

## **Anesthesia for Foot and Ankle Surgery**

Sensation below the knee is provided entirely via two nerves, the sciatic nerve and the saphenous nerve. Therefore the anesthetic techniques available for foot and ankle surgery includes regional anesthesia in addition to general anesthesia or monitored anesthesia care. In most patients undergoing foot and ankle surgery a nerve block may be considered provided there are no contraindications to regional anesthesia. Whether or not a block is used as the *primary* anesthetic or as an *adjunct to general anesthesia* is often guided by whether or not a thigh tourniquet will be used intraoperatively. If a thigh tourniquet will be used, general anesthesia is necessitated as pain or discomfort from the tourniquet is not covered by the aforementioned standard nerve block techniques for lower leg surgery.

The sciatic nerve is often blocked in the popliteal fossa ("popliteal fossa block") just proximal to its bifurcation into the common peroneal and tibial nerves. Successful blockade of the sciatic nerve at this point results in sensory loss below the knee except for the medial leg and foot. The medial leg and foot are covered by the saphenous nerve, which can be blocked in the adductor canal beneath the sartorius muscle next to the femoral artery. Blockade of the sciatic and saphenous nerves provides complete sensory blockade below the knee.

The patient population presenting for foot and ankle surgery is widely varied from young trauma patients to older patients with arthritis. Most procedures are done in the supine position with the notable exception of Achilles tendon repair. Most foot and ankle surgery is done on an outpatient basis. Common procedures and corresponding anesthetic considerations are listed below.

**Tibial external fixation:** Often young relatively healthy patients who have sustained trauma. Small surgical wounds make regional anesthesia unnecessary most of the time. Blood loss is minimal and surgical time is typically less than one hour. General anesthesia is most common.

**Open Reduction Internal Fixation of ankle, distal tibia, or foot:** may be trauma patients young or old, regional technique (popliteal fossa +/- saphenous nerve blocks) is often chosen provided the surgeon does not need immediate post-operative neurologic testing. Blood loss is typically less than 250cc.

**Arthroscopy of ankle:** two arthroscopes are placed into to small (5 mm) port sites in the ankle. This procedure is often diagnostic and brief, with minimal blood loss. Ankle arthroscopy may also be used for foreign body removal. Because of the small incision sizes, peripheral nerve block is often not indicated. General anesthesia without neuromuscular blockade is often used.

**Arthrodesis of ankle (ankle fusion):** often older adults with chronic pain from arthritis present for ankle fusion. The procedure is carried out via anterior or medial arthrotomy incisions and often quite painful. Popliteal fossa+saphenous nerve blocks are an excellent choice to provide post-operative analgesia. If no thigh tourniquet will be used, the nerve block can be the primary anesthetic.

**Transmetatarsal Amputation (TMA):** Often older, diabetic patients with significant comorbidities. A common indication for TMA is non-healing ulcer in the toes in the setting of peripheral neuropathy. Remember to check for anticoagulant use if planning a block or employing neuraxial technique. This entire procedure can be covered by an ankle block. Popliteal fossa+saphenous nerve blocks can also be used but are not necessary if ankle block is used.

**Tendon transfer or lengthening:** this procedure involves correction of contractures or other neuromuscular imbalances of the leg or foot that result from neuromuscular disease or trauma. Incision is made directly over the tendon of interest and nerve block can be selected accordingly.

**Bunion surgery (Hallux Valgus Deformity Correction)** is known to have high amount of post-operative pain and popliteal fossa+saphenous nerve blocks are an excellent choice for post-operative analgesia. Patients are often older adults. The intraoperative course itself involves minimal blood loss and lasts about 1-2 hours.

**Achilles tendon repair** is done in the prone position and typically requires general anesthesia due to the use of a thigh tourniquet. Popliteal fossa + saphenous nerve blocks are done for post-operative analgesia. Patients are typically young and healthy to the point they are active enough to tear their Achilles tendon. The procedure lasts about 2 hours and there is minimal blood loss.