Cutaneous Manifestations of Internal Disease

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Diabetes Mellitus

- Approximately 30% of patients with DM develop skin lesions at some point.
- Overall prevalence of cutaneous disorders does not differ between type I and type II diabetics.
Diabetes Mellitus

- Cutaneous lesions usually appear after the development of DM, but may be the first presenting sign.

- Four major groups of skin findings
  1. Skin diseases associated with DM (necrobiosis lipoidica and diabetic bullae)
  2. Cutaneous infections
  3. Cutaneous manifestations of diabetic complications (neuropathic ulcers)
  4. Skin reactions to diabetic treatment
Necrobiosis Lipoidica (NL)

- NL appears in 0.3-3% of diabetics.
- Diabetic control has no effect on the course of NL.
- NL is 3 times more common in women.
- Appearance
  - Begins as an painless oval, violaceous patch and expands slowly.
  - Advancing border is red.
  - Central area turns yellowish brown, atrophies and telangiectasia become evident.
  - 13% of cases progress to ulceration
Necrobiosis Lipoidica (NL)
Granuloma Annulare (GA)

- Controversy surrounds the association between GA and DM.

- Appearance
  - If localized, most frequently found on lateral and dorsal surfaces of hands and feet
  - Disease begins with an asymptomatic, flesh-colored papule that undergoes central involution
  - Over months, a ring of papules grows
  - Can spontaneously regress without scarring

- Pathogenesis unknown
Granuloma Annulare (GA)
Granuloma Annulare (GA)
Diabetic Dermopathy

- “shin spots” or pigmented pretibial papules
- Most common cutaneous manifestation of diabetes
- Benign asymptomatic red brown macules on shins
- No treatment needed
Diabetic Bullae

- Rare.
- More common in men with long-standing DM
- Appearance
  - Painless bullae on non-inflamed base that appear suddenly
  - Most common on the dorsa and sides of lower legs and feet, sometimes with similar lesions on the hands and forearms
  - Bullae contain clear, sterile fluid.
  - Bullae tend to heal spontaneously in 2-5 weeks
Diabetic Bullae
Acanthosis Nigricans

- Seen in situations of insulin resistance
- Besides in DM, also seen in the following:
  - Carcinomas, especially of the stomach and lungs
  - Secondary to meds (nicotinic acid, estrogen, or corticosteroids)
  - Other endocrine syndromes (PCOS, acromegaly, Cushing’s disease, hypothyroidism)
  - Obesity
Acanthosis Nigricans

- **Appearance**
  - Hyperpigmented, velvety plaques in body folds, mostly axillae and neck
  - Can also present on groin, umbilicus, areolae, submammary areas, and on the hands (tripe hands)

- **Treatment- usually asymptomatic**
  - Weight loss
  - Retinoic acid and salicylic acid
Acanthosis Nigricans
Acanthosis Nigricans
Skin Infections in DM

- Occur in 20-50% of poorly controlled diabetics
- More common in Type II
- May be related to abnormal microcirculation, hypohidrosis, neuropathy, decreased phagocytosis and killing activity, impaired leukocyte adherence, and delayed chemotaxis all seen in diabetics.
Skin Infections in DM

- Fungal infections - most common
- Candida
  - Candidal paronychia
  - Inframammary candida
  - Genital candida
- Pseudohyphae and spores on KOH prep support dx of Candida
- Purulent drainage may indicate secondary bacterial infection
- Because maceration and skin breaks can serve as portals of infection, tinea pedis should be treated aggressively in diabetics
- Treatment includes drainage of any abscesses, keeping the digits dry, and topical antifungals (clotrimazole)
Candidiasis in Diabetics

- White, curdlike material adherent to erythematous, fissured oral commisure; angular stomatitis
Candidiasis in Diabetics

- Initial pustules on erythematous base that become eroded and confluent.
Candidiasis in Diabetics

KOH prep showing pseudohyphae and budding yeast forms
Skin Infections in DM

- Bacterial Infections - can be more severe and widespread in diabetics

- Erythrasma
  - Reddish tan scaling patches of the upper inner thighs, axillae, toe web spaces, and inframammary creases
  - Gram positive *Corynebacterium minutissimum*
  - Identified with Wood’s light coral fluorescence
  - Treat with oral erythromycin for 5 days
Erythrasma in Diabetics

- Reddish tan scaling patches of the upper inner thighs, axillae, toe web spaces, and inframammary creases
Cutaneous Reactions to Diabetic Treatment

- Insulin
  - Allergy may be local or systemic and usually occurs within the first month of therapy
    - Erythematous or urticarial pruritic nodules at the site of injection
  - Lipoatrophy can also occur
  - Lipohypertrophy can also occur
Cutaneous Reactions to Diabetic Treatment-Oral Hypoglycemics

- Most reactions are associated with the first-generation sulfonylureas (chlorpropamide and tolbutamide)
- 1-5% of patients on these drugs will develop skin reactions during the first 2 months of treatment
- Most commonly, they present with maculopapular eruptions that resolve despite continuation of the drug
- For patients of chlorpropamide, 10-30% will develop a disulfiram-like reactions of flushing, headache, tachycardia, and shortness of breath after ingesting alcohol.
- Second-generation sulfonylureas can also be associated with cutaneous reactions.
Cutaneous Manifestations of Diabetic Complications: Foot Ulcers

- Responsible for 70% of annual lower limb amputations in the U.S.
- Large economic impact from medical and surgical therapy, rehab, loss of work, and mortality
- Prevention is key
  - Daily foot inspections, appropriate footwear
- Causes for ulcer formation:
  - Peripheral neuropathy (60-70%)
    - Treatment: aggressive debridement and offloading or with a contact cast
  - Vascular disease (15-20%)
    - Treatment: surgical re-vascularization
  - Combination of peripheral neuropathy and vascular disease (15-20%)
Cutaneous Reactions to Diabetic Treatment: Lipoatrophy
Hyperthyroidism and the Skin

- Skin is usually warm, moist, and smooth
- Facial flushing
- Palmar erythema
- Hyperhidrosis, particularly of palms and soles
- Scalp hair can be soft, fine and silky.
- 5% of patients with hyperthyroidism have nail findings.
“Plummer’s nail”: concave contour and distal onycholysis, esp. the ring finger (not specific—also seen in hypothyroidism, psoriasis, after trauma, or in allergic contact dermatitis)
Graves’ Disease

- These patients can have all of the other previously mentioned cutaneous manifestations of hyperthyroidism in addition to several unique entities
- Pretibial myxedema (0.5-4% of patients)
  - Presentation varies from “pedau d’orange” appearance to extensive infiltration that mimics elephantitis verrucosa nostra
  - Most often, bilateral, asymmetric, raised, firm plaques or nodules varying from pink to brown, sometimes with woody induration
  - Can appear anywhere (arms, shoulders, head)
  - Pathogenesis remains unknown.
Pretibial Myxedema in Graves’ Disease
Pretibial Myxedema in Graves’ Disease
Thyroid acropachy (1% of Graves’ patients)
Triad of digital clubbing, soft tissue swelling of hands and feet, and periosteal new bone formation
Hypothyroidism and the Skin

- Skin changes in hypothyroidism reflect a hypometabolic state and subsequent reduced core body temperature results in cutaneous vasoconstriction.
- Skin is cool, dry, and pale.
- Hypohydrosis may lead to palmoplantar keratoderma
- Carotenemia (from decreased hepatic conversion of beta carotene to Vit A) gives skin yellowish hue
- Hair: dry, brittle, coarse; partial alopecia
- Loss of hair from lateral 1/3 of eyebrows
Hypothyroidism Facies with Generalized Myxedema

- Generalized myxedema
  - Occurs as a result of deposition of dermal acid mucopolysaccharides (esp. hyaluronic acid and chondroitin sulfate) in the skin
  - Skin is non-pitting
  - Face: swollen lips, broad nose, macroglossia, and puffy eyelids
Thyroid Disease and Other Cutaneous Disease Associations

- Autoimmune thyroid disease has been associated with other cutaneous diseases
- Alopecia areata
- Bullous disorders
  - Pemphigus foliaceus
  - Pemphigus vulgaris
- Vitiligo
- Connective tissue diseases
  - Dermatomyositis, SLE, scleroderma.
Cutaneous Paraneoplastic Syndromes

- May be initial clue to underlying neoplasm
- Can herald the recurrence of a malignancy
- Examples
  - Necrolytic migratory erythema
  - Sign of Leser-Trelat
  - Hypertichosis lanuginosa acquisita
  - Bazex’s syndrome
  - Dermatomyositis
  - Erythroderma
Chronic liver disease

- Decrease in facial and body hair including axillary and pubic hair
- Striae distensae, gynecomastia and dupuytren's contracture in alcoholic cirrhosis.
- Spider nevi.
- Palmer erythema, Clubbing of nails
- Pruritus commonly occurs in conditions causing cholestasis.
chronic renal failure

- dry, often with ichthyosis-like scaling.
- skin is earthy discoloration due to anemia and urochromes in the dermis respectively.
- renal pruritus is reported to be as high as 90% of patients undergoing hemodialysis.
  - ↑serum histamine, vit.A, PTH; mast cell hyperplasia; peripheral polyneuropathy and xerosis.
ACQUIRED PERFORATING DERMATOSIS

- Dome shaped papules and nodules with central hard crust filled crater.
- Lesions are seen on extremities and trunk.
- Seen in patients on dialysis.
Nephrogenic fibrosing dermopathy
Calciphylaxis

Metastatic calcification secondary or tertiary hyperparathyroidism

Vascular calcification is common, may thrombose acutely—calciphylaxis.

Excruciatingly painful due to ischemia, and skin becomes hemorrhagic and ulcerate.


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20% don't care and the other 80% are glad you have them.

HAVE A NICE DAY