Nail in systemic disease

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Outline
- Nail in general disease
- Cardiovascular disorders
- Pulmonary disorders
- GI diseases
- Renal disease
- Endocrine disorders
- Autoimmune diseases
- Nutritional diseases
- HIV
- Dermatoses affecting the nails
- Drug induced nail alterations
- Congential and Hereditary nail diseases

Cardiovascular disorders
- Clubbing
  - Congenital clubbing: congenital cyanotic heart disease
  - Acquired clubbing: aneurysm, congestive heart failure, infective endocarditis

Pulmonary disorders
- Clubbing
- Yellow nail syndrome: chronic bronchitis, bronchiectasis, chronic sinusitis, lung infections, pleural effusions

Cardiovascular disorders
- Splinter hemorrhages: infective endocarditis, septic emboli
- Terry’s nails: congestive heart failure

Pulmonary disorders
- Yellow nail syndrome: chronic bronchitis, bronchiectasis, chronic sinusitis, lung infections, pleural effusions
GI tract disorders
- Clubbing
- Muehrcke's nails
- Terry's nails
- Koilonychia
- Brittle nails

Chronic liver disease

Renal disorders
- Half-and-half nails: end stage renal disease
- Muehrcke's nails: nephronic syndrome (hypoalbuminemia)

Endocrine disorders
- Addison disease: hyperpigmented nail beds, oral mucosa, palmar skin creases
- Hyperthyroidism, hyper- or hypoparathyroid: digital clubbing, onycholysis
- Diabetes: terry's nails
- Acromegaly: thickened nails

Autoimmune connective tissue disorders
- Systemic sclerosis
- Dermatomyositis
- Systemic lupus erythematosus

Systemic sclerosis
- Puffy finger, sclerodactyly, digital pitting scar, digital ulceration, telangiectases of cuticle

Systemic sclerosis
- Capillaroscopy:
  - Early: predominance of giants, no overt loss of capillaries
  - Active: loss of capillaries combined with giant capillaries
  - Late: loss of capillaries combined with abnormal shapes
Dermatomyositis
- Cuticular dystrophy, nail fold telangiectasias, dilated capillary loops alternate with capillary drop out

Systemic lupus erythematosus
- Nail fold telangiectasia and hyperkeratosis, red lunula
- Capillaroscopy: tortuous capillaries, abnormal morphology and hemorrhages
- Density and dimensions of capillaries non-conclusive compared to healthy control

Majority of SSc and DM possessed NFC features of scleroderma-type pattern
- Scleroderma pattern consists of ≥2 of following features in at least two nailfolds: enlarged capillaries, bushy capillaries, capillary hemorrhage, disorganized capillaries, and avascular area

Hemorrhage, enlarged capillary, and avascular area were not suggestive of SSc over DM
- Bushy capillaries strong association for DM over SSc

Elongated capillaries had significant odds for SLE compared with SSc
- Presence of enlarged capillaries indicated higher SLE severity

Nutritional disease
- **Beau lines**: kwashiorkor
- **Koilonychia**: iron deficiency anemia
- **Half-and-half nail**: pellagra
HIV infection
- Grey or blue nails
- Clubbing
- Drug-induced melanonychia, paronychia, periungual PG
- Infectious
  - Proximal subungual onychomycosis
  - Candida onychomycosis
  - HPV-induced SCC

Psychological disorders
- Onychophagia
- Perionychotillomania (Habit-tic deformity)
- Onychotillomania
- Onychotemnomania
- Onychoteiromania

Onychotillomania and onychopagia
- Treatment:
  - SSRIs: fluoxetine, paroxetine, sertraline
  - N-acetyl cysteine
  - Topical preparations that taste unpleasant and bandage

Dermatoses affecting the nails

Nail psoriasis
- Nail matrix lesions: pits, transverse furrows, leukonychia
- Nail bed lesions: oily spot, salmon patch, onycholysis, onychomadesis, subungual hyperkeratosi, splinter hemorrhages

Nail psoriasis
- Acrodermatitis Continua of Hallopeau
  - Recurrent painful sterile pustules of nail unit
  - Usually no other features of psoriasis elsewhere
Nail psoriasis

- Treatment:
  - Topical vitamin D3 analogues: calcipotriene
  - Topical calcipotriene+betamethasone dipropionate ointment
  - Intralesional corticosteroid for matrix disease
  - Systemic (severe case): Acitretin 0.3 MKD, methotrexate

Nail lichen planus

- Nail thinning, longitudinal ridging and fissuring, dorsal pterygium
- Treatment:
  - Intralesional injection of corticosteroid (2.5-5 mg/ml triamcinolone acetonide)
  - Systemic corticosteroid

Trachyonychia (twenty-nail dystrophy)

- Sandpapered nail
- Nail plate roughness, excessive longitudinal ridging
- Idiopathic or associated with inflammatory skin disease e.g. alopecia areata, lichen planus, eczema, psoriasis
- Treatment: systemic corticosteroids or systemic retinoids

Alopecia areata

- Small nail pits regularly distribution
- Trachyonychia
- Additional nail abnormalities: punctate leukonychia, red lunula, onychomadesis, koilonychia
- Indicate more severe AA

Eczema

- Eczematous changes may occurs in matrix, nail bed, periungual skin
- Causes: allergic or irritant contact dermatitis, atopic dermatitis
- Treatment: topical or intralesional steroid injections

Autoimmune bullous disease

- Chronic paronychia, hyperkeratosis, oozing, crusting, onychomadesis, pterygium
- Course of the nail lesions is linked to cutaneous and mucous membrane lesions
Drug induced nail abnormalities

<table>
<thead>
<tr>
<th>Nail abnormality</th>
<th>Responsible agents</th>
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<tbody>
<tr>
<td>Beau’s lines, onychomadesis</td>
<td>CMT</td>
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<tr>
<td>True leukonychia</td>
<td>CMT</td>
</tr>
<tr>
<td>Nail thinning &amp; brittleness</td>
<td>CMT, retinoids</td>
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<tr>
<td>Onycholytic/plaque onycholytic</td>
<td>CMT, taxanes, tetracyclines, psoralens, NSAIDs</td>
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<tr>
<td>Apparent leukonychia</td>
<td>CMT</td>
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<tr>
<td>Melanonychia</td>
<td>CMT, psoralens, ciclosporin</td>
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<tr>
<td>Discoloration (non-melanin)</td>
<td>Minocycline, antimalarials, gold, silver</td>
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Congenital and Hereditary nail diseases

- Congenital Malalignment of the Great Toenails
  - Nail plate is laterally deviated with respect to longitudinal axis of distal phalanx, frequently bilateral
  - Thickened, transverse overcurvature of nail plate
  - The most common cause of ingrown toenails in children & adolescents

Racquet thumbs (Brachyonychia)

- AD trait
- Shortening of distal phalanx, nail is shortened and wide
Nail-Patella syndrome
- Mutation in *LMX1B* gene, AD
- Dystrophic nails, anonychia
- Triangular lunula
- Absent/hypoplastic patellae, elbow abnormalities, iliac horns
- Nephropathy

Epidermolysis bullosa
- Nail bed involvement: onycholysis, shortening & thickening of nail
- Nail matrix involvement: nail thinning, atrophy
- Dystrophic or absent nails with periungual granulation tissue

Ectodermal dysplasia
- Hair, teeth, nail, ± eccrine gland abnormalities
- Nails are short, fragile with onycholysis

Pachyonychia congenita
- Associated findings: focal palmoplanar keratoderma, follicular hyperkeratosis, oral leukokeratosis, hoarseness
- Wedge-shaped thickening of nail plate

Darier disease
- Verrucous papules and plaques in seborrhoeic distribution, palmoplantar punctate keratoses
- Alternating longitudinal erythronychia and leukonychia, v-shaped nicks distally
- Similar nail abnormalities may be seen in Hailey–Hailey disease

Dyskeratosis congenita
- Triad: reticulated hyperpigmentation, nail dystrophy (e.g. pterygium) and leukoplakia
- Bone marrow failure
- Predisposition to malignancy, especially mucosal squamous cell carcinoma (e.g. mouth, anus)
Conclusion
- Nail signs could be a clues for diagnosis of systemic diseases
- Nails abnormalities is one of the important signs of various congenital diseases
- Early diagnosis and appropriate treatment will prevent a risk of scarring in inflammatory nail diseases

Thank You For Your Attention