BMJ Best Practice

Paronychia

Straight to the point of care

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Summary

Acute paronychia is an acute infection of the nail folds and periungual tissues, usually caused by *Staphylococcus aureus* .

Treatment of acute paronychia includes incision and drainage of any purulent fluid, soaks, and topical and/or oral antibacterials.

Chronic paronychia is a chronic irritant dermatitis of the periungual tissues resulting from barrier damage to the protective nail tissues, including the cuticle and the proximal and lateral nail folds.

Water and irritant avoidance is the hallmark of treatment of chronic paronychia.

Definition

Paronychia is the inflammation of the nail apparatus. Acute paronychias are infections of the periungual tissues, usually presenting with an acutely painful, purulent infection. Chronic paronychia represents barrier damage to the protective nail tissues, including the cuticle and the proximal and lateral nail folds. The altered nail barrier predisposes the nail to irritant dermatitis, most importantly from water, soap, chemicals, and microbes. Avoidance of such irritants is the hallmark of treatment.

Acute paronychia

From the collection of Dr N.J. Jellinek and Professor C.R. Daniel III

Chronic paronychia

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THEORY

Epidemiology

Acute paronychia tends to involve anyone with acute or chronic damage to the nail apparatus. This includes those with mechanical jobs, as well as those with hands exposed to excessive water and chemicals.

Chronic paronychia affects women more than men, particularly those who use nail cosmetic products and those performing activities at high risk of damaging the normal dorsal nail barrier. High-risk activities include working as a house cleaner or a cook, jobs requiring excessive soap and water contact, or those causing trauma and/or manipulation to the dorsal nail, cuticle, or proximal nail fold.

Etiology

Acute paronychia:[1] [2]

- Bacterial causes include *Staphylococcus aureus* , *Streptococcus* , and *Pseudomonas* , as well as other gram-negative rods.
- Viral causes include herpes simplex virus and others.

Chronic paronychia:[1] [2]

- Caused by barrier disruption of the normal protective nail tissues (cuticle, nail folds).

Pathophysiology

Acute paronychia:

- Barrier breakdown allows a microscopic or macroscopic portal of entry for bacteria or other microbes in the environment, into what is normally an impermeable sealed anatomic apparatus.[3]
- The result is an acute (usually bacterial) infection of the soft tissues surrounding, and occasionally under, the nail plate.[1]

Chronic paronychia:

- Barrier disruption in the form of lost cuticle and altered proximal nail fold facilitates exposure of water and irritant (and occasional allergic) contactants to a normally protected site under the proximal nail fold. In this warm, wet, and dark space, yeast colonize (but do not infect), and continued irritant exposure results in chronic dermatitis.
- Given the proximity to the underlying matrix, secondary plate abnormalities are common.[1]

Classification

Paronychia[1]

- Acute paronychia: acute, purulent infection of the nail folds and periungual tissues, usually caused by *Staphylococcus aureus* , although *Streptococcus* and certain gram-negative organisms, as well as herpes simplex virus, are occasional causes.

- Chronic paronychia: chronic inflammation of the nail folds (proximal and lateral) with loss of the cuticle, eczematous dermatitis of the nail folds, secondary nail plate dystrophy, and a predisposition to secondary bacterial infections.

Case history

Case history #1

Acute paronychia: a 30-year-old man presents with a 1-day history of an acutely painful and swollen fingertip. Exam shows a deep red, erythematous, and swollen lateral nail fold, with a pocket of pus beneath the tense nail fold skin.

Case history #2

Chronic paronychia: a 50-year-old woman complains of nail roughness and swelling of her nail folds. She goes to the manicurist every 2 weeks, works as a house cleaner, and rarely uses gloves. Exam shows missing cuticles, swollen nail folds, and irregular superficial plate abnormalities.

Approach

Both acute and chronic paronychia can be diagnosed based on their clinical characteristics; however, Gram stain, culture, and sensitivity are required for confirmation in the case of acute paronychia.

Acute paronychia

A clinical diagnosis of purulent infection in the nail folds should be confirmed with Gram stain, culture, and sensitivity, optimally after draining the infection under sterile conditions. The collection may already be draining spontaneously, in which case this fluid can be swabbed. MRSA should be suspected in all cases of acute paronychia; therefore, culture should be obtained in every case.

The patient with acute paronychia may be any age, although infants or toddlers (finger suckers) and adults with excessive water or contactant exposure are at highest risk. Women tend to be more commonly affected than men. Patients present complaining of pain in their nail folds, with or without a history of trauma or of drainage of pus.

Exam shows swollen proximal and/or lateral nail folds, often with a purulent collection in the skin.

Acute paronychia

From the collection of Dr N.J. Jellinek and Professor C.R. Daniel III

This is tender and drains after incision with a number 11 blade, demonstrating frank pus.

Acute paronychia: incision with #11 blade

From the collection of Dr N.J. Jellinek and Professor C.R. Daniel III

Acute paronychia: draining pus

From the collection of Dr N.J. Jellinek and Professor C.R. Daniel III

The diagnosis is confirmed through this clinical exam and the collection sent for Gram stain, culture, and sensitivity to aid in treatment.

Certain factors may point to herpes simplex infection as a cause for acute paronychia. These include lancinating pain, presence of vesicles, herpetiform arrangement of pustules and/or vesicles, or being refractory to antibacterial treatment. In these cases, a swab for Tzanck smear is indicated and, if negative, further tests for herpes simplex virus should be carried out.

With severe and/or refractory cases, an x-ray or magnetic resonance imaging (MRI) may be obtained to evaluate for underlying osteomyelitis.

Chronic paronychia

Diagnosis is clinical, based on typical inflamed nail folds with or without nail plate changes, with missing cuticle, in a person with risk factors for nail fold damage.

Patients are usually adults, and women more than men. Medication use should be noted as nail changes are well-documented among patients receiving certain chemotherapeutic agents (e.g., taxanes) and epidermal growth factor receptor inhibitors.[6][7] Other medications that can cause chronic paronychia include retinoids and protease inhibitors.[3] Nearly every patient will have a history of exposure to excessive water or contactants, including nail cosmetics (manicure, polish, gloss, cuticle treatment, hardeners). Patients complain of swelling and pain of the nail folds, occasionally with acute infectious episodes (in which case there may be a combination of acute and chronic features) and often irregular superficial nail plate abnormalities. On exam, there is swelling and shininess to the nail folds, a missing cuticle, and, frequently, superficial plate dystrophy.

Chronic paronychia

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Chronic paronychia

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No laboratory tests are routinely ordered. A potassium hydroxide or fungal culture may show *Candida* ; however, this colonization should not be confused with infection, and treatment of such is clearly secondary to irritant/moisture avoidance. A green nail may imply *Pseudomonas* infection. This diagnosis can be confirmed by sending off a nail clipping sample for Gram stain, culture, and sensitivity testing.

For refractory cases, an x-ray or magnetic resonance imaging may be obtained to rule out underlying osseous pathology, or biopsy to evaluate for squamous cell carcinoma. However, the diagnosis of chronic paronychia is usually made simply on clinical grounds.

Retronychia

Chronic paronychia and interruption of nail growth may rarely occur subsequent to posttraumatic ingrowth of the proximal nail plate into the proximal nail fold (retronychia) and can also occur after nail avulsion.[4] [5] Important clinical criteria for diagnosis of retronychia include: inflammation of the proximal nail fold;

granulation tissue emerging from under the nail fold; thickening of the proximal portion of the nail plate; and interruption of nail growth.[9]

History and exam

Key diagnostic factors

presence of risk factors (common)

- Key risk factors include microscopic or macroscopic injury to the nail folds and cuticle, adults exposed to occupational contactants or cosmetics or certain medications, female sex, and toddlers who suck their fingers.

pain, swelling, drainage (acute) (common)

- Common complaint in acute paronychia.

Acute paronychia

From the collection of Dr N.J. Jellinek and Professor C.R. Daniel III

Acute paronychia: draining pus

From the collection of Dr N.J. Jellinek and Professor C.R. Daniel III

swollen, purulent nail fold (acute) (common)

- Characteristic of acute paronychia on exam.

Acute paronychia: draining pus

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nail plate irregularities (chronic) (common)

- Common complaint in chronic paronychia.

Chronic paronychia

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Chronic paronychia

From the collection of Dr N.J. Jellinek and Professor C.R. Daniel III

swelling/redness of nail folds (chronic) (common)

- Common complaint in chronic paronychia.

pink, swollen nail folds (chronic) (common)

- Characteristic of chronic paronychia on exam.

missing cuticle (chronic) (common)

- Characteristic of chronic paronychia on exam.

underlying nail plate abnormalities (chronic) (common)

- Characteristic of chronic paronychia on exam.

Risk factors

Strong

microscopic or macroscopic injury to the nail folds (acute)

- This is the only portal of entry for microbes into the periungual tissues.

occupational risks (acute and chronic)

- Work-related trauma to the nail folds creates the portal of entry and causes disruption in the nail barrier due to exposure to irritants.

barrier damage to the nail folds, cuticle (chronic)

- The normal barrier is impermeable to microbes, moisture, and irritants. Any manipulation or loss of this barrier exposes the normally protected tissue under the proximal nail fold to persistent and cumulative moisture, microbe, irritant, and occasional allergic contactants. This cycle of inflammation persists until the insults are removed and the normal nail barrier is reformed.

ingrown nail

- An ingrown nail may develop into paronychia.
- Chronic paronychia and interruption of nail growth may occur subsequent to posttraumatic ingrowth of the proximal nail plate into the proximal nail fold (retronychia).[4] [5]

medications (chronic)

- Nail changes are well documented among patients receiving certain chemotherapeutic agents (e.g., taxanes) and epidermal growth factor receptor inhibitors.[6] [7] Other medications that can cause chronic paronychia include retinoids and protease inhibitors.[3]

Weak

toddler and adult

- All ages can be affected, but peak incidence is in toddlers (finger suckers) and adults.

female

- Women are more likely to be affected than men.

Investigations

1st test to order

Test	Result
swab for Gram stain, culture, and sensitivity (acute or acute-on-chronic) • Should be performed at initial presentation, before commencing antibiotics, in order to establish if MRSA is present. • The nail fold should be cleaned before incising with a number 11 blade or 18-gauge needle (to avoid contaminant). It is important to look for sensitivities because of prevalence of bacterial resistance. • In chronic paronychia, usually no diagnostic tests are needed, and any culture or potassium hydroxide may be misleading unless there is an acute process superimposed on the chronic inflammatory state.	**observed bacteria**
swab for Tzanck smear (acute, herpetic) • If Tzanck smear is negative, further tests for herpes include direct fluorescent antibody for positive staining of the herpes simplex virus (HSV), culture for HSV, and polymerase chain reaction for HSV.	**multinucleated giant cells, inclusion bodies, nuclear molding**

Other tests to consider

Test	Result
potassium hydroxide or fungal culture (chronic) • No laboratory tests are routinely ordered in chronic paronychia.	***Candida* colonization (should not be confused with infection)**
x-ray • This is required only for resistant or atypical cases.	**may detect bone disorder such as osteomyelitis, or mass in an underlying bone disorder**
MRI • This is required only for resistant or atypical cases.	**may detect bone disorder such as osteomyelitis, or mass in an underlying bone disorder**
biopsy of skin/bone • This is required only for resistant or atypical cases. It is performed to rule out malignancy and also to excise chronically inflamed tissue.	**may rule out or confirm malignancy**

Differentials

Condition	Differentiating signs / symptoms	Differentiating tests
Herpetic whitlow	• Herpetic whitlow can involve any area of the fingertip or periungual tissues, but only when it causes inflammation of the nail folds does it result in acute paronychia. Therefore, herpes is a known cause of acute paronychia, but herpetic whitlow is a differential in the causes of a painful fingertip. • Blistering and increased pain differentiate this from bacterial acute paronychia.[1] [10]	• Direct fluorescent antibody: positive staining of the herpes simplex virus (HSV). • Tzanck smear: multinucleated giant cells, inclusion bodies, nuclear molding. • Culture: HSV. • Polymerase chain reaction: HSV.
Arthropod bite or sting	• Itch, history of bite or travel differentiate this from acute paronychia.[1]	• Biopsy will show typical changes of dense inflammatory infiltrate with eosinophils.
Traumatic injury	• History of injury differentiates this from acute paronychia.[1]	• X-ray for underlying foreign bodies or fracture.
Squamous cell carcinoma or other malignancy such as amelanotic melanoma	• Lack of any response to therapy differentiates this from chronic paronychia.[1]	• Biopsy shows malignant cells.
Myxoid cyst	• Swelling/translucency over nail folds differentiates this from chronic paronychia.[1]	• Needling with viscous fluid or transillumination, biopsy, MRI.

Criteria

There are no definitive criteria for mild and severe acute paronychia, and judgment of severity is based on the physician's clinical assessment. In general, mild acute paronychia is usually less painful and has less periungual tissue involved, with no local extension or systemic signs of infection. Severe acute paronychia will usually present with significant pain and involvement of an extended area of periungual tissue and/or local extension, and will usually have a fluctuant pus collection. Systemic signs of infection may be present.

Approach

In acute paronychia, once the diagnosis is made, the treatment is determined by disease severity. Early and/or mild cases with few symptoms and only a small collection of pus can be treated with drainage, drying soaks, and topical antibacterial agents.[3] [11] Incision and drainage is only performed if a collection is present. More advanced cases also require systemic antibacterial agents. In both cases, culture and sensitivities should be sent prior to instituting antibacterial treatment, in order to establish if MRSA is present.[1] [2] All positive MRSA cultures should be treated with systemic antibiotics according to sensitivity. This will avoid treatment failure due to the possibility of the MRSA being the causative factor for the paronychia.

Acute paronychia (mild bacterial)

Mild acute paronychia, which is less painful and has less periungual tissue involved with no local extension or systemic signs of infection, can be treated with drying soaks (e.g., warm saline, aluminum acetate, chlorhexidine, and povidone-iodine), and a topical antimicrobial.[3] [11] Incision and drainage of any pus collection is required.[3] [11]

Acute paronychia (severe bacterial)

Any severe or painful acute paronychia, with features such as significant pain, involvement of an extended area of periungual tissue and/or local extension, a fluctuant pus collection, or systemic signs of infection, requires specific systemic antimicrobial therapy based on culture and sensitivity. Appropriate empiric therapy includes a first-generation cephalosporin or an expanded-spectrum penicillin. Clindamycin or erythromycin may be used if the patient is penicillin-allergic. Incision and drainage of any pus collection is required.[3] [11] Drying soaks (e.g., warm saline, aluminum acetate, chlorhexidine, and povidone-iodine), may also be used.[3] [11]

Acute paronychia (herpetic)

Once this diagnosis is confirmed, treatment with an oral antiviral (e.g., acyclovir, valacyclovir, or famciclovir) can be considered.[12]

Chronic paronychia

The key to treatment of chronic paronychia is understanding the normal nail barrier function and then communicating that to the patient. Water and irritant avoidance regimen is the hallmark of therapy. Steps in treatment are as follows:[2]

- Elimination of the cause by avoiding contact irritants and water exposure, as well as physical manipulation and/or trauma to the nail folds
- Use of cotton gloves under vinyl gloves for all wet work and exposure to chemicals, acids, alkalis (including cooking many foods), paints, and solvents
- Topical corticosteroids for 2 to 3 weeks (class I or II)
- Avoiding all nail products (polish, remover, conditioner, hardener) and the nail salon
- Using alcohol-based hand cleanser or very little mild soap when washing hands, with complete drying of the hands afterward
- Protecting hands from drying and chapping in cold weather
- Treatment of any superimposed acute paronychia.

If patients are refractory to treatment, intralesional corticosteroids or excision of the proximal nail fold are second- and third-line possibilities respectively.[1] [2] The square flap surgical technique removes fibrotic tissue without complete excision of the proximal and lateral nail fold, thereby reducing nail fold retraction and recovery time.[13]

There is debate regarding the significance and subsequent treatment of secondary colonizing yeast and bacteria. Most nail experts consider their presence almost always a secondary phenomenon. First-line options for treatment, if indicated, are clotrimazole solution or ciclopirox suspension, until the nail fold has normalized.[2] [14] [15] [16] Although rarely necessary, if persistent infection with pseudohyphae is observed on potassium hydroxide or biopsy, an oral antifungal such as fluconazole can be prescribed. There is no need for an oral antibacterial unless there is an acute flare in the setting of chronic paronychia. A green nail may imply *Pseudomonas* infection, which can be treated with dilute white vinegar soaks.

Retronychia

Nail plate avulsion is curative, but relieving tissue pressure on the nail plate and fixing them with adhesive tape is an option in early cases.[4] [9] An oral nonsteroidal anti-inflammatory drug may be prescribed, although this is not necessary in all cases.

Treatment algorithm overview

Please note that formulations/routes and doses may differ between drug names and brands, drug formularies, or locations. Treatment recommendations are specific to patient groups: see disclaimer

Acute (summary)		
acute paronychia		
mild bacterial infection	**1st**	**soaks + topical antibacterial + incision and drainage**
	adjunct	**oral antibiotic therapy**
more tissue involved or severe bacterial infection	**1st**	**soaks + topical antibacterial + incision and drainage + oral antibiotic therapy**
herpetic infection	**1st**	**oral antiviral therapy**

Ongoing		(summary)
chronic paronychia		
	1st	education + moisture and irritant avoidance + topical corticosteroid
	adjunct	treatment of secondary colonization of yeast or bacteria
	2nd	intralesional corticosteroids
	3rd	surgery
retronychia		
	1st	nail plate avulsion ± nonsteroidal anti-inflammatory drug (NSAID)

Treatment algorithm

Please note that formulations/routes and doses may differ between drug names and brands, drug formularies, or locations. Treatment recommendations are specific to patient groups: see disclaimer

Acute

acute paronychia

mild bacterial infection

1st **soaks + topical antibacterial + incision and drainage**

Primary options

» bacitracin topical: (500 units/g) apply to the affected area(s) two to three times daily

OR

» mupirocin topical: (2%) apply to the affected area(s) two to three times daily

OR

» bacitracin/neomycin/polymyxin B topical: apply to the affected area(s) two to three times daily

» Mild acute paronychia is usually determined by patient symptoms combined with clinical exam. Treatment must be targeted at the bacterial trigger.

» Empiric treatment includes incision and drainage of pus collection if present.[3] [11] The fluid should always be sent for Gram stain, culture, and sensitivity in order to establish if MRSA is present.

» Soaks: warm saline, aluminum acetate, chlorhexidine, or povidone-iodine soaks twice a day.[3] [11]

» Topical antibacterial: mupirocin, bacitracin, or polymyxin B/bacitracin/neomycin if not allergic.

» If unresponsive to treatment, imaging (plain film or MRI) should be performed to evaluate for osteomyelitis.[1]

adjunct **oral antibiotic therapy**

Treatment recommended for SOME patients in selected patient group

» All positive MRSA cultures should be treated with systemic antibiotics according to sensitivity. This will avoid treatment failure due to the

Acute

possibility of the MRSA being the causative factor for the paronychia.

more tissue involved or severe bacterial infection — **1st** — **soaks + topical antibacterial + incision and drainage + oral antibiotic therapy**

Primary options

» bacitracin topical: (500 units/g) apply to the affected area(s) two to three times daily
-or-
» mupirocin topical: (2%) apply to the affected area(s) two to three times daily
-or-
» bacitracin/neomycin/polymyxin B topical: apply to the affected area(s) two to three times daily

--AND--

» dicloxacillin: 500 mg orally every 6 hours for 7-14 days
-or-
» cephalexin: 500 mg orally every 6 hours for 7-14 days

Secondary options

» bacitracin topical: (500 units/g) apply to the affected area(s) two to three times daily
-or-
» mupirocin topical: (2%) apply to the affected area(s) two to three times daily
-or-
» bacitracin/neomycin/polymyxin B topical: apply to the affected area(s) two to three times daily

--AND--

» clindamycin: 300 mg orally every 6 hours for 7-14 days
-or-
» erythromycin base: 500 mg orally every 6 hours for 7-14 days

» Empiric treatment includes incision and drainage of pus collection if present.[3] [11] The fluid should always be sent for Gram stain, culture, and sensitivity in order to establish if MRSA is present.

» Soaks: warm saline, aluminum acetate, chlorhexidine, or povidone-iodine soaks twice a day.[3] [11]

» Topical antibacterial: mupirocin, bacitracin, or polymyxin B/bacitracin/neomycin if not allergic.

» First-line oral antibiotics are a first-generation cephalosporin (e.g., cephalexin) or expanded-spectrum penicillin (e.g., dicloxacillin). In

Acute

penicillin-allergic patients, clindamycin or erythromycin should be prescribed. In all cases of positive MRSA cultures, antibiotics should be prescribed as per sensitivity. This will avoid treatment failure due to the possibility of the MRSA being the causative factor for the paronychia.

» If unresponsive to treatment, imaging (plain film or MRI) should be performed to evaluate for osteomyelitis.[1]

herpetic infection — **1st** — **oral antiviral therapy**

Primary options

» acyclovir: 400 mg orally three times daily for 7-10 days; or 200 mg orally five times daily for 7-10 days

OR

» valacyclovir: 1000 mg orally twice daily for 7-10 days

OR

» famciclovir: 250 mg orally three times daily for 7-10 days

» Treatment for herpetic acute paronychia requires a high degree of clinical suspicion and the diagnosis confirmed by Tzanck smear, direct fluorescent antibody, culture, or polymerase chain reaction.

» First-line agents: acyclovir, valacyclovir, famciclovir.[12]

» If unresponsive to treatment, imaging (plain film or MRI) should be performed to evaluate for osteomyelitis.[1]

Ongoing

chronic paronychia

1st **education + moisture and irritant avoidance + topical corticosteroid**

Primary options

» clobetasol topical: (0.05%) apply sparingly to the affected area(s) twice daily for 2-3 weeks

OR

» fluocinonide topical: (0.05%) apply sparingly to the affected area(s) twice daily for 2-3 weeks

» Patient should be educated that this is a chronic process to which people are predisposed through occupation, habits, or genetics. They should understand the normal nail barrier, the role of the cuticle in protecting the dorsal nail barrier, and the keys to treatment; in particular, that the therapy is mostly passive until the nail reforms its normal barrier.

» Hallmarks of treatment are a moisture and irritant avoidance regimen.

» Light cotton gloves should be worn under heavy-duty vinyl gloves for all wet work, including peeling fruits and vegetables and handling raw food.

» Avoidance of nail cosmetics (polish, polish remover, hardener, conditioner, cuticle treatment) of all kinds is advised.

» There should be no manipulation of the nail or cuticle except routine nail plate trimming.

» When washing hands, an alcohol-based hand cleanser or very little mild soap should be used and the hands should be completely dried after washing.

» The patient should be advised to avoid chemical solvents such as paint thinners, polishes, and paint and to completely avoid the nail salon.

» Anti-inflammatory treatment consists of application of topical corticosteroids (class I or II) for 2 to 3 weeks to the nail folds.

» If unresponsive to all therapies or atypical, a biopsy is indicated to rule out squamous cell carcinoma or amelanotic melanoma.[1]

Ongoing

» Plain film x-ray or MRI should be performed for underlying osseous pathology if suspected.[1]

adjunct **treatment of secondary colonization of yeast or bacteria**

Treatment recommended for SOME patients in selected patient group

Primary options

» clotrimazole topical: (1%) apply to the affected area(s) two to three times daily

OR

» ciclopirox topical: (0.77%) apply to the affected area(s) twice daily

Secondary options

» fluconazole: 400 mg orally once weekly

» There is debate regarding the significance and subsequent treatment of secondary colonizing yeast and bacteria. Most nail experts consider their presence almost always a secondary phenomenon.

» First-line options for treatment, if indicated, are clotrimazole solution or ciclopirox suspension, until the nail fold has normalized.[2] [14] [15] [16]

» Although rarely necessary, if persistent infection with pseudohyphae is observed on potassium hydroxide or biopsy, an oral antifungal such as fluconazole can be prescribed.

» There is no need for an oral antibacterial unless there is an acute flare in the setting of chronic paronychia.

» A green nail may imply *Pseudomonas* infection, which can be treated with dilute white vinegar soaks for 5 minutes twice daily.

» If unresponsive to all therapies or atypical, a biopsy is indicated to rule out squamous cell carcinoma or amelanotic melanoma.[1]

» Plain film x-ray or MRI should be performed for underlying osseous pathology if suspected.[1]

2nd **intralesional corticosteroids**

Primary options

» triamcinolone acetonide: 2.5 to 5 mg/mL (diluted from a 10 mg/mL solution with lidocaine) intralesionally once monthly until improvement, then taper and discontinue

MANAGEMENT

Ongoing

» This treatment is reserved for treatment-resistant or severe cases, when direct injection of the drug is required for persistent inflammation.

» The treatment is given optimally, with a topical anesthetic or cryogen spray, with a 30-gauge needle and injected as a wheal, approximately 0.1 mL per proximal nail fold.

» If unresponsive to all therapies or atypical, a biopsy is indicated to rule out squamous cell carcinoma or amelanotic melanoma.[1]

» Plain film x-ray or MRI should be performed for underlying osseous pathology if suspected.[1]

3rd **surgery**

» Excision of proximal nail fold is reserved for those patients with disease resistant to first- and second-line treatments. It is carried out under local anesthesia with minimal morbidity and serves as both diagnostic confirmation and therapy, simply by excising the persistently inflamed tissue.[17]

» The square flap technique removes fibrotic tissue without complete excision of the proximal and lateral nail fold, thereby reducing nail fold retraction and recovery time.[13]

» Plain film x-ray or MRI should be performed for underlying osseous pathology if suspected.[1]

retronychia

1st **nail plate avulsion ± nonsteroidal anti-inflammatory drug (NSAID)**

Primary options

» ibuprofen: 200-400 mg orally every 4-6 hours when required, maximum 2400 mg/day

» Nail plate avulsion is curative, but relieving tissue pressure on the nail plate and fixing with adhesive tape is an option in early cases.[4] [9] An oral NSAID may be prescribed, although this is not necessary in all cases.

Emerging

Tacrolimus (topical)

One small randomized controlled trial (n=45) randomized patients with chronic paronychia to treatment with betamethasone ointment, tacrolimus ointment, or an emollient. After 3 weeks' treatment and 6 weeks' follow-up, tacrolimus and betamethasone were both associated with significantly better responses than emollient. Eight patients in the betamethasone group were considered cured, compared with 13 patients in the tacrolimus group.[18]

Swiss roll surgical technique

The Swiss roll technique is a potential surgical treatment option for severe acute and chronic paronychia. The nail fold is elevated then reflected proximally over a nonadherent dressing, rolled, and secured in place with sutures. The wound is allowed to drain and, once clean, the nail fold is returned to its original position and heals by secondary intention.[19]

Primary prevention

Irritant avoidance and use of waterproof gloves may prevent damage to the nail folds during high-risk activities, and so reduce the risk of developing paronychia.[8]

Patient discussions

It is important to understand the high-risk activities that predispose people to paronychia and to educate them about the normal nail barrier, notably the cuticle (which is not meant to be pushed back) and nail folds that envelop the nail plate. When these structures are respected and understood, nail barrier breakdown and the consequences (either infectious or inflammatory) are less likely to occur.

[BAD: chronic paronychia] (https://www.bad.org.uk/pils/chronic-paronychia)

Complications

Complications	Timeframe	Likelihood
osteomyelitis (acute paronychia)	**variable**	**low**
Deep-seated, aggressive infection can spread from the nail folds to the underlying distal phalanx.		
septic arthritis (acute paronychia)	**variable**	**low**
Deep-seated, aggressive infection can spread from the nail folds to the underlying distal interphalangeal joint.		
separation of nail plate from matrix: onychomadesis (acute and chronic paronychia)	**variable**	**low**
If the infectious/inflammatory process involves the underlying matrix, plate production can temporarily cease, with resultant nail shedding and, occasionally, scarring.		

Prognosis

Acute paronychia

The prognosis is excellent, particularly with patient education (to avoid barrier dysfunction) and with specific antibiotic prescription.

Chronic paronychia

The prognosis depends on patient education and adherence to protective and preventative measures. Most patients are at high risk of recurrent disease (from occupational risks, nail cosmetic use, nail fold or cuticle manipulation). Discuss the concepts of normal nail barrier, barrier dysfunction, the activities that predispose them to chronic paronychia, and the importance of moisture/contactant avoidance in the treatment of the condition, as well as maintenance of a normal nail barrier.

Online resources

1. BAD: chronic paronychia (https://www.bad.org.uk/pils/chronic-paronychia) *(external link)*

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Images

Figure 1: Acute paronychia

From the collection of Dr N.J. Jellinek and Professor C.R. Daniel III

Figure 2: Chronic paronychia

From the collection of Dr N.J. Jellinek and Professor C.R. Daniel III

Figure 3: Chronic paronychia

From the collection of Dr N.J. Jellinek and Professor C.R. Daniel III

Figure 4: Acute paronychia: incision with #11 blade

From the collection of Dr N.J. Jellinek and Professor C.R. Daniel III

Figure 5: Acute paronychia: draining pus

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Figure 1 – BMJ Best Practice Numeral Style

5-digit numerals: 10,000

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