

Common surgery, uncommon complication

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ABSTRACT Ingrown nail surgery is the one of the most common surgeries in outpatient clinics that are generally performed in response to patient complaints. Still, making simple observations, taking patient histories and conducting further tests are often neglected by outpatient clinics. Consequently, it is important to be aware if ingrown nail is associated with any underlying diseases that can lead to major complications.

In this article, we report on two cases ending in amputation that were performed with Winograd's partial matrix excision procedure for ingrown nails. Such a complication is rare, unexpected, and most unwanted in forefoot surgery. After a detailed analysis of the situation, we discovered that both patients were smokers, and one of them had Buerger's disease. These conditions led to the ingrown nails in addition to poor wound healing.

This case report emphasizes the fact that even when performing minor procedures, obtaining a detailed history and conducting an examination are of paramount importance. Patient selection is also a considerable factor, especially for patients who are smokers, who may experience a worst case surgical scenario.

Case reports

Case 1. A male 36-year-old active smoker was treated surgically for a painful ingrown nail on his right toe. Although he had no complications when he was seen one week after the surgery, at a three-week follow-up, he was admitted to the outpatient clinic complaining of unbearable pain. On inspection, necrosis was observed on the toe that was operated on (Figure 1). The pulse of the dorsalis pedis artery was not palpable when the man was examined. A color Doppler

ultrasonography (USG) and angiogram showed a low blood flow in the posterior tibial artery and an occlusion in the dorsalis pedis artery. The patient was diagnosed with Buerger's disease, leading to the amputation of his right toe. The wound healed sufficiently, but slowly.

Case 2. A 35-year-old woman presented to our outpatient clinic with an ingrown nail at the left hallux that appeared swollen, and had been for three months. She had used antibiotics for a month and there was no sign of infection. Still,



Figure 1. A) Male 36-year-old, active smoker, at three-week follow-up; necrosis was observed on his operated toe. Amputation of right toe was performed. B) The wound healed sufficiently, but slowly. [Copyright: ©2015 Akdeniz et al.]

she was an active smoker with a 10-pack-a-year smoking history. A Winograd's partial matrix excision procedure was performed. At the woman's two-month follow-up visit, swelling, rubor, warmth, and partial necrosis were exhibited on the operated toe (Figure 2). A color Doppler USG did not show any abnormality, but she was hospitalized for antibiotherapy. In the patient's records, there was a cranial magnetic resonance imaging (MRI) report that had been suspected of vasculitis three years prior to her surgery. Further tests were performed, but no positive marker related situation was found. After surgical debridement, circulatory insufficiency was observed intraoperatively. Thus, the wound was left open for secondary healing, and platelet rich fibrin was applied as a biological dressing. The wound did not heal for five months, so the toe was amputated after all *pursuant* to the patient's choice.



Figure 2. A) 35-year-old woman with 10 pack-year smoking history, at two-month follow-up; swelling, rubor, warmth and partial necrosis were exhibited at the operated toe. B) After five months the wound had not healed and the bone was exposed. [Copyright: ©2015 Akdeniz et al.]

Conclusion

Ingrown nail or onychocryptosis is a common nail pathology prevalent in 20% of the population seeking foot care [1]. Patients are usually treated conservatively, but the presence of a sharp nail edge in the ulcer may prevent wound healing. Treatments that involve surgery are assumed to be minimally invasive and an option for patients who have not not benefit from the more conservative treatments. The surgeries are mostly performed in outpatient clinics without involving further tests or history and examination. Complications are uncommon with the exception of recurrence and infection [2].

Having an ingrown nail is a frequent health problem that causes pain and difficulty in walking that may lead to diminished daily activities. The big toe is the most commonly affected toe and a second toe's adjacent border may be involved [3]. The inflammation of the soft tissue along the side of the toenail very often accompanies this problem. The tissue may become infected easily, if it is not treated properly. Many modalities have been used for treating ingrown nails. Conservative management includes warm soaks and cotton-wool elevations of the affected nail corner. Antibiotic therapy can be used for infections in their early stages. A gutter splint is another conservative treatment approach; either adhesive tape or cyanoacrylate is used to isolate the sharp edges of the nail from the ulcer bed [4]. In the later stages, granulation tissue and lateral wall hypertrophy are formed and surgical treatment is needed. The objective of these surgical techniques is removal of the lateral nail plate and lateral matricectomy [5].

Winograd's procedure is one of the most commonly performed procedure among ingrown nail surgeries. In this technique, after local anesthesia is given and digital tourniquets are prepared, a longitudinal incision is made in the eponychium. The lateral nail border, hypertrophied tissue, and germinal and sterile matrix are removed. This procedure requires no special equipment. Therefore, it can be performed easily in outpatient clinics [6].

Some risk factors associated with development include tight-fitting shoes, improper nail trimming, infections, ischemia, trauma, excessive sweating, hypertrophy of the nail folds, etc, but the specific etiology is still unknown. Diabetes and obesity, as well as thyroid, cardiac, and renal disorders may cause edema in the lower extremities and predispose individuals to the disease [4]. It is important to be aware of underlying diseases and if they are the cause of an ingrown nail. Such conditions can eventually affect the healing process and increase complication rates.

Toybenshlak et al. (2005) reported two similar cases that were diagnosed as Buerger's disease. The researchers mentioned that Buerger's disease can cause an ingrown nail, also a factor in poor postoperative healing [2]. In our first patient, Buerger's disease was assumed as the cause of the

necrosis, but in the second patient there were no symptoms of Buerger's. Although we focused on vasculitis, the clinical and laboratory tests were negative.

It is universally acknowledged that smoking has negative effects on wound healing. Bettin et al. (2015) reported that active smokers and patients with a smoking history were 4.3 and 1.9 times more likely to have foot surgery complications [7]. We recommend that surgeons warn patients who are active smokers about the increased risk of complications before forefoot surgery.

In conclusion, our two cases show once again that taking a patient's history is essential before any surgical procedure. More attention should be paid to patients in the clinic who are to undergo any procedure, even if it is a minor one. As far as we know, aside from technical complications, ours is the first report that reveals amputation as a possible complication of ingrown nail surgery. In light of our experience, our decision to check peripheral pulses in our clinic before performing ingrown nail surgery hinges on the possibility of necrosis and patients must be informed of such risks. Finally, we are convinced that unless patients are willing to quit smoking, they should not undergo ingrown nail surgery.

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