### Lower Extremity Nerve Blocks

#### Femoral

**Indications:** Surgery on femur, anterior thigh and knee, patella fractures, quadriceps laceration repair. Analgesia for hip and femur fractures.

**Patient position:** Supine.

**Transducer:** Linear.

**Needle:** 20G, 5-10 cm short bevel. Common EMR obtained: Quadriceps muscle contraction. LA: 10-20 mL.

**Initial transducer placement:** Femoral crease, parallel and inferior to inguinal ligament. Must find the common FA. Initial depth setting: 4 cm.

**Landmarks:** Common femoral artery and saphenous vein (arrow). Ideal view: Femoral nerve lateral to femoral artery, below saphenous vein, above departure of profunda femoris artery.

**Technique:** Needle insertion in plane, lateral to medial. Eventually out of plane. Ideal spread of LA: Under the saphenous vein around the femoral nerve. Number of injections: One. BORs.

**Tips:** Obtain view proximal to injection of the FA. Tip the probe cranially/medially to optimize the image of the nerve. Puncture the FI lateral to the edge of the FN. Beware; motor weakness of quadriceps muscles can occur, risk of fall.

#### Saphenous

**Indications:** Analgesia to knee surgery as a component of multimodal analgesia. To combine with spinal nerve blocks for surgery below the knee. Patient position: Supine, lateral or oblique (shown).

**Transducer:** Linear or curved in large patients.

**Needle:** 20G, 5-10 cm short bevel. Common EMR obtained: Twitch of calf or foot. LA: 10-20 mL.

**Initial transducer placement:** Transverse view at medial aspect of lower thigh to mid-thigh level. Initial depth setting: 4 cm.

**Landmarks:** Saphenous muscle and femoral artery. Ideal view: Femoral artery in the subcutaneous plane at the medial edge of the vastus medialis.

**Technique:** Needle insertion in plane, lateral to medial. Eventually out of plane. Ideal spread of LA: In the fascial plane (arrow) underneat saphenous muscle on both sides of the artery. Number of injections: One. BORs.

**Tips:** When localization of femoral artery proves difficult, use POD and/or start scanning at the level of the femoral crease and follow the course of the femoral artery distally into the canal.

#### Sciatic

**Subgluteal level**

**Indications:** Analgesia and anesthesia for surgery on femur, gluteal, and below the knee. Patient position: Prone, lateral or oblique (shown).

**Transducer:** Linear or curved in large patients.

**Needle:** 20G, 5-10 cm short bevel. Common EMR obtained: Twitch of calf or foot. LA: 20 mL.

**Initial transducer placement:** Transverse. 4-5 cm above the popliteal crease. Initial depth setting: 4-5 cm.

**Landmarks:** Sciatic nerve, glutaeus maximus, fascia lata and gluteus maximus. Ideal view: Sciatic nerve in common connective tissue sheath (intermuscular tunnel).

**Technique:** Needle insertion in plane, lateral to medial. Eventually out of plane. Ideal spread of LA: Around the nerve, within the common connective tissue sheath. Number of injections: One. BORs.

**Tips:** Avoid inferior gluteal artery. Needle should enter the sheath of the SA, either at the lateral or medial aspect of the nerve. Transducer pressure and tilt often required to obtain the adequate view.

#### Sciatic

**Popliteal level**

**Indications:** Analgesia and anesthesia for surgery below the knee. Patient position: Prone, oblique (shown) or supine with the knee flexed.

**Transducer:** Linear or curved in large patients.

**Needle:** 20G, 5-10 cm short bevel. Common EMR obtained: Twitch of calf, foot or toes. LA: 20 mL.

**Initial transducer placement:** Transverse. 4-5 cm above the popliteal crease. Initial depth setting: 4-5 cm.

**Landmarks:** Popliteal artery and vein, femur. SFM. Ideal view: Sciatic nerve with TN and CPM. Elevation divergent within common connective tissue sheath of SA (arrow). Note: This image demonstrates separation of TN and CPM after successful injection.

**Technique:** Needle insertion in plane, lateral to medial, or out of plane. Needle tip position: Inside the common connective tissue sheath, between TN and CPM. Ideal spread of LA: Lateral to TN and CPM. Number of injections: One. BORs.

**Tips:** If imaging the division of the SA proves difficult, start scanning at the popliteal crease, when the femoral nerve is located posteriorly/medially, lateral to the popliteal vein. After localization, slowly deepen probe to locate the LA spread around TN and CPM. CATHeter is placed within the sheath.

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### Dermatomes

- **Anterior**
  - Zones of nerve block
  - Complete injection
    - Needle placement
      - Needle insertion
      - Needle manipulation
- **Posterior**

### Osteotomes

- **Anterior**
- **Posterior**