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**Botulinum Toxin
Type A for Men**

**Facial Rejuvenation
With a Novel
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**Local Anesthetic Blocks:
Techniques for the
Lower Face**

**Treatment of Vitiligo
With a High-Intensity
Light System**

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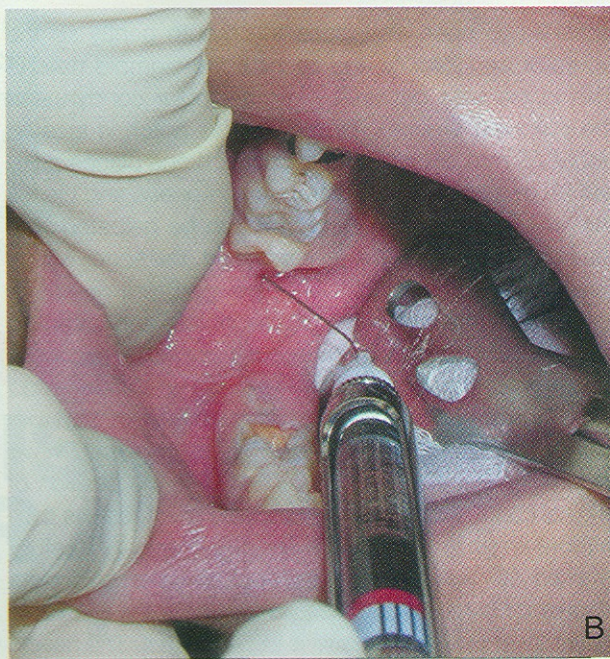
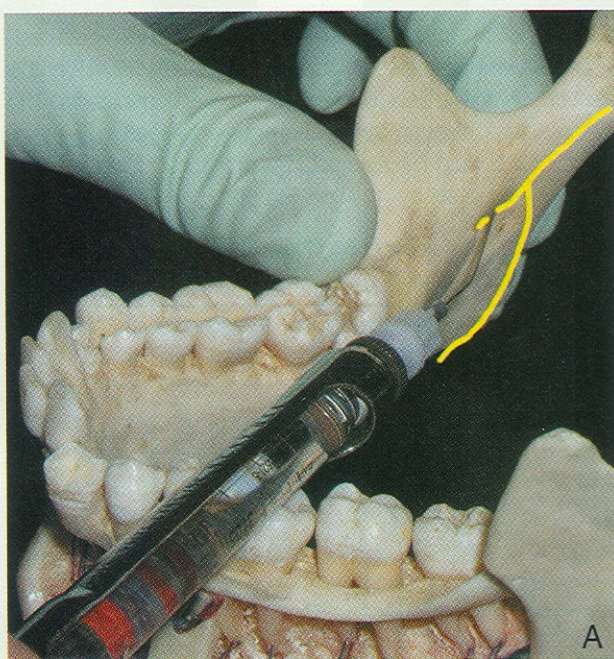


Figure 8. The target of the needle in the intraoral inferior alveolar nerve block is at the entrance of the nerve in the mandibular foramen on the medial ramus (A and B). The needle can be slightly bent with a medial angle to negotiate the flaring anatomy of the ramus. The mylohyoid nerve (inferior to needle) may or may not be blocked by this technique depending upon its level of branching.

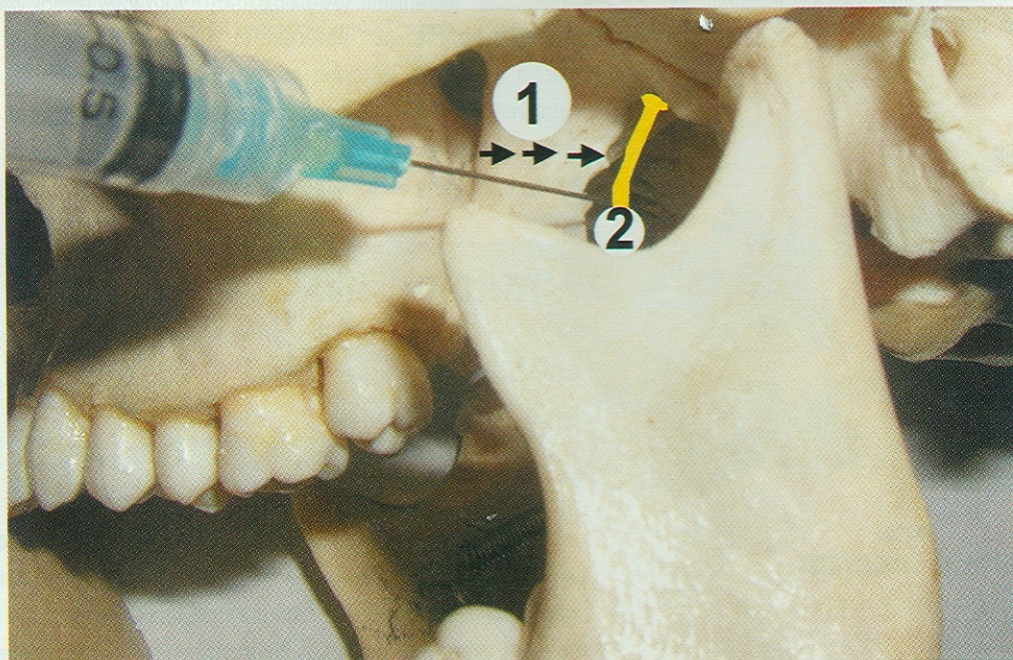


Figure 9. The mandibular nerve (V3) block places the local anesthetic just posterior to the lateral pterygoid plate where the third division of the trigeminal nerve exits the foramen ovale. The needle is walked off the pterygoid plate (circle 1) and the local anesthetic solution is deposited in the region of the third division of the trigeminal nerve (circle 2).

MANDIBULAR NERVE (V3) BLOCK: FACIAL APPROACH

The mandibular nerve can also be blocked by a deep injection where the nerve exits the foramen ovale, posterior to the pterygoid plate (2 in Figure 9). This

technique requires more experience and has more potential complications than the intraoral approach.

The technique for performing this block begins with the patient in a supine position with the head and neck turned away from the side to be blocked. The patient

Local Anesthetic Blocks of the Head and Neck for Cosmetic Facial Surgery, IV: Techniques for the Lower Face

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This article, the fourth in a 5-part series, focuses on nerve block techniques for the mandibular nerve, also known as the third division of the trigeminal nerve. Specific techniques are outlined for the mental nerve, as well as intraoral and facial approaches to the mandibular nerve. The first article in the series focused on the basic sensory neuroanatomy of the head and neck, the second detailed local anesthetic techniques for the upper and mid face, and the third focused on the maxillary nerve.

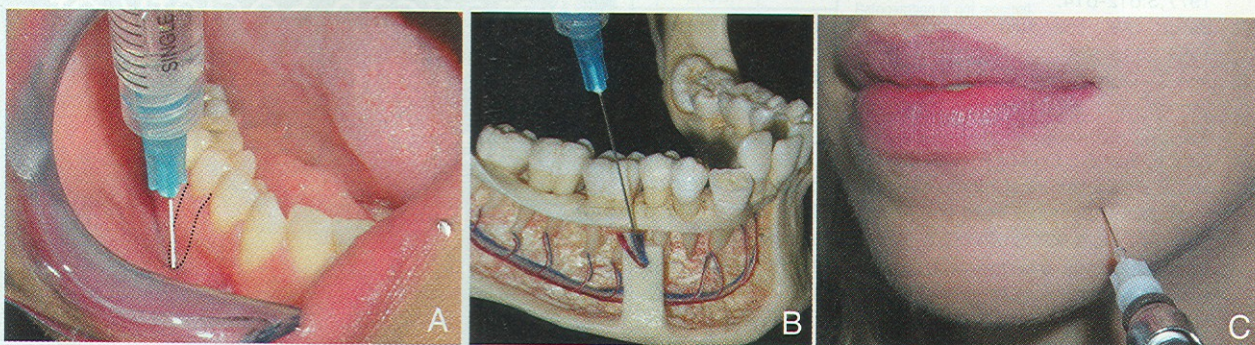


Figure 1. The mental foramen is approached intraorally below the root tip of the lower second premolar (A and B) or from a facial approach (C).

MENTAL NERVE BLOCK

The mental nerve exits the mental foramen on the hemimandible at the base of the root of the second premolar. (Note that many patients may be missing a premolar because of orthodontic extractions.) The mental foramen is approximately 11 mm inferior to the gum line (Figure 1). There is variability with this foramen, as with all foramina, but by injecting 2 to 4 cc of local anesthetic solution about 10 mm inferior to the gum line or 15 mm inferior to the top of the crown of the second premolar tooth, the block is usually successful. In a patient without teeth, the foramen is often located much higher on the jaw and can sometimes be palpated. This block is performed more superiorly in the

denture patient. The foramen does not need to be entered, as a sufficient volume of local anesthetic solution in the general area will be effective. The mental nerve gives off labial branches to the lip and chin (Figure 2). By placing traction on the lip and pulling it away from the jaw, the labial branches of the mental nerve can sometimes be seen traversing through the thin mucosa (Figure 3). Alternatively, the mental nerve may be blocked with a facial approach aiming for the same target (Figure 1 C).

After anesthetization, the distribution of numbness will extend from the unilateral lip down to the mentolabial fold, many times including the anterior chin and cheek, depending on the furcating anatomy of the patient's nerve (Figure 4). The inferior alveolar nerve also supplies sensory innervation to the chin pad. The mylohyoid nerve may also innervate this area. To augment or extend the area of local anesthesia on the chin, an inferior alveolar nerve block (mandibular dental block) can be performed.

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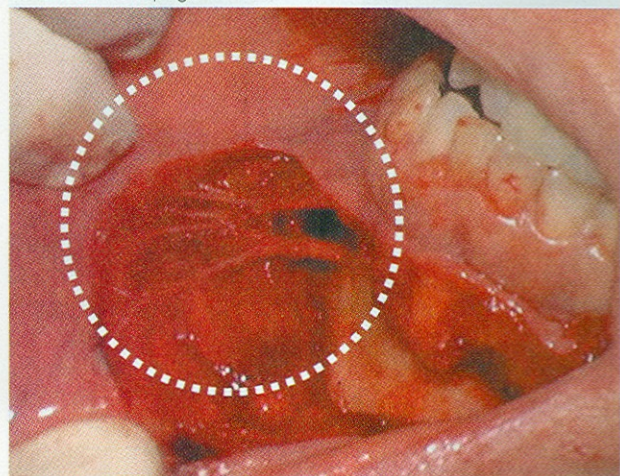


Figure 2. The vast arborization of the distal branches of the mental nerve (in circle) are visualized intraoperatively in a genioplasty incision.

Sometimes patients may perceive pain despite bilateral nerve block in the upper or lower lips. If bilateral mental nerve blocks are not totally effective when injecting fillers in the lower lip, a supplemental infiltration of local anesthetic into the mandibular labial frenum can assist the blocks (Figure 5). Spacing several infiltrations in the mandibular vestibule will adequately anesthetize many patients without having to perform mental blocks. This also works for the upper lip by infiltrating across the maxillary vestibule. This technique has become the author's favored anesthetic technique for filler injections to the lip.

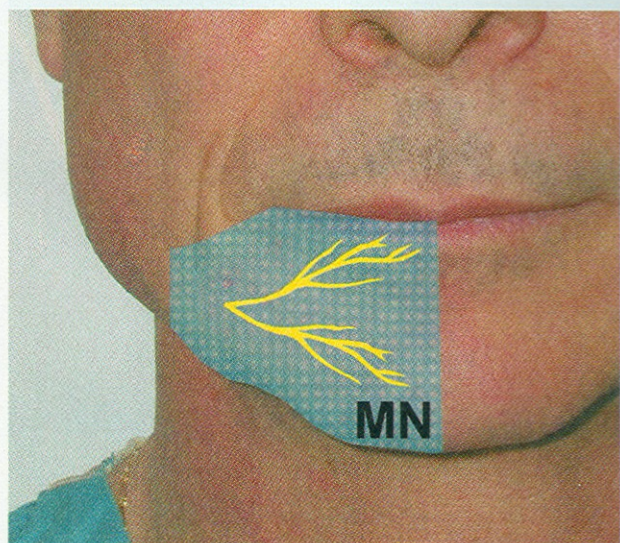


Figure 4. Anesthetized areas from a unilateral mental nerve block. Due to various anatomic factors, the area below the mentolabial fold or at the midline may share innervation from the contralateral nerves crossing the midline or the cervical plexus.

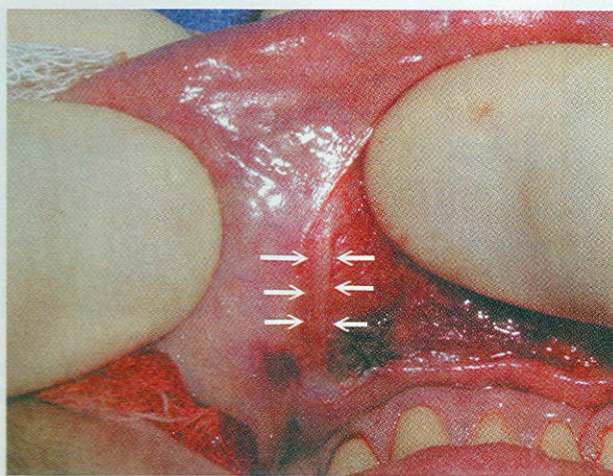


Figure 3. By stretching the lower lip mucosa, the underlying labial branches of the mental nerve are sometimes visible. This image shows the very superficial labial sensory nerve exposed with mucosal incision for a chin implant.

In the case of a "missed" or incomplete block, the lips may also be anesthetized by small amounts of sub-mucosal local anesthetic infiltration (Figure 6). This infiltration technique may be performed to assist or in place of a mental nerve block, but a very small volume of local solution is used to avoid distorting the lip. This is especially important when injecting fillers. Applying a topical anesthetic prior to the injections will enhance patient comfort.

The mental nerve block may fail to anesthetize the entire chin or area lateral to it because of innervation from the mylohyoid nerve. Although infiltrative



Figure 5. Supplemental anesthetic infiltration of the lower labial frenum area can be used to augment bilateral mental blocks when the patient still perceives pain.

Anesthetic Techniques for the Lower Face

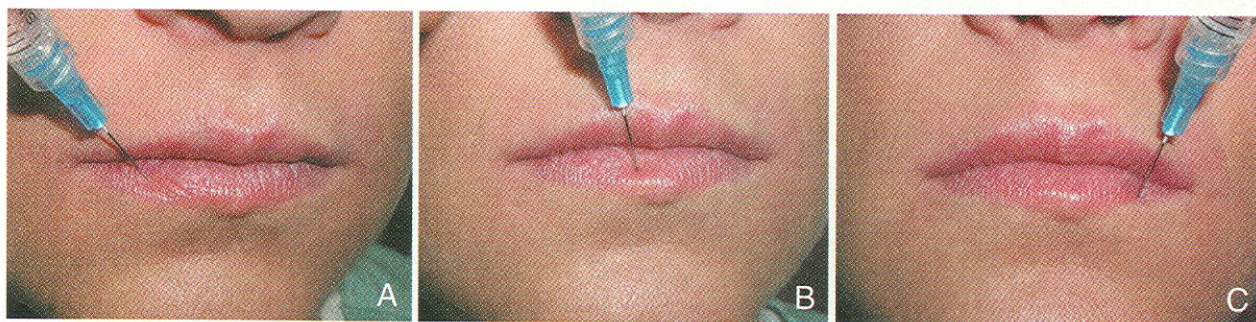


Figure 6. Submucosal lip infiltration can be used to augment or in place of a bilateral mental nerve block to treat the lower lip. Very small volumes will create adequate anesthesia. The solution is injected across the entire lip (A, B, and C). The same technique can be used on the upper lip as well.

augmentation techniques may be used, complete anesthesia may be obtained by performing an inferior alveolar nerve block or by blocking the mylohyoid nerve. The mylohyoid nerve branches off of the mandibular nerve and travels along the mylohyoid groove just below the apices of the mandibular second molars. This nerve is blocked by placing a 1.5-in 27-gauge needle at the bottom of the roots of the lower second molar and depositing 2 cc of local anesthetic solution (Figure 7).

INFERIOR ALVEOLAR NERVE BLOCK: INTRAORAL

Almost every person who has been to a dentist has had the inferior alveolar nerve block and is aware of its effects, distribution, and duration. This block is technically more difficult to master but is easily learned. The basis of this technique involves the deposition of local anesthetic solution at or near the mandibular foramen on the medial mandibular ramus where the inferior alveolar nerve enters the mandible (Figure 8).

With this technique, the patient sits upright and the surgeon places the index finger on the posterior ramus and the thumb in the coronoid notch on the anterior mandibular ramus (Figure 8). A 1.5-in 27-gauge needle is then directed to the medial mandibular ramus at the level of the cusps of the upper second molar, and the needle is advanced halfway between the thumb and index finger of the other hand that is grasping the mandible. An injection of 2 cc of 2% lidocaine, 1:100,000 epinephrine is then administered in a pumping motion to improve the chances of anesthetic solution contacting the nerve and foramen. The needle can be slightly bent to negotiate the sometimes outward curvature of the mandibular ramus. The surgeon should first aspirate to avoid intravascular injection. Anesthesia from

this block may not begin for 5 to 10 minutes following the injection.

Proficiency in this blocking technique requires practice, but it is very useful in cosmetic facial procedures. In addition, the ipsilateral tongue is usually anesthetized with this block. The area anesthetized includes the lower teeth and gums, the chin, and skin on the lateral chin. The inferior alveolar nerve block frequently includes the mylohyoid nerve. In some patients the mylohyoid nerve branches above the area of the inferior alveolar injection and requires a specific mylohyoid nerve block for complete anesthesia as outlined previously (Figure 8).

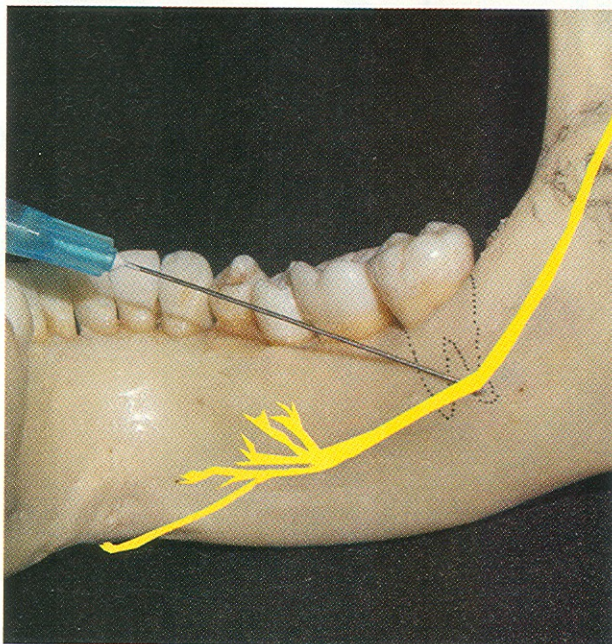


Figure 7. The mylohyoid nerve may innervate portions of the chin, thus rendering a mental nerve block ineffective. The mylohyoid nerve can be blocked by injecting local anesthetic solution at the base of the roots of the second molar.

Anesthetic Techniques for the Lower Face

is asked to open and close the mouth gently so the operator can identify and palpate the sigmoid notch.¹ This is the area between the mandibular condyle and the coronoid process (Figure 9). This notch is located about 25 mm anterior to the tragus. If one places a finger 25 mm anterior to the tragus and opens and closes the jaw, the mandibular condyle can be palpated with the jaw open. When the jaw is closed, the finger will be over the sigmoid notch. A 22-gauge 8-cm needle is inserted in the midpoint of the notch and directed at a slightly cephalic and medial angle through the notch until the lateral pterygoid plate is contacted (1 in Figure 9). This is usually at a depth of approximately 4.5 to 5.0 cm. Spinal needles frequently have measuring stops that can be adjusted to the position of original contact of the pterygoid plate. The needle is then withdrawn to a subcutaneous position and carefully "walked off" the posterior border of the pterygoid plate (arrows in Figure 9) in a horizontal plane until the needle no longer touches the plate and is posterior to it. The needle depth should be the same as the distance on the needle stop marker when the pterygoid plate was originally contacted. The needle should not be advanced more than 0.5 cm past the depth of the pterygoid plate because the superior constrictor muscle of the pharynx can be pierced easily.¹ When the needle is in the appropriate position,

5 cc of local anesthetic solution can be administered. The area anesthetized is the same as described in the section on the intraoral approach. Complications include hematoma formation and subarachnoid injection.² Again, this block should be learned in a proctored situation and not be attempted by novice injectors.

COMMENT

The ability to obtain profound anesthesia of the lower face is a valuable adjunct to a variety of cosmetic facial procedures as well as a variety of other facial procedures such as trauma and pathology.

Part V of this series will describe local anesthetic blocks and infiltration techniques to anesthetize the scalp, ear, neck, and cervical plexus as well as summarize the nerves and sensory dermatomes related to the anesthetic techniques described in this series.

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