

INGROWING TOE NAIL

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Ingrowing toe nail is a painful condition of foot in which the edge of a nail, usually the big toe nail, grows into the surrounding soft tissue (paronychia) causing inflammation and subsequent infection. It is the commonest condition of foot presenting to a surgeon or a chiropodist. The condition is quite common in young people and may result in considerable morbidity in diabetics, immunocompromised and patients with peripheral vascular disease.

It is mainly caused by badly cutting of the toe nail. Nails cut too short, or down the sides, may leave a sharp piece of nail which pierces the groove as the nails grow. Other factors that contribute include excessive sweating of feet (hyperhidrosis), tight footwear particularly pointed ones, awkwardly shaped toe nails, fleshy paronychia or a particular style of walking that puts pressure on the big toe .

As the nail grows into the soft tissue it causes pain and the toe becomes inflamed, i.e. red, swollen and painful to touch. Bacterial infection commonly sets in, and acute paronychia develops with discharge of pus. Untreated or improper treatment results in overgrowth of granulation tissue from surrounding soft tissues, forming pyogenic granuloma. In diabetics, patients with peripheral vascular disease and immunocompromised patients the infection may progress to involve the proximal limb and may be responsible for initiation and spread of gangrene.¹

The treatment depends on a number of factors, including general health and age

of patient, duration of ingrowing toe nail and the condition of nail. Conservative treatment is effective in early stages. It involves smoothing the edge of the nail and removing any offending splinters. Daily packing of the groove between the edge of the nail and paronychia with thin gauze soaked in antiseptic solution for 4-5 days. Antibiotics are prescribed if there is pus or the patient is immunocompromised. If the toe nails are cut properly and the correct footwear worn, the problem usually does not return. Failure to conservative treatment is an indication for surgery. Surgical treatment is also required when there is acute paronychia with abscess, granuloma formation, deformed nail and in recurrent cases. Most patients require surgery as they presents late. Various minor surgical procedures are being performed for the treatment of this condition. They all are performed as an out patient under local anesthesia. The commonly performed procedures are:

Complete avulsion of nail: In this procedure the whole of the nail is avulsed from the base. This should be combined with excision of exuberant granulation tissue if present. Antibiotics are usually prescribed for a couple of days. The procedure is simple and is most commonly performed. Pain and inflammation settles in a week. Foot is comfortable in a few days but looks ugly. Regrowth of nail takes 6-12 months. However recurrence is common.

Wedge excision of nail: In this procedure a strip of nail tissue from free edge of the nail up to the base is excised on the offending side. This should also be combined with excision of exuberant granulation tissue if present. Antibiotics are usually prescribed. The procedure is relatively simple. Pain and inflammation settles early. It is cosmetically better than complete avulsion but recurrence rate is similar.²

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* Revision Received: August 28, 2006

* Accepted: September 14, 2006

Partial matricectomy: Matrix is the growing part of the nail. Matricectomy involves removal or destruction of matrix from the offending side thus preventing its growth on that side. The nail width is permanently reduced thus preventing its ingrowing. The procedure is always combined with wedge excision of the nail. The procedure is associated with very low recurrence.

Matricectomy can be performed in three ways. 1- *Surgical Matricectomy:* The matrix is removed surgically. After removing the wedge of nail on the affected side the eponychium is lifted to visualize the matrix which is then resected with a surgical blade. Adequate excision of germinal matrix is essential to avoid recurrence.³

2- *Chemical Matricectomy:* Chemical matricectomy is the most commonly employed method of matricectomy. Among the various chemical used for chemical matricectomy, Phenol is most commonly used. After removing the wedge of nail on the affected side a cotton bud soaked in Phenol is applied on the matrix and kept for 30 second. Avoiding contact with skin. The wound is then thoroughly washed with normal saline and dressing applied.⁴ Similarly 10% sodium hydroxide is now increasingly used for this purpose with good results.⁵⁻⁷

3- *Laser Matricectomy:* Here the matrix is destroyed by careful cautery with carbon dioxide or YAG laser. This procedure is associated with minimal tissue damage and pain, rapid return to activity, good cosmetic result and a low recurrence rate.⁸⁻¹⁰

Radical excision of nail: After complete avulsion of nail, the nail matrix is completely removed (Complete matricectomy). There is permanent loss of nail and instead of nail the toe is covered with skin only. This procedure is also called Zadik procedure. It is reserved for deformed nails and recurrent cases as a last resort.

Soft tissue reduction: It is performed when the skin fold is thick and the nail is not deformed. An elliptical piece of skin fold and nail bed is excised and the edges of the incision are sutured so as to draw the remains of the skin fold away from the nail. Wedge excision of skin of

nail fold is designed to relieve pressure on the nail and soft tissue.¹¹ This procedure is rarely needed.

Lateral fold advancement flap: This is a newly developed technique. It involves elevation of advancement flap from the lateral fold and drawing it laterally. It is a good method for the treatment of ingrowing toe nail with less recurrence and good cosmetic results.¹²

Prevention: The condition can be prevented by careful nail cutting especially at the corners, avoid excessive cutting and rounding at the corners, avoidance of tight shoes with narrow forefoot and keeping the foot dry and clean.

REFERENCES

1. Toybenshlak M, Elishoov O, London E. Major complications of minor surgery: A report of two cases of critical ischemia unmasked by treatment for ingrown nails. *J Bone Joint Surg Br* 2005;87(12):1681-3.
2. Fulton GJ, O'Donohoe MK, Reynolds JV. Wedge resection alone or combined with segmental phenolization for the treatment of ingrowing toenail. *Br J Surg* 1994;81(7):1074-5.
3. Kuru I, Sualp T, Ferit D, Gunduz T. Factors affecting recurrence rate of ingrown toenail treated with marginal toenail ablation. *Foot Ankle Int* 2004;25(6):410-13.
4. Kimata Y, Uetake M, Tsukada S, Harii K. Follow-up study of patients treated for ingrown nails with nail matrix phenolization method. *Plast Reconstr Surg* 1995;95(4):719-24.
5. Ozdemir E, Bostanci S, Ekmekci P, Gurgey E. Chemical matricectomy 10% sodium hydroxide for the treatment of ingrowing toenails. *Dermatol Surg* 2004;30(1):26-31.
6. Kocyigit P, Bostanci S, Ozdemir E, Gurgey E. Sodium hydroxide chemical matricectomy for the treatment of ingrown toenails: Comparison of three different application periods. *Dermatol Surg* 2005;31(7):744-7.
7. Shaath N, Shea J, Whiteman I, Zarugh A. A prospective randomized comparison of the Zadik procedure and chemical ablation in the treatment of ingrown toenails. *Foot Ankle Int* 2005;26(5):401-5.
8. Tada H, Hatoko M, Tanaka A. Clinical comparison of the scanning CO2 laser and conventional surgery in the treatment of ingrown nail deformities. *J Dermatolog Treat* 2004;15(6):387-90.
9. Ozawa T, Nose K, Harada T. Partial matricectomy with a CO2 laser for ingrown toenail after nail matrix staining. *Dermatol Surg* 2005;31(3):302-5.
10. Wollina U. Modified Emmet's operation for ingrown nails using the Er: YAG laser. *J Cosmet Laser Ther* 2004;6(1):38-40.
11. Persichetti P, Simone P, Li Vecchi G. Wedge excision of the nail fold in the treatment of ingrown toenail. *Ann Plast Surg* 2004;52(6):617-20.
12. Cologlu H, Kocer U, Sungur N. A new anatomical repair method for the treatment of ingrown nail: Prospective comparison of wedge resection of the matrix and partial matricectomy followed by lateral fold advancement flap. *Ann Plast Surg* 2005;54(3): 306-11.