

Brachial plexus blocks without ultrasound?

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DOI: <https://doi.org/10.52340/9789941519109.11>

Key words: Ultrasound guidance, landmarks, nerve stimulation, brachial plexus

There are different approaches to brachial plexus block: interscalene, supraclavicular, infraclavicular and axillary. Most often they are performing under ultrasound guidance but historically they were performed under nerve stimulatory guidance and landmark based (1,2). This knowledge is needing in ultrasound era too at least for cases when ultrasound machine is unavailable or is malfunctioning. Here you we are describing the techniques of commonly using landmark based brachial plexus blocks.

- **Interscalene Block:**

- **Landmarks:** Clavicular head of the sternocleidomastoid muscle, external jugular vein, cricoid cartilage and clavicle.
- **Procedure:** The needle is inserted posterior to the external jugular vein, aiming towards the interscalene groove, guided by the nerve stimulator.
- **Approach according to Meier. Landmarks:** sternocleidomastoid muscle, superior thyroid notch, scalenus gap.
- **Procedure:**puncture site- posterior edge of the sternocleidomastoid muscle at the level of the thyroid notch (1.5 – cm above the cricoid). Insertion direction tangential to the course of the plexus in the direction of the vertical infraclavicular block point or anterior axillary line, guided by the nerve stimulator.

- **Supraclavicular Block:**

- **Landmarks:** Clavicle, midpoint of the clavicle, subclavian artery
- **Procedure:** The needle is inserted at the midpoint of the clavicle, lateral to the subclavian artery, aiming towards the first rib, guided by nerve stimulation.

- **Infraclavicular Block. According to Kilka, Geiger, Mehrkens**

- **Landmarks:** Suprasternal notch, lateral edge of acromion, infraclavicular fossa.
- **Procedure:** The needle is inserted at the midpoint of a line connecting the jugular notch and ventral end of the acromion – directly underneath the clavicle. Insertion direction must be absolutely perpendicular to the supporting surface.

- **Axillary Block:**

- **Landmarks:** Axillary artery.

- **Procedure:** The needle is inserted adjacent to the axillary artery, aiming to deposit local anesthetic around the nerves as they travel through the axilla.

Success rates of ultrasound guided brachial plexus blocks are nearly 100%, but without ultrasound, based on landmarks it is under 90%. Despite of this, landmark and nerve stimulatory guidance are still actually using especially in cases, when ultrasound guidance is not available.

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