Vasculitis and Related Disorders

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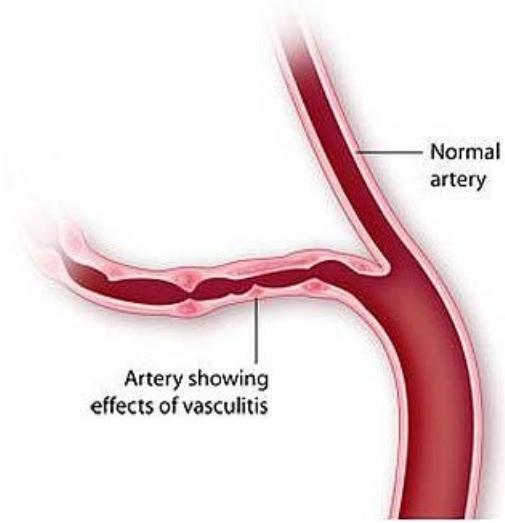
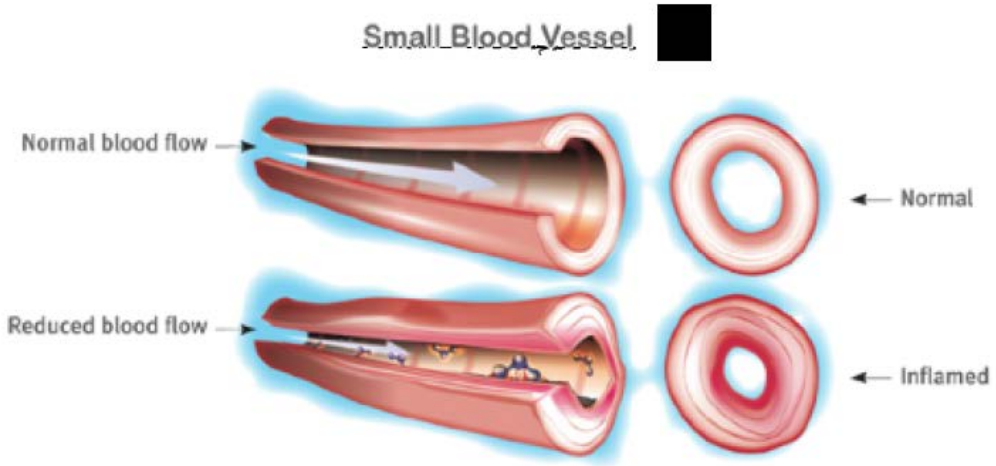
Impression Foot & Ankle

Gilbert, AZ

Objectives

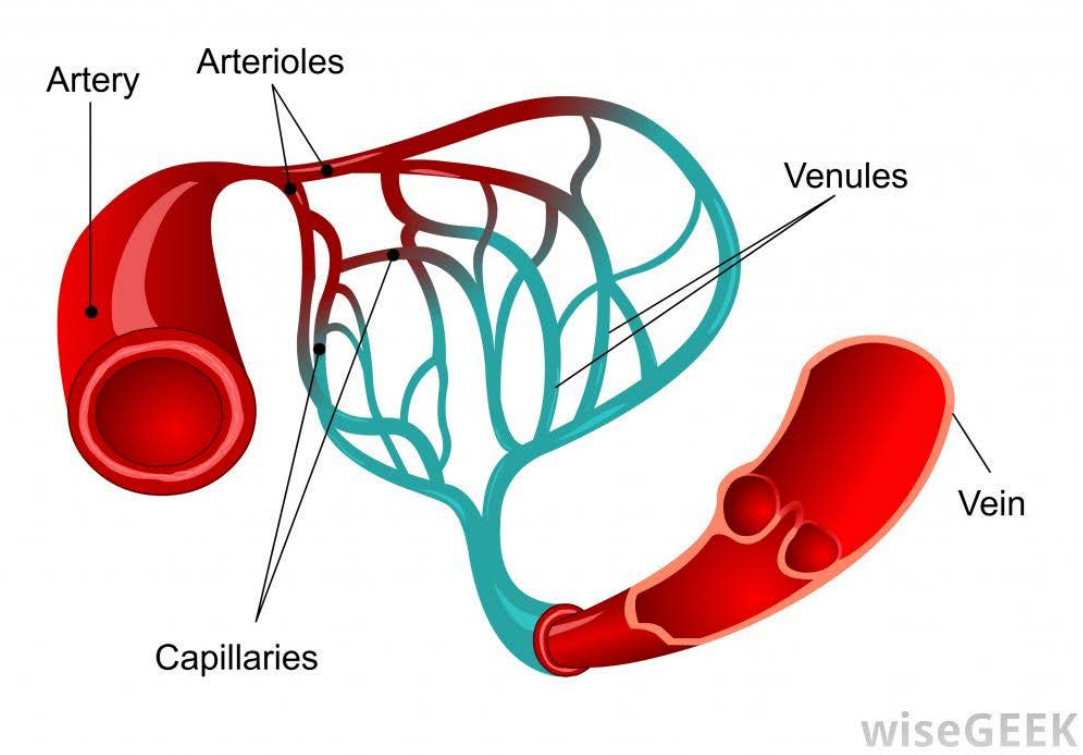
- Define vasculitis
- Describe manifestations in the lower extremity
- Discuss treatment options and prognosis





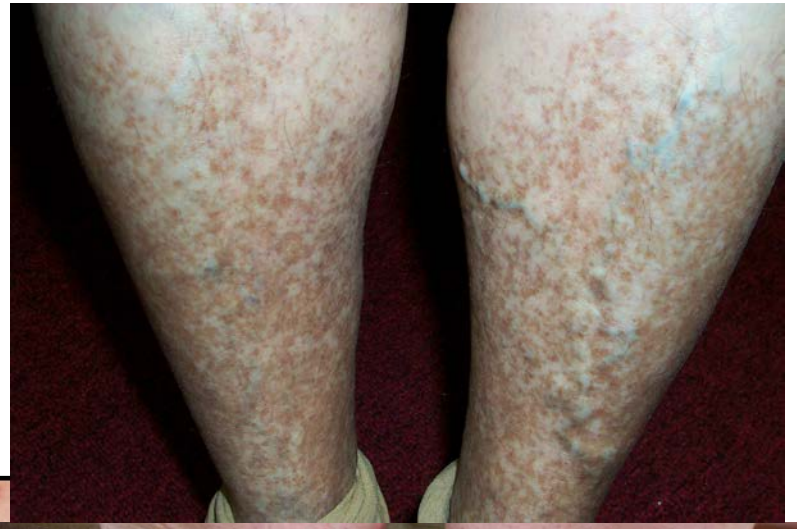
Vasculitis

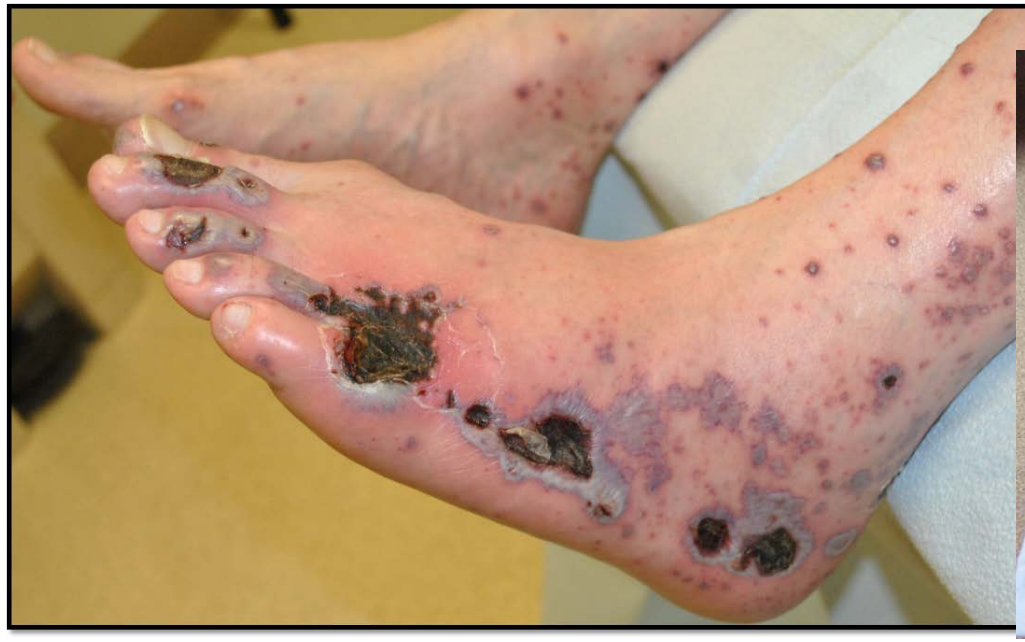
- aka angiitis
- Inflammation of the vessel wall
- Highly heterogenous group of disorders classified according to the type of inflammatory cell within the vessel walls and the size and type of blood vessel involved

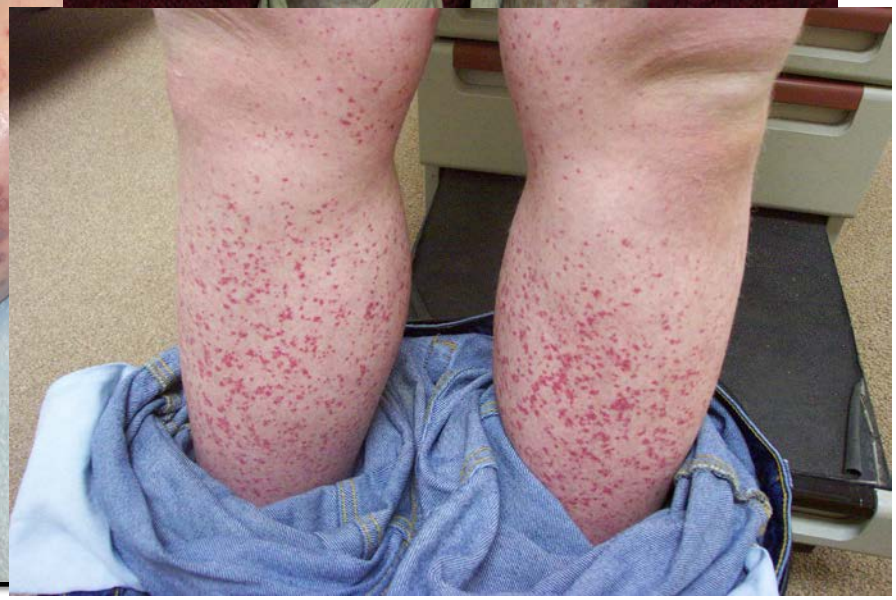


Vasculitis Signs and Symptoms

- Petechiae
- Purpura
- Hyperpigmentation
- Ulcerations
- Pruritis
- Pain







Vasculitis

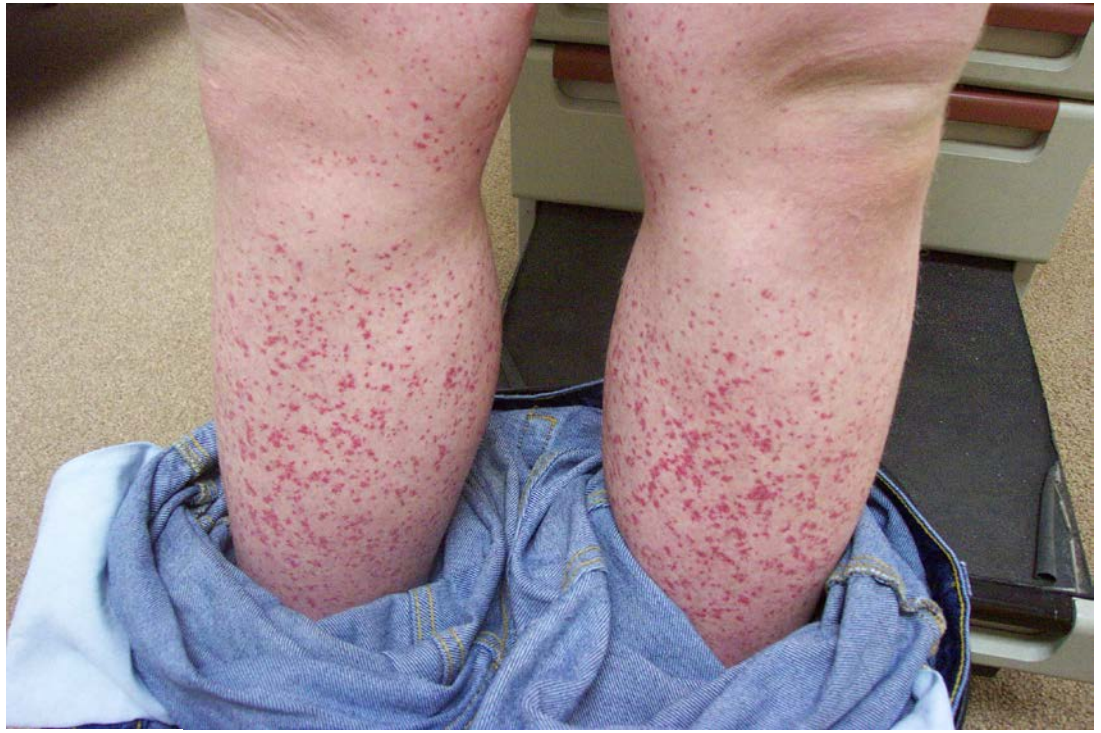
- Large vessel vasculitis
  - Giant cell arteritis
  - Takayasu's arteritis
- Medium-sized vessel vasculitis
  - Polyarteritis nodosa
  - Kawasaki's disease
  - Primary granulomatous central nervous system vasculitis
- Small vessel vasculitis
  - ANCA-associated small vessel vasculitis
  - **Immune-complex small vessel vasculitis**
  - Paraneoplastic small vessel vasculitis
  - Inflammatory bowel disease vasculitis

Small Vessel Vasculitis

- Leukocytoclastic vasculitis
  - Henoch Schonlein purpura
- Pigmented purpuric dermatoses
  - Schamberg's disease
- Livedo reticularis
- The Erythemas
  - Erythema ab igne
  - Erythema multiforme
  - Erythema nodosum
- Raynaud's phenomenon/disease
- Livedoid vasculopathy/vasculitis
- Calciphylaxis
- Purpura fulminans

Case #1

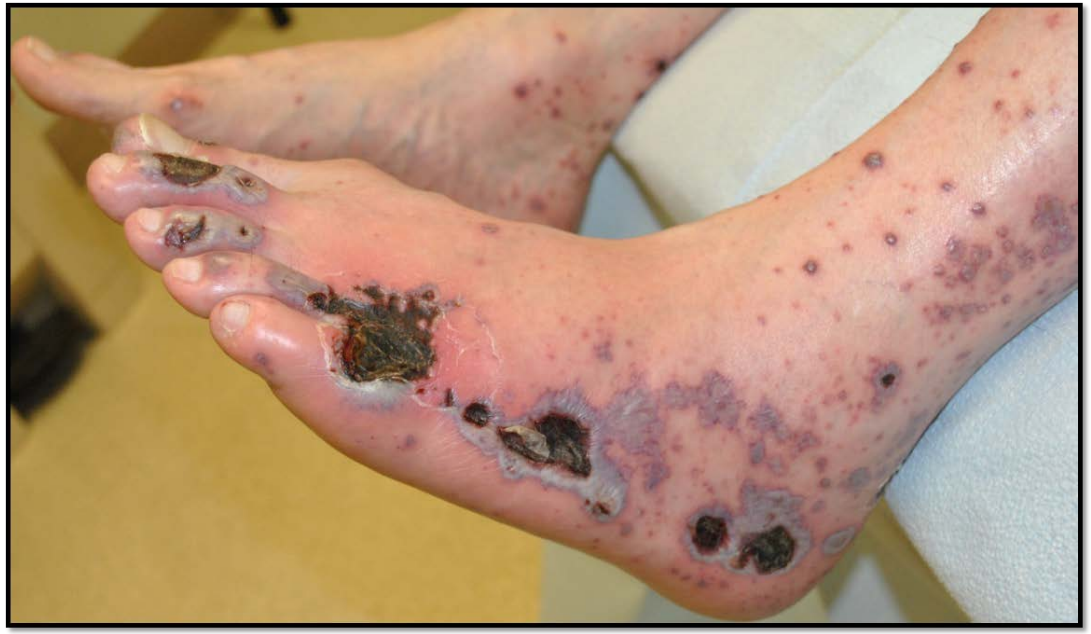
- 8 year old boy presents with palpable purpura of the lower legs
  - Other symptoms: abdominal pain and nausea, arthralgias and blood in his urine
  - Had an upper respiratory tract infection 2 weeks ago
- Diagnosis?



Henoch-Schonlein Purpura

Leukocytoclastic Vasculitis

- aka cutaneous small vessel vasculitis, hypersensitivity vasculitis
- Palpable purpura on lower extremities
- Prodromal symptoms:
  - Fever
  - Malaise
  - Myalgias
  - Arthralgias
- Self-limited



Leukocytoclastic Vasculitis

- Kidney disease most common systemic complication (50%)
- 50 percent of cases idiopathic*
- Histology shows fibrinoid necrosis of small dermal blood vessels, leukocytoclasis, endothelial cell swelling, and extravasation of red blood cells
  - “Nuclear dust” from neutrophil fragmentation
- Identify and remove the offending agent
- Topical or systemic steroids for symptomatic relief

*Bouiller K, Audia S, Devilliers H, et al. Etiologies and prognostic factors of leukocytoclastic vasculitis with skin involvement: A retrospective study in 112 patients. Medicine (Baltimore) 2016; 95(28): e4238. Published online 2016 Jul 18.

Henoch-Schonlein Purpura

- aka anaphylactoid purpura, acute leukocytoclastic vasculitis, IgA vasculitis
- Palpable purpura of legs and buttocks
- Vascular deposition of IgA-dominant immune complexes in smaller vessels
- Other symptoms:
  - Gastrointestinal
  - Arthralgias
  - **Nephritis**

Henoch-Schonlein Purpura

- Children ages 2-10
  - 75% of cases children <12*
- Tends to occur in spring
- Etiology still unknown
  - Respiratory disease?**
- No diagnostic labs
  - Increased serum IgA and blood vessel deposition

*Vlahovic TC, Schleicher SM. Skin Disease of the Lower Extremities: A Photographic Guide. 2012. HMP Communications.

**Levy M, Broyer M, Arsan A, et al. Anaphylactoid purpura nephritis in childhood: natural history and immunopathology. Adv Nephrol Necker Hosp 1976; 6:183.

Henoch-Schonlein Purpura

- American College of Rheumatology Classification Criteria*
  - 1. Palpable purpura
  - 2. Age at onset <20 years
  - 3. Bowel angina
  - 4. Vessel wall granulocytes on biopsy
- Two criteria classify HSP w/ sensitivity of 87% and specificity of 88%

*Habif, TP. Clinical Dermatology: A Color Guide to Diagnosis and Therapy. Fifth Ed. 2010, Elsevier Inc.

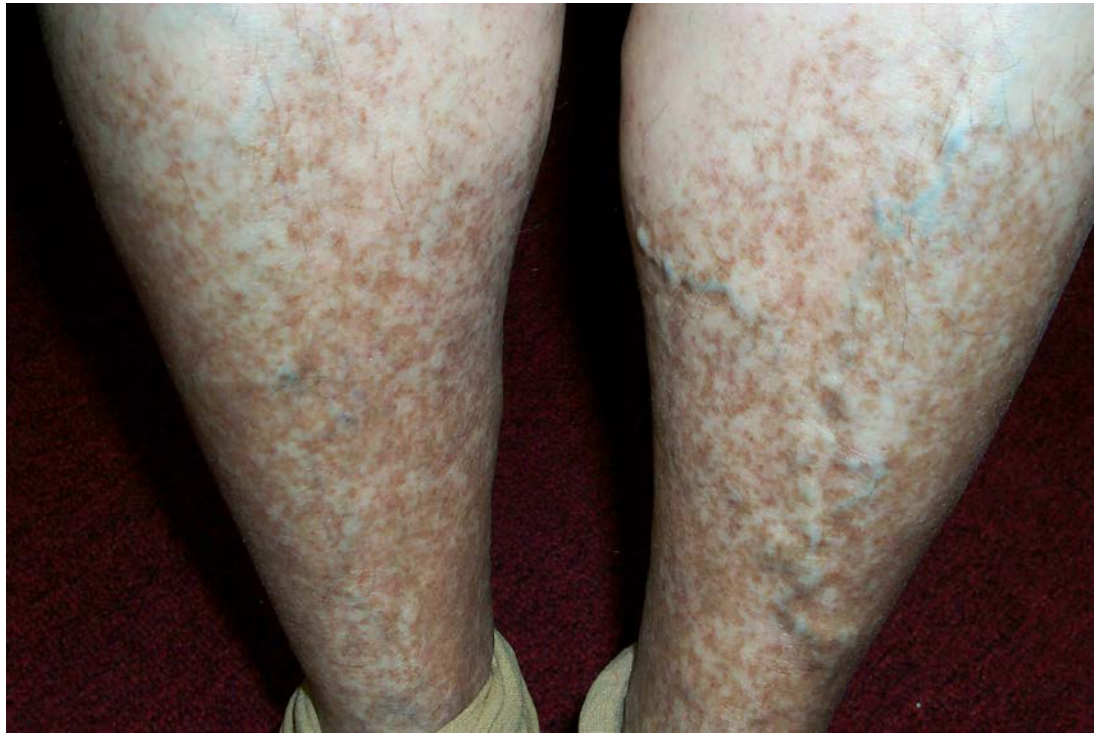
Henoch-Schonlein Purpura

- Benign and self-limiting
  - 1-4 weeks
- Supportive care
  - **Bedrest**
  - Topical steroids
  - NSAIDs
  - Prednisone
    - 1mg/kg a day for 2 weeks, then taper
  - Methylprednisolone
    - IV pulse 30 mg/kg qd for 3 days

Case #2

- 40 year-old male w/ orange-bown patches of varying sizes and petechiae
- Pinhead-sized, “cayenne pepper” spots
- Present for a year
- Asymptomatic
- Diagnosis?

Schamberg's Disease



Pigmented Purpuric Dermatoses

- aka capillaritis, purpura simplex, inflammatory purpura without vasculitis
- Group of chronic benign cutaneous eruptions
  - 5 types: Schamberg's disease (progressive pigmentary purpura), purpura annularis telangiectodes (Majocchi's disease), pigmented purpuric lichenoid dermatitis of Gougerot and Blum, lichen aureus, and eczematid-like purpura of Doucas and Kapetanakis
- Petechiae, purpura and cutaneous hyperpigmentation
- Lower extremity = most common site
- Asymptomatic or pruritic

Pigmented Purpuric Dermatoses

- Etiology unknown
- Perivascular mononuclear cell inflammatory infiltrate, erthrocyte extravasation, and hemosiderin deposition, endothelial cell proliferation and edema
  - fibrinoid necrosis of vessels absent, differentiates from leukocytoclastic vasculitis
- Treatment = supportive, mostly ineffective, no good literature on the subject
  - Topical steroids if needed
  - Self-limiting

Schamberg's Disease

- aka progressive pigmented purpuric dermatosis, purpura simplex
- Asymptomatic irregular orange-brown patchies of varying shapes and sizes
  - Most characteristic lesion is orange-brown, pinhead-sized “cayenne pepper” spots
- Lower extremity = most common site
- Asymptomatic
- Lesions persist for months or years
  - 62% cleared, 38% became chronic*

*Ratnam KV, Su WP, Peters MS. Purpura simplex (inflammatory purpura without vasculitis: a clinicopathologic study of 174 cases. J Am Acad Dermatol 1991; 25(4): 642.

Schamberg's Disease

- No associated internal disease
- Males > females
- Middle aged adults
- Histology shows inflammation and hemorrhage without fibrinoid necrosis of vessels
- Treatment = topical steroids

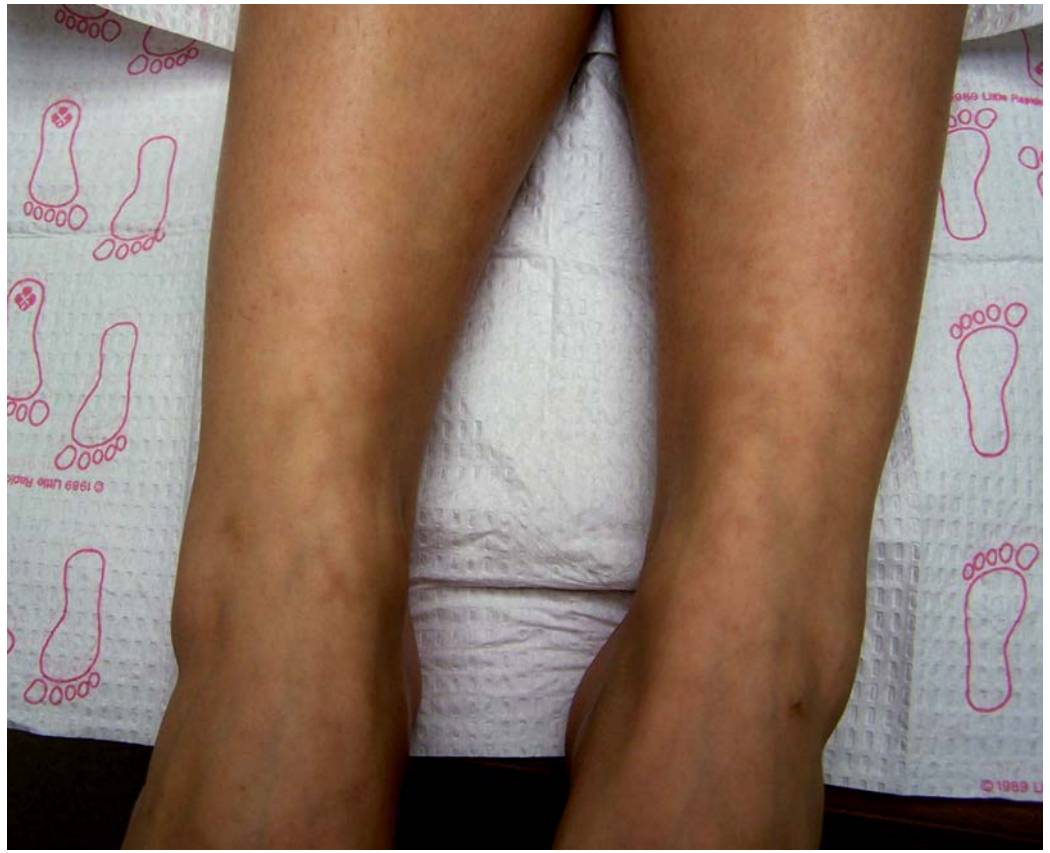
Other PPD's

- Purpura annularis telangiectodes (Majocchi's disease)
  - Annular, telangiectatic purpura
- Pigmented purpuric lichenoid dermatitis of Gougerot and Blum
  - Small polygonal or round lichenoid purpura
- Lichen aureus
  - yellow or gold colored lichenoid papules, patches or plaques unilaterally
- Eczematid-like purpura of Doucas and Kapetanakis
  - petechiae with erythema, lichenification, eczematous feature
- Rare variants = itching purpura, unilateral linear capillaritis, granulomatous pigmented purpura

Case #3

- 25 F w/ reticulated, violaceous pattern on lower legs
- Worse in cold
- Asymptomatic but cosmetically displeasing
- Diagnosis?

Livedo Reticularis

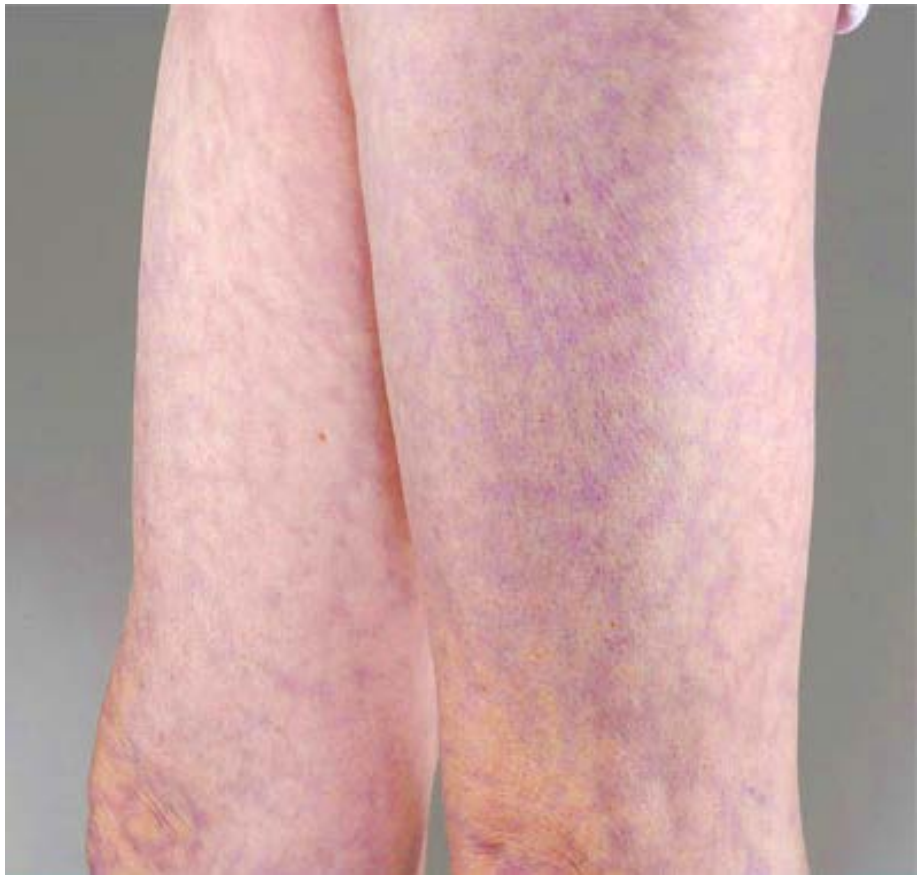


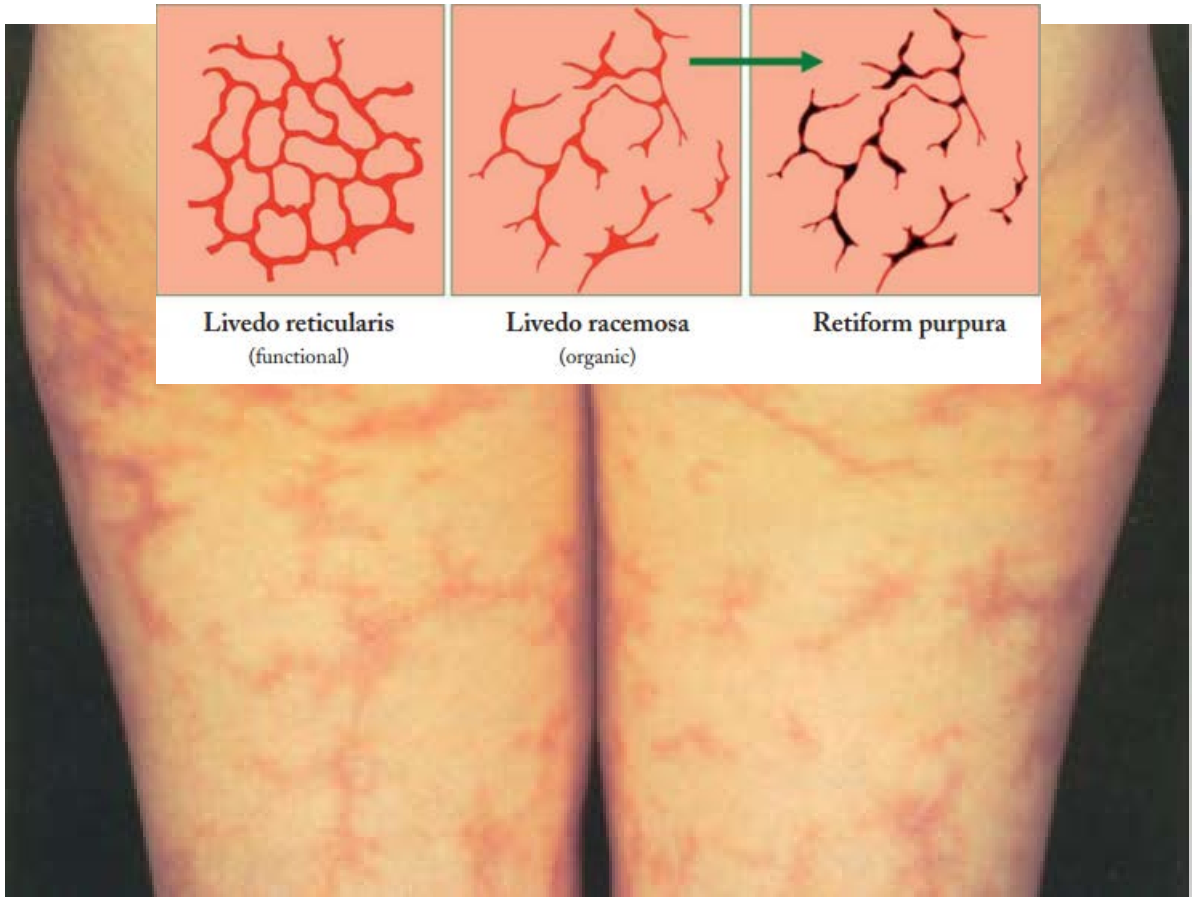
Livedo Reticularis

- Benign primary disorder
  - Livedo Racemosa = secondary
- Affects young to middle-aged women
- Reddish or violaceous discoloration of the thighs, mainly the thighs
  - Mottled, lacy or net-like, “reticulated”
- Cold temperatures exacerbate
- Mainly asymptomatic
- Treatment = avoid cold temperatures, elevate
- *Biopsy shows vessel wall thickening, thrombi, arteriole obliteration and RBC sluding

*In S, Han JH, Kang HY, et al. The Histopathological characteristics of livedo reticularis. J Cutan Pathol 2009; 36: 1275-1278.

Livedo Reticularis vs. Racemosa



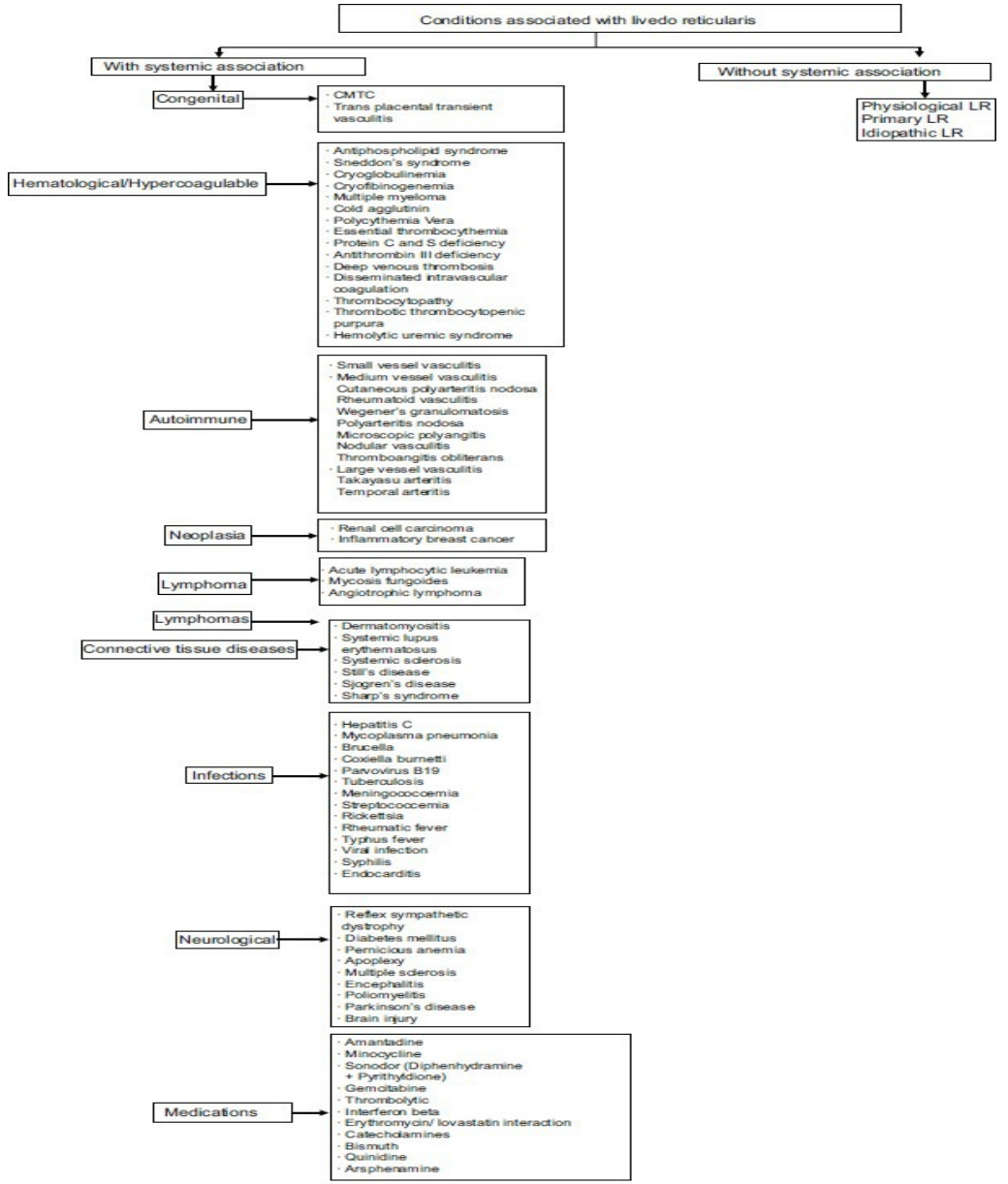


https://ucsfmed.wordpress.com/2017/02/17/livedo-reticularis-and-livedo-racemosa/

https://drugsdetails.com/livedo-reticularis-definition-causes-types-diagnosis-cure-and-images/

Livedo Racemosa Associations

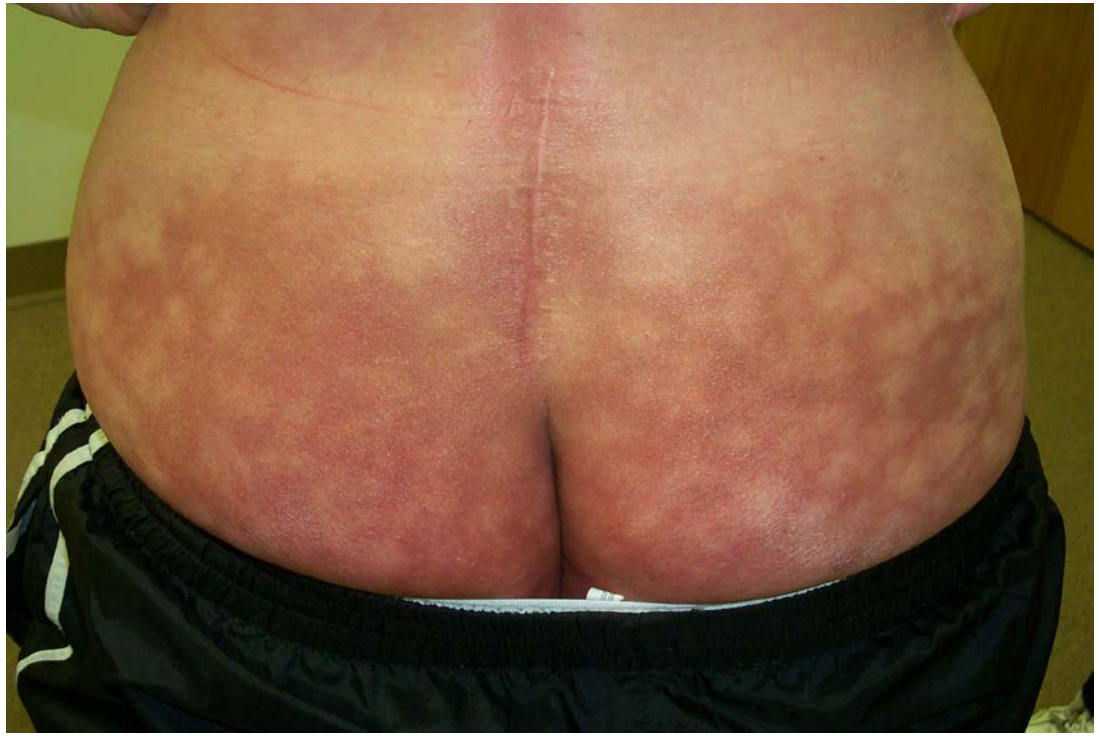
This will be on the test



Indian Dermatol Online J. 2015 Sep-Oct; 6(5): 315–321.

Livedo Reticularis vs. Erythema Ab Igne

- Chronic application of heat to skin
- Bands of erythema that turn into brown hyperpigmentation
- Skin biopsies not very helpful
  - Squamous atypia with epidermal atrophy, loss of rete ridges, hyperpigmentation and increased melanin, collagen degeneration, abundant melanophages, telangectasias
- May fade, but can be permanent

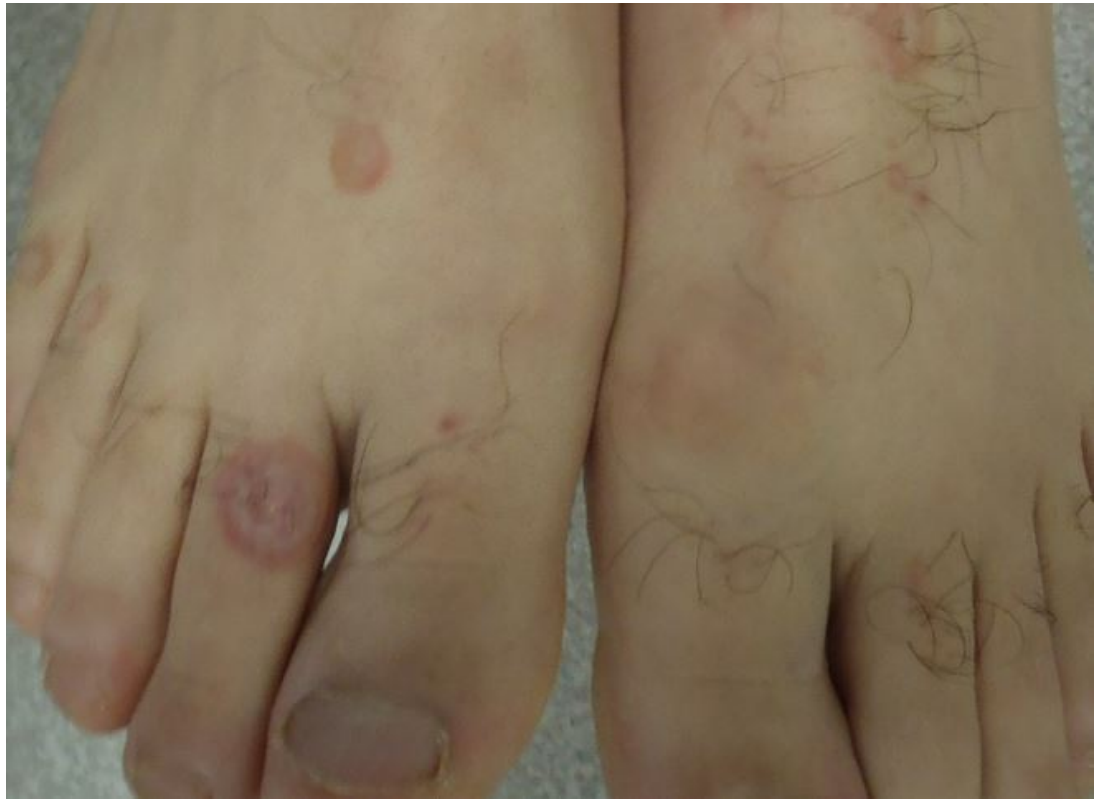


*Sajjan VV, Lunge S, Swamy MB, et al. Livedo Reticularis: A review of the literature. Indian Dermatol Online J 2015; 6(5): 315-321.

Case #4

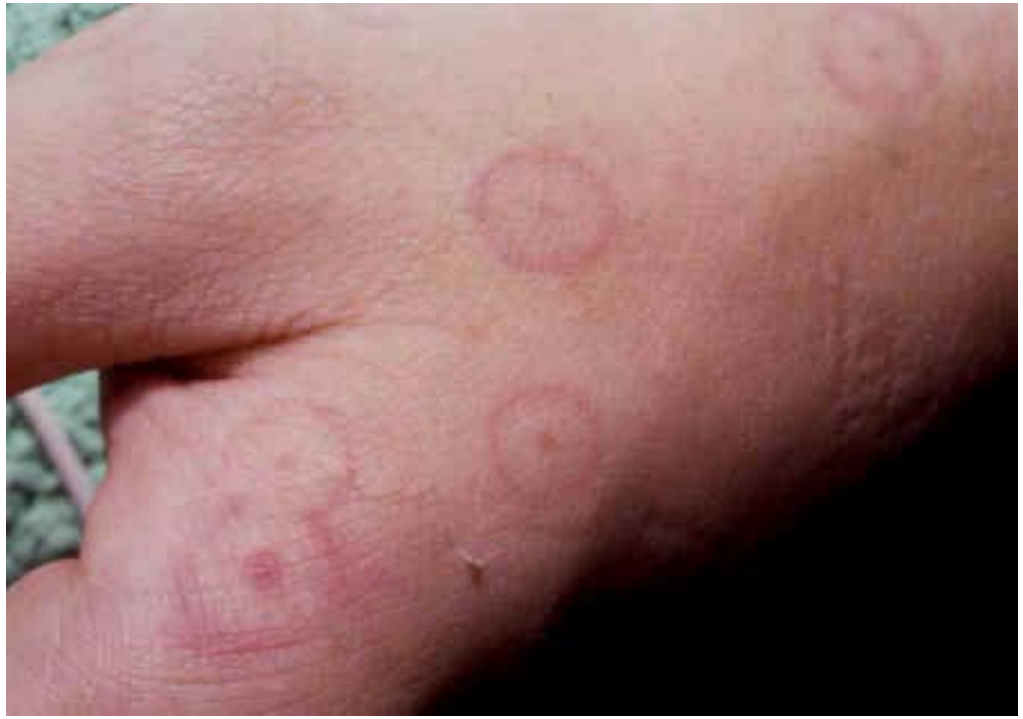
- 30 male w/ pruritic target lesions on his feet
  - Oral mucosa lesions as well
- Has herpes simplex
  - No other significant history
- Diagnosis?

Erythema multiforme



Erythema Multiforme

- “Target” lesions = most common eruption
  - Symmetrical
  - Backs of hands/feet, extensor surfaces of arms/legs
  - Mucosal lesions in 70% of cases
- Usually asymptomatic
- Idiopathic 50% of the time
  - Secondary cause is usually infection
- Self-limited



Erythema Multiforme

- Annual incidence <1%
- Adults 20-40
  - Slight predominance in males
- No specific labs
- Histology shows mononuclear cell infiltrate around upper dermal blood vessels, lichenoid inflammatory infiltrate and epidermal necrosis in the basal layer
  - Immune complex formation and deposition in the cutaneous microvasculature

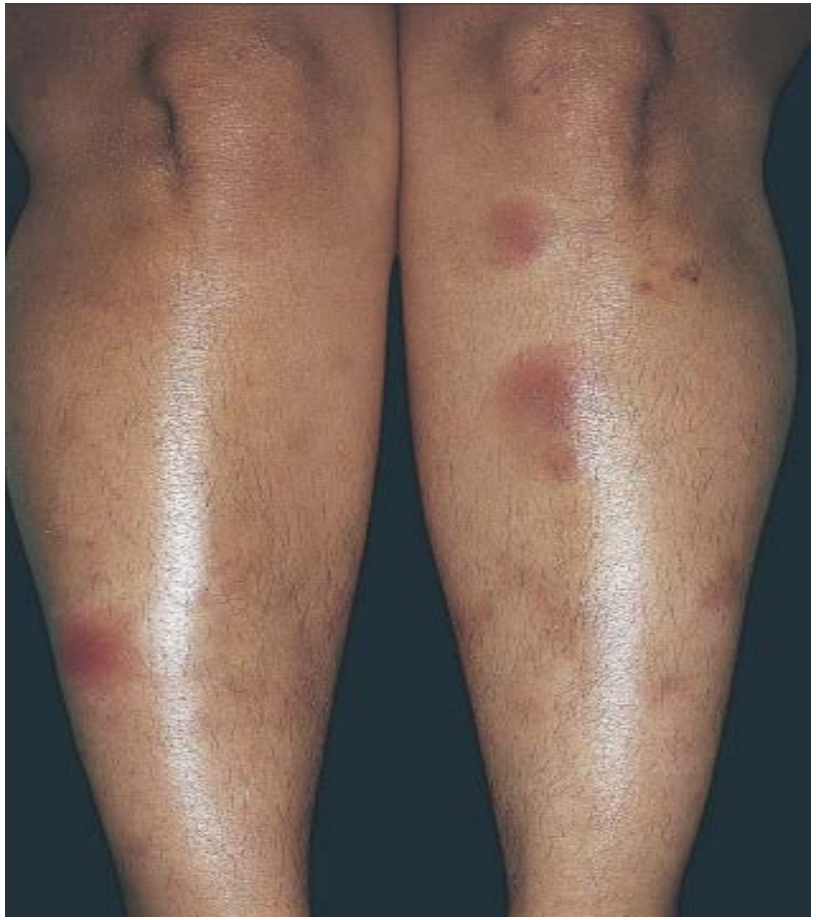
Erythema Multiforme

- 1-3 week course of prednisone 40-80mg/day then tapered once resolved
- Topical steroids, oral antihistamines for symptomatic lesions
- Oral acyclovir 400 mg PO BID prevents herpes associated EM recurrence

Case #5

- 25 female presents w/ tender erythematous subcutaneous nodules on her legs
  - Upper respiratory infection 3 weeks ago
- ESR elevated but not WBC
- Diagnosis?

Erythema Nodosum



Erythema Nodosum

- Painful erythematous subcutaneous nodules on the extensor surfaces of extremities in females age 18-34
- Preceded by upper respiratory infection 1-3 weeks
  - Prodromal symptoms = fatigue, malaise, low grade fever, arthralgias
- Lesions last 1-2 weeks but disease lasts 4-8 weeks
- ESR always elevated
- No circulating immune complexes
- Excisional biopsy to sample subcutaneous fat adequately
  - Lymphohistiocytic infiltrate, granulomatous inflammation and fibrosis in the septa of the subcutaneous fat

Erythema Nodosum Most Common Causes*

- **Idiopathic**
- Infections
  - **Streptococci**
  - Tuberculosis
  - Psittacosis
  - Yersiniosis
  - Lymphogranuloma venereum
  - Cat-scratch disease
  - **Coccidiomycosis**
  - Upper respiratory tract infection
- Drugs
  - sulfonamides
  - bromides
  - oral contraceptives
- Systemic Illnesses
  - **Sarcoidosis**
  - Inflammatory bowel disease
  - Hodgkin's disease
- Pregnancy

*Habif, TP. Clinical Dermatology: A Color Guide to Diagnosis and Therapy. Fifth Ed. 2010, Elsevier Inc.

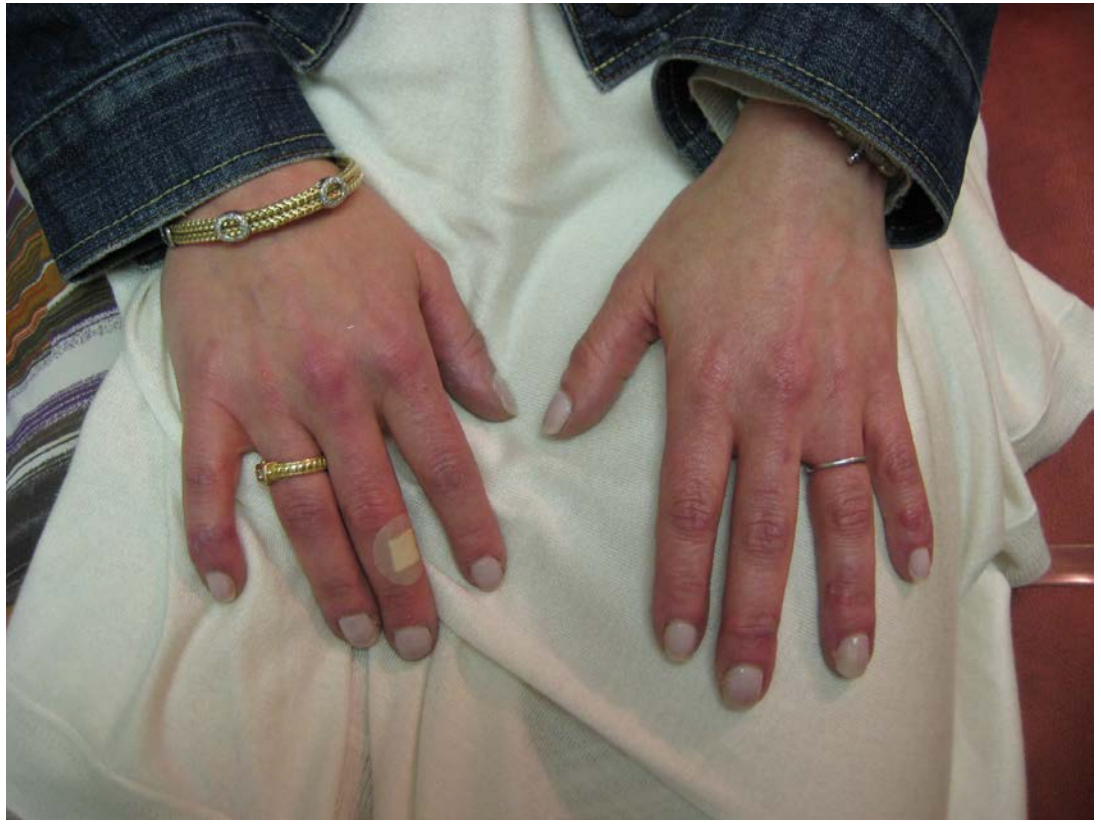
Erythema Nodosum

- Self-limited
  - Supportive care
  - NSAIDs
  - Bedrest
  - Potassium iodide
    - Contraindicated in pregnancy
  - Steroids
    - Rebound effect
    - Worsening of infections

Case #6

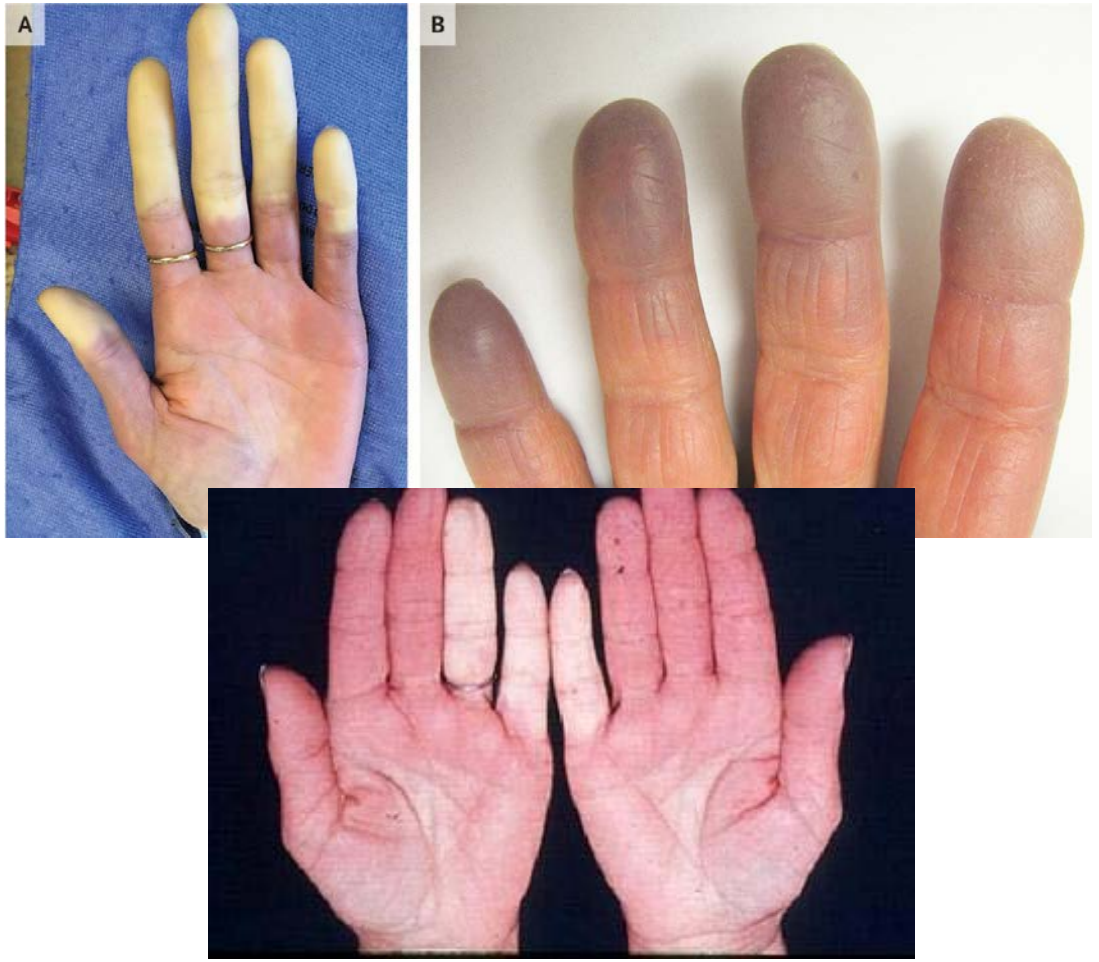
- 25 year-old female c/o toe pain and discoloration
- Happens more during the winter
- Toes turn white, blue and red
- Warming the toes helps
- Diagnosis?

Raynaud's Phenomenon



Raynaud's Disease/Phenomenon

- Vasospasm of the toes or fingers in response to cold or stress
- Mainly young women
- Three phases:
  - Ischemia
  - Cyanosis
  - Hyperemia
- May be primary (disease) or secondary (phenomenon)
- Incidence ranges from 3-20 percent



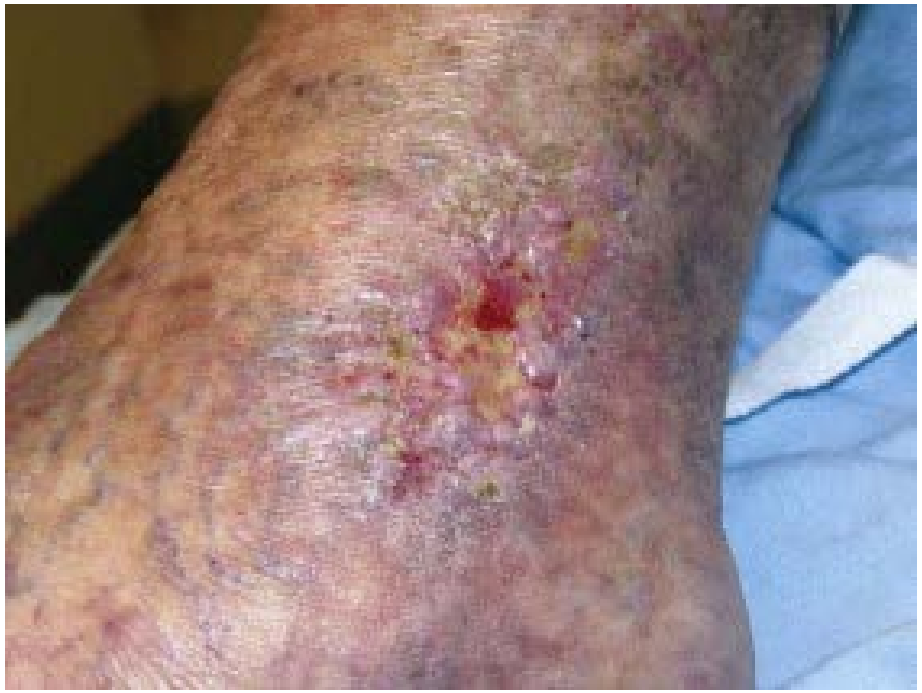
Raynaud's Disease/Phenomenon

- No office tests, simply a clinical diagnosis
- Remission for primary is common, 64% of patients in one study*
- Treatments
  - Warm affected area
  - Avoid triggering factors
  - Calcium channel blockers
  - Topical nitroglycerin
  - Local anesthetic for acute pain?

*Suter LG, Murabito JM, Felson DT, et al. The incidence and natural history of Raynaud's phenomenon in the community. Arthritis Rheum 2005; 52(4):1259.

Case #7

- 25 F w/ extremely painful stellate red lesion on her leg
- Worse in summer, better in winter
- No other health history
- Pulses normal
- Diagnosis?



Livedoid Vasculitis

Livedoid Vasculitis

- aka segmental hyalinizing vasculitis, painful purpuric ulcers with reticular pattern of the lower extremity (PPURPLE), atrophic blanche
- Intensely painful stellate vascular lesions
- Almost exclusive to lower extremities
- Summer exacerbations and winter remissions
- Pulses and ABIs normal

Livedoid Vasculitis

- Etiology unclear
  - Associated with some clotting and autoimmune disorders
- Incidence of 1:100,000
- Young women 15-30
- Biopsy is key
  - Hyalinized vascular changes of the subintimal layer of dermal blood vessels, endothelial proliferation, fibrin deposition and thrombosis

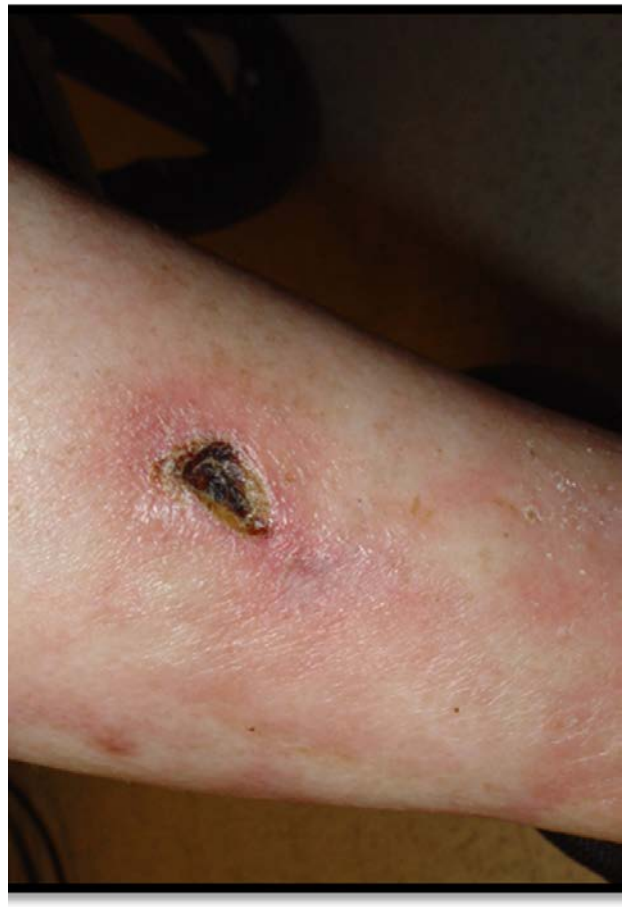
Livedoid Vasculitis

- Treatment
  - Pain management
  - Wound care/infection control
  - Smoking cessation
- Other suggestions
  - ASA, antiplatelet therapies, anticoagulants
  - Immunoglobulin, immunosuppressives including steroids, NSAIDs
  - PUVA
  - Hyperbaric oxygen therapy (HBO)
  - Danazol

Case #8

- 60 M w/ extremely painful necrotic ulceration on the right shin
- H/o CKD on dialysis, DMII w/ neuropathy and PVD
- Developed almost overnight
- Biopsy shows cutaneous necrosis, fibrin thrombi, endovascular fibrosis and calcification
- Diagnosis?

Calciphylaxis



Calciphylaxis

- aka calcific uremic arteriolopathy
- Ischemic small vessel vasculopathy
- Necrotic, painful ulcerations on the lower extremities
- Associated with chronic kidney disease and hemodialysis
- Pathology shows cutaneous necrosis, fibrin thrombi, endovascular fibrosis and calcification

Calciphylaxis

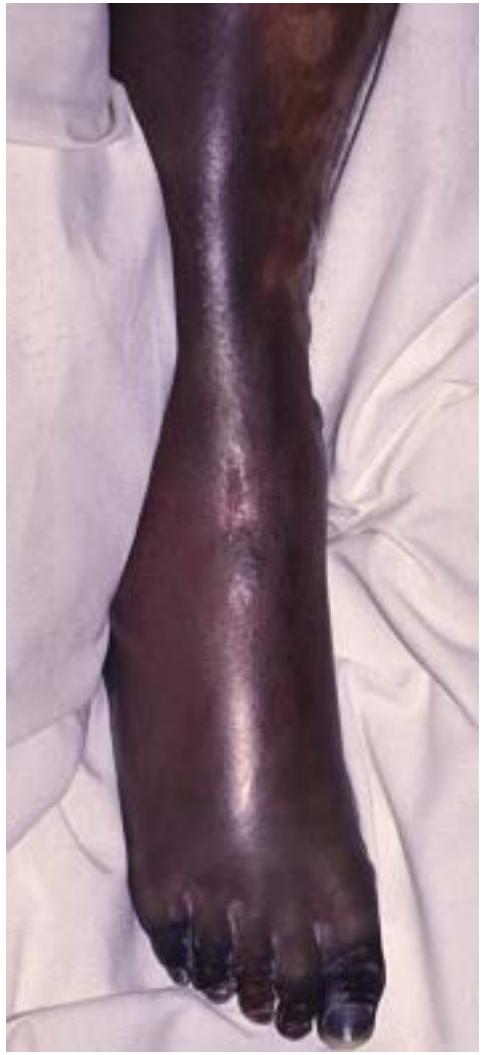
- Mortality rate exceeds 50%
- 25 g sodium thiosulfate IV after each dialysis
  - Intralesional?*
- Diet modifications
  - Reduce calcium and phosphorus
- Pain control
- Wound care

*Strazzula L, Nigwekar SU, Steele D, et al. Intralesional sodium thiosulfate for the treatment of calciphylaxis. JAMA dermatology, 2013; 149(8): 946-49.

Case #9

- 60 M w/ gangrene of extremities and sepsis
- Admitted also w/ disseminated intravascular thrombosis (DIC)
- H/o protein C deficiency
- Hypotensive w/ fever
- Diagnosis?

Purpura Fulminans

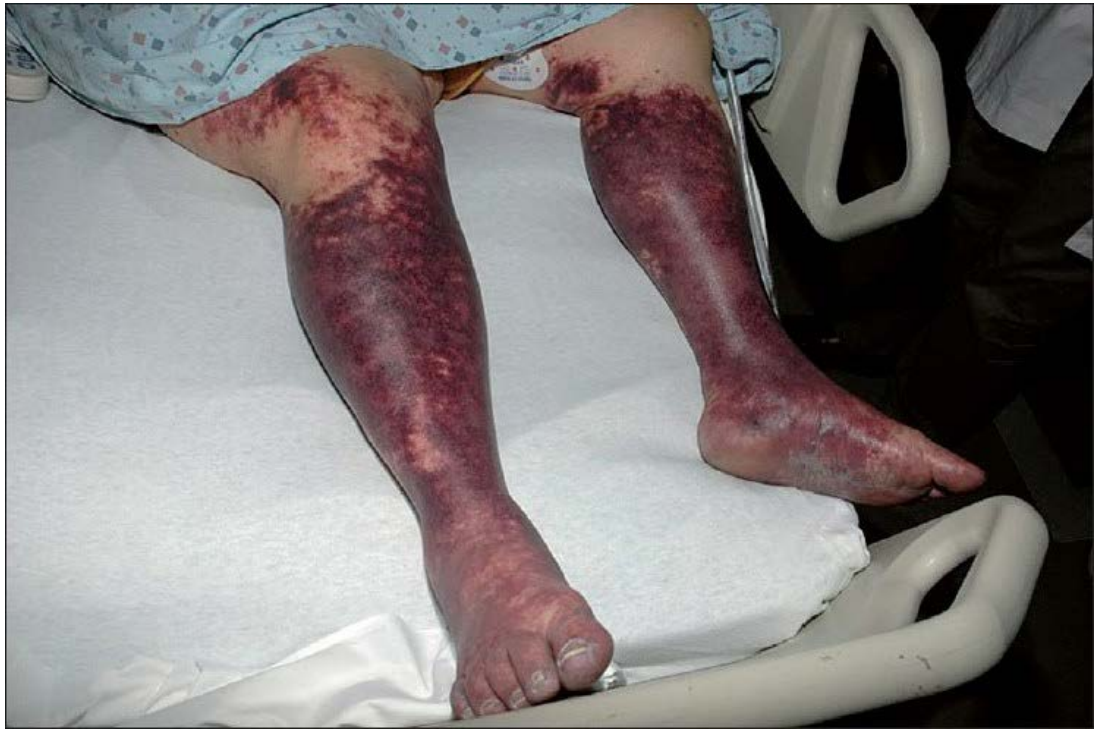


Purpura Fulminans

- Progressive necrosis of the skin
  - Vascular thrombosis in the setting of disseminated intravascular coagulation
- Begins as erythematous or purpuric macules that rapidly progress to skin necrosis and gangrene of acral areas
  - Fever and hypotension
- Sudden development 7-10 days after an infection
- 60-90% mortality rate
- 3 types: idiopathic, neonatal and infectious
- Labs: CBC w/ diff, CMP, D-dimer, blood cultures, coagulation cascade protein assays

Purpura Fulminans

- Treatment
  - Heparin
  - Fresh frozen plasma
  - Surgical debridement
  - Fasciotomy
  - Amputation
  - Activated protein C
  - tPa
  - Antibiotics
  - Fluid management



Thank you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