



# **Skin Manifestations of Systemic Disease**

**Kara N. Roman, MMS, PA-C**

**Associate Program Director and  
Assistant Professor**

**George Fox University PA Program**

**Skin, Bones, Hearts and Private Parts  
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# Learning Objectives

- Recognize common dermatologic conditions associated with systemic disease.
- Use dermatologic findings to assist in the diagnosis of systemic disease.
- Provide appropriate patient education regarding the relevance of dermatologic findings as the manifestation of systemic disease to the patient.
- Offer useful next steps to assist in the diagnosis of systemic disease when dermatologic conditions are recognized.

# “Mirror, mirror on the wall, why should I pay attention to the skin at all?”

- Early and late signs of systemic diseases
- Complications of a disease or its treatment
- Reflection of internal conditions
  - Can reveal the secrets of all other body systems
    - Pulmonary
    - CV
    - GI
    - Renal
    - MS/Rheumatologic
    - Endocrine
    - Nervous
    - Internal malignancies



# Pulmonary System

- Cyanosis
- Clubbing - hypertrophic osteoarthropathy
  - One of the oldest signs in clinical medicine, first described by Hippocrates in 460 BC



# Pulmonary Conditions with Skin Findings

- Sarcoidosis
- Lung cancer
- Interstitial lung disease
- TB
- CF
- Lung abscess, empyema, bronchiectasis
- Mesothelioma

# Sarcoidosis



# Cardiovascular Disease

- Congestive heart failure
- Endocarditis
- Rheumatic fever
- Coronary heart disease
- Peripheral vascular disease
- Vascular diseases - vasculitis









# Hematologic Disease

- Anemias
- Polycythemia vera
- Mast cell disease
- Sweet syndrome
- Leukemia cutis, cutaneous B-cell lymphoma: mycosis fungoides

# Koilonychia



# Livedo reticularis



# Acrocyanosis



# Mast cell disease



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# Sweet syndrome



# Mycosis fungoides



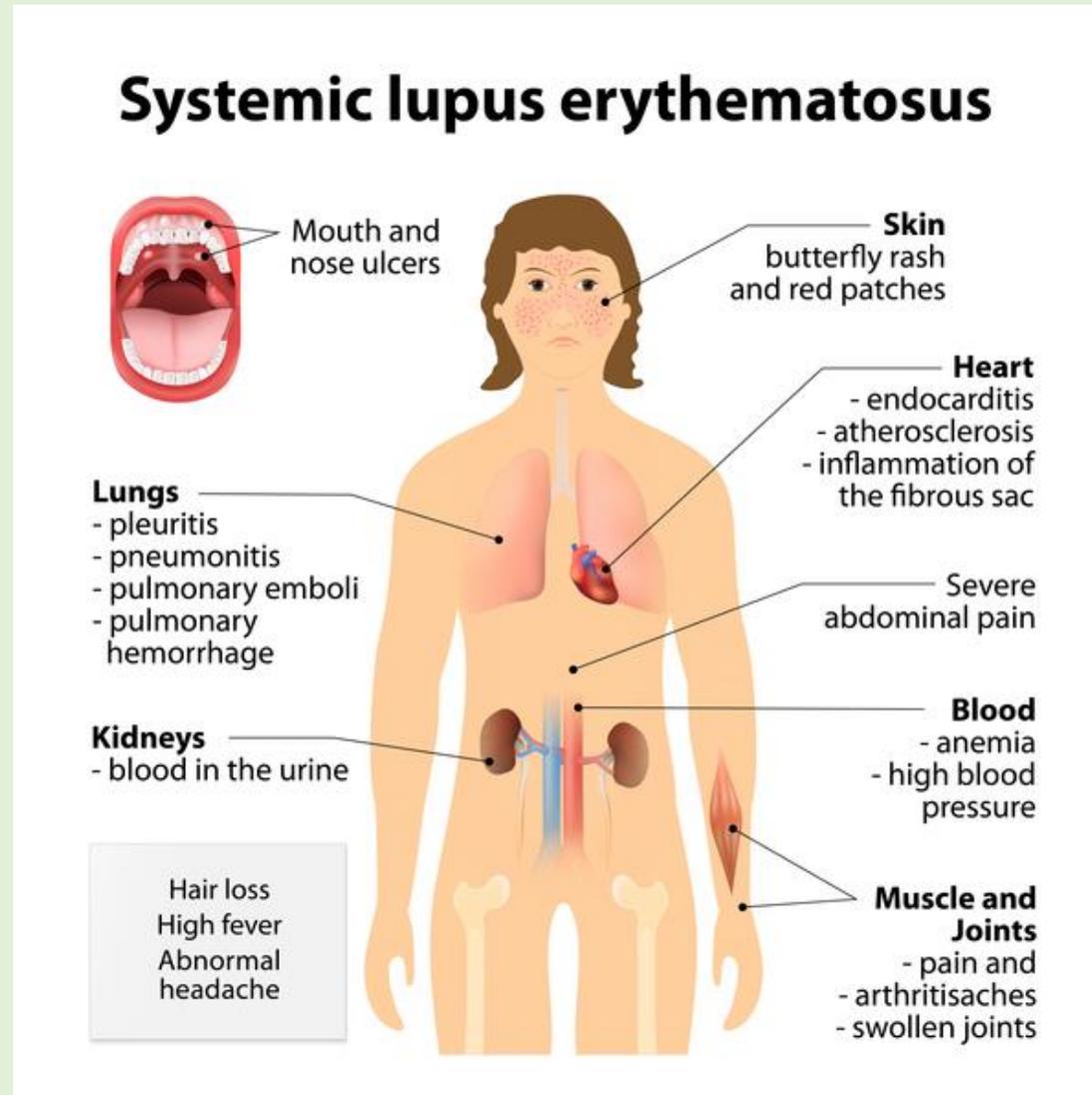
# Cutaneous B cell Lymphoma



# Connective Tissue/Rheumatologic Disease

- Systemic lupus erythematosus
- Scleroderma/CREST syndrome
- Dermatomyositis
- Rheumatoid arthritis
- Raynaud phenomenon
- Sjogren syndrome

# Systemic Lupus Erythematosus







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# Systemic Lupus Erythematosus

- Young to middle-age women
- Skin involvement in 80%
- American College of Rheumatology criteria for diagnosis
  - 4 criteria including at least one clinical criterion and one immunological
  - Biopsy-proven lupus nephritis and ANA or anti-ds-DNA antibodies
- Can be drug-induced
  - Procainamide, hydralazine, isoniazid

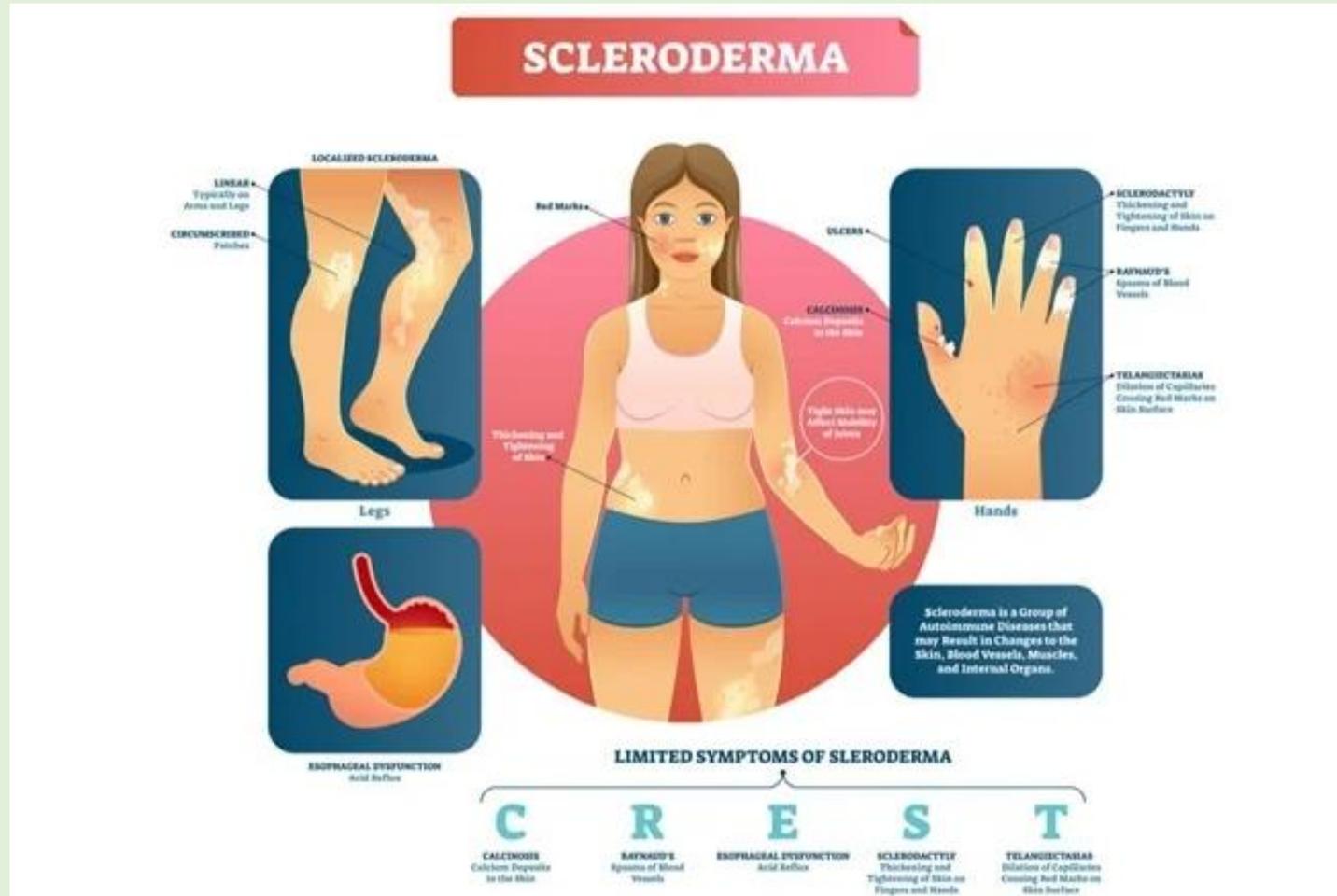
# SLE Laboratory Findings

- Antinuclear antibodies (ANA) +
- Anti-dsDNA +, anti-Sm antibodies
- False positive VDRL
- Anemia, leukopenia, thrombocytopenia, low complement, urinary findings
- Lupus band test

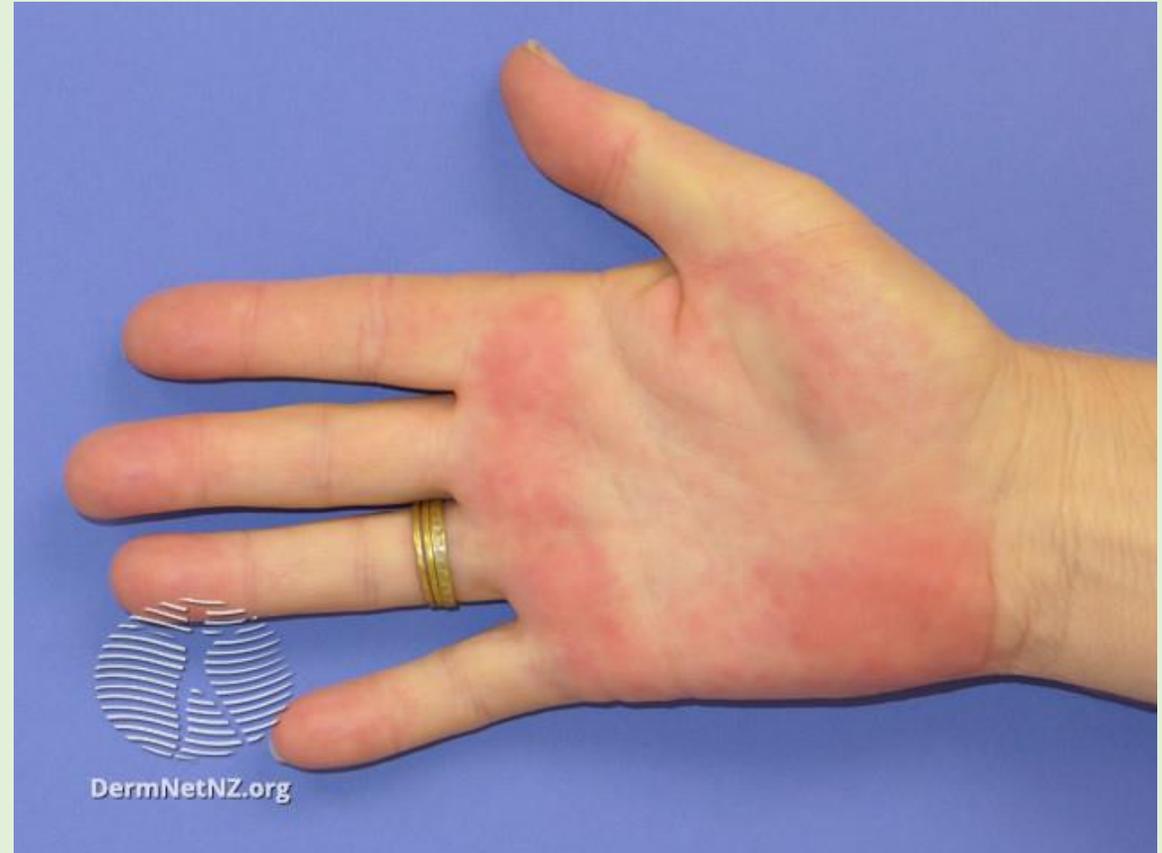
# SLE Treatment

- Sunscreen
- Antimalarials – gold standard
  - Hydroxychloroquine
- Topical, intralesional, systemic steroids
- Other immunosuppressives
  - Methotrexate
  - Biologic therapies
- Treat secondary infections
- Most common cause of death – renal and CNS

# Scleroderma







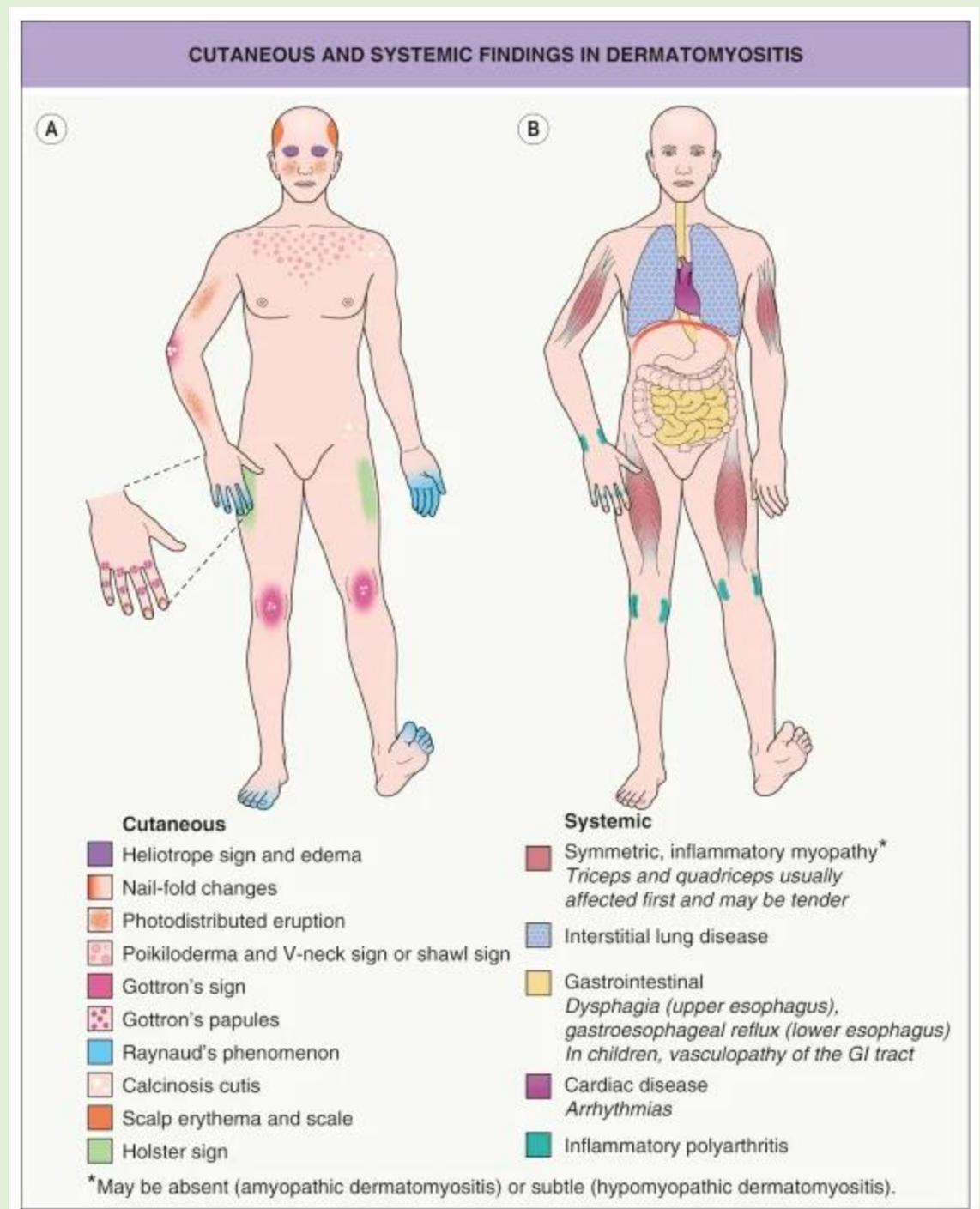




# Systemic Sclerosis/Scleroderma

- Limited cutaneous (formerly CREST) to severe systemic
- Morphea
  - Localized scleroderma – atrophic scar with dyspigmentation
  - Smooth, hard, somewhat depressed, yellowish white or ivory-colored lesions
  - Common on trunk
- Acrosclerosis
  - Sclerodactyly – tight skin over hands, digits
  - Sclerosis of skin
  - Poikiloderma
  - Telangiectatic mats
  - Calcinosis cutis
- Systemic findings – abnormal esophageal motility, pulmonary fibrosis, renal disease

# Dermatomyositis









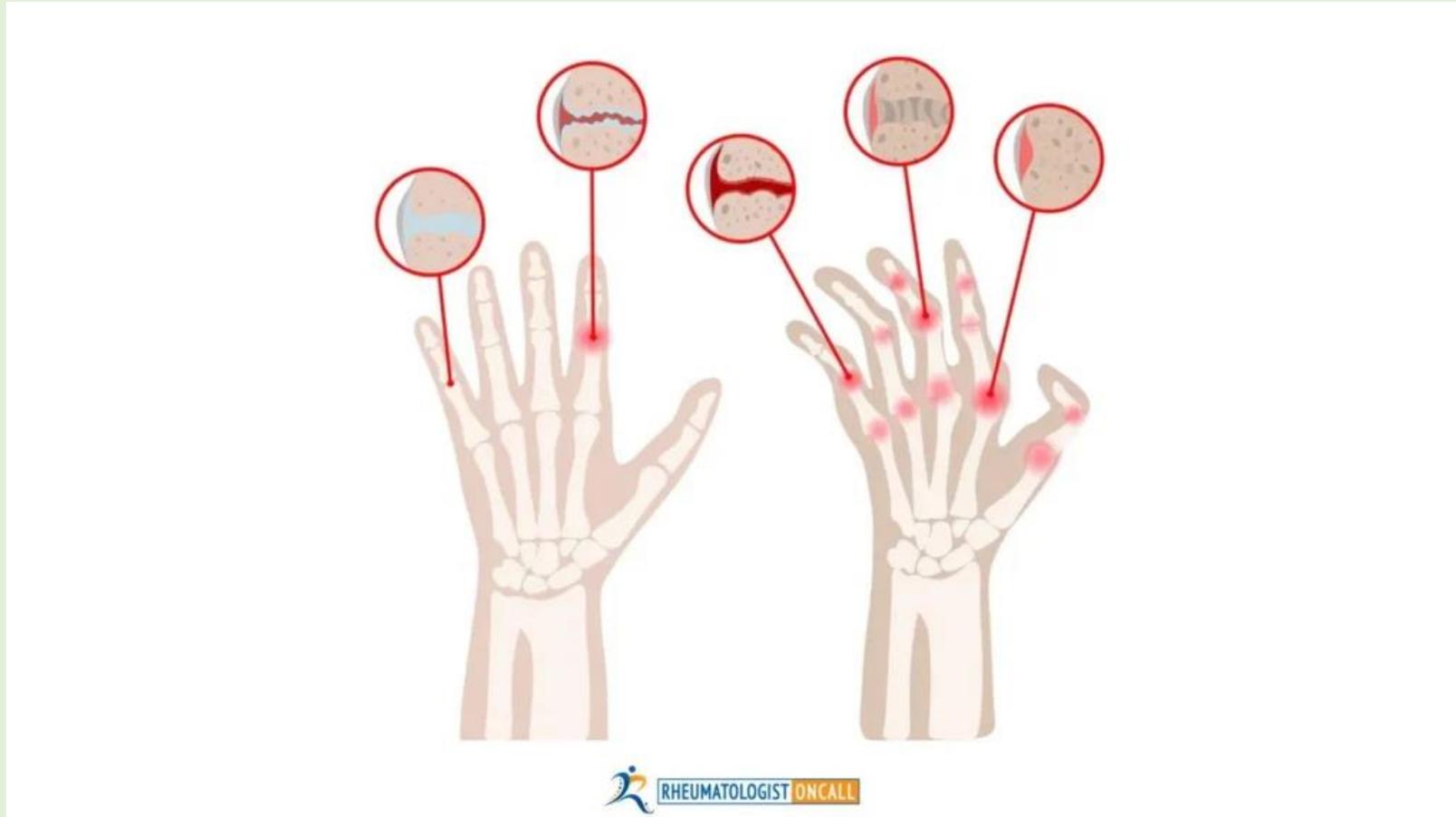
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# Rheumatoid Arthritis







# SE of TNF inhibitors – Nummular Eczema and Alopecia Areata



# Raynaud Phenomenon



# Sjogren Syndrome



# Sjogren Syndrome

- Xerosis
- Small vessel vasculitis
- Urticarial vasculitis
- Livedo reticularis
- Erythema nodosum
- Vitiligo
- Raynaud
- Alopecia



# Metabolic/Endocrine Disease

- Diabetes mellitus
- Thyroid disease
- Polycystic ovarian syndrome
- Dyslipidemia

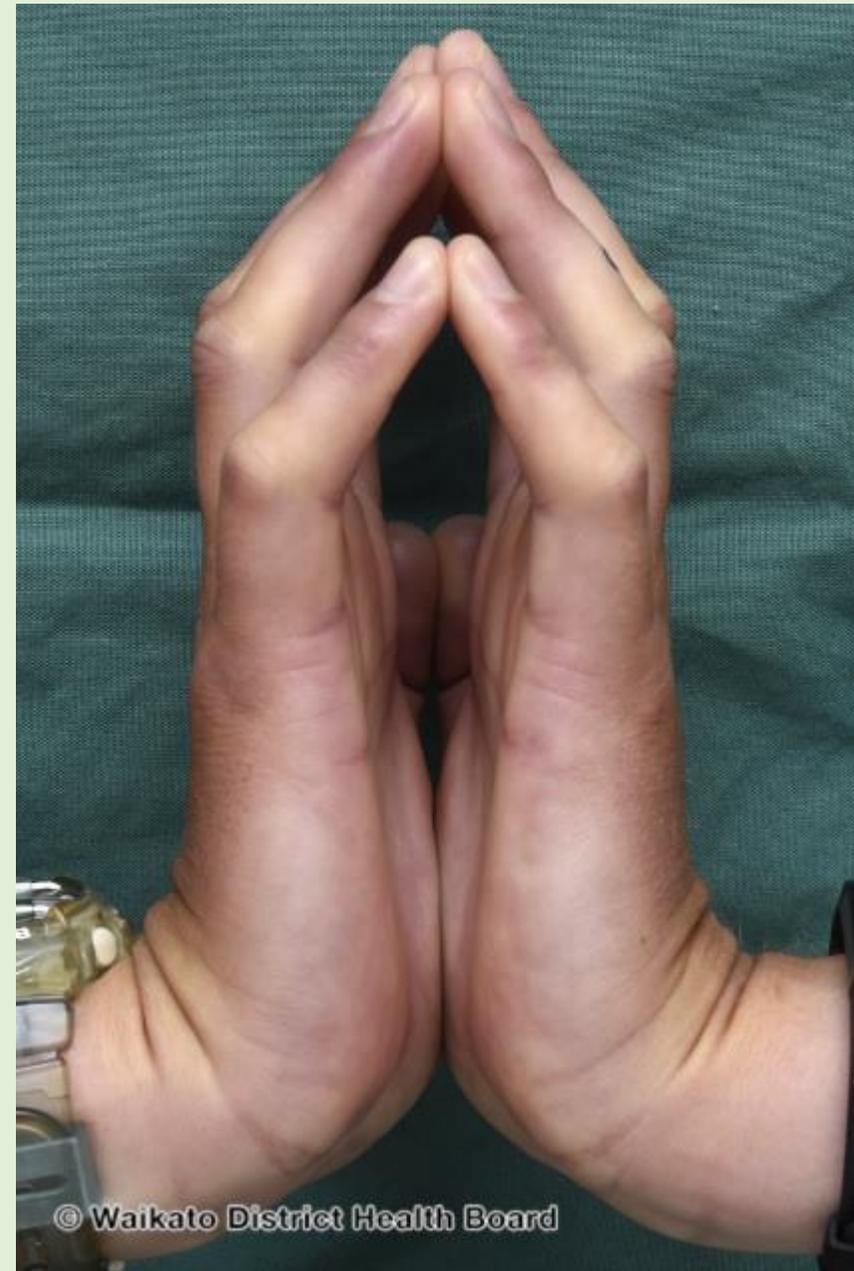
# Diabetic Dermopathy



# Diabetic Bullae



# Diabetic Stiff Skin



# Necrobiosis Lipoidica



# Foot Ulcer



# Xanthelasma



# Skin Tags



# Vitiligo



# Acanthosis Nigricans



# Candidal Intertrigo



# Cellulitis



# Hypothyroidism



# Hypothyroidism

- Sparse and brittle hair, which comes out in handfuls
- Loss of hair in the outer third of eyebrows
- Slow growing, ridged and brittle nails
- Myxedema, resulting in puffy face, eyelids, hands and feet; a presentation of mucinosis
- Delayed wound healing

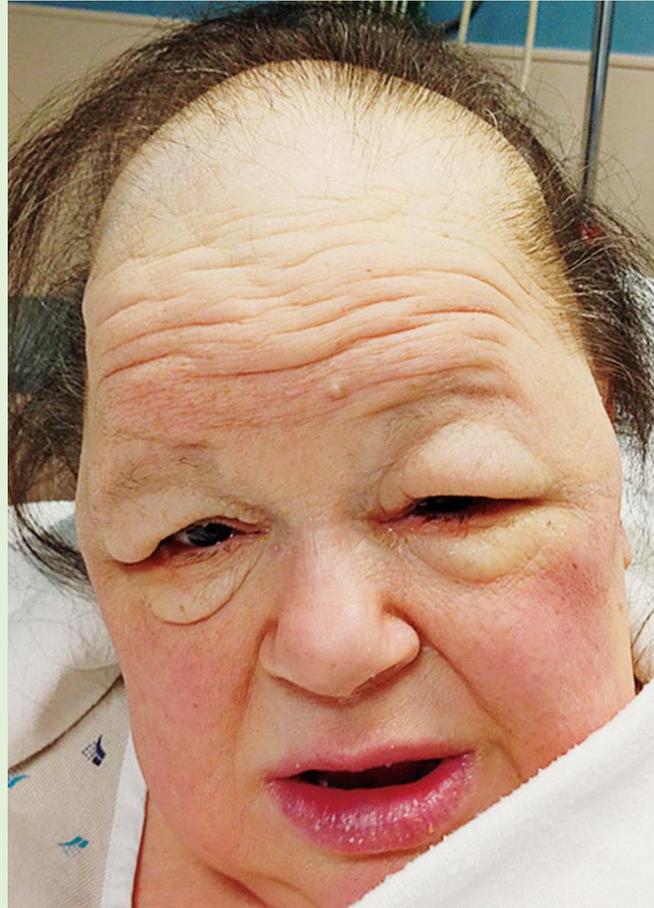
# Myxedema

- Systemic mucinosis
- Caused by a severe lack of thyroid hormone
- Skin is rough and dry
- Facial skin is puffy – dull, flat expression
- Macroglossia, broad nose
- Chronic periorbital infiltration
- Carotenemia
- Diffuse hair loss – lateral 1/3 of eyebrows
- Onycholysis

# Carotenemia



# Myxedema



# Hyperthyroidism

- Thyroacropathy



# Myxedema



# PCOS



- Acne
- Seborrhea
- Skin tags
- Hidradenitis suppurativa
- Hirsutism

# Hidradenitis Suppurativa



# Dyslipidemia









# Renal Disease

- ESRD – Perforating dermatosis, calciphylaxis



# Calciophylaxis



# Gastrointestinal Disease

- Inflammatory bowel disease
- Celiac disease
- Peutz-Jeghers syndrome
- Liver disease

# Ulcerative colitis

- Aphthous ulcers and erythema nodosum during exacerbations
- Pyoderma gangrenosum – trauma induced necrotic violaceous ulcer that is painful, starts as a small pustule, papule or bullae and then the skin breaks down into the ulcer which deepens and widens rapidly, edge of ulcer is purple and undermined
- Pathergy test – a skin prick test causing a papule, pustule or ulcer
- Swab and culture (although not usually bac)
- Neutrophilic inflammatory infiltrate
- Positive ANCA (antineutrophil cytoplasmic antibody)



# Pyoderma gangrenosum



# Crohn

- Aphthous ulcers
- Angular cheilitis
- Erythema nodosum
- Skin tags
- Perianal fissures and abscesses
- Sweet syndrome
- Small vessel vasculitis



# Sweet Syndrome

## Acute Febrile Neutrophilic Dermatosi



# Celiac – Dermatitis herpetiformis



# Peutz-Jeghers Syndrome

- Perioral melanotic freckles
  - Also gingiva, buccal and genital
- GI polyps
- Early cancer risk
  - Colon, suodenum, pancreas, breast, thyroid, lung
- Abdominal pain, bleeding, intussusception
- Regular, frequent GI screening



# Lichen planus



# Neurologic System

- Seborrheic dermatitis
- Neurofibromatosis
- Sturge-Weber syndrome
- Psychogenic
  - OCD
  - Lichen simplex chronicus
  - Trichotillomania
  - Skin picking
  - Nail tick deformity





# Encephalotrigeminal angiomatosis





# Skin Signs of Malignancy

- Sign of Leser-Trelat
- Acanthosis nigricans
- Scalp or skin metastases
- Hypertrichosis

# Seborrheic keratoses



# Tripe palms – variant of acanthosis nigricans







  
DermNetNZ.org

# Pruritus

- Cholestasis
- Renal failure
- DM
- Sjogren
- Lymphoma
- Mastocytosis
- Polycythemia vera
- Hyperthyroidism, hyperparathyroidism
- Brain tumor
- Neuropathic itch
- Anxiety, depression – prurigo nodularis

# Cutaneous COVID-19

- Exanthema
- Vascular manifestations
- Acral popular eruption
- Urticarial eruption





**List at least 2 conditions associated with erythema nodosum.**

**List 2 skin findings associated with liver disease.**

**Calciophylaxis and perforating dermatosis are associated skin signs for which systemic condition?**

# References and Resources

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