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Counseling Patients With Ingrown Toenail

Pharmacists field numerous questions about foot care issues in a typical month. One of the more common is ingrown toenail, also known as *onychocryptosis*, a term indicating that the nail is “only covered by lateral nail wall tissue.”¹ Another term, *unguis incarnatus*, refers to the view that an abnormality of the nail plate is responsible for the condition.

Prevalence of Ingrown Toenails

The prevalence of ingrown toenail is difficult to determine for two reasons. First, it is not a reportable condition. According to one estimate, however, at least 10,000 cases are logged yearly in the United Kingdom.² Second, an unknown number of patients resort to self-care. As a patient writing a product review on Amazon.com stated, “I would NEVER see a doctors [*sic*] for something as simple as an in-grown [*sic*] toenail.”³

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Epidemiology of Ingrown Toenails

Many factors have been implicated in increasing the risk of ingrown toenails.¹ They include the choice of footwear. Shoes with narrow, pointed tips have been identified



The initial signs of distal-lateral ingrown toenail are inflammation and pain, followed by development of a purulent wound.

as a significant risk factor, whether they are high heels or cowboy boots. Tight socks and poorly fitting shoes also contribute to the problem.^{1,4} Excess moisture in the footwear, as in the patient with hyperhidrosis, is another issue. Patients with type 1 diabetes mellitus are at greater risk.¹

Age is a risk factor, and while ingrown toenails can occur at any age, they are more common in schoolchildren and young adults.^{1,5} However, older adults with compromised vision or difficulty in reaching their toes to trim the nails are at greater risk.⁴ Patients with toenails that are thicker than normal

also may have difficulty in trimming them to prevent ingrown toenails.⁴

Categories of Ingrown Toenail

Experts have categorized ingrown toenails according to the age of onset and the growth direction.¹ Pharmacists are unlikely to be asked about most of the less common types, such as neonatal (free nail margin has not yet grown over the tip of the toe, and conservative massage is helpful), infantile congenital (genetic malformation that is surgically corrected if it does not spontaneously heal), and infantile hypertrophic lateral lip (harmless malformation treated with massage). The most common subtype is the distal-lateral ingrown nail. The risk factors include narrow pointed shoes, tight socks, excessively sweaty feet, and juvenile diabetes.¹

Etiology of Distal-Lateral Ingrown Nails

The etiology of distal-lateral ingrown nails is a mix of genetic and environmental factors.¹ First, the nail is most often wide, with a curve that is more pronounced than that of other patients. Thus, the genetic propensity is the initial predisposing factor. However, nail-trimming practices become critical. The patient trims the distal-lateral corners of the nail at a downward slant rather than straight across.

When the toes are forced repeatedly into a shoe with a narrow toe box, the tips of the toes experience lateral pressure as they are pushed against each other. If the nail has been cut too short or cut at the oblique angle described above, the distal nail bed actually shrinks under the lateral pressure from the sides of the tight shoes and/or contiguous toes.

The wide nail attempts to continue to grow, even though the space for growth has narrowed. The growing nail digs progressively further and further into the smaller lateral nail groove as time passes. The body's initial response is the formation of a hyperkeratotic area in the nail groove, a condition known as *onychophosis*. This painful, calluslike tissue buildup is a signal that something is amiss. At this point, the medically appropriate move is to visit a physician or podiatrist for proper nail care.

Many patients attempt to self-remedy the problem by trimming the nail corners. Unfortunately, by the time the patient begins to trim the nail, it is almost impossible to insert nail clippers deeply enough to obtain a smooth nail. Thus, the patient trims only the middle part of the nail that is accessible, and the nail corners are left with a small, spikelike piece of nail known as a *spicule*. As the spicule grows, the soft tissue of the nail groove epidermis gets pierced. The opening of the skin becomes inflamed, and infection is inevitable. Since the patient usually trims the nails in the same manner on both sides, bilateral ingrown toenails are a possibility.

Manifestations of Distal-Lateral Ingrown Nails

The initial signs of distal-lateral ingrown toenail are inflammation and pain.¹ If the condition is not corrected, the patient develops a chronic wound that oozes purulent material, which is characterized by granulation tissue. In the final stage, the patient also develops an abscess and a chronic hardening of the

Internet Solutions for Ingrown Toenails

The pain of ingrown toenail is debilitating for some patients. They may fear seeking professional care, perhaps because proper treatment might involve surgery. What remedies does the Internet suggest to cure the problem at home? One such unproven remedy is oral magnet tablets, known as *Magnetic Polaris Australis* to homeopathic practitioners.¹² Other sites suggest soaking the toe in apple cider vinegar or applying white flower oil, Tiger Balm, or Vicks VapoRub.¹³ Another site suggests that baking soda moistened with spirits of camphor, vitamin E, and minced garlic be applied to the toe.¹⁴ Of course, if the pharmacist is asked about these interventions, it would be prudent to suggest that the patient ignore such unproven methods and seek proper medical care to prevent chronic infection.

affected area. Many patients undergo ongoing cycles of pain, incorrect nail cutting to relieve the pain, and continued aggravation before they finally seek medical help.

Nonprescription Treatment of Ingrown Toenails

In its 1993 review of nonprescription products, the FDA found that no ingredient was safe and effective for relieving ingrown toenail pain or facilitating correct nail growth.⁶ However, in 2002 and 2003, the situation changed with an FDA proposed rule and then a final rule that sodium sulfide 1% in a gel vehicle is safe and effective for temporary relief from the pain and discomfort of ingrown toenails.^{7,8}

The ingredient is marketed as Dr. Scholl's Ingrown Toenail Pain Reliever.⁹ Its indication is "for temporary relief of pain and discomfort from ingrown toenail."¹⁰ The label cautions potential purchasers not to use the product on open sores, and stresses that it is for external use only. Patients must avoid contact with the eyes. If the product does make contact, flush the eyes with water for 15 minutes and seek immediate medical care. The label further cautions patients to speak to their physician before using the product if they have diabetes, poor blood circulation, or gout. Patients are instructed to use it only with an enclosed device known as the *retainer ring*. This is an adhesive, oval-shaped ring with a rectangular slot cut into the middle.

Directions for use on those aged ≥ 12 years are quite specific.^{9,10} The patient should wash and dry the area thoroughly. He or she next places the retainer ring on the toe, with the slot directly over the area where the ingrown toenail and skin meet, and presses the ring down firmly until it is smooth. The patient then locates a score mark on the top of the gel tube and cuts open the tip of the tube at the score. Gel is applied to the slot in sufficient quantity to fill the slot, and the tube is immediately recapped. The patient then removes an adhesive bandage from the product package and places the round center section of the bandage directly over the gel-filled ring to

seal the gel in place in the slot. The ends of the bandage are placed around the toe and smoothed in place. This procedure is repeated twice daily, morning and night, for up to 7 days, until the pain and discomfort are relieved or the nail can be lifted out of the nail groove and easily trimmed. Patients are cautioned to stop using the product and speak to a physician if redness or swelling of the toe increases, if a discharge is present around the nail, if symptoms last more than 7 days, or if symptoms clear but recur within a few days.^{9,10}

Questionable Practices

Some patients attempt to dig the nail out themselves, as described above. The pharmacist should urge these patients to seek appropriate medical care instead.

Pharmacists must also be alert to products that may be sold in pharmacies that cannot treat ingrown toenail. One product has been highly controversial in its approach to ingrown toenails. The product known as Outgro once contained tannic acid.² During the FDA OTC review, tannic acid was examined by the FDA for evidence of safety and efficacy. In its *Final Rule on Ingrown Toenail Relief Drug Products for Over-the-Counter Human Use*, the agency

denied industry requests to classify tannic acid as Category I.⁶ A comment from a manufacturer included two studies to support the contention that tannic acid hardens epidermal tissue, thereby providing relief of ingrown toenail. The FDA evaluated the submitted studies and discovered that they were sufficiently flawed that a determination could not be made that tannic acid is effective.

Perhaps as a result of the adverse ruling on tannic acid, the formula for Outgro was altered to its present form, with 20% benzocaine. This change was not laudable, as the FDA also ruled in 1993 that there are no data to establish the safety or efficacy of any anesthetic agent (including benzocaine) in relieving the pain of ingrown toenail.⁶

The manufacturer of Outgro has responded to the FDA rulings by carefully modifying its labels to say “for the temporary relief of pain associated with minor skin irritations.”¹¹ The box also states, “Relieves foot pain; temporarily relieves pain and itching of minor skin irritation of toes, heels, arch, and ball of foot; temporarily relieves pain of skin irritation relating to chafing from tight fitting shoes.”

The indications on the box of Outgro are an attempt to conform

to the lack of efficacy of benzocaine 20% in treating ingrown toenail pain. However, the trade name of the product has never been changed to reflect the fact that it cannot help ingrown toenail in any way. The word “outgrow” has a clear meaning to the layperson when referring to ingrown toenail, which is that the morbid process will be reversed and the nail returned to normal. Comments on websites refer to the product’s use for this very purpose.² Hence, the product’s name still carries an implied claim that it can return ingrown toenail to normal. It is vital that pharmacists clarify this issue for patients who may attempt to purchase Outgro, and instead recommend the nonprescription product that may provide relief, as discussed above.

Professional Care of Ingrown Toenails

Professional treatment of ingrown toenail employs several interventions.¹ They include conservative measures such as taping to pull the lateral nail fold away from the edge or inserting cotton packing between the nail corner and nail fold. Surgery may be necessary, either to remove soft tissue or narrow the nail plate. ■

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PATIENT INFORMATION

Prevent Ingrown Toenails With Proper Foot Care

Most people do not realize that they may needlessly put themselves at risk for ingrown toenails. A few simple measures can be taken to prevent the occurrence of this condition.



What Is Ingrown Toenail?

An ingrown toenail occurs when the nail on a toe grows downward, penetrating the skin of the toe. The condition is most often seen in the big toe, but can occur in any of the toes. Most often you will observe red, inflamed, swollen, or infected skin around the nail.

What Are the Risk Factors for Ingrown Toenails?

The most common causes of ingrown toenails are: 1) wearing improperly fitting shoes; 2) trimming toenails incorrectly; and 3) sustaining sports injuries to the toes. Diabetic patients are also at high risk and must maintain constant foot care to ensure prevention.

Proper Foot Care

When buying shoes, it is very important that they not be too tight or too loose. Poorly fitting shoes or high heels put pressure on the toes, which can force the nail into the skin. This can lead to inflammation and infection. Furthermore, toenails should be trimmed straight across and kept at a decent length that is not too long or too short. These simple precautions could prevent you

from developing an ingrown toenail and thus save you from excruciating pain and a trip to the doctor's office.

Treatment of Ingrown Toenails

Finding a safe and effective treatment for ingrown toenails can be difficult. Much misinformation can be found on the Internet, but a commonsense approach using the following steps can alleviate the problem. First, you must evaluate your situation to see if you are eligible for self-treatment. If you have any type of nerve damage, have circulation issues in the foot, suspect an infection in the nail, or are diabetic, you must be seen by a physician. Do not try to self-treat in these circumstances.

If you do not need to seek physician care for those issues, you may try the following. First, soak the foot in water up to 3 to

4 times a day. This can help with the pain as well as assist with the next steps of treatment. Remember to keep the toe dry between soakings. Next, place floss, antiseptic-treated cotton, or a bandage under the nail to help it grow away from the skin naturally.

Never try to cut the toenail out on your own, as this will usually worsen the problem. When trimming the nail, do not round the edges. Try to trim straight across. If none of these steps work for the problem, a visit to the doctor is warranted, as it may be necessary to have part of the nail removed.

Avoid Myths and Old Wives' Tales

Although it may be tempting to search the Internet for other treatments, it is ultimately better to follow the treatments and advice offered above. Home remedies such as tying a lemon to the toe, soaking the toe in turpentine, or using electric sanding devices to thin the toenail have never been proven safe or effective in the treatment of ingrown toenail and could actually make the problem much worse. ■

PHARMACY STAMP

Remember, if you have questions, Consult Your Pharmacist.