Nail Diseases

Anatomy.

The nail is composed of many layers of flattened keratinized cells fused into a homogenous mass. The nail arises from a specialized epidermis lining an invagination of skin at the base of the nail called nail matrix. The lanule or half-moon has a white color due to partial keratinization of the underlying nail bed while the rest of the nail bed is not keratinized so it is pink. The invagination of the skin at the base of the nail is called nail fold. Its anterior border pass over the nail plate as a flattened keratinous rim called the cuticle. The fingernails grow at a rate of 0.1 mm/day. The toenails grow one-third as fast.

**Chronic and acute paronychia.**

Chronic paronychia is infection of the nail fold and nail matrix by candida albicans. There is glazed and red swelling of the nail fold with loss of the cuticle. There is mild to moderate pain. Occasional bead of pus comes out from under the nail fold. Ridging and furrowing of nail plate may occur due to damage of the matrix. Dark brown pigmentation of nail plate occurs in direct invasion by monilia. The disease is occupational of housewives due to wetness, which lead to maceration of the cuticle then the entrance of the microorganism.

Acute paronychia is bacterial infection of the nail fold usually by staphylococcus aureus. There is bright red swelling of the nail fold. The inflammation is more severe, the condition is more painful. Treatment of acute paronychia is by incision to drain the pus and oral antibiotics (preferably anti-staphylococcal antibiotics like cephalexin).

Treatment of chronic paronychia:

* Every attempt must be made to keep the hands dry.
* Topical clotrimazole cream is effective in early stages.
* It is preferable to use topical mixture of anticandida, antibiotics, steroid cream because of the frequent mixed etiology of inflammation like Kenacomb cream (Nystatin, Neomycin, Gramicidin, Triamcinolone).
* Oral choice is Fluconazole (Diflucan) 150mg per week for 4 weeks.

**Tinea unguium (onychomycosis).**

It is the dermatophyte (ringworm) infection of the nails. Commonly caused by trichophyton and epidermophyton. The affected nail is roughing, opaque and friable. It has an accumulation of keratinous debris under it. The diagnosis can be confirmed by shaving of the nails to find fungus on 20% KOH microscopic exam. Also culture on sabouraud medium can be performed.

Treatment options:

* The treatment of choice is oral terbinafine (Lamisil) 250mg daily for 6 weeks in fingernail infections and for 12 weeks in toenail infections.
* Itraconazole (Sporanox 100mg capsule) is a fungistatic agent. *Pulse dosing:* A pulse treatment consists of two capsules (200 mg) twice daily for one week, followed by a 3-week drug free interval. Two to 3 pulse treatments are recommended for fingernail infections and 3-4 pulse treatments for toenail infections. Clinical response will become evident as the nail regrows following discontinuation of the treatment.

Itraconazole *continuous dosing:* one capsule (100 mg) twice daily for 6 weeks in fingernail infections and for 12 weeks for toenail infections.

* Fluconazole (Diflucan) 150 mg once a week for 9 months.

**Dermatoses** affect the nails:

1. *Psoriasis:* nail changes occur in 50% of cases which include pitting, onycholysis, discoloration, subungual thickening, malformed nails and splinter hemorrhages. Treatment includes intralesional steroid to nail matrix after local anesthesia.
2. *Lichen planus:* longitudinal grooving and ridging plus pterygium which is adhesion of proximal nail fold on scarred matrix due to severe inflammation of the matrix, in severe cases lead to loss of the nails. Treatment is similar to nail psoriasis.
3. *Alopecia areata:* shows pitting or surface stippling in a uniform or gridlike pattern.
4. *Norwegian scabies* (keratotic scabies) lead to nail plate dystrophy.
5. *Eczema and dermatitis:* when affect the proximal nail fold (matrix) lead to ridging, thickening and discoloration of the nail plate.
6. *Paronychia:* the changes are similar to eczema.

# Onycholysis

It is the separation of the nail plate from the nail bed at distal and lateral margins. It is divided to idiopathic and secondary onycholysis.

Idiopathic onycholysis occurs without apparent cause. Excessive manicure, frequent wetting and cosmetic solvents may be the cause and are not admitted by the patients. Treatment is to cut as much as possible of the loosened nail and application of topical steroid + nystatin + antibacterial mixture preparation e.g. Kenacomb cream. The aim of this treatment is to prevent infection under loosened nail that prevents reattachment.

Secondary onycholysis is caused by:

1. Dermatoses: psoriasis, fungal infections, and dermatitis.
2. General medical conditions: impaired peripheral circulation e.g. Raynaud’s phenomenon, hypothyroidism, and hyperthyroidism.
3. Trauma: minor trauma e.g. typing, immersion of hand in soap and water, and long nail.
4. Drugs: photo-onycholysis occurs with tetracycline or psoralin.

**Nail pitting** is a tiny, punched out or ices pick depressions of the nail plate. Common causes are psoriasis, alopecia areata, and sometimes a normal variant.

**Koilonychia:** nail is flat or concave has spoon-shape. It is often thin and brittle. The condition associated with hypochromic iron deficiency anemia.

**Finger clubbing** is increase in the size and curvature of nail plate with loss of the angle between the nail plate and the posterior nail fold. It is associated with many diseases e.g. carcinoma of the bronchus, cyanotic congenital [heart disease](http://www.rxlist.com/script/main/art.asp?articlekey=87976), [cystic fibrosis](http://www.rxlist.com/script/main/art.asp?articlekey=337), and chronic [inflammatory bowel disease](http://www.rxlist.com/script/main/art.asp?articlekey=13341).

**Ingrown toenail:** is the soft tissue of the side of the nail (lateral nail fold) is penetrated by the edge of the nail plate, resulting in pain, sepsis and later the formation of the granulation tissue. The great toe is often affected. The cause is compression of the toe by ill-fitting footwear and cutting of the toenail in a half-circle instead of straight across.

Treatment is by wearing wide and pliable shoes. Prescribe antibiotics. Granulation tissue can be cauterized by silver nitrate sticks. If yet no benefit, avulsion of the nail is indicated in continuing cellulitis or do removal of part of the nail adjacent to inflammation.

**Reference:**

Thomas P. Habif. Clinical Dermatology, A Color Guide to Diagnosis and Therapy. 5th edition, 2010. Elsevier Inc.