

# Cutaneous Manifestations of Renal Disease

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# Types of Skin Changes

1. Cutaneous manifestation of renal failure- the skin changes that nearly all renal patient have
2. Systemic diseases with prominent renal and cutaneous manifestations (eg. HSP)
3. Diseases that affect the kidney in which skin biopsy may be helpful in making the diagnosis, even without prominent cutaneous findings (eg. Primary systemic amyloidosis)

# Chronic Renal Failure

Changes in cutaneous pigmentation (70%)		Nail changes (66%)	
-Yellowish tinge (40%)		-Half-and-half nails (39%)	
-Hyperpigmentation of palms and soles (30%)		-Pale nails (23%)	
-Hyperpigmentation diffuse/photodistributed (22%)		-Splinter hemorrhages (11%)	
-Pallor (8%)			
		Xerosis (dry skin) Most	
		Pruritis (63%)	
		Keratotic pits of palms/soles (14%)	
		Perforating disorder (4%)	
		Finger Pebbles (86%)	
		Calcinosis cutis (1%)	

Cutaneous Infections (70%)
-Onychomycosis (52%)
-Tinea Pedis (25%)

Skin Findings	Color	Distribution	Etiology
Uremic Frost	White	Face, nostrils, neck	Deposition of crystallized urea from sweat
Pallor	Yellowish	Generalized	Anemia, urochrome deposition
Hyperpigmentation	Brown	Photodistributed or generalized	Increased $\beta$ -melanocyte stimulating hormone d/t decreased metabolism by diseased kidneys. Increased amounts of melanin present in the basal layer of epidermis and superficial dermis
Bruising	Red-purple-green-yellow-brown	Sites of trauma	Hemostatic abnormalities



# Uremic Frost

- Classic manifestation of chronic renal failure. Whitish deposits about the face and neck. Hypothesized to be due to deposition of crystallized urea from sweat.



# What are half-and-half nails?

- Proximal half of nail is white and distal portion retains the normal pink color. Thought to be due to edema of nail bed.



# Muehrcke's Nails



- Associated with hypoalbuminemia and have two transverse parallel white bands, separated from each other and from the lunula by areas of normal pink nail

# Acquired Perforating Dermatoses of Chronic Renal Failure

1. Kyrle's disease
  1. Abnormal clone of keratinocytes that perforates through the epidermis down into the dermis
2. Reactive perforating collagenosis
  1. Disease in which presumably abnormal collagen is being extruded from the dermis through the epidermis
3. Perforating folliculitis
  1. Follicular plugs and curled-up hairs that perforate through the follicle into the dermis
4. Calcinosis Cutis
  1. Deposition of insoluble calcium in the skin



# Kyrle's Disease



# Kyrle's Disease





# Kyrle's Disease



# Reactive Perforating Collagenosis





# Reactive Perforating Collagenosis



# Perforating Folliculitis





# Calcinosis Cutis



# Calcinosis Cutis

- Worst case is Calciphylaxis,
  - Stellate necrosis of skin, very painful.
  - Due to uncontrolled phos and PTH



# Five vasculitic diseases that frequently affect skin and kidneys

1. Leukocytoclastic vasculitis
2. Henoch-Schönlein purpura
3. Polyarteritis nodosa
4. Microscopic polyarteritis: p-ANCA
5. Wegener's granulomatosis: c-ANCA



# Nephrogenic Fibrosing Dermopathy

- Nephrogenic systemic fibrosis- thickened or edematous skin that primarily affects the extremities and trunk
- Nephrogenic systemic fibrosis always occurs in patients with renal insufficiency who have had imaging studies (eg, magnetic resonance angiography) with gadolinium
- **Dotarem ( gadoterate Meglumine ) is a new contrast agent in use that does NOT cause NSF**
- In severe cases there may be restriction of movement or disabling contracture of the joints
- Increased numbers of fibroblasts and mucin in early lesions with marked fibrosis in later lesions.



# NSF



- Nephrogenic fibrosing dermopathy on the abdomen, demonstrating a peau d'orange appearance

# NSF





# References

- Dermatology Secrets in Color- Third Edition  
James E. Fitzpatrick, Joseph G. Morelli
- dermatlas

# Lindsey's Nails



# Porphyria Cutanea Tarda

## blistering over knuckles



# Prurigo Nodularis Diabeticorum



# Perifollicular hemorrhage

- 70 yo male
- Widower
- ESRD
- Fatigue
- Teeth are
- Falling out.

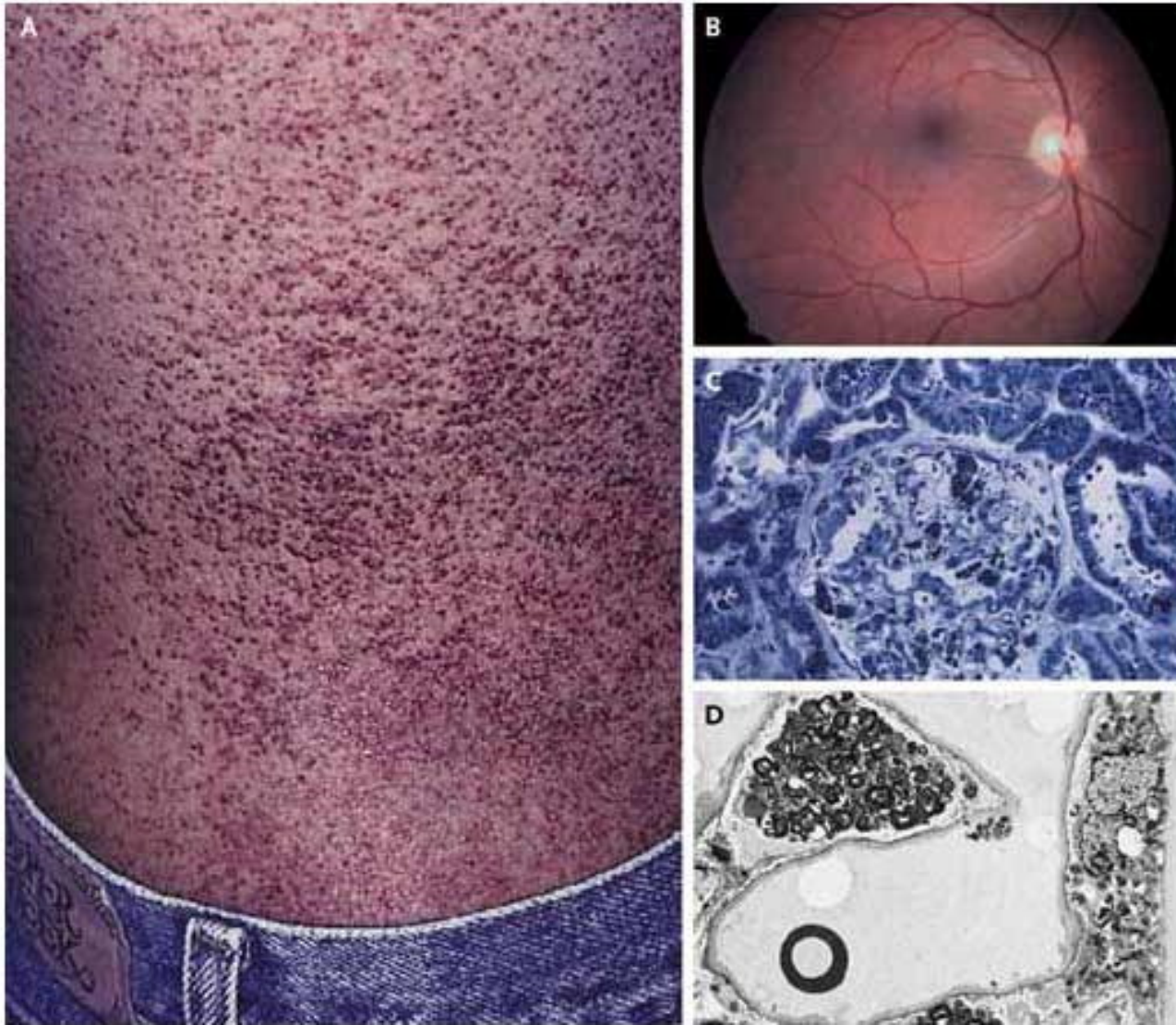




# Scurvy – Vitamin C Deficiency



# Fabry's Disease



# Fabry's Disease

- Anhidrosis
- Angiokeratomas (purple skin rash on trunk)
- Corneal verticillata (whorls) on slit lamp exam
- Acroparesthesias
- Cardiac hypertrophy
- Renal failure, with glycolipid deposition in podocytes seen on Toluidine Blue stain,
- Confirmed on EM



# Mona Lisa

- Young female
- Anemic
- Renal failure
- Skin is
- greenish



# chlorosis

- Due to the
- Combo of
- Uremia and
- Anemia.

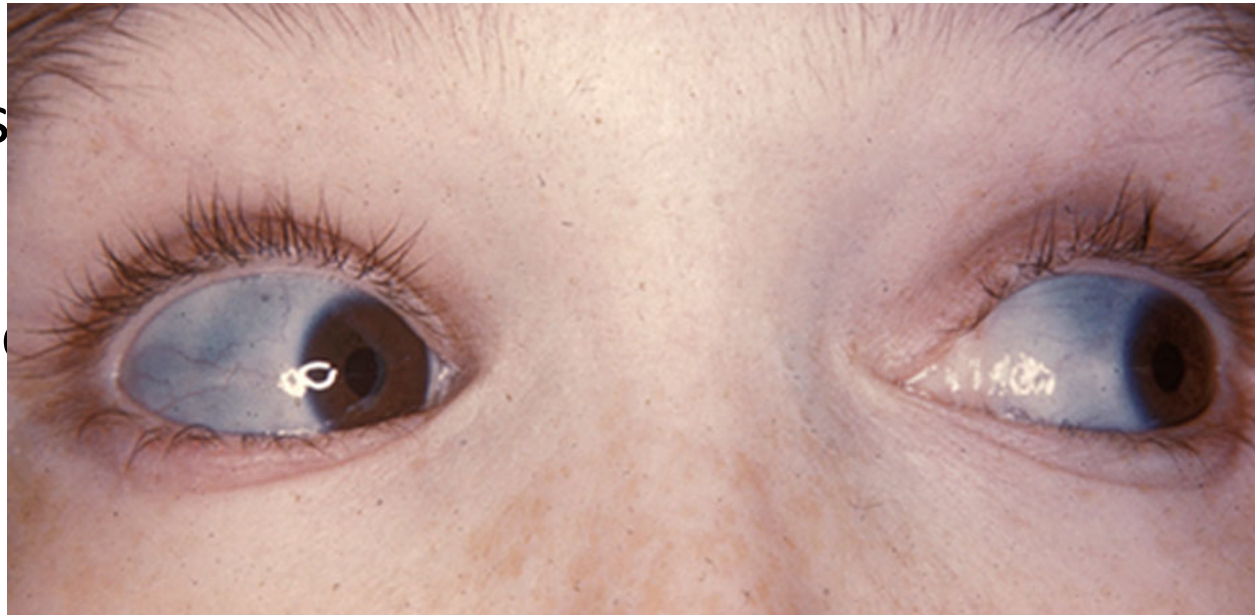


# Wegener's and PAN

- Scarring in skin with divot formation
- Due to subcutaneous fat necrosis
- Silver scar
- Case reports in Rheumatology volume 2015
  - Cutaneous Ulcers as Initial presentation of Localized Granulomatosis with polyangiitis
    - Noreen Nasir, Syed Ali, Hafiz Mohammed Mehmood Riaz.

# Blue Discoloration

- Exposure to Carbon Monoxide, Sodium Nitrite
- Meds Amiodarone, Hydroxychloroquine
- Familial congenital methemoglobinemia
- Blue Sclera:
  - Osteogenesis imperfecta
  - Imperfecta
  - Pseudoxanthoma
  - elasticum



# Red Discoloration

- Red Man Syndrome from Vancomycin
- DRESS syndrome
  - Diffuse erythroderma and lymphadenopathy
  - Eosinophilia and systemic symptoms
- Sezary cell cutaneous lymphoma

# Gray Discoloration

- Argyria – ingestion of colloidal silver
- Chrysiasis – ingestion of gold salts
- Gray –black skin – melanosis cutis (sign of metastatic melanoma)

# Green Discoloration

- Chlorosis
- Ingestion of FD&c Blue Dye No 1.
  - Often found in feeding tube solutions

# Yellow

- It takes a bilirubin level over 2.5 to discolor the skin
- Yellow Nail syndrome
  - Yellow nails
  - Bronchiectasis
  - Lymphedema and pleural effusions



# Orange

- Xanthemia, or carotenosis
  - Vegans on binge of tomatoes, carrots and sweet potatoes
- Rifampin ingestion

# Brown or Bronze discoloration

- Hemochromatosis
- Addison's disease – look tanned without being in the sun.