

## DIGITAL BLOCK FOR INGROWING TOENAILS

Digital blocks are useful to provide anaesthesia for surgery on the toes for removal of a nail or wedge resection of a toenail, for fingers to drain, a paronychia abscess, suture of lacerations and removal of foreign bodies.

Large volumes should not be injected into the toe as this can cause ischaemia due to pressure effects. It is preferable to use 1½ - 2% solution of Lignocaine. There should be no Adrenaline present because the constriction can lead to ischaemia.

### ANATOMY:

The nerves involved are the plantar and dorsal digital nerves. The nail and nail-bed are plantar structures, which migrate with development to lie dorsally. The area operated on is at the extremity of the nerve and thus the digital block takes time to work. The smallest fibres are the pain fibres and these are blocked first, whereas the touch and proprioception are the last to be blocked and may indeed not be completely blocked. Thus warn the patient that they will be able to feel touch.

The block can be a unilateral or bilateral block depending on circumstances – for wedge resection on one side or both, or for removal of a nail completely. The other operation for which a digital block can be used is the Zadek operation, termed the “mickey mouse” operation. With this operation the whole nail bed is removed so that the nail will not grow at all. This is only used when there have been recurring operations which have failed.

A fine-gauged needle – 23 gauge or 25 is used because the slower injection results in less pain. A Bleb is raised just distal to the metatarsophalangeal joint on the dorsum of the side to be anaesthetised. This blocks the dorsal digital nerve. The needle is then passed vertically towards the under-surface of the toe just to the side of the bone, which can be felt, and Local Anaesthetic introduced gradually. This blocks the plantar digital nerve. The skin should not be pierced on the under-surface. The toe should be held in such a manner so as not to injure the doctor. The injection is given in a similar manner on the opposite side of the toe. Extra Local Anaesthetic can be given if the procedure is uncomfortable as you progress.

With an infected toe this local anaesthetic may take some time to work and may require supplementation. It is best to introduce just 2 or 3ccs and wait for a few minutes. Then one can test the block just proximal to the nail bed and distal to the nail. If there is still some sharp sensation extra measures to improve the block include running the needle down dorsally towards the nail bed. Also a small injection can be given just distal to the nail. It is rare for this technique not to work.

Remember 4mgm per kilogram is the maximum dose without Adrenaline and for the average 70 kg person this would be approximately 300mgm. For a 2% solution – 2gm per 100ml – this would be about 15-16ccs maximum dosage. However for a digital block no more than a few ccs should be required.

The key points to the technique are:

- a) Be gentle,
- b) Hold the toe and warn the patient when the injection is being given,
- c) Use a fine needle and inject the solution slowly,
- d) Use extra measures to obtain further block,
- e) Test that the block has worked before starting the procedure – it should always work if given time. If however too great a volume is needed the procedure should be abandoned. Another alternative is just to remove part of the nail and not do a complete wedge resection.

The procedure can be practised on pigs trotters and models specifically designed.

Digital blocks on the fingers can also be used for drainage of a paronychia abscess, suture of lacerations and removal of foreign bodies. The principles of utilisation are similar.