Lower Extremity Nerve Blocks


Nerve Block

Femoral

Indications: Surgery on femur, anterior thigh and knee; patella fracture, quadriceps tendon repair. Analgesia for hip and femur fractures.

Patient position: Supine.

Transducer: Linear.

Needle: 22G, 5-10 cm short length.

Common EMR obtained: Quadriceps muscle contraction.

LAI: 10-20 mL.

Transducer Placement

Ultrasound Image

Reverse Ultrasound Anatomy

Anatomy

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 (arrows). Ideal view: Femoral nerve lateral to femoral artery, below saphenous, proximal to bifurcation of the FA.

Technique: Needle insertion in plane, lateral to FA, medially, alternately out of plane. Ideal spread of LA: Divert the saphenous artery around the femoral nerve.

Number of injections: Dns. 80-100.

Tips: Obtain view proximal to bifurcation of the FA. tilted probe coronally/obliquely to optimize the image of the nerve. Insert the needle through FI lateral to the edge of the FI.

Beneath: Motor weakness of quadriceps muscles can occur; risk of falls.

Saphenous

Indications: Analysis for knee surgery as a component of multimodal analgesia. In combination with sciatic nerve block for surgery below the knee. Patellar position: Supine with leg abducted and externally rotated.

Transducer: Linear.

Needle: 22G, 5-10 cm short length.

Common EMR obtained: If used, paresthesia of muscle, loss of lower leg or vastus medialis. Twitch can be elicited.

LA: 10-15 mL.

Abbreviations

OIP normal <15 psi +


Sciatic Subgluteal level

Indications: Anesthesia and analgesia for surgery on femur, hip, and below the knee. Patient position: Prone, lateral or oblique (shown).

Transducer: Linear or curved in larger patients. Needle: 22G, 5-10 cm short length.

Common EMR obtained: Twitch of calf or foot.

LA: 15-20 mL.

Abbreviations

Initial transducer placement: Transverse view at mid-level of lower limb.

Initial depth setting: 4 cm.

Landmarks: Sartorius muscle and femoral artery. Ideal view: Femoral artery in the subsartorial plane at the medial edge of the vastus medialis.

Technique: Needle insertion in-plane, lateral to FA, medially, alternatively out of plane. Ideal spread of LA: In the fascial plane (arrow) undercuts sartorius muscle on both sides of the artery.

Number of injections: Dns. 80-100.

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

Sciatic Popliteal level

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

Transducer: Linear or curved in larger patients.

Needle: 22G, 5-10 cm short length.

Common EMR obtained: Twitch of calf, foot or toes.

LA: 15-20 mL.

Abbreviations

Initial transducer placement: Gluteal crease, scan cephalad until the best one of the or lateral plane to the sciatic nerve and the muscular tunnel in which it travels are visualized regardless of the level.

Initial depth setting: 4-5 cm.

Landmarks: Sciatic nerve, gluteus maximus, femoral nerve, obturator gluteus maximus.

Ideal view: Sciatic nerve in common connective tissue sheath (intermuscular tunnel).

Technique: Needle insertion in plane, lateral to FA, medially, alternatively out of plane. Ideal spread of LA: Around the nerve, within the common connective tissue sheath.

Number of injections: Dns. 80-100.

Tips: Avoid inferior gluteal artery. Needle should enter the sheath of the SN either at the lateral or medial aspect of the nerve.

Suggested Standard Monitoring For Nerve Blocks

Abbreviation = Nerve Stimulator = Spreading Infiltration Pressure (SIP)

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OIP normal <15 psi +

Data from several studies suggest that twitch (EMR; evoked motor response) at <0.2 mA (0.1 msec) may indicate intraneural needle placement by US (22G, 5-10 cm short bevel).

Common EMR obtained:

Transducer:

Linear.

Patient position:

Prone, lateral or oblique (shown).

Number of injections:

One. BORe.

Technique:

Inadvertent injection of LA can occur; risk of falls.

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