeks
  - Treatment is supportive
Toxic Epidermal Necrolysis

- Initial symptoms include fever/stinging eyes/pain with swallowing
- Occurs within 7-21 days of starting drug
- Tender skin lesions tend to appear first on the trunk
  - Spread to neck/face/shoulders
  - Palms and soles can show early involvement
- Mucosal involvement in >90%
- Respiratory tract in 25%
- Progression of lesions
  - Erythematous/dusky red to purpuric macules coalesce
  - Nikolsky Sign: lateral pressure applied to skin causes denudation
  - Asboe Hansen Sign: pressure applied to bullae causes lateral extension
  - Red macules change to gray as necrosis occurs
- Increased risk = Slow acetylators & immunocompromised
  - Risk of TEN is 1000 fold greater in HIV population
- Average mortality rate ~30%
Toxic Epidermal Necrolysis
Drugs Most Frequently Associated with TEN

- Allopurinol
- Aminopenicillins
- Amiothiozone
- Barbituates
- Carbamazepine
- Phenytoin
- Lamotrigine
- 8/13 FDA mandates acetaminophen TEN warning

“S”-ulfonamides
A-llopurinol
T-etrayclines
A-nti-seizure
N-saids

Nevirapine
Phenylbutazone
Piroxicam
Sulfadiazine
Sulfadoxine
Sulfasalazine
TMP/SMX
Table 1. SCORTEN Criteria

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>Mortality Rate</th>
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<tbody>
<tr>
<td>Age &gt; 40 years</td>
<td>3%</td>
</tr>
<tr>
<td>Malignancy</td>
<td></td>
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<tr>
<td>Total body surface area affected &gt; 10%</td>
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<tr>
<td>Heart rate &gt; 120 beats per minute</td>
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<tr>
<td>Serum Urea (blood urea nitrogen) &gt; 28 mg/dL</td>
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<td>Serum glucose &gt; 250 mg/dL</td>
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<tr>
<td>Serum bicarbonate &lt; 20 meq/L</td>
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<table>
<thead>
<tr>
<th>Criteria Present</th>
<th>Mortality Rate</th>
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<td>0-1</td>
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<td>2</td>
<td>12%</td>
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<td>3</td>
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<tr>
<td>4</td>
<td>58%</td>
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<tr>
<td>≥5</td>
<td>90%</td>
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SCORTEN, SCORe of Toxic Epidermal Necrosis
TEN Treatment

- Early diagnosis and discontinuation of drug
- Burn unit admission
  - Only “treatment” reliably shown to cause statistically significant decrease in mortality
- Medications
  - Cyclosporine
  - Cyclophosphamide
  - Plasmapharesis
  - Corticosteroids (may increase mortality)
  - IVIG (retrospective studies)
SJS and TEN Complications

- “Burn-like” Complications:
  - Dehydration
  - Electrolyte imbalance
  - Bacterial infection of the skin, mucosa, lungs
  - Cutaneous scarring and dyspigmentation
  - Ocular scarring
  - Esophageal and anal strictures
  - Vaginal/urethral meatal stenosis
  - Pneumonitis
Nevi

- **Intradermal nevi**
  - Flesh colored papules
  - Melanocytes in the dermis

- **Compound Nevi**
  - Pigmented papules
  - Melanocytes at the dermo-epidermal junction and dermis

- **Junctional Nevi**
  - Pigmented macules
  - Melanocytes at the dermo-epidermal junction

- **Increased number of nevi indicates higher risk of developing melanoma**
Dyplastic Nevi

- Clinically and microscopically atypical
- Marker for increased risk of developing melanoma
- Graded mild, moderate, severe on histopath
- Excision of more severe lesions
- Occur in the inherited Dysplastic Nevus Syndrome in which there are hundreds of atypical nevi and often multiple melanomas
Epidermal Inclusion Cyst

- Benign cysts caused by invagination of follicular epithelium
- May periodically become inflamed
  - Treat with oral antibiotics, intralesional corticosteroids
- Definitive treatment by surgical excision
Basal Cell Carcinoma

- Most common cancer in humans
- Rarely metastasize however can cause significant tissue destruction
- Excision or ED&C is recommended
  - Nonoperative cases or poor surgical candidates can have XRT
  - Newly approved Vismodegib oral therapy
- Occurs in Basal Cell Nevus Syndrome (Gorlin Synd)
  - Hundreds of BCCs, jaw cysts, frontal bossing, bifid ribs
Squamous Cell Carcinoma

- Related to sun exposure
- Excision is recommended for invasive lesions
  - Superficial lesions may be treated with cryodestruction or topical 5FU
- May metastasize especially if neglected or in high risk site (head and neck)
- More common in organ transplant patients than BCCs
  - All immunosuppressed patients need q6 mo skin cancer monitoring
Malignant Melanoma

- Annual incidence has increased dramatically over the past few decades, as have deaths from melanoma.
- 2 growth phases: radial and vertical
  - In the early radial growth phase, malignant cells grow in a radial fashion in the epidermis.
  - With time, melanomas progress to the vertical growth phase, in which the malignant cells invade the dermis and develop the ability to metastasize.
Malignant Melanoma

- Risk factors include fair skin, tendency to sunburn, use of tanning beds
- Treated with excision and SLNB if depth >0.75mm
- Patients should be counseled about diligent photoprotection
- Yearly dilated eye exam recommended for all MM patients given risk for ocular melanoma
Hypertrophic/Keloid Scar

- Hypertrophic scars are exuberant scar tissue that remains within borders of tissue injury.
- Keloid scars extend beyond the borders of skin injury or occur spontaneously.
- Treatment includes intralesional steroids, excision, imiquimod, silicone scar sheets, pressure devices.
Dermatofibroma

- Benign cutaneous nodule of unknown etiology that occurs more often in women
  - May have overlying pigmented skin
  - Dimple sign is helpful in diagnosis
- Dermatofibroma frequently develops on the extremities (mostly the lower legs) and is usually asymptomatic, although pruritus and tenderness are not uncommon
- Eruptive dermatofibromas (hundreds) can be indicative of altered immunity such as lupus or HIV
Seborrheic Keratosis

- Most common benign tumor of the skin
- Lackluster surface and appearance of being stuck on the skin
- Occur more frequently in sun exposed areas
- Eruptive SKs can be a paraneoplastic syndrome called the sign of Leser-Trelat
  - Associated with GI adenocarcinomas
SK Variants: Stucco Keratoses and Dermatosis Papulosa Nigra

- DPNs affect the upper cheeks and lateral orbital areas
  - Small, pedunculated, heavily pigmented and minimally keratotic
- Stucco Keratoses are superficial gray-to-light brown flat keratotic lesions favoring the dorsa of the feet and ankles
Actinic Keratoses

- Premalignant lesions which lead to SCCs if not treated
- Clinically hyperkeratotic, non-indurated erythematous papules
- Can be treated with cryodestruction, 5FU, imiquimod, diclofenac, photodynamic therapy, or newly approved ingenol mebutate
- Marker of increased risk for skin cancer
Skin Tag/Acrochordon

- Small benign skin tumor that forms primarily in intertriginous areas such as neck, axillae, groin; may also occur on face usually eyelids
- More common in obese and diabetic patients
- Treatment of irritated lesions includes cryodestruction and snip removal
Lentigenes

- Benign, small, sharply circumscribed, pigmented macules surrounded by normal-appearing skin.
- Multiple solar lentigines in adults may serve as a clinical marker of past severe sunburn and may be used to identify a population at higher risk of developing melanoma.
Cherry Hemangioma

- Most common cutaneous vascular proliferations
- They are often widespread and appear as tiny cherry red papules or macules
- More common in fair skinned individuals
Bateman’s Purpura

- Results from changes to the skin as a result of chronic sun exposure
  - The dermis thins tremendously and there is less cushioning around vasculature
  - Exacerbated by aspirin, warfarin, plavix use
- Treatment with 12% ammonium lactate causes a mild thickening of dermis producing more cushioning for the vasculature
Lichen Planus

- Pruritic, papular eruption characterized by violaceous color, polygonal shape, and fine scale
- Immunologically mediated
- Associated with Hepatitis C and treatment with Interferon
- First line treatment with topical steroids
Acute Lupus

- Butterfly rash typical of acute systemic lupus flare
  - Present in approx. 30% of patients with SLE
- Rash spares the nasolabial folds and submental areas as these are relatively photoprotected
- Systemic lupus work up
- Improves with treatment of systemic disease and photoprotection
Subacute Lupus

- Lesions are scaly, often annular, in sun exposed areas
- Patients are acutely sun sensitive
- Eruption is extremely pruritic
- Often patients are anti-Ro positive
  - Beware heart block in babies of anti-Ro + women
- Resolves without scarring
- Treat with hydroxychloroquine, topical steroids, and strict photoprotection
Discoid Lupus

- Chronic discoid lupus lesions are found in about 20% of people with SLE.
- Discoid lupus also is found in people who have no systemic disease.
- Lesions are elevated, pink or red areas which form crust or flakes on the surface.
  - Rarely are found below the chin.
  - Frequently found on the scalp and in the outer ear.
  - Lesions are pruritic and expand outward, leaving a central scar; central area may become depigmented.
- Treatment with photoprotection, hydroxychloroquine, topical steroids, intralesional steroids, thalidomide in resistant cases.
Bullous Pemphigoid

- Chronic, autoimmune, subepidermal, blistering skin disease
- Most common presentation is severely pruritic, tense blisters on the trunk of an elderly patient
- For localized disease, topical steroids plus the systemic anti-inflammatory (tetracycline and nicotinamide) may be sufficient treatment
- For more severe cases, systemic steroids along with immunosuppressives may be necessary
Seborrheic Dermatitis

- Chronic inflammatory disorder patterned on the sebum-rich areas of the scalp, face, and trunk
- Greasy scaling over red, inflamed skin is classic presentation
- Malassezia yeast and immunologic abnormalities are implicated in etiology
- Treat with anti-yeast (ketoconazole, selenium sulfide) and anti-inflammatory (topical steroid)
- Commonly aggravated by changes in humidity, changes in season, trauma (scratching), or emotional stress
- Severity varies from mild dandruff to exfoliative erythroderma
- Often severe in Parkinsons and HIV patients
Tinea Versicolor

- Superficial cutaneous fungal infection (Malassezia) characterized by hypo-pigmented or hyper-pigmented macules and patches on the chest and the back
- In patients with a predisposition, it may chronically recur
  - Maintenance therapy often helpful for these patients
- Effective topical agents include selenium sulfide, sodium sulfacetamide, azole and allylamine antifungals
- Systemic fluconazole can also be used
- Pigment normalization lags behind initiation of treatment by several months
Herpes Zoster

- Painful, vesicular rash that is usually restricted to a unilateral dermatomal distribution
- Caused by varicella zoster virus
- Patients with trigeminal nerve involvement are at high risk for herpes zoster ophthalmicus
- Several studies have shown antiviral therapy capable of reducing zoster pain, even when started beyond the traditional 72-hour therapeutic window
- Disseminated zoster requires IV acyclovir
- Prevention: Zostavax immunization for all non-immunocompromised patients 50 years and older (recommended age decreased 3/2011)
Erythema Nodosum

- Acute, nodular, erythematous eruption that usually is limited to the extensor aspects of the lower legs
- Classified as a panniculitis
- Causes: Strep infection, sarcoidosis, TB, coccidiomycosis, sulfa drugs, OCPs, UC, Chron’s, Hodgkin’s Disease
- Usually self limited, NSAIDs for pain relief
Lichen Simplex Chronicus

- Thickening of the skin with variable scaling that arises secondary to repetitive scratching or rubbing
- Not a primary process
  - Patient senses pruritus in a specific area of skin (with or without underlying pathology) and causes mechanical trauma to the point of lichenification
- Topical steroids to treat
Alopecia Areata

- Recurrent nonscarring hair loss that can affect any hair-bearing area
- T cell mediated autoimmune attack of follicles
- Patients may have a relapsing course or progress to totalis or universalis forms
- May be associated with atopic dermatitis, vitiligo, thyroiditis
- Some patients can relate onset of disease to stressful life event or illness
- First line therapy is intralesional corticosteroids
  - Immunomodulation with contact allergen sensitization, cyclosporine, methotrexate, UV therapy and systemic steroids may also be used in severe cases
Vitiligo

- Autoimmune destruction of melanocytes
- Often occurs periorificially and in areas of trauma
- Increased risk of other autoimmune diseases such as thyroid disease
- Treatment with topical steroids, topical calcineurin inhibitors, UVB/Excimer laser, monobenzylether of hydroquinone for permanent skin whitening, Dermablend cover makeup
Melasma

- Acquired hypermelanosis of sun exposed areas
- May be exacerbated by female hormones in OCPs or pregnancy
- Most important factor is sun exposure
  - All wavelengths of light implicated including visible spectrum
- Treatment with strict photoprotection, retinoids, hydroquinone, chemical peels, IPL
Rosacea

- Symptoms of facial flushing, erythema, telangiectasia, coarseness of skin, and an inflammatory papulopustular eruption
- Triggering include hot or cold temperatures, wind, hot drinks, exercise, spicy food, alcohol, emotions, topical irritants, medications that cause flushing
- Ocular manifestations include blepharitis, conjunctivitis, inflammation of the lids and meibomian glands, hyperemia, and telangiectasias
- Metronidazole gel is first line treatment, low dose doxycycline is very effective
- Telangiectasias may be removed by laser interventions
- Emerging therapy is topical alpha agonists
Perioral Dermatitis

- Chronic papulopustular and eczematous facial dermatitis
- Mostly occurs in women
- Thought to be a variant of rosacea
- Exact cause is not clear but often induced by topical steroid application on the face
  - Fluorinated toothpaste, topical creams with petrolatum base also implicated
- Treatment is to discontinue all topicals, may use doxycycline or other antiacne/rosacea therapies such as azelaic acid
Urticaria

- Vascular reaction of the skin marked by the transient appearance of smooth, slightly elevated patches that are erythematous and accompanied by severe pruritus
- Individual lesions resolve without scarring within 24 hours
- Most cases of urticaria are self-limited—lasting several days
- Treatment is with antihistamines—use both H1 and H2 blockers
- 50% of cases there is no known etiology
  - PCN antibiotics, insect bites, contact with allergenic compounds, opiates and NSAIDs are direct mast cell degranulators and can be the cause
- Worrisome signs are urticarial lesions that persist >24 hours in the same location, painful lesions, and significant postinflammatory pigment change—may signify urticarial vasculitis
Atopic Dermatitis

- Characterized by pruritus, eczematous lesions, xerosis, and lichenification
- Atopic dermatitis may be associated with other atopic (IgE) diseases (asthma, allergic rhinitis, urticaria, acute allergic reactions to foods)
- 2 variants: childhood onset and adult onset
- Chronic, relapsing course
- Best prevention of flares is diligent moisturization
- Treatment of flares involves topical and systemic corticosteroids, antihistamines
  - UV therapy, MTX, Cyclosporine in resistant cases
Keratosis Pilaris

- Common benign condition that manifests as small, rough folliculocentric keratotic papules, often described as chicken skin
- Disorder of keratinization of hair follicles
- Characteristic areas of the body are effected particularly the outer-upper arms and thighs
- Often associated with other dry skin conditions such as xerosis, ichthyosis, atopic dermatitis
- Treatment with ammonium lactate or urea will decrease hyperkeratosis however redness will remain
Eczema Craquele/Xerotic Eczema

- Skin manifestation of profound xerosis
- Common in elderly population particularly in the cooler, drier months
- Daily use of emollients should be encouraged
- Hot/prolonged bathing should be discouraged as well as harsh soaps
  - Irish Spring, Zest, Ivory are terrible!
  - Recommend Dove Sensitive skin, Cetaphil Restoraderm, or Aveeno
- Treatment with topical steroids
Dyshidrotic Eczema

- Pruritic vesicular eruption on the fingers, palms, and soles
- Clinical course can range from self-limited to chronic, severe, or debilitating
- Treatment involves topical steroids, daily use of emollients, and avoidance of irritants (alcohol based hand sanitizer)
- More severe cases may require systemic medications or UV therapy
Allergic Contact Dermatitis

- Delayed type of induced sensitivity resulting from contact with a specific allergen to which the patient has developed a specific sensitivity
- Reaction causes inflammation of the skin with varying degrees of erythema, edema, and vesiculation
- Most common allergens in US are nickel, Neomycin, Poison Ivy
- Patch testing can identify allergens for patients to avoid
- Treatment is avoidance and topical or systemic steroids
Stasis Dermatitis

- Common inflammatory skin disease that occurs on the lower extremities in patients with chronic venous insufficiency
- Decrease swelling as much as possible by managing heart failure/edema, use of compression stockings
- Good skin care with daily use of emollients and topical steroids for flares
- Treatment goal is to prevent cutaneous ulceration and treat symptoms of pruritus
Candidiasis

- Beefy, erythematous eruption often with satellite lesions
- Involves the scrotum (dermatophytes rarely involve the scrotum)
- Treat with topical azole creams or nystatin
- Educate patient about keeping area clean and dry
- Systemic antifungals may be required in severe cases
Erythrasma

- Chronic superficial infection of the intertriginous areas of the skin by *Corynebacterium minutissimum*
- More common in obese patients and those with poor hygiene
- Bacterial products exhibit coral red fluorescence with Wood’s Lamp
- Treat with erythromycin
Tinea Cruris

- Superficial fungal infection of the groin and adjacent skin
- Large patches of erythema with central clearing are centered on the inguinal creases and extend distally down the medial aspects of the thighs and proximally to the lower abdomen and pubic area
- Well demarcated scale at the periphery
- Typically does NOT involve scrotum
- 50% of patients with tinea cruris have tinea pedis
- Treat with topical azole antifungals
- Avoid use of steroids in suspected cases
Morbilliform Eruption

- Maculopapular eruption concentrated on the trunk but can involve the face and proximal extremities
- May or may not be pruritic
- Usually a result of a drug exposure or a viral infection
  - May lag behind drug exposure by several weeks
- May take several weeks to resolve
- Should not involve mucous membranes or palms/soles
- Most commonly caused by antibiotics
- Treat symptomatically with antihistamines and topical steroids
- Patients with thrombocytopenia may bleed into this rash causing a generalized purpuric appearance
Psoriasis

- Chronic, multisystem, inflammatory disorder
- Genetic predisposition
- Commonly manifests itself on the skin of the elbows, knees, scalp, lumbosacral areas, intergluteal clefts, and glans penis
- Joints are affected by psoriasis in up to 30% of patients with the disease
- New evidence suggests that psoriasis should be thought of as a cardiovascular risk factor
  - Patients need aggressive management of lipids, blood pressure, blood sugars
- First line therapy is topical steroids(retinoids/vit D analogues, more severe cases treated with cyclosporine, methotrexate, TNF blockers
Granuloma Annulare

- Benign inflammatory dermatitis
- Papules coalesce into annular plaques
- Localized granuloma annulare has a predilection for the feet, ankles, lower limbs, and wrists
- Some association with diabetes
- Treatment is symptomatic including topical and intralesional corticosteroids
Acanthosis Nigricans

- Symmetrical, hyperpigmented, velvety plaques that most commonly appear on the intertriginous areas of the axillae, groin, and posterior neck
- Associated most frequently with diabetes and obesity less often with internal malignancy particularly adenocarcinoma of the GI tract
  - Malignant AN often develops more abruptly and exuberantly possibly even involving mucous membranes and is assoc with pruritus
 Levamisole Toxicity

- Levamisole is a cutting agent used with cocaine
  - Veterinary anti-helmenthic
  - White, flavorless powder with same melting point as cocaine
- Causes ANCA positive vasculitis, neutropenia, purpuric lesions face, ears, groin, thighs
Photoprotection

- Daily use of SPF 30 on face/chest
- UVB blocked by window glass but the deeper penetrating UVA is not
- When outdoors avoid peak hours between 10-4
- Protective clothing (UPF rated) and broad brimmed hat
  - Coolibar, Solumbra, Old Harbor outfitters, Columbia
- Broad spectrum SPF 50+
Topical Steroids

- Pick one low potency steroid such as Hydrocortisone 2.5% safe for use on face, groin, axillae
- Pick one medium potency steroid such as triamcinolone 0.1% for use on trunk and extremities
- Ointment preparations have less preservatives than creams/lotions
- Avoid prolonged use on face, groin, axillae to prevent atrophy and steroid induced rosacea
- Do not use combination antifungal and high potency steroid preparation (Mycolog)
Botulinum Toxins

- Botulinum Toxin A
  - 3 brand names
    - Botox
    - Dysport
    - Xeomin
  - Temporarily paralyzes muscle by inhibiting Ach release at the synaptic cleft
  - Treats axillary and palmar hyperhidrosis
    - Effect lasts 4-9 mo
  - Cosmetic treatment of glabella “11 lines”, crows feet, perioral wrinkles, forehead creases
    - Effect lasts 3-4 mo
Fillers

- **Hyaluronic Acids**
  - Juvederm, Restylane, Belotero
  - Soft, suitable for lips, nasolabial folds

- **Calcium Hydroxylapatite (Radiesse)**
  - Firmer, suitable for NLFs, cheek hollows
  - Longer lasting than HAs

- **Poly L Lactic Acid (Sculptra)**
  - Lasts for up to 2 years
  - Suitable for NLFs, cheeks, and approved for HIV lipoatrophy
Laser Therapies

- Fractionated CO₂
  - Ablative laser for resurfacing of acne scars, facial rhytids, post surgical scars, striae
- Intense Pulsed Light
  - Nonablative treats red and brown pigment of rosacea, lentigenes, melasma, hair removal
- Pulsed Dye Laser
  - Targets hemoglobin to treat vascular lesions
Laser Therapies

- **Excimer Laser**
  - Hand held narrow band UVB
  - Treats psoriasis, vitiligo, hand eczema
- **Q switched ND Yag**
  - Tattoo removal
    - Works best on dark tattoo ink on light skin
  - Laser hair removal
Thank you!