Lateral Pterygoid Muscle and Maxillary Artery Are Key Anatomical Landmarks for Ultrasound-guided Trigeminal Nerve Block

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TRIGEMINAL nerve blocks have traditionally been performed by contacting the lateral pterygoid plate, entering the pterygopalatine fossa, and advancing the needle to elicit a paresthesia. Fluoroscopy and computed tomography have been used to identify the anatomical landmarks, but these methods are costly and may be difficult for the clinician to interpret during needle guidance.1 Ultrasonography may provide a simpler method for needle guidance when performing a trigeminal nerve block.

We present a case of a 60-yr-old woman with a history of trigeminal neuralgia not responsive to medical treatment or microvascular decompression surgery of the trigeminal nerve. A trigeminal nerve block was requested during admission for reoccurrence of facial pain. Ultrasound examination of the temporomandibular region of the face was used to identify the mandibular condyle, coronoid process, the infratemporal fossa, and the lateral pterygoid muscle and plate. The transducer was placed below zygomatic process, just anterior to the mandibular condyle (fig. A). The needle was advanced from posterior to anterior and from lateral to medial direction through the pterygomaxillary fissure into the pterygopalatine fossa, just passing through the lateral pterygoid muscle close to the V2 division2 (fig. B). A pulsating maxillary artery was identified in the pterygopalatine fossa (fig. C; see Supplemental Digital Content 1, http://links.lww.com/ALN/A877, which is a video explaining ultrasound-guided trigeminal nerve block). A total of 2 ml 0.25% bupivacaine and 1 mg dexamethasone was injected. The patient had complete sensory analgesia to pin-prick in V1, V2, and V3 distributions, with sustained pain relief in the maxilla distribution and 60% relief in the mandibular distribution. The procedure was repeated after 2 weeks. A contrast agent (1.5 ml iohexol 180) demonstrated the presence of dye in the Meckel’s cave leading to the Gasserian ganglion, suggesting a retrograde spread through the foramen rotundum3 (fig. D). The identification of the lateral pterygoid muscle and the maxillary artery allowed us to safely deposit a small amount of analgesic solution closer to the foramen rotundum, which spread to the Gasserian ganglion without eliciting a paraesthesia.

References

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