

# Chronic paronychia

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Chronic paronychia can affect the proximal nail folds for months or even years, fluctuating in severity over time.

## Case presentation

A 45-year-old woman had an eight-month history of occasionally painful or pruritic swelling of the proximal nail folds of several of her fingernails (Figure). When she presented, the condition was affecting the third and fifth fingernail folds on her right hand, but some other fingers had been previously affected. She also did not like the unsightly transverse depressions on her nail plates. Fungal cultures ordered by her GP grew *Candida albicans* on one occasion, but there was no growth on another occasion. The swelling of her nail folds did not respond to a six-week course of the antifungal griseofulvin.

## Diagnosis

The diagnosis was chronic paronychia.

## Comment

Chronic paronychia is a common condition, seen most often in women and mainly on the fingers. The cuticles are absent and the proximal nail folds become red and swollen. Usually, there is no pus and little or no exudate. The condition is often at least mildly painful and sometimes itchy, and multiple nails are often involved.

Chronic paronychia usually persists for months and sometimes years, but fluctuates in severity. When more inflamed, the amount of nail produced by the underlying nail matrix is reduced so that a transverse depression is seen as the nail plate grows out. Often multiple depressions are seen, which reflect the episodic nature of the nail fold inflammation.

Chronic paronychia is often mistaken for infection of the proximal nail fold.

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Although not the primary cause of the symptoms, *C. albicans* can be a secondary pathogen, growing in the wet environment under the nail fold. Acute paronychia is usually due to *Staphylococcus aureus* and is a more active short-lived inflammation often exuding pus from the margin of the proximal nail fold.

The primary cause of chronic paronychia is believed to be an irritant contact dermatitis due to material getting under the proximal nail fold as a result of an absent cuticle (which normally acts as a seal attached to the proximal nail plate). The usual irritants include water, detergents, soaps, cleaning agents, solvents and juices from food. Thus, it is often seen in people who frequently have wet hands at home or at work – for example, mothers with young children, cooks, cleaners and nurses. It is also more likely to occur in people who have their cuticles removed, either by themselves or a beautician.

Occasionally, paronychia is a result of allergic contact dermatitis. There are many potential allergens, including acrylic chemicals used by beauticians to apply artificial nails. Patch testing to diagnose these allergies should be considered for people not responding to adequate therapy performed by specialised dermatologists. Allergists generally do not test for potential allergens such as acrylic chemicals.

There has also been a report of paronychia from protein contact dermatitis from natural rubber latex – an immediate type hypersensitivity detected with skin prick tests or latex radioallergosorbent tests.<sup>1</sup> It is possible for food handlers to get paronychia-like protein contact dermatitis from immediate reactions to contact factors such as seafood. Protein contact dermatitis only occurs in people with a



Figure. Chronic paronychia of the nail.

background irritant or other forms of dermatitis because it requires a leaky skin barrier for the larger protein allergens to penetrate the epidermis.

Some other conditions affecting the nail fold, such as other forms of dermatitis, psoriasis, discoid lupus erythematosus, lichen planus, chilblains, warts and digital fibrokeratomas, can damage the cuticle allowing secondary chronic paronychia to occur.

Occasionally paronychia is caused by drugs, including:

- the oral retinoids acitretin or isotretinoin
- the epidermal growth factor-inhibiting chemotherapy agents, cetuximab, erlotinib or gefitinib
- taxane-type chemotherapy agents such as docetaxel and paclitaxel
- the antiretroviral drugs indinavir and lamivudine.<sup>2-4</sup>

Drug-induced paronychia can be so severe that granulation tissue emerges from the proximal or lateral nail folds.

## Differential diagnoses

### Onychomycosis

Onychomycosis is usually caused by dermatophyte fungi, but also sometimes by nondermatophytes. The fungal infection can also occur secondarily to various processes damaging the nail plate such as the effects of trauma. A wide range of fungi can cause onychomycosis, some of which are not primary pathogens. Fungal infection of nail plates usually causes discoloration, often yellowish, and may cause a crumbly dystrophy. Chronic paronychia less often causes discoloration or crumbly dystrophy of the nail plates.

### Onychomania

'Onychomania' is a term used to explain the effects of obsessive picking, often of the cuticle or proximal nail fold or nearby nail plate. The repeated injury leads to transverse depressions in the nail plate and if the nail plate is rubbed it has a shiny buffed appearance. The proximal nail fold damage may also trigger the occurrence of chronic paronychia.

### Chilblains

Chilblains are common, occurring in the colder months of the year. They usually affect the fingers or toes, and sometimes the ears or nose. They cause swollen, sometimes ulcerated, livid red to purple plaques. If chilblains affect the proximal nail fold they can lead to paronychia-type changes. These can be severe enough to permanently scar the nail fold, damage the nail matrix and lead to poorly growing nail plates. A less common version of cutaneous lupus erythematosus (chilblain lupus) resembles chilblains and can affect the nails in the same way. Cutaneous lupus erythematosus is only occasionally associated with systemic lupus erythematosus.

### Digital mucous cysts

Digital mucous cysts are small, smooth nodules, usually flesh coloured, slightly red in colour or translucent, found over the dorsal, distal end of digits, usually the fingers. The cysts are filled with thick, translucent mucus. They communicate with the synovium of the distal interphalangeal joint. If they occur over the nail matrix, pressure causes a longitudinal furrow in the nail plate. By disrupting the nail cuticle they can also allow chronic paronychia to develop in the area.

### Digital fibrokeratomas

Digital fibrokeratomas are small tumours growing from or near the nail matrix in the proximal nail fold. They grow under or adjacent to the nail plate in a finger-like fashion with a keratotic component. They either disrupt nail growth in the area or lead to a longitudinal furrow in the nail plate by pressing on the nail matrix. By

disrupting the nail cuticle, chronic paronychia can also develop in the area around the digital fibrokeratoma.

### Skin cancer

Various skin cancers of the nail apparatus can mimic chronic paronychia, particularly melanoma. These may be pigmented, sometimes causing longitudinal melanonychia of the nail plate. The Hutchinson's sign with pigmentation seeping onto the proximal nail fold may also be seen. Periungual melanomas may, however, be amelanotic, which is more easily misdiagnosed. Also, Bowen's disease and squamous cell carcinomas may mimic paronychia.

### Herpetic whitlow

Herpetic whitlow can also mimic paronychia. It is a localised recurrent herpetic infection of fingers, most often seen in children, or medical or dental personnel infected through ungloved hands during contact with infected patients.

### Treatment

It often takes a long time for chronic paronychia to permanently settle with treatment. It usually does not recur once the nail cuticle regrows and seals the nail plate from the proximal nail fold. Unfortunately, the ongoing inflammation of the condition delays regrowth of the cuticle.

The treatment of chronic paronychia is essentially the same as for chronic irritant hand dermatitis. The keys to treatment are to use a potent topical corticosteroid ointment to slowly settle the inflammation and a range of irritant avoidance measures.<sup>5,6</sup> Ointments are used because they are more potent than the equivalent cream (the ointment base enhances penetration of the corticosteroid) and their occlusive nature provides a partial barrier against irritants. Ointments, such as betamethasone dipropionate, methylprednisolone aceponate (the fatty ointment preparation) or mometasone furoate, should be used twice daily, usually for one to three months. They are applied to the proximal nail fold rather than the nail plate.

Initially, I also recommend applying

clotrimazole or miconazole lotion twice daily to the proximal end of the nail plate so it can be sucked under the nail fold by capillary action. This should be performed for two weeks in case there is secondary *Candida* infection. The topical antifungal is applied about 30 minutes before the topical corticosteroid is applied. Antifungal tablets such as itraconazole 200 mg daily for one to two weeks can also be used – they may be useful if the nail plate is quite dystrophic and a nail plate clipping shows candidiasis. It is not known whether oral antifungals are superior to topical ones for secondary candidiasis of the proximal nail fold. Oral terbinafine can also be used because it has some anticandida activity,<sup>7</sup> but perhaps less than itraconazole. Neither is available on the PBS for this indication. Griseofulvin is not active against *C. albicans*.

Patients must be advised not to touch the cuticles, even if they are a bit ragged, nor to remove them during a manicure. Irritant avoidance measures include reducing the frequency of hand washing and wet work as much as possible, and using gloves when undertaking wet work, handling irritating chemicals or during food preparation. However, sweating under gloves can also be an issue for patients with chronic paronychia. It helps to use greasy moisturisers, such as those containing petroleum jelly or 50% liquid paraffin in 50% soft white paraffin, twice daily and before any wet work.

Moisturiser should be applied to the proximal nail fold and the area of the cuticle to provide a seal against irritants. Also, a recent small randomised unblinded study suggested that tacrolimus 0.1% ointment was more efficacious than betamethasone valerate 0.1% ointment when used for three weeks with irritant avoidance measures.<sup>8</sup>

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## References

A list of references is available on request to the editorial office.

COMPETING INTERESTS: None.

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