

Toeing the (ingrown) line

With a little skill and confidence, GPs can treat ingrown toenails in their own surgery.



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3 Comments



Ingrown toenail is a painful condition, mainly affecting the big toe on one or both feet.

It arises when the nail edge grows into and irritates the overlying skin fold. This causes severe pain and infection may supervene.

Unless the causative nail edge is permanently removed, pain or infection may continue to recur.

Occasionally toes other than the big toe are affected. In such cases, crowding of the toes or nail disease may be contributing factors.

In my experience, ingrown toenail is most commonly seen in male teenagers, followed by female teenagers. That said, the condition can occur at any age.

Tight footwear, direct trauma, sweaty socks and rapid foot growth may all contribute to ingrown toenail developing. In some cases, the shape of the nail contributes; nails with an acute angled shape are more likely to be affected.

These factors, combined with incorrect trimming of the nail, result in a spike from the nail edge burrowing into the overhanging skin, causing irritation, pain and infection.

In older patients, underlying medical conditions such as diabetes, peripheral vascular disease and fungal toenail disease – may complicate ingrown toenail presentation and management.

Conservative treatment

There are a multitude of conservative treatment methods.

These include massaging and flicking the skin fold away from the nail edge with a cotton bud soaked in povidone-iodine.

This can be combined with elevating the nail edge with a cotton or gauze pledget.

These approaches all require patience and compliance, which may be difficult to achieve, particularly for a teenager.

Advice about appropriate nail care is an important aspect of conservative treatment. Many patients mistakenly trim the nail edge in a convex shape towards the nail bed in the belief that this will alleviate the problem. However, the opposite is true: the nail should be trimmed transversely and concave.

Antibiotics are warranted in the setting of associated infection (see figure 1). Interestingly, infection can cause groin lymphadenopathy, thus the toes should be examined in any patient presenting with groin discomfort or enlarged nodes.

If pain or infection persist or recur despite conservative measures, or if there are complications from significant infection at initial presentation, operative intervention is warranted.



Figure 1. Infected ingrown toenail.

Operative treatment

This can usually be undertaken in the office setting using a digital nerve block (see box and figure 2).

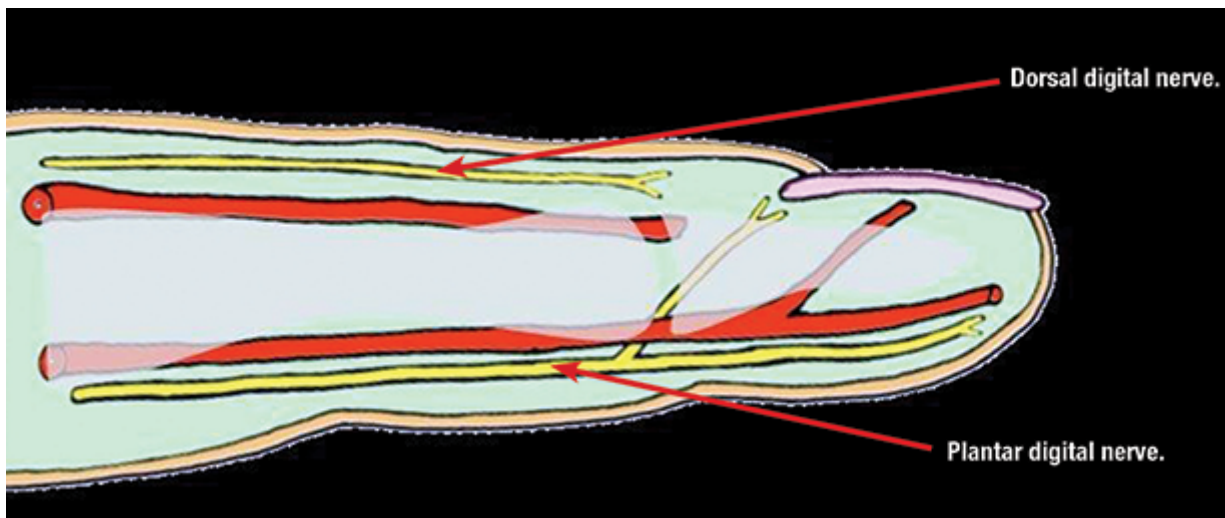


Figure 2. Digital block anatomy.

Younger patients may require general anaesthesia and a day surgery admission. However, patients aged 15 and over can usually cope with an in-rooms procedure under local anaesthesia.

This is certainly more cost-effective and convenient, while it also avoids the risks associated with a hospital stay and general anaesthesia.

Appropriate informed consent must be obtained before the treatment. This should include an explanation of the planned procedure, associated costs and post-operative instructions.

Discuss potential risks, although it is rare to have any severe problems. Patients should also be advised that the nail can appear narrower after the procedure.

If vascular insufficiency is a contributing factor to infection, this needs to be addressed first.

Box 1. DIGITAL NERVE BLOCK

- A digital block involves complete anaesthesia of the dorsal and plantar digital nerves. For embryological reasons, the plantar digital nerve is the dominant nerve supplying the nail base.
- Local anaesthetic (such as lignocaine hydrochloride 2% plain) is injected into each side of the base of the toe. Only a few mL needs to be administered to each side of the toe to achieve complete anaesthesia.
- The administration of local anaesthetic is usually well-tolerated but may sting. The injection takes a few minutes to take effect.
- The toe becomes numb to pain but will not completely lose sensation to touch. The effectiveness of anaesthesia should be tested prior to proceeding.
- Occasionally, an extra injection of anaesthetic is required as onset may be slower in some settings, such as when there is an infection present. There should be no pain during the procedure.

Removing the nail edge

In the setting of severe infection, simple removal of the nail edge under a digital nerve block can be effective (see figure 3).

It is more difficult, but not impossible, to achieve anaesthesia with severe infection. If the nail is cared for appropriately following the procedure, this may also lead to permanent symptom relief for more than 50% of patients.

If the problem recurs or symptoms persist, treatment with phenol-ablation or a wedge resection is necessary.

Removal of the nail edge is a reasonably straightforward procedure that can be performed by GPs who are comfortable carrying out routine office procedures.



Figure 3. Removal of nail edge.

Phenol-ablation

This technique also requires a nerve block and removal of the nail edge surgically. It can be performed without actually cutting any skin.

It is simpler to perform than a wedge resection, particularly for the less experienced.

The phenol can be applied with a cotton bud or a finer swab tip and is massaged into the germinal matrix (see figure 4).

It is applied for 1-2 minutes then washed off, with particular attention required to ensure complete removal from the skin.

The phenol is acidic and care has to be taken not to burn the adjacent skin. Vaseline can be applied to protect the surrounding area.

Post-procedure, only a light non-adhesive dressing and bandage is required. There may be less post-operative pain associated with phenol-ablation than with wedge resection.

Review the patient a few days later and advise about ongoing nail care.

This treatment is curative in about 90% of cases, but there is possibly a higher rate of recurrence and a higher post-operative infection rate than wedge resection.

Should the ingrown toenail recur after a trial of phenol-ablation, then wedge resection can be performed.



Figure 4. Ablating germinal matrix with phenol.

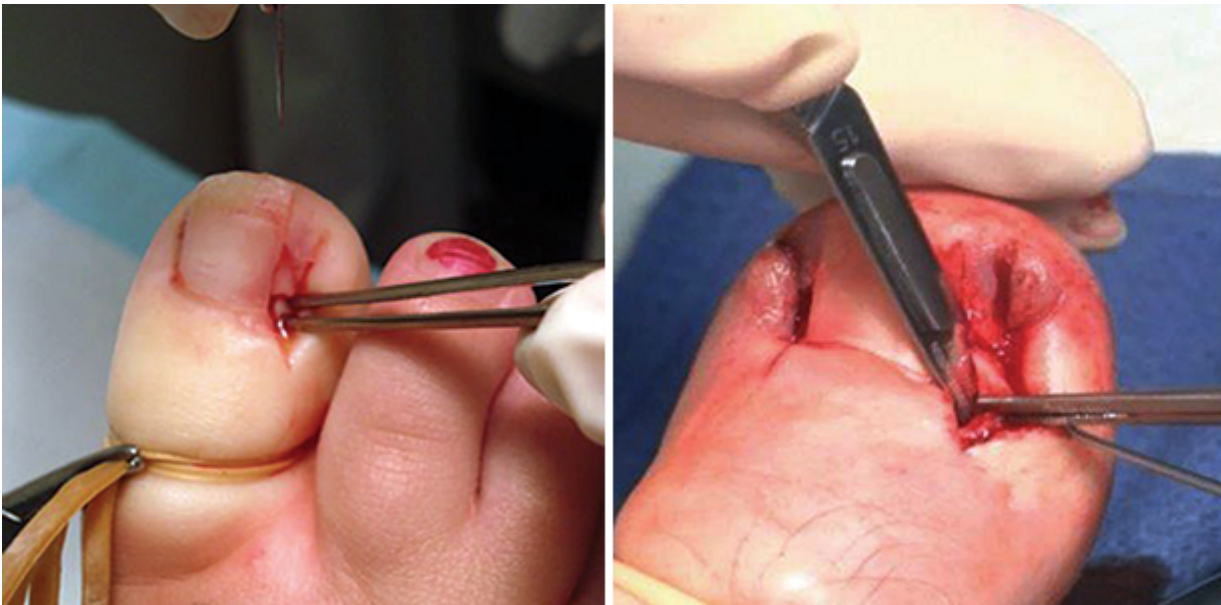
Wedge resection

This is a more complicated surgical technique, which is recommended by most surgeons as a permanent cure for ingrown toenail.

It is a step up the surgical skill ladder compared with nail edge removal and warrants additional skills training for GPs who wish to perform the procedure.

It is unusual for ingrown toenail and associated infection to recur after wedge resection – the risk of recurrence is 4-10%.

This procedure permanently removes the nail edge and the corresponding nail bed matrix from which the nail grows (see figures 5 and 6). Any proud flesh or granulation tissue is also excised.



(Left) Figure 5. Germinal matrix removal down to bone; (Right) Figure 6. Excising the germinal matrix.

The patient should be advised that the treated nail will permanently be slightly narrower after a wedge resection. In rare cases, the nail may fall off or be deformed post-procedure.

This is more likely if the treated nail was also diseased.

Patients should also be advised to arrange transport home as they will not be able to drive immediately post-procedure.

The circulation to the toe must be checked prior to the procedure. After the digital nerve block is administered, a rubber band tourniquet is placed around the base of the toe to prevent bleeding during the procedure.

This is tethered with artery forceps to ensure it is not inadvertently left on the anaesthetised toe.

The operation itself only takes a few minutes. One or both sides of the same toe may be treated. Suturing is not required as the wound heals within 2-3 days.

The toe is dressed with a non-sticking paraffin gauze. Dry gauze and a crepe bandage are then applied firmly to prevent bleeding overnight.

It is important to check the circulation in the toe prior to sending the patient home to ensure that the bandage is not too tight.

Advise the patient to walk on their heel with a stiff knee, and to keep the leg elevated and the bandage dry.

Pain can be expected for a day or two post-procedure. Paracetamol with or without codeine are usually sufficient for analgesia. A throbbing pain sometimes occurs on the night of the procedure, but this usually subsides the following day.

If there is intense pain on the night of the procedure, the applied dressing can be loosened. The following day, the patient can be advised to walk around on the heel freely.

The wound should be reviewed and dressing changed 2-3 days post-operatively. Patients should be advised to be in contact sooner if there are any symptoms suggestive of complications (for example, worsening pain or fever).

There can be some discomfort associated with the dressing change, so a dose of paracetamol with or without codeine can be taken half an hour before arrival at the office.

A light dressing is then applied and is usually reviewed again in a few days' time.

Instructions on wound and nail care should be given.

While the wound is still healing, and not completely dry, it is better covered with a bandaid than left bare or with sweaty socks rubbing against it.

A shoe cannot be worn for 3-4 days post procedure.

Antibiotics

Antibiotics are not routinely prescribed at the time of selected procedure because removal of the causative nail edge is effective at treating the underlying cause.

However, if antibiotics have been started prior to the procedure due to concomitant infection, the course should be completed.

Preventive care

The nail should be trimmed transversely instead of into the skin. As the nail grows, the edges should be regularly elevated using a cotton bud.

If tiny remnants of nail are left free, this can be a source of recurring discharge. Occasionally, the operative procedure needs to be repeated.

Conclusion

Ingrown toenails are not a serious condition. However, they are very common, and can be incredibly painful and disabling.

The use of a digital nerve block and appropriate surgical techniques means definitive treatments are comparatively simple to achieve, ensuring a very grateful patient.

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References on request.

Tags: SURGERY

3 COMMENTS