# Management of Paresthesia After Dental Local Anesthesia by Patricia L. Blanton, DDS, MS, PhD

# EDIC CLINICAL DENTISTRY ADVISOR | 2021

#### **GENERAL CONSIDERATIONS**

- Paresthesia, persistent anesthesia, is an altered sensation manifesting most often as "numbness"
- Paresthesia can present as pain— a phenomenon known as dysesthesia
- Occurrence of paresthesia is infrequent but a potentially compensable complication
- Consent for the use of local anesthetic must be considered and annotated
- Paresthesia most often occurs within hours subsequent a procedure and could be the first indication of an unanticipated complication
- The anesthetic agents most commonly discussed with regard to paresthesia are articaine (4%) and prilocaine (4%)
- · Most paresthesia resolves within weeks to months subsequent the event
- Paresthesia that persists for more than 9 months is usually considered permanent
- Key to successful management is early recognition and appropriate documentation of the affected area to include judiciously mapping the area
- Persistent paresthesia beyond 6 to 8 weeks should be referred to an oral and maxillofacial surgeon for consultation

## ETIOLOGY OF PARESTHESIA IS GENERALLY ATTRIBUTED TO ONE OF THE FOLLOWING MECHANISMS

- Mechanical trauma—related to surgical technique and/or a consequence of a direct needle injury to the nerve involved
- Chemical trauma— related to anesthetic agent toxicity and/or higher concentration of anesthetic solution

## NERVES MOST COMMONLY INVOLVED

- Inferior Alveolar Nerve
- Lingual Nerve
- Mental Nerve

Note: Tongue paresthesia followed by lip paresthesia are the most common sites of involvement

Sequalae of nerve injury include:

- Inferior Alveolar Nerve { trismus, numbness of the lower lip, neuropathic pain}
- Lingual Nerve {trismus, numbness of the tongue, diminished sense of taste, reduced salivation, frequent tongue biting, neuropathic pain, and speech impairment}
- Mental Nerve {numbness of the chin, lip biting, and neuropathic pain}

#### **RISK FACTORS**

- Incomplete knowledge of the anatomy of the pterygomandibular fossa to include the relative positions of the constituent arteries, nerves, veins and the contiguous muscles
- Inappropriate selection of armamentaria for deploying infiltration techniques versus block injection protocol
- Inappropriate escalation of the anesthetic agent without adjusting for the particular patient or planned procedure



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## **PREVENTION/RISK MITIGATION STRATEGIES**

- Commit to refamiliarization with the intricate anatomy of the area to include the following: o The location and trajectory of the inferior alveolar nerve, the lingual nerve, the mental foramen, and recognized anatomical variations in the positioning of these nerves
  - o Recall the rich vascularity of the pterygomandibular fossa thereby avoiding hematoma formation and the risk of a life threatening arterial bleed
  - o Visualize the positions of the pterygoid, masseter and temporalis muscles to avoid intramuscular injection which increases the risks of trismus and the possibility of needle breakage
- Select the appropriate needle gauge and length for a block injection (25-27 gauge, long) and use a
  new syringe/needle for additional anesthetic efforts and attempts
  o Do not bend the needle—the needle already deflects when it engages the soft tissues
  o Do not insert to the hub of the needle
- Calculate the anesthetic agent dosage in relation to the patient's known anesthetic history, the limits
  of the informed consent and the planned treatment
  o Adjust for anesthetic agent concentration 4% versus 2%
  o Consider the effects of other medications on toxicity calculations
- Adhere to a disciplined follow- up protocol for every patient and reconsider the implications of informed consent as it relates to anesthesia
- In the event of persistent paresthesia, you should:

   Reevaluate the patient at regular intervals
   Map, measure, and document (photographs) the numb area to determine relevant changes
   Consider referral to a specialist

# COMMON PRESENTATIONS AND COMPLAINTS WITH PARESTHESIA

- Prolonged numbness o Tongue numbness o Lip numbness
- Burning sensation
- Tingling sensation
- Pain
- Eye complications
- Bruising
- Taste changes
- Dry mouth
- Repeated tongue biting/burning
- Drooling

#### REPORTED INCIDENCE OF DENTAL POST INJECTION NERVE INJURY

- {1:26,762 to 1:160,571}
- 0.12% experience permanent injury {reportedly associated with 34% to 70 % in creased incidence of neuropathic pain}
- Reporting frequency has increased



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