

Cervical Plexus Blocks: Superficial & Deep

Anesthetic Pearls: Anesthetic Implications and Management of Cervical Plexus Blocks

Indications: Carotid Endarterectomy (anterolateral / lateral neck surgery)

Patient Position: Supine, with head turned away from side where block is to be performed.

Needle Size: Traditionally a 22-gauge, 38-mm (1.5 inch) for deep cervical block; 22-gauge, 70-mm (2.75 inch) for superficial cervical block.

Landmarks: A line is drawn 1 cm behind / posterior / rostral the tip of the mastoid process to the transverse process of the 6th cervical vertebrae (Chassaignac's tubercle). On this line, C2 is 2 cm caudal to the mastoid process, C3 is 1.5 cm caudal to C2, and C4 is 1.5 cm caudal to C3.

Needle Approach and Technique:

Deep Cervical Block

The needle is inserted medially as well as slightly caudal to obtain contact with the transverse processes of C2, C3, and C4. The local anesthetic solution is slowly administered near the transverse process: Bupivacaine 0.5% (4-7 ml) or Bupivacaine 0.25% / Lidocaine 1% (6-10 ml). The block can also be performed with a single injection of 20-25 ml of local anesthetic solution at the C3 or C4 level (the solution diffuses into the paravertebral space).

Superficial Cervical Block

The needle is inserted at the C3 level and Lidocaine 1% or Bupivacaine 0.25% (20-30 ml) mixture is infiltrated into the deep subcutaneous tissue from C3 anteriorly toward the mastoid process to a point 2 cm superior to the clavicle.

Key Points:

1. Patient must be able to cooperate for block success. Therefore, premedication and intraoperative sedation should be as light as possible. Benzodiazepines may not be recommended because of possible disorientation.
2. **Immediate CNS toxicity** may occur from intravascular or subarachnoid administration.
3. CNS toxicity may occur within 30 minutes of local administration secondary to over dosage, infiltration, or solution diffusion.
4. Paralysis of the Phrenic nerve is a common complication and therefore only one side is anesthetized per day (particularly in obese or COPD patients) secondary to causing a hemidiaphragm.
5. In atheromatous patients, head hyperextension or excessive rotation can lead to vascular compromise, plaque dislodgement, and cerebral ischemia.
6. Addition of clonidine reduces the incidence of tachycardia secondary to local blockade of the reflexive un-stimulation of the carotid body (a complication / side effect that occurs in up to 60% of patients undergoing cervical plexus block with Lidocaine and Epinephrine).

