Practice Tips

Toenail splinting

Inserting cotton splints to treat ingrown toenails

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Ingrown toenails, onychocryptoses, are commonly encountered in family practice. In recent years noninvasive approaches have evolved as feasible treatments for onychocryptosis, challenging the more traditional surgical treatments.[1-4] This article focuses on the noninvasive technique of nail splinting using cotton wicks, an effective, easy-to-learn, and inexpensive way to treat uncomplicated ingrown toenails.

Ingrowing toenails, common in healthy children and young adults, cause severe discomfort, disability, and absences from school and work (**Figure 1**). Among young adults, the most common causes are poor-fitting shoes, obesity, high-heeled footwear, and improper nail trimming.[5]

Patients with ingrowing nails have pain in the lateral or medial aspect of their distal great toes. The penetrating nail edge induces an inflammatory response that can result in local growth of granulation tissue and sometimes infection. Stage 1 ingrown nails produce erythema, mild swelling, and pain on pressure to the distal toe; stage 2 nails produce greater pain, serous discharge, and infection; stage 3 nails produce even greater pain and infection, granulation tissue, and lateral nail-fold hypertrophy.[5]

Staphylococcus aureus is the most common complicating bacterial infection, but candidiasis and fungal infections around the nail fold can also cause great discomfort. Several surgical approaches have been advocated: lateral nail resection, simple nail removal, and radical nail excision with matricectomy.[6] Recurrence of ingrowing nails occurs at varying rates with all approaches (**Table 1**). Surgical approaches can damage and disfigure the nail fold and matrix (causing deformity in the nail)[1] and can have cosmetically unacceptable results.

Figure 1. Ingrowing toenail

Table 1. Recurrence rates after treatment for ingrown toenails[1]

TREATMENT	RECURRENCE RATE (%)
Simple avulsion	64-78
Total nail bed ablation	16-28
Radial excision of nail fold	12-20
Wedge resection	17.5-29
Nail splinting	20.5

With nail splinting or packing, ingrown nails recur at a rate comparable to that associated with radical excision.[1] Unlike more invasive approaches, it is less likely to damage or disfigure the nail matrix and nail fold and should be considered as a first-line treatment for uncomplicated ingrown toenails.

We encourage readers to share some of their practice experience: the neat little tricks that solve difficult clinical situations. *Canadian Family Physician* pays $50 to authors upon publication of their Practice Tips. Tips can be sent by mail to Dr Tony Reid, Scientific Editor, Canadian Family Physician, 2630 Skymark Ave, Mississauga, ON L4W 5A4; by fax (905) 629-0893; or by e-mail tony@cfpc.ca.

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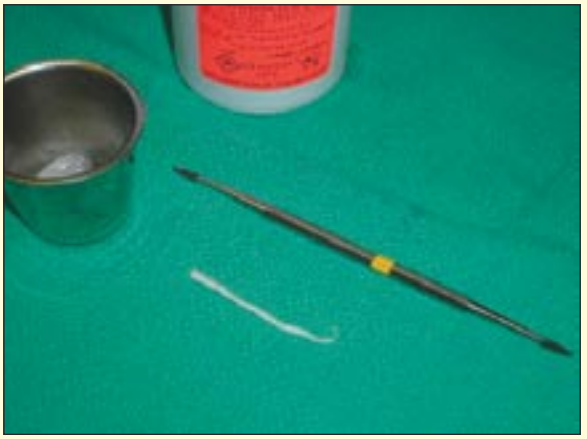

Figure 2. Alcohol and packing

Figure 3. Black's file and packing

Indications

Splinting is indicated for all uncomplicated ingrowing toenails. Patients with severely deformed and thickened nails (onychogryphosis, onychomycosis) and patients with recurrent ingrown nails after noninvasive approaches often benefit from surgical approaches.[5] If the cause of the nail deformity can be addressed (eg, with antifungal treatment for a documented *Trichophyton rubrum* nail infection), noninvasive approaches can provide effective interim relief. Ingrown nails infected with *S. aureus* or periungual candida should be splinted in only some cases.

Nail splinting technique

Nail splinting or packing can often be done comfortably without anesthetic. When patients have severe pain or exuberant granulation tissue, a digital nerve block is recommended. A topical anesthetic, applied for 30 minutes before packing or splinting, is a useful alternative to digital nerve blocks for children.

Splinting or packing

- Clean around nail and adjacent skin with antiseptic.
- Excise nail sulcus using a curette or the tip of a curved hemostat.
- Trim or file sharp nail edges that could penetrate and injure underlying soft tissues.
- Roll a 2-to 3-cm wisp of cotton (saturated with alcohol) between your fingers to form a cylinder (**Figure 2**).
- Lay the cotton cylinder in the nail sulcus, gently tucking proximal end to distal end under the lateral free edge of the nail. This is best done using a Black's file (**Figure 3**), but the tip of a curved hemostat, held like a pencil, is a feasible alternative. In the uncommon event of an adherent nail plate, a hemostat or nail elevator can be used to gently separate the lateral nail plate from the bed. Nail plate separation should be done with care and only with an effective digital nerve block because it can cause postprocedure discomfort and infection.
- Cut excess cotton off and instruct patients to leave packing on for up to 3 months (**Figure 4**).

Figure 4. Packed ingrown toenail

Patients are advised to keep splints in place for 4 to 16 weeks until the offending corner of the nail grows beyond the distal edge of the lateral nail fold. Patients should avoid trimming the corner of the nail past the distal edge of the lateral nail fold.

Sterile strips can also be used as splints. The strips are inserted using to-and-fro movements under

the corner of the nail and left in place for 1 or more weeks to gently elevate the offending nail edge. This method is particularly useful for children[4] with stage 1 and 2 ingrown toenails.

Excision of exuberant granulation tissue

Clean the area and anesthetize the big toe using a digital block with 1% lidocaine without epinephrine. Excise exuberant granulation tissue using a scalpel blade, and control bleeding with a topical cautery agent, such as silver nitrate, and direct pressure. If fungal infection is suspected (eg, a discolored or thickened nail) a nail clipping should be sent for fungal culture and potassiun hydroxide preparation.

Discussion

Uncomplicated ingrown toenails can be quickly and effectively treated in family practice offices. This nail splinting technique is effective, cosmetically favoured, and less painful than other treatments and should be considered as a first-line treatment for all uncomplicated ingrowing toenails.

Warm water soaks and antibiotics are common office approaches to calm the inflammatory response of ingrowing nails, but these approaches are often ineffective. Pain and inflammation are usually due to the nail edge pressing into the soft tissue and causing a reaction to this foreign body. The treatment of choice, as with all removable foreign bodies, is to remove the foreign body. The nail edge can be removed gently over a few weeks using a noninvasive cotton splint or can be removed immediately with surgery. Wedge resection of the distal nail edge should be avoided owing to the high rate of recurrence.[5]

Patients should be counseled about nail trimming, proper footwear, and risk of recurrence. Tight footwear that presses the nail into the adjacent tissue should be avoided. Toenails should never be trimmed to the extent that an edge or corner could be pressed into adjacent tissue. Should an ingrown nail start to recur, patients can be taught how to apply a small cotton wedge (2- to 3-mm diameter) under the affected corner of the leading edge to gently lift the nail from the underlying tissue over a few days.

Key practice points

- Remove foreign body
- Prevent future penetration of a foreign body
- For recurrence, consider surgery; Zuber[5] describes in detail the surgical technique of lateral nail avulsion and matricectomy.

References

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