We describe two patients in whom poor healing after chemical ablation for ingrown toenails unmasked significant vascular disease of the lower extremities. We have found no similar reports in the English language literature.

Several accepted procedures are used for the treatment of ingrown toenail (onychocryptosis), all of which have the objective of fitting the nail to the soft tissue or vice versa. The various procedures differ mostly in the extent and the method of nail reduction and matrix ablation. Complications are uncommon with the major concerns being recurrence and infection.1,2 In diabetic patients, an assessment of the circulation of the feet is mandatory prior to any intervention, as stated by Brodsky;3 but most patients require only a history and examination prior to the procedure.1

We describe two patients in whom critical ischaemia of the lower extremities was unmasked by poor healing after surgical treatment of ingrown nails.

Patients and Methods
At our institution, routine surgical treatment of ingrown nails consists of partial avulsion of the nail and phenol ablation of the matrix, performed under digital block. This is an outpatient procedure in a dedicated clinic. The results of chemical ablation compare favourably, in terms of recurrence, with surgical ablation.4-6

Case 1. A 21-year-old, healthy, fit, man presented with an ingrown toenail of the left hallux. He underwent partial avulsion of the nail and phenol ablation of the nail bed. The procedure was uncomplicated. Written post-operative instructions were issued and explained. The status of pedal pulses was not recorded. At one week, the surgical wound was clean, nothing unusual was noted, and the post-operative instructions were repeated. At three weeks the patient presented complaining of worsening pain for ten days. On examination, there was swelling and redness of the forefoot with sweating, tenderness and hyperaesthesia. There was no discharge, the

![Fig. 1a](image1a.jpg)  
![Fig. 1b](image1b.jpg)  
![Fig. 1c](image1c.jpg)  
![Fig. 1d](image1d.jpg)

Angiography of the left leg of case 1 showing arterial disease a, b) occlusion of superficial femoral artery and c, d) poor infrapopliteal flow.
skin temperature was normal, and no bony pathology was demonstrated on radiographs. Despite lack of clear evidence of infection, oral antibiotics were prescribed for one week. Because of clinical suspicion of a chronic regional pain syndrome, he was referred to the pain clinic. At five weeks, the hallux was still swollen without evidence of infection. At six weeks, he presented to the emergency department with a small pocket of purulent material under the medial nail fold, which was drained. Discharge instructions for local treatment were given. At seven weeks, there was no discharge or evidence of infection. Healing was progressing, albeit slowly. At 8.5 weeks, the patient presented to a different unit where complete removal of the plate and debridement of the nail bed down to the phalanx was performed. There was no evidence of infection, pulses were palpated.

At nine weeks, granulation tissue was growing satisfactorily from the nail fold. There was no evidence of infection, colour changes or sweating. Capillary refill in the lesser toes was satisfactory, but the dorsalis pedis pulse was sluggish. The patient was referred for a vascular consultation, at which a Doppler study did not demonstrate flow in the superficial femoral artery. Angiography showed complete occlusion of superficial femoral artery and poor flow in the infrapopliteal arteries bilaterally (Figs 1 and 2) with only the posterior tibial artery patent distally on the left. Tests for hypercoagulability, including clotting mechanism, platelet count, anti-cardiolipin and homocysteine were negative, and the patient was diagnosed as having Buerger’s disease (thromboangiitis obliterans).

A lumbar sympathectomy was performed, with improvement of pedal flow. The patient was advised to stop smoking. Healing progressed steadily thereafter.

Case 2. A 48-year-old, healthy man was treated for an ingrown toenail. The procedure was uncomplicated. Because of poor healing, the patient was referred for vascular evaluation after two months. An angiogram showed poor flow with changes consistent of Buerger’s disease. A trial of surgical revascularisation failed. The distal phalanges of the hallux, second and third toes, separated spontaneously. The patient is currently being treated with intravenous Iloprost (Ilomedin, Schering AG/Berlin, Germany), every two weeks and is stable. He continues to smoke.

Both patients received full and detailed explanations, and they understand the nature and implications of Buerger’s disease.

Discussion

In these two cases the poor healing after surgery for ingrown toenails, was caused by, and led to unmasking of unsuspected and clinically silent, significant vascular disease. Buerger’s disease affects small and medium vessels; vascular occlusion occurs almost exclusively in the extremities of smokers and other users of tobacco. The prevalence of this condition is approximately 10:100 000. Patients are usually between the ages of 20 and 45, and there is a male predominance. The presenting symptoms are usually those of ischaemia, with or without prior superficial thrombophlebitis. Patients may complain of numbness, tingling, burning, or coldness, as well as intermittent claudication, and signs of sympathetic over-activity (excessive sweating) and colour changes of the extremity. In the pre-gangrenous stage, when ischaemia is severe, pain is persistent.7

Both patients described themselves as generally healthy, although both smoked. In contrast to the second patient, a heavy smoker, in whom the diagnosis of vascular disease was straightforward, the first was a young, healthy, physically active, asymptomatic patient.

A search of the English literature failed to reveal descriptions of healing problems after ablation of the nail bed because of non-diabetic vascular disease. However, two cases have been reported in other languages.8,9

Some issues remain unresolved. The pain at presentation may have been due to ischaemia and not to the ingrown
nail. Additionally, in the first patient, the arterial disease was proximal, which is not typical of Buerger’s disease. These cases, however, highlight the fact that no surgical procedure, however small, is risk-free.

We have since added ‘problems in healing’ to our list of complications on the consent form, and added a checkbox for the palpation of the peripheral pulses on the procedure form.

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References


