

## Nail Surgery

Nail surgery appears to be something particularly difficult and many physicians – general practitioners, surgeons and dermatologists alike – often hesitate to perform necessary interventions of the nail. Even though nail surgery is frequently delicate, it is not especially difficult provided one has in-depth knowledge of the nail apparatus' anatomy, physiology, growth dynamics and pathological reactions as well as some surgical skills. Knowing how nail lesions develop allows the correct site to be biopsied or operated on. Though the nail plate, the terminal differentiation product of the nail matrix, is a tough structure, the whole nail organ is fragile and sensitive to a variety of noxious influences such as ischaemia or bacterial infections.

Nail surgery requires a complete personal history including drugs and potential allergies. The patient has to be prepared for the intervention. Infections have to be treated prior to the surgery. Smoking must be stopped. Antiseptic hand or foot scrubs the evening and morning before the surgery are useful as it is difficult to get a germ-free field in the nail area. The patient should be informed to bring an open shoe for toe surgery and have somebody to take him or her home. Adequate anaesthesia is a must. We prefer a proximal truncal block numbing the proper dorsal and volar/plantar digital nerves, but transthecal anaesthesia is very useful for the index, middle and ring finger. We strongly recommend using long-acting local anaesthetics, which may also be added to the digital block at the end of surgery. Elevating the operated extremity for 24–48 h prolongs the analgesia and reduces overall pain. As nail surgery is usually performed in a bloodless field due to a tourniquet,

no specific haemostatic measures are performed and bleeding is immediately evident as soon as the tourniquet is released. Therefore, a thick padded dressing is applied. This should be changed the next day as the clotted blood will turn very hard and make the dressing uncomfortable. We commonly apply a foot bath with a povidone solution added to allow the dressing to float off without pain. Analgesics should be prescribed generously as pain is often intense when the anaesthesia wanes off.

The next issue is to find the right solution for the nail problem. There are now some nail surgery books in the market<sup>[1-3]</sup> that help to find surgical techniques; however, not rarely has one to use an individual approach as standard surgical techniques are mostly described for more frequent conditions or localizations. This in particular requires excellent knowledge of the nail organ.

Still far too often performed nail avulsions are no treatment per se. These often aggravate the condition and are harmful. Sometimes, they may facilitate post-avulsion treatment or be the beginning of a specific therapy. Among the many techniques to avulse a nail, those shown in most surgical textbooks – using a sturdy haemostat clamp and tearing the nail out of its pocket and from the nail plate by grasping and then turning it – are the most traumatizing and should be abandoned.

Even though histopathology is the diagnostic gold standard also for onychopathies, nail biopsies are rarely performed. They usually give invaluable information as to the diagnosis, prognosis, treatment, disease severity, etc. They require, however, a dermatopathologist with experience in nail diseases, and this is often difficult as the dermatologists do not perform enough nail biopsies to give them the opportunity to learn nail pathology. Simple nail clippings is roughly two times more sensitive in diagnosing an onychomycosis than a mycological culture. It takes only 1–3 days to have the slide for microscopical examination compared to 3 weeks for the

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### Eckart Haneke

*Dermatology Practice Dermaticum, Freiburg, Germany, Department of Dermatol, Inselspital, Univ Bern, Switzerland, Centro Dermatol Epidermis, Inst CUF, Porto, Portugal, Department of Dermatology, Academic Hospital, Univ Gent, Belgium*

#### Address for correspondence:

*Dr. Eckart Haneke, Schlippehof 5, 79110 Freiburg, Germany. E-mail: haneke@gmx.net*

culture. Also nail psoriasis can usually be diagnosed and/or differentiated from onychomycosis. More demanding techniques are punch and scalpel biopsies. For the diagnosis of longitudinal melanonychia, we have developed a technique that allows even large lesions to be excised and examined without risk of post-biopsy nail dystrophy.<sup>[4,5]</sup>

Though being generally rare, nail tumours can pose particular challenges. Benign tumours can be difficult to remove because of their sheer size whereas malignant neoplasms run the risk of recurrence when removed too sparingly. Mohs micrographic surgery is here the method of choice.

Finally, reconstructive nail surgery may also be performed by a trained dermatological surgeon. Split nails and other trauma sequelae can often be repaired with good aesthetic and excellent functional results.

It is now our task to develop and excel in our skills in nail surgery.

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