

Paronychia (Infection Beside the Nail)

What you're feeling

You will likely notice a tender, red area right beside your fingernail or toenail. This is where the skin has separated slightly from the nail fold. The pain is usually sharp and throbbing, especially when you press on the side of the nail. It can feel like a constant, low-grade ache that suddenly spikes when you bump the area.

The discomfort often worsens at night. You might find yourself checking your hand or foot repeatedly, unable to get comfortable. Even light pressure from a sock or shoe can feel intense. If there is a small collection of pus under the nail (a subungual abscess), you may feel a distinct pressure that makes the pain feel deep and tight. This pressure can make it hard to sleep or relax.

Daily tasks become difficult because of the sensitivity. Simple actions like buttoning a shirt, typing on a keyboard, or holding a cup of tea can be painful. You might avoid using that hand entirely to protect the sore spot. If the infection is fungal, the skin around the nail may look scaly or thickened. You might notice the nail itself changing shape or colour over time.

In some cases, the redness and swelling spread quickly. You may see streaks moving up your finger or hand. This signals that the infection is not staying local. Most soft tissue hand infections resolve fully with prompt care. However, hand infections can lead to complications that are difficult to manage if ignored. This is why early attention to these symptoms is important.

If the area does not improve with basic care, or if the nail abnormality persists, further evaluation is needed. Sometimes, what looks like a simple infection can be something else, such as a growth in the nail unit. Your surgeon will look closely at the skin and nail to rule out other causes. They may use imaging or lab tests to confirm the diagnosis. These steps help ensure you get the right treatment for your specific situation.

What's actually happening

Paronychia is an infection that develops in the skin fold right beside your fingernail or toenail. In most cases, it starts with a tiny wound that was ignored. This could be a small cut, a hangnail, or damage from biting your nails. When the skin barrier is broken, bacteria can slip inside and multiply quickly.

Think of the skin fold like a protective seal around a door. When that seal is cracked or torn, germs find an easy way in. Your body sends white blood cells to fight the invaders, which causes the redness, swelling, and pain you feel. If left untreated, the infection can turn into a pocket of pus, known as an abscess. This puts pressure on the sensitive tissue under your nail, making it throbbing and tender.

While most infections are bacterial, some can be fungal or viral. Fungal infections often affect the skin and nails directly and may respond to topical treatments. Viral infections are less common but can also cause similar swelling. In rare cases, what looks like a stubborn infection might actually be something else, such as a type of skin cancer that doesn't heal with standard care. This is why persistent changes to your nail or surrounding skin need professional evaluation.

Prompt treatment is essential to stop the infection from spreading deeper into your hand or foot. Without care, complications can include permanent stiffness, contractures, or in severe cases, loss of the digit. Most people recover fully with the right care, but early action prevents these serious outcomes. Your surgeon will assess the area to determine if drainage, antibiotics, or other treatments are needed to clear the infection and protect your tissue.

What we can do about it

Dr Kieran Hirpara, an upper-limb surgeon at Mater Private Hospital Rockhampton, starts with the least invasive options that suit your condition. The first thing that has to be settled is which of the two conditions you have, because the treatments are close to opposites.

ACUTE PARONYCHIA

This is a bacterial infection, usually staphylococcal, that has developed over a day or two after a break in the seal between nail and skin – a torn hangnail, a bitten nail, a manicure.

If there is no collection of pus yet, warm soaks and antibiotics are often enough. Once pus has formed, no antibiotic will clear it on its own; it has to be let out. That is a small procedure under local anaesthetic, lifting the nail fold away from the nail to release the pus rather than cutting into the pulp of the finger.

Where the pus has tracked under the edge of the nail, part of the nail may need removing to drain it properly. A nail-preserving alternative is the **Swiss roll technique**, in which the nail fold is lifted and rolled back on a suture rather than excised, allowing drainage while keeping the nail plate and nail fold intact.

CHRONIC PARONYCHIA

This is the one most often mistreated, because it looks like an infection and largely is not. It is an inflammatory reaction of the nail fold – closer to an eczema – in people whose hands are repeatedly wet: cleaners, bar staff, healthcare workers, parents of small children. The protective cuticle seal is lost, irritants and organisms get in, the fold swells, and the swelling prevents the seal reforming.

The most useful evidence here is a trial that compared a **topical steroid against a systemic antifungal**. The steroid performed better. That result is the strongest argument that the problem is inflammation rather than infection, and it explains why courses of antifungal treatment so often disappoint.

CQ HAND + UPPER LIMB

Dr Kieran Hirpara – Specialist Orthopaedic Surgeon
Suite 2, Level 1, Mater Private Hospital Rockhampton, 31 Ward Street, The Range, QLD 4700
Phone 07 4863 6556 · office@cqupperlimb.com.au · cqupperlimb.com.au

So the mainstay is: keep the hands dry, avoid the irritant exposure where possible, and treat the inflammation. Gloves for wet work matter more than any prescription.

WHEN CHRONIC PARONYCHIA NEEDS SURGERY

If the nail fold has been thickened and inflamed for months and will not settle, the swollen tissue itself is now the problem – it is holding the seal open. Removing it allows the fold to reattach to the nail.

The operation is **eponychial marsupialisation**: a crescent-shaped strip of skin is removed from the nail fold, just behind the cuticle and taking the thickened tissue with it, stopping short of the germinal matrix that grows the nail. The defect is left open to heal and contract, which draws the fold back down onto the nail plate.

It works, and there is a useful refinement. In the original series, marsupialisation alone left recurrences in fingers where the nail itself was already deformed, while adding **removal of the nail plate** in those fingers eliminated them. Fingers with a normal-looking nail did well with marsupialisation alone. So a ridged or irregular nail is the finding that argues for removing the nail at the same time.

Patients are generally referred to our clinic by their GP; if a physiotherapist has suggested you see us, you will still need a referral from your GP in order to be eligible for the Medicare rebate.

What to expect

Paronychia is an infection beside your nail. Most cases start from a small cut or hangnail that was not treated early. Because hand infections can lead to complications, it is important to address the issue promptly. Hand infections often involve a mix of issues that can be difficult to manage if ignored.

If you receive treatment, the outlook is generally positive. Simple procedures, such as draining a collection of blood under the nail, are associated with a low infection rate and a good cosmetic result. This applies even if there is an underlying fracture, unless the fracture needs surgical fixing or the nail matrix is trapped. For fungal issues affecting the skin and nails, topical or local therapies are often effective.

However, if the infection is left alone, it may persist or become chronic. Chronic hand infections require careful attention for early diagnosis to prevent significant complications. In some cases, an abnormality that does not respond to standard treatment may need further investigation to rule out other conditions, such as squamous cell carcinoma of the nail unit.

Recovery feels different depending on the cause. Acute abscesses are usually treated with a procedure, but there is no single agreed-upon technique. If you have a mycobacterial infection, complications can be significant, so close monitoring is essential. While large studies are still needed to define the best approach for all cases of acute and chronic paronychia, early care typically prevents long-term problems.

Your surgeon will guide you through the specific steps for your situation. We aim to restore the health of your nail unit with minimal disruption to your daily life. Most patients see improvement once the infection is controlled. If symptoms do not settle, further assessment is needed to ensure the correct treatment path is taken.

When to see someone

See your GP if you notice persistent pain beside your nail that does not improve with rest. Ask for a specialist review if you experience weakness, instability, or if the joint locks or gives way. Seek care if symptoms interfere with your sleep or work. Sudden worsening of pain or swelling is also a reason to act quickly. Most soft tissue hand infections resolve fully with prompt and appropriate care. Hand infections are usually diagnosed through a clinical examination. Imaging and laboratory tests may help confirm the diagnosis. Early attention is important because complications from certain hand infections can be significant. Chronic infections require a high level of suspicion for early detection.

In more depth

This section goes further than you need for your own treatment decisions. Paronychia is worth the extra reading because one word covers two conditions that behave differently, respond to opposite treatments, and are routinely confused – and because the surgical answer for the chronic form is older, simpler and better supported than most people expect.

TWO CONDITIONS, ONE NAME

Acute paronychia is a bacterial infection of the nail fold, most often *Staphylococcus aureus*, developing over 24 to 48 hours after the seal between nail and skin is breached [1]. It is red, hot, tense and disproportionately painful, and it forms pus.

Chronic paronychia, by convention lasting beyond six weeks, is not primarily an infection at all. It is an inflammatory dermatitis of the nail fold driven by repeated wet exposure and irritants, in which loss of the cuticle seal allows further irritant entry, producing a cycle that sustains itself [2]. *Candida* is frequently cultured from these folds, which is precisely why the condition was long treated as a fungal infection – but its presence is better understood as colonisation of an already-damaged fold than as the cause.

THE TRIAL THAT REFRAMED THE CHRONIC FORM

The evidence that settles this is a randomised, double-blind, double-dummy trial comparing a **topical steroid** (methylprednisolone aceponate) against **two systemic antifungals**. Of 48 nails treated with the topical steroid, **41 were improved or cured**, against **30 of 57** on terbinafine and **29 of 64** on itraconazole – a statistically significant advantage to the steroid [3].

The same trial contains the more decisive observation. *Candida* presence was **not strictly linked to disease activity**, and eradicating *Candida* was associated with clinical cure in only **2 of the 18** patients who carried it at baseline [3].

That is hard to reconcile with a fungal aetiology and easy to reconcile with an inflammatory one: the yeast is a passenger in a damaged fold, not the driver. It reframes the condition as a barrier problem: the cuticle is the seal, wet work destroys it, the fold swells, the swollen fold cannot re-seal, and organisms colonise the gap. Treating the colonisers leaves the mechanism untouched.

The practical corollary is unglamorous and is the part patients most often skip: the single most effective intervention is keeping the hands dry and out of irritants. Gloves outperform prescriptions here.

ACUTE PARONYCHIA: DRAINAGE, AND HOW MUCH TO DISTURB

Once pus has formed, antibiotics alone will not clear it – the collection has to be released [1]. The traditional approach lifts the nail fold off the nail plate to decompress the abscess, removing part of the nail where pus has tracked beneath it.

A nail-preserving alternative is the **Swiss roll technique**, in which the nail fold is elevated and rolled back over a suture rather than incised or excised, held for a few days and then unrolled [4]. The attraction is that it drains a collection that has spread across the fold without sacrificing nail plate or nail fold, which matters where the alternative would be a wide incision.

The general principle across both is that the incision should decompress the fold rather than enter the pulp of the finger, since the pulp is a separate compartment and opening it converts a straightforward paronychia into a more troublesome wound.

EPONYCHIAL MARSUPIALISATION

For chronic paronychia that has not settled, the operation is one described in 1976 and essentially unchanged since.

Keyser and Eaton's procedure removes a crescent of the thickened proximal nail fold, taking the inflamed tissue while stopping short of the germinal matrix, and leaves the defect open to heal by contraction – which draws the fold back down onto the nail plate and restores the seal the disease destroyed [5].

The anatomy is what makes the margin critical. Beneath the cuticle sits a **two-to-three-millimetre cul-de-sac of germinal matrix** that produces the nail plate, and the subcutaneous layer over it governs the nail's surface. Disturb that layer – by infection, pressure or trauma – and nail production is deranged in proportion: brief episodes give transverse ridges, long-standing disease gives the longitudinal grooving and thickening that characterises chronic paronychia [5].

So sparing the germinal matrix is what prevents a permanent nail deformity, and leaving the wound open is what produces the contraction that reseals the fold – closing it would defeat the purpose.

THE REFINEMENT THAT REMOVED THE RECURRENCES

The most useful piece of outcome data is a small series with a clear internal comparison. As reported, fingers **with nail irregularities** treated by marsupialisation alone went on to recur in a minority of cases, whereas a subsequent group of fingers with nail irregularities treated by marsupialisation **plus removal of the nail plate** did not; fingers **without** nail irregularities healed with marsupialisation alone [6].

The series is small and sequential rather than randomised, so this is a signal rather than a proof – and the full text was not available to us, so the figures above are as summarised in the secondary literature rather than read from the paper. But it gives a concrete intraoperative rule: an irregular or ridged nail is evidence that the disease

has already involved the matrix beneath, and in that finger the nail plate should come off as well. A normal-looking nail can be left.

That is an unusually actionable finding for a condition this common, and it is the reason the state of the nail plate – not just the fold – is worth examining before deciding on the operation.

REFERENCES

1. Ritting AW, O'Malley MP, Rodner CM. Acute paronychia. *J Hand Surg Am.* 2012;37(5):1068-70.
2. Shafritz AB, Coppage JM. Acute and chronic paronychia of the hand. *J Am Acad Orthop Surg.* 2014;22(3):165-74.
3. Tosti A, Piraccini BM, Ghetti E, Colombo MD. Topical steroids versus systemic antifungals in the treatment of chronic paronychia: an open, randomized double-blind and double dummy study. *J Am Acad Dermatol.* 2002;47(1):73-6.
4. Pabari A, Iyer S, Khoo CTK. Swiss roll technique for treatment of paronychia. *Tech Hand Up Extrem Surg.* 2011;15(2):75-7.
5. Keyser JJ, Eaton RG. Surgical cure of chronic paronychia by eponychial marsupialization. *Plast Reconstr Surg.* 1976;58(1):66-70.
6. Bednar MS, Lane LB. Eponychial marsupialization and nail removal for surgical treatment of chronic paronychia. *J Hand Surg Am.* 1991;16(2):314-7.