

19. SCIATIC NERVE BLOCK: LATERAL APPROACH

INTRODUCTION

Like the anterior approach, the lateral approach to the sciatic nerve has the advantage of being performed with the patient in the supine position. Both approaches anesthetize the same dermatomes (see Figure 18-1). The lateral approach may be technically easier than the anterior block, and the needle depth is shallower, making it more comfortable for the patient. This block is typically done at a more distal location immediately cephalad to the popliteal fossa (Figure 19-1). Because this block is more distal than the posterior or anterior approaches to the sciatic nerve, the anesthetist must take care to ensure adequate anesthesia and analgesia of both components of the sciatic nerve (tibial and common peroneal). For this reason, larger volumes of local anesthetic are used to ensure adequate distribution.

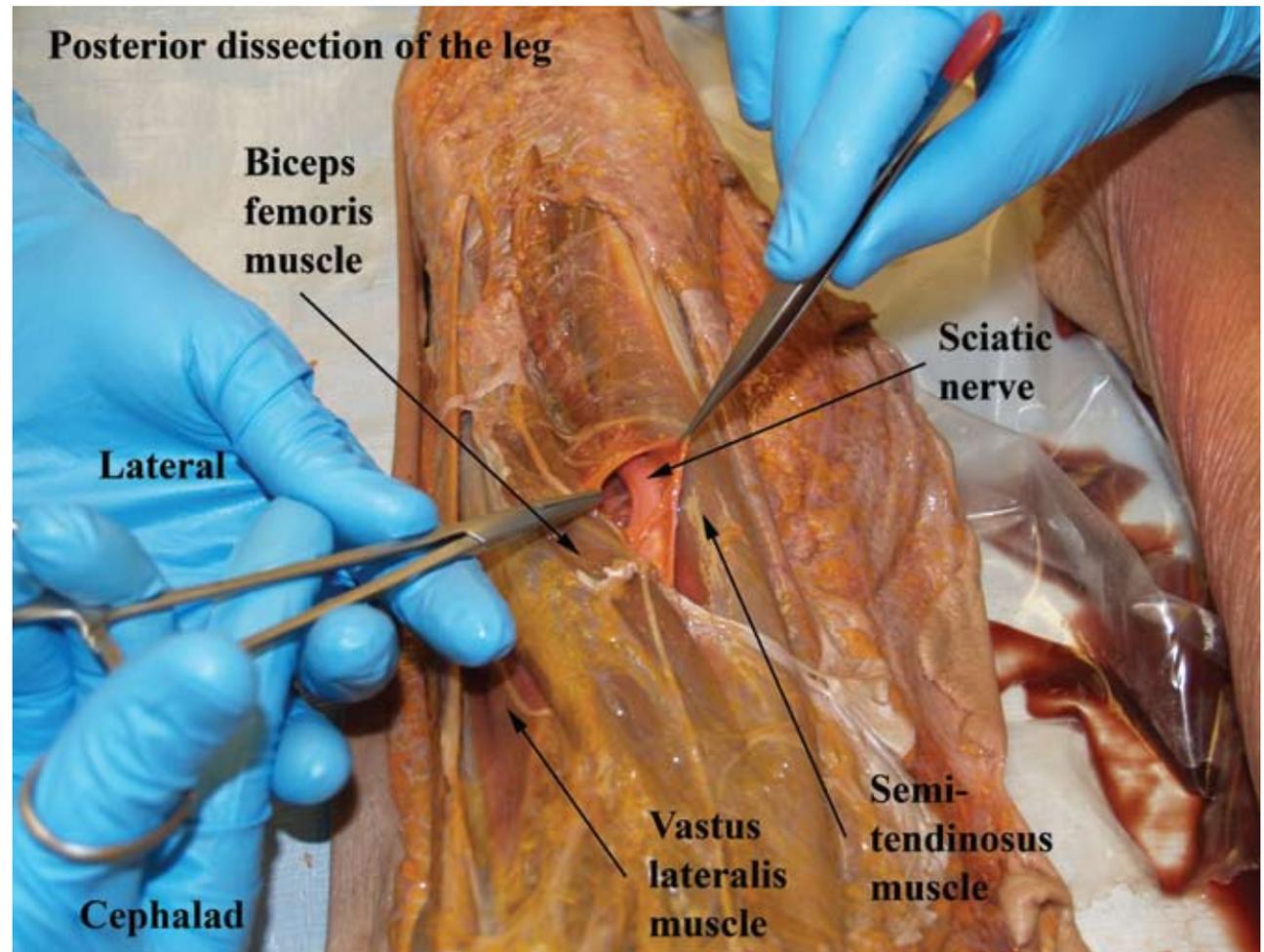


Figure 19-1

PROCEDURE

Landmarks. Palpate the popliteal crease and measure a distance of 10 cm cephalad in the groove between the vastus lateralis and the biceps femoris muscles of the thigh (Figure 19-2). If these landmarks are difficult to identify, flex the patient’s leg at the knee to further delineate the anatomy.

Needles

- 21-gauge, 10-cm insulated needle.
- 18-gauge, 10-cm insulated Tuohy needle for catheter placement. Catheters introduced 5 cm beyond the needle tip.

Figure 19-2



Figure 19-3

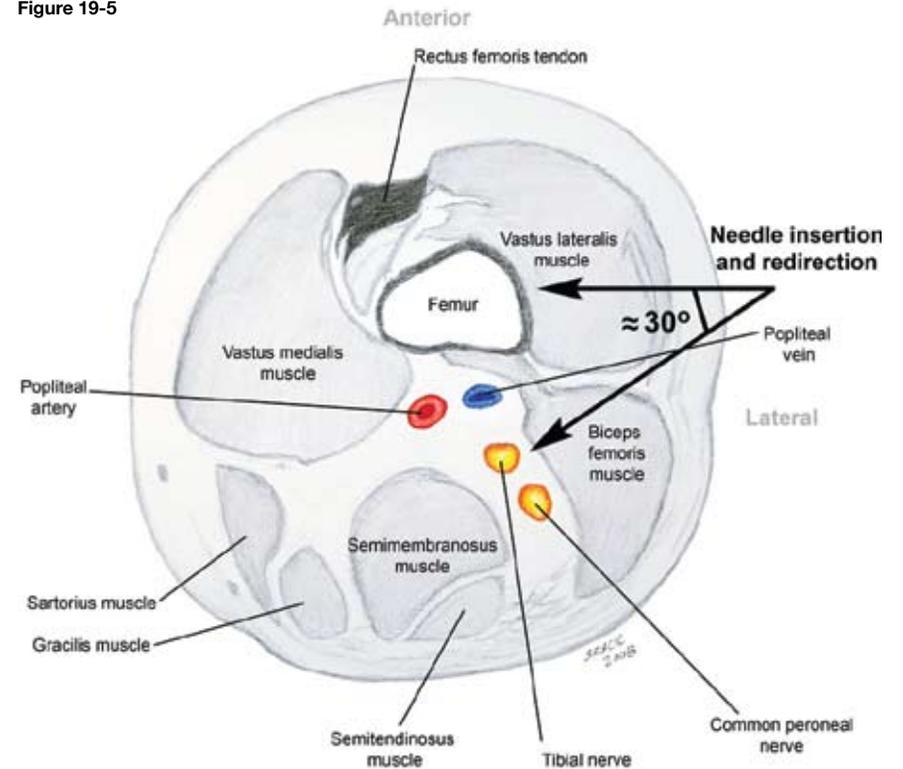


Stimulation. Set the nerve stimulator at 1.2 to 1.5 mA. After sterile preparation of the area, introduce needle and advance it in a horizontal plane until the femur is contacted (Figure 19-3). Upon contact, withdraw the needle back toward the skin and redirect it approximately 30° posterior to the original insertion site, advancing slowly until a stimulation pattern appears (Figures 19-4 and 19-5). The nerve is typically 1 to 2 cm beyond the point of initial femur contact. Studies have demonstrated that plantar flexion, as opposed to dorsiflexion, of the foot is a more desirable twitch to obtain with the lateral approach to the sciatic nerve, resulting in a more complete sensory block. Once plantar flexion is established, turn the stimulator current down to 0.5 mA and inject the local anesthetic.

Figure 19-4



Figure 19-5



Local Anesthetic. In most adults, 40 mL of local anesthetic is sufficient.

Teaching Points. For the needle to gain proximity to the sciatic nerve from this approach, it must pass through the biceps femoris muscle. Local stimulation of this muscle is often seen, and advancing the needle tip further will cause this twitch to stop and foot or toe twitching to start. If stimulation of the vastus lateralis muscle is observed, the needle tip is too anterior and should be withdrawn toward skin and repositioned in a more posterior plane.

BLOCK WITH ULTRASOUND PROBE

Probe. Mid-frequency (5–12 MHz), linear.

Probe Position. Place the patient in the supine position with the foot and ankle resting on a stack of blankets; this will allow enough room to place the probe directly beneath the leg. Position the probe approximately 8 cm proximal and parallel to the popliteal crease (with a transverse view; Figure 19-6). Scan in the cephalad and caudad directions until the sciatic nerve is identified. Often, the popliteal artery is identified and can be used as a landmark for sciatic nerve location—the nerve is lateral to the artery. The sciatic nerve is seen as a round, hyperechoic structure (Figure 19-7). If two smaller round, hyperechoic structures are viewed, the probe is distal to the split of the tibial and peroneal nerve components and must be moved to a more proximal location on the leg.

Approach. Insert the 21-gauge needle at the lateral aspect of the ultrasound probe, allowing visibility of the entire needle shaft. *Note: needle adjustments seen*

Figure 19-6

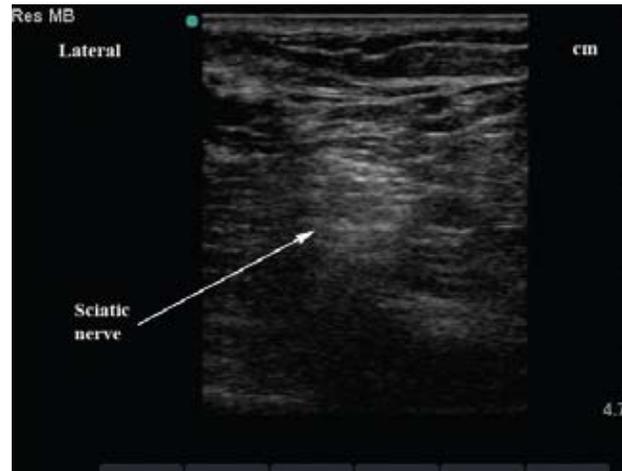


Figure 19-7

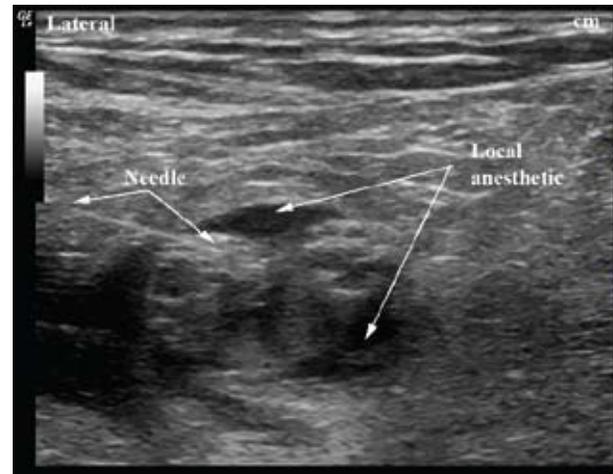


Figure 19-8

on the ultrasound screen are the reverse of the operator's hand movement, which can be confusing.

Injection. Inject 30 to 40 mL of local anesthetic, so that the sciatic nerve is completely embedded in a hypoechoic ring (Figure 19-8). If circumferential spread is incomplete, withdraw the needle and redirect it to contact any missed areas.

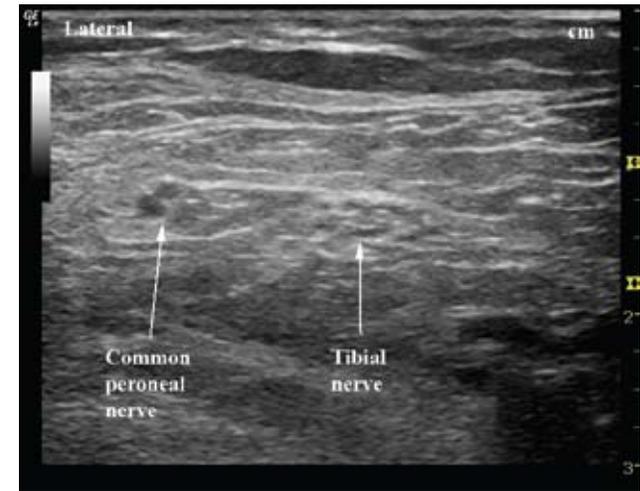


Figure 19-9

Teaching Points. To help identify the sciatic nerve, begin with probe placement just above the popliteal crease. Often, the tibial and peroneal components can be viewed as two hyperechoic round structures (Figure 19-9). Continue sliding the probe in the cephalad direction, and the two smaller structures will merge into the single structure of the sciatic nerve. This technique ensures that probe placement is proximal to the split of the nerve.

The low-frequency, curved probe is difficult to manipulate behind the leg. Usually, a linear, higher frequency probe is sufficient for adequate visualization of the sciatic nerve.