Chronic paronychia treatment: Square flap technique

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Background: Chronic paronychia is an inflammatory process of the periungual folds that lasts longer than 6 weeks. It manifests as hypertrophy of the proximal and lateral nailfolds, absence of cuticle, progressive retraction of the proximal nailfold, and onychodystrophy. Surgical treatment is recommended if there has been insufficient response to 6 months of appropriate medical therapies.

Objective: We describe a new surgical technique that removes the fibrotic tissue without complete excision of the proximal and lateral nailfold, minimizing nailfold retraction and recovery time.

Methods: We present a case series of 34 fingers (9 patients) treated with this new technique.

Results: All nailfolds healed well without complications. At the end of the follow-up, all fingers, apart from 2, were relieved of the preoperative symptoms. The length of the ungual plate was maintained in all patients, with no retraction of the nailfolds.

Limitations: Follow-up period of 6 months and small sample size are limitations of this study.

Conclusion: This surgical technique can provide an alternative treatment for chronic paronychia, with good prognosis during follow up-period and optimal cosmetic results. (J Am Acad Dermatol http://dx.doi.org/10.1016/j.jaad.2016.02.1154.)

Key words: inflammation; nail; nail surgery; nailfold; paronychia; surgery.

Chronic paronychia is characterized by an inflammatory process of the periungual folds that lasts longer than 6 weeks.[1] Clinically, it exhibits hypertrophy of the proximal or lateral nailfolds, absence of cuticle, progressive retraction of the proximal nailfold, and variable onychodystrophy, related to spreading inflammation to the proximal matrix. Primarily, it is more common in those who are exposed to nail cuticle trauma and frequent immersion in water—including cooks, dishwashers, and housecleaners—and represents 18% of all ungual dystrophies.[2]

A combination of factors is responsible for the beginning and perpetuation of chronic paronychia. At first, the periungual region becomes uncovered as a result of cuticle disruption caused by irritant contact dermatitis or trauma; the most common trauma in Brazil is cuticle trimming during a manicure.[3] The loss of this effective seal favors persistent retention of moisture, thus increasing local humidity and infection caused by bacteria or, more often, fungi, especially yeasts *(Candida albicans)*.[4,5] Repeated bouts of inflammation and infection leads to nailfold fibrosis and retraction that further exposes nail grooves.[6] This cycle of continued nailfold injury impairs the ability to regenerate a cuticle and leads to persistent paronychia (Fig 1).

Medical treatment includes exclusion of causal factors, in particular primary irritant agents and infections, along with decreasing inflammation and fibrosis—with antifungal and antibacterial therapies, topical corticosteroids, and topical tacrolimus.[5-8]

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Surgical treatment is only recommended if there has been insufficient response to 6 months of appropriate medical therapies.[5,6,9]

We describe a series of 34 nailfolds treated with a new surgical technique that removes periungual fibrosis while preserving the epidermis. This method allows for healing of paronychia to occur without nailfold contraction, thus maintaining nail plate length (Fig 2). The aesthetic result is prompt. The nail plate dystrophy gradually improves and the cuticles are completely regrown within, on average, 6 weeks postprocedure (range 4-6 weeks), reducing the healing time. The surgery was proposed for patients with recalcitrant paronychia who were bothered by the nail appearance and pain caused by the acute flareups, after 6 months of medical management with no improvement of the fibrosis.

CAPSULE SUMMARY

- Surgical treatment for chronic paronychia is recommended when the associated fibrosis does not improve after medical management.
- This article proposes a new surgical approach that removes fibrotic tissue and minimizes nailfold retraction.
- This procedure has a high cure rate and an excellent cosmetic outcome.

METHODS

This is a prospective case series of 34 cases (34 nailfolds from 9 patients) of chronic paronychia, treated with the new surgical technique between July and December 2010. The follow-up period was 6 months. All patients provided consent. The study was approved by the Comitê de Ética em Pesquisa, which is the Brazilian committee responsible to approve, monitor, and review all research involving human beings.

The 9 patients were recruited from the Nail Studies Center and presented with chronic paronychia for at least 3 years. All patients had persistent induration and fibrosis of proximal or lateral nailfolds, nail surface irregularity, and no active pus discharge. A detailed history was taken. Any subject with comorbidities or concomitant dermatoses that could be responsible for paronychia or those with coexistent onychomycosis were excluded from the study.

All patients had been previously treated and failed a 6-month regimen protocol, that being: (1) oral fluconazole 150 mg once a week for 6 months; and (2) topical therapy—clobetasol propionate ointment during the first 15 days; occlusive form, to increase its anti-inflammatory effect and efficacy in treating fibrosis; followed by ketoconazole ointment daily and betamethasone dipropionate ointment once a week for 6 months. In addition to the protocol, 4 patients (19 nailfolds, 55% of nailfolds) were treated with topical gentamicin ointment for 15 days because of green nail syndrome. Surgery was proposed in the absence of improvement after 6 months of medical treatment with the regimen previously described.

The square flap technique was designed and first performed by the senior author. The procedure begins with a digital block performed with 2 mL of lidocaine 2% without epinephrine (1 mL for each side), followed by an application of a tourniquet that stays in place throughout the procedure to prevent excessive bleeding. The surgery lasts for about 30 minutes; however, if it lasts longer than that, the authors recommend removing the tourniquet briefly to allow reperfusion. Oral cephalexin (500 mg) 4 times daily was prescribed for 10 days, starting 2 days before the surgical procedure.

The surgical technique (Fig 3 and Video [at http://www.jaad.org]) starts with 4- to 5-mm oblique marking guidelines on the proximal nailfold, upon which the first incisions are made. The next step is an incision, parallel to the epidermis, at the distal thickened proximal nailfold. This incision is made underneath the fibrotic tissue, above the nail, using it as a guide to carefully avoid ungual matrix damage. If done correctly, there should be fibrosis above incision and nail matrix below it.

As a result, we have a square flap filled with fibrosis. The flap is tilted backward to allow visualization of the fibrotic tissue and its removal with the scalpel blade. If the lateral folds are involved, it is possible to cut off the fibrotic material with a scalpel, tilting the blade at a 45-degree angle. The primary closure is made with a simple interrupted suture. Through this procedure, we are able to preserve the epidermis of the proximal and lateral nailfold, minus the fibrosis.

All patients were seen 24 hours after the procedure and every week during the first month for dressing changes. The postoperative care involved daily washing with chlorhexidine soap and daily occlusive dressing with topical dexpanthenol ointment until complete healing. Topical dexpanthenol not only accelerates re-epithelization in wound healing but it acts like a moisturizer, improving stratum corneum hydration and reducing transepidermal water loss.[10,11]

Postoperative evaluations occurred at weeks 6, 12, and 24 after procedure with clinical assessment