An Injection Procedure for the Child Dental Patient

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INTRODUCTION

The control of pain during dental procedures is one of the most important factors in child management. Local anesthetics provide the best and safest method to accomplish pain control during routine restorative and surgical procedures.

As a result of using a local anesthetic on his child patients, the dentist can work rapidly and more efficiently, with less mental and physical fatigue to himself, his assistant, and his patient. He need not be constantly on guard for sudden movements caused by pain nor overly concerned that he is hurting the child. Generally, for restorative procedures, ideal results can be obtained in less time because of reduced patient discomfort and better patient cooperation. Thus, the dentist will not tend to stop before he has completed a cavity preparation for fear of further hurting the child.

It is true that some restorative procedures can be performed without the use of a local anesthetic; but it is the authors' belief that in the majority of cases, a local anesthetic is indicated for the benefit of the child as well as the dental personnel.

PATIENT ACCEPTANCE

One reason often used by dentists reluctant to use a local anesthetic is that patients do not like injections. How many items in a dental

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office do patients like? If only this criterion were used, very little would be accomplished. There is no doubt that our children live in a needle conscious world; therefore, it is the purpose of this paper to describe a method for injecting a local anesthetic which is acceptable to both the child and the dentist. If the injection is properly administered, the benefits gained will far exceed the slight physical or emotional trauma experienced by the child.

ARMAMENTARIUM

The following items should be included in the local anesthetic armamentarium:

- aspiring syringe
- disposable needle
- topical anesthetic
- cotton rolls
- 2" x 2" gauze sponges
- cotton applicators
- mouth prop

Aspirating Syringe

It is important to use an aspirating syringe to prevent intravascular injection of the anesthetic solution, which might cause undesirable reactions because of stimulation or depression of the brain centers.\(^1\) Of equal importance, if the anesthetic solution is deposited in a blood vessel, the area, in fact, will not be anesthetized, and the operator will have "missed" the injection.

Several different aspirating syringes are available, and they should be used according to the manufacturer’s directions (Fig. 1).

It is not difficult to use an aspirating syringe, nor is it a time consuming procedure. When the needle has been inserted into the tissues to

![Figure 1](image1.png)

**Figure 1.** An aspirating syringe. The harpoon, when correctly engaged in the rubber piston of the carpule, enables aspiration to be performed. The assistant should be sure that the syringe is ready for the injection by engaging the harpoon and expressing some solution.

![Figure 2](image2.png)

**Figure 2.** Aspirated blood in an anesthetic carpule.

the desired depth, the piston rod which is engaged in the rubber piston should be retracted. This movement creates a negative pressure in the carpule, and if the needle point is in a vessel, blood will be withdrawn and observed in the carpule (Fig. 2). Should this occur, the needle should be withdrawn slightly and inserted to a deeper point and aspiration repeated. If no more blood is aspirated, it may be assumed that the needle point is not in a vessel and the anesthetic solution may be slowly injected.

Observance of aspirated blood also may mean that blood is present in the tissues as a result of soft tissue damage with subsequent capillary hemorrhage or seepage from punctured blood vessels. It is best to assume the needle is in a vessel and to locate a different point for injection of the anesthetic agent.

Disposable Needle

Even with the most diligent care it is very unlikely that a needle can be cleansed of all tissue particles and mucoid materials after it has been used. Thus, if the needle is used again, it is possible that these materials might be injected into the next patient along with the anesthetic agent. The prevention of transmitting serum hepatitis from patient to patient is reason enough to use a needle once only. Even so, there are a few additional reasons to consider.

A disposable needle is sharp and can be inserted through the mucous membrane and deeper soft tissues quite readily. This is an important factor to consider for patient management. In fact one paper advocates a—"new sharp needle . . . knowledge of anatomy . . . deft technique instead of a topical anesthetic." It also seems reasonable to assume that the danger of needle breakage is minimal since the needle has not been subjected to previous mechanical stresses of injection and heat from sterilizing.

Efficiency is another factor to be considered. It is important to carefully clean and sterilize non-disposable needles after use. This takes a certain amount of time that might more profitably be used for other important activities. It follows, then, that disposable needles are "time-savers" because they require less time and attention.

Although 27–30 gauge needles have been advocated because they penetrate tissues more easily than larger needles, a 25 gauge needle is recommended because it has the smallest lumen that may be used to efficiently aspirate blood and tissue fluids and is less likely to be deflected from its path of insertion.

A one-inch needle is of sufficient length for local anesthetic injections in young children (Fig. 3). This is probably the least of the factors

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* Using a carpule of anesthetic solution on more than one patient may also contribute to the transmission of serum hepatitis.
to consider when selecting appropriate needles for restorative and surgical procedures.

**Topical Anesthetic**

Topical anesthetics, if used properly, produce surface anesthesia of the mucous membranes and reduce or eliminate the discomfort of needle penetration. This feature is of particular importance when the palatal or mucolabial tissues in the anterior maxillary and mandibular areas are to be anesthetized.

However, with the exception of the aforesaid regions, there are occasions when it is far more judicious to proceed with the local anesthetic injection without the benefit of topical anesthesia. This course of action is particularly recommended for those patients in which undesirable behavior may be produced because of the taste or numbing effect of the topical anesthetic agent. This frequently occurs when the inferior alveolar-lingual nerves are to be anesthetized in the 2- or 3-year-old child. Older children and children with mild dispositions seem to accept the topical anesthetic more readily after a simple explanation of its purpose.

A topical anesthetic paste is most suitable. It is quite easy to apply and, if the injection site has been wiped dry with a gauze sponge before it is applied, the paste usually will remain in the area of application. To date no undesirable effects, such as postapplication sloughing of tissue, have been produced by the anesthetic paste.

A small amount of paste may be applied with a cotton applicator at the injection sites for the inferior alveolar-lingual nerve block and the palatal injections. The paste is more satisfactorily applied with cotton rolls to the mucolabial areas because the rolls conform readily to the anatomy of these areas and may be held in place by the cheeks or lips; also, the paste may be applied to more tissue areas at one time.

The paste should remain in contact with the injection site mucous membrane for two or three minutes to ensure profound surface anesthesia. Most dissatisfaction with topical anesthetics results from prematurely injecting the tissues.

* Xylocaine ointment 5%, flavored; Astra Pharmaceutical Products, Inc., Worcester, Massachusetts.
After the applicator or cotton rolls are removed, the child should rinse his mouth to remove the excessive amount of saliva stimulated by the taste of the paste and the manipulation of the tissues. This activity also serves as a distraction while the dentist prepares to administer the local anesthetic.

Local Anesthetics

Most dentists routinely use one or two local anesthetic agents for restorative and surgical procedures. Habit, lack of previous problems, or the high level of success with a given anesthetic agent determine its continued use. This rationale appears to be acceptable, except for those occasions when different agents are necessary either because of suspected allergies to the favorite agent or because an agent of different duration is needed.

Local anesthetics used for dental procedures fall into four classes. This enables the dentist to have some latitude in selecting a suitable agent for particular occasions when necessary. Every dentist should be familiar with the local anesthetic(s) he uses; particularly the maximum allowable dosages for the age and size of the patient and the potential undesirable effects of the agent.*

Information regarding local anesthetics is provided in the descriptive brochures enclosed with the anesthetics, and additional detailed information may be found in most standard pharmacology textbooks. Accepted Dental Remedies also contains much valuable information about local anesthetic agents.

Mouth Prop

Frequently a dentist has need of a device that may be used to help a patient keep his mouth sufficiently open so that dental treatment may be performed. Cerebral palsied patients, some behavior problems, and children who enjoy napping during dental procedures need this assistance. There are several mouth props available, and of those evaluated, the “scissor” mouth prop* serves the widest variety of situations (Fig. 4). In most instances such a statement as, “I want you to rest your teeth against this” will be sufficient to explain its function.

Special care should be taken to see that no soft tissues are compressed between the teeth and the mouth prop when it is inserted. The prop should be placed on the posterior teeth to prevent the extraction or loosening of any teeth due to biting pressure.

With few exceptions the prop has to be held in position by the dental assistant; otherwise it may be displaced by the patient’s tongue. This, in fact, means that the assistant will not be able to perform her regular activities; nevertheless, the accomplishments that can be

Figure 4. The Molt mouth gag is used to keep the mouth open during the mandibular block injection. Arrow points to the assistant’s hand, which must maintain posterior pressure on the handle to insure retention of the mouth prop.

achieved while working with this device more than compensate for this loss of routine assistance.

EMERGENCY SUPPORT

Should a patient experience any unfavorable reaction to a local anesthetic, the dentist must be able to provide immediate supportive emergency treatment until medical assistance is secured. It is most important that an unobstructed airway be maintained and oxygen therapy provided for these patients in distress. Therefore, every dentist should have an oxygen resuscitation unit available for immediate use.

NERVE SUPPLY OF THE TEETH

A chart of nerves and their innervations (Table 1) and a chart listing the nerves to be anesthetized for restorative and surgical procedures (Table 2) are provided as guides for obtaining profound dental anesthesia.

Several papers describe in detail the anatomic sites at which the anesthetic agent should be deposited. These papers are recommended as sources for additional information.5,5–10

With a knowledge of the innervation of the teeth and their investing soft tissues, profound anesthesia should be obtained routinely. In most instances, when a quadrant has been anesthetized for restorative or surgical procedures, one carpule of anesthetic solution (approximately 2.0 cc.) should suffice. If the patient still experiences pain, the dentist should stop and evaluate the situation. It is extremely important to give the patient the benefit of any doubt. Continuing the procedure under unfavorable circumstances might only contribute to the initiation of a behavior
Table 1. Nerves and Areas Innervated

<table>
<thead>
<tr>
<th>Nerve</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inferior alveolar n.</td>
<td>Mandibular teeth to midline. Frequently, the central incisor and its investing labial soft tissues are innervated by fibers of the opposite inferior alveolar nerve.</td>
</tr>
<tr>
<td>Lingual n.</td>
<td>Lingual investing soft tissues to midline and anterior 2/3 of tongue.</td>
</tr>
<tr>
<td>Long buccal n.</td>
<td>Mucosa of the cheek and the buccal investing soft tissues of the posterior teeth and a portion of the labial investing soft tissues of the canine.</td>
</tr>
<tr>
<td>Posterior superior alveolar n. (zygomatic)</td>
<td>Maxillary permanent and primary molars and their buccal investing soft tissues.</td>
</tr>
<tr>
<td>Middle superior alveolar n.</td>
<td>Mesiobuccal root of the first permanent molar, primary molars, premolars, the buccal investing soft tissues of these teeth as well as a part of the labial investing soft tissues of the canine. This nerve is frequently missing, and, in such instances, the posterior superior alveolar nerve is the nerve supply for these structures.</td>
</tr>
<tr>
<td>Anterior superior alveolar n.</td>
<td>Incisors and canine and their labial investing soft tissues.</td>
</tr>
<tr>
<td>Anterior palatine n.</td>
<td>Palatal investing soft tissues of the primary and permanent molars and premolars and a portion of the palatal investing soft tissues of the canine.</td>
</tr>
<tr>
<td>Nasopalatine n.</td>
<td>Palatal investing soft tissues of the incisors and a portion of the palatal investing soft tissues of the canine. Contributes to the innervation of the central and lateral incisors.</td>
</tr>
</tbody>
</table>

Problem in the child or extreme unhappiness in an older patient. It behooves the dentist to consider the following and then act accordingly:

1. The patient cannot distinguish between pressure and pain—in these instances, an additional amount of anesthetic agent and encouragement are needed.
2. Inadequate duration of the anesthetic agents—this may mean that the amount injected was inadequate, was injected into a blood vessel, or an anesthetic agent of longer duration is needed.
3. Ineffective anesthetic agents—this might occur depending on the shelf-life of the agent. This should be considered. Maybe a new supply is indicated.
4. Aberrant nerve supply—one study has shown the absence of the middle superior alveolar nerve (refer to Table 1).
5. The anesthetic agent might not provide an optimal effect—possible that the agent may be metabolized quite rapidly prior to completing the procedure. May be necessary to select another agent of longer duration.

Again, it is strongly emphasized that a knowledge of the anesthetic agent is necessary. This means that the dentist should know the optimal and maximal allowable dosage as well as the duration of effect of each anesthetic agent he uses. Most agents produce the desired effects at a dosage far below the maximum allowed.
<table>
<thead>
<tr>
<th>QUADRANT</th>
<th>TEETH</th>
<th>RESTORATIVE PROCEDURES</th>
<th>SURGICAL PROCEDURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st permanent molar</td>
<td>inferior alveolar lingual long buccal¹</td>
<td>inferior alveolar lingual long buccal</td>
<td></td>
</tr>
<tr>
<td>2nd primary molar</td>
<td>inferior alveolar lingual long buccal¹</td>
<td>inferior alveolar lingual long buccal</td>
<td></td>
</tr>
<tr>
<td>Mandibular</td>
<td>1st primary molar</td>
<td>inferior alveolar lingual long buccal¹</td>
<td>inferior alveolar lingual long buccal</td>
</tr>
<tr>
<td>Canine</td>
<td>inferior alveolar lingual</td>
<td>inferior alveolar lingual long buccal</td>
<td></td>
</tr>
<tr>
<td>Lateral</td>
<td>inferior alveolar lingual fibers from opposite inferior alveolar²</td>
<td>inferior alveolar lingual fibers from opposite inferior alveolar²</td>
<td></td>
</tr>
<tr>
<td>Central</td>
<td>inferior alveolar lingual fibers from opposite inferior alveolar²</td>
<td>inferior alveolar lingual fibers from opposite inferior alveolar²</td>
<td></td>
</tr>
<tr>
<td>1st permanent molar</td>
<td>posterior superior alveolar middle superior alveolar anterior palatine³</td>
<td>posterior superior alveolar middle superior alveolar anterior palatine</td>
<td></td>
</tr>
<tr>
<td>2nd primary molar</td>
<td>posterior superior alveolar middle superior alveolar anterior palatine³</td>
<td>posterior superior alveolar middle superior alveolar anterior palatine</td>
<td></td>
</tr>
<tr>
<td>Maxillary</td>
<td>1st primary molar</td>
<td>posterior superior alveolar middle superior alveolar anterior palatine³</td>
<td>posterior superior alveolar middle superior alveolar anterior palatine</td>
</tr>
<tr>
<td>Canine</td>
<td>anterior superior alveolar anterior palatine³ nasopalatine⁴</td>
<td>anterior superior alveolar anterior palatine nasopalatine⁴</td>
<td></td>
</tr>
<tr>
<td>Lateral</td>
<td>anterior superior alveolar nasopalatine⁴</td>
<td>anterior superior alveolar nasopalatine⁴</td>
<td></td>
</tr>
<tr>
<td>Central</td>
<td>anterior superior alveolar nasopalatine⁴</td>
<td>anterior superior alveolar nasopalatine⁴</td>
<td></td>
</tr>
</tbody>
</table>

¹ Often necessary when a rubber dam clamp or matrix band impinges on the buccal soft tissues or when gingival retraction is necessary for restorative procedures (e.g., Cl. V restoration).

² Labial infiltration of anastomosing branches of opposite inferior alveolar nerve is necessary occasionally to complete anesthesia of the tooth.

³ Same as #1, except lingual, not buccal, soft tissues are anesthetized. Injection may be modified by simply injecting into the free gingival margin to anesthetize the terminal ends of the nerve.

⁴ Often necessary to completely anesthetize the tooth and the palatal investing soft tissues.
PSYCHOLOGIC PREPARATION

It is important psychologically to prepare the child to receive a local anesthetic. The choice of words the dentist, his assistant, and parent use are of the utmost importance. It should be explained to the child, in terms he can understand and with terms that do not upset him, why the anesthetic is used, what it is used for, and the effect it will have on him. Many dentists have pet terms they use with satisfaction. For example, the following comments might be used: “I’m going to paint some sleepy medicine on your tooth;” or “I’m going to squirt some sleepy medicine on your tooth so that your tooth, but not you, will become sleepy and will be numb and feel funny.” It is important to emphasize that only the tooth will be put to sleep, particularly if the child has recently had a general anesthetic and is fearful of being put to sleep again. The child may ask, “What is numb?” This word means nothing to a very young child and sometimes it can be explained by saying, “Do you remember when you sat on your foot and your foot went to sleep? Well this is sort of what being numb feels like.” Usually this explanation is sufficient.

All of us are asked, “Will it hurt?” A good answer to this question would be: “It might feel like a teeny, tiny pinch;” then lightly pinch the child’s arm. Words like “sting” and “bite” should not be used because many children have been stung by a bee or bitten by bugs, mosquitoes, or dogs with unpleasant results. These terms should be avoided for fear of producing undesirable behavioral responses.

Most agree that the work “shot” or “injection” should never be used in conversation with any of our patients or parents, even though they may know exactly what the procedure entails and use the terms themselves. But we ask ourselves, “What do we do when a child comes in and says, ‘Are you going to give me a shot?’” It may be their first experience with a dentist, or it may be their tenth. The child may be three years old or thirteen; nevertheless, these questions must be answered tactfully and truthfully. We know we cannot lie to a child about pain and get away with it. If a child inquires about a “shot,” we might say, “Yes, if that is what you call it, but I’m really going to put some sleepy medicine on your tooth to make your tooth more comfortable—not shoot you.” Questions of this nature are important and deserve careful explanations; each of us must answer these questions, to the best of our ability, using words the child will understand.

Another question often asked when the dentist is careless about concealing the syringe is, “Can I see the end of it?” (meaning the needle). This question can be handled successfully, in most situations, by telling the child that the syringe is clean, has no germs on it, and that maybe he can see it when the treatment is completed. This usually satisfies the child, and by the end of the treatment, the question is forgotten. If we determine that it is not desirable to let the child see the needle,
it is up to us to come up with an explanation like, "I'm sorry but we put it away," or remove the needle and show only the syringe, or show the child the syringe with the protective cover on the needle.

It is not unusual for a child to be extremely apprehensive before receiving a local anesthetic. In fact, many dentists claim that it is worse giving the child a local anesthetic than it is to go ahead and treat him without it.

Most of us will agree that the majority of children are basically well behaved. Children may cooperate with us either because of fear or because they like and respect us and believe we are their friends and will help them. In either case, these children will sit still and cooperate during restorative procedures. However, sitting still and cooperating do not necessarily mean that the child is free from the pain or discomfort produced by the procedure.

Frequently a dentist or dental assistant will use the local anesthetic as a threat. They may say, "If you don't sit still, I am going to give you a shot," What might a child do in these circumstances? In most cases, he will sit still and be hurt rather than get the "shot." Statements of this nature are threats to the child and should be avoided. It is this type of statement that may gain us temporary patient cooperation but could prevent this child from becoming a good adult patient.

When administering a local anesthetic, do not spend too much time explaining what it is and why it is necessary. Instead, briefly explain what is to be done and do it.

For the child who has never had a local anesthetic, the soft tissue sensations produced by the anesthetic should be explained, and the child should be allowed to look in a mirror following the injection to see that his face is not swollen or distorted, as it sometimes feels after the onset of anesthesia.

The necessary local anesthetic armamentarium should be kept out of sight. At no time should this equipment be placed in view on the bracket table in front of the child. Rather, it should be placed behind the patient where it is easily accessible to the dental assistant or dentist. Many children know they are going to be injected, but as long as they can't see the syringe, they seem to be much happier.

The dentist should exhibit confidence and have a positive attitude in his approach to the child. He must have confidence in his ability to perform the injection, and he must be firm and pleasant in order to prevent the child from becoming upset. Many times, with a difficult child, the dentist may be more upset than the child; between the two of them, a nearly impossible situation can develop.

It is extremely important that the dentist not show any disturbing facial expressions, because the child, in most cases, will look at the dentist's face during the procedure. Any uncertainty reflected in the dentist's face could upset the child.
It is equally important that the dental assistant be positive in her attitude and display confidence in the dentist. It is tempting for some assistants to display undue sympathy at these times, and this reaction may tend to upset the child or incite misbehavior. This is particularly true of an assistant who is fearful of injections herself. It is also helpful if she understands the various responses a child might display and, in understanding these responses, be of benefit to the child by exhibiting favorable facial expressions and voice control. With the help of the dental assistant, the injection procedure should proceed as a smooth, rapid act which is uneventful for either the child or the dentist. If the child does become upset, it is important to continue with the injection procedure, *slowly* injecting the desired amount of anesthetic solution. Do not stop! Should this happen, it may be most difficult to begin again.

It is mandatory to explain to the parent before beginning dental treatment that a local anesthetic is to be used. This is important because the parent might have experienced previous dental treatment without a local anesthetic, except for surgery, and might not understand why it is to be used for restorative procedures.

**PHYSICAL PREPARATION**

**Chair Position**

It is important to consider chair position when administering a local anesthetic. The position of the child’s head is important for two reasons: 1. To allow easy access to the injection site. 2. To keep the child’s eyes in such a position that it is very difficult for him to see the syringe (Fig. 5,A).

It is equally important to tip the chair back far enough so that it would be difficult for the child to sit up or lunge forward during the injection (Fig. 5,B). If the chair is positioned too far forward, it would be difficult to position the head properly, and the child would have more freedom of movement. With a difficult child, this could mean the difference between success and failure.

With many small children, it is necessary to use a chair insert to obtain the proper seating position (Fig. 5,C and D). In addition, the child should be instructed to place his hands on his lap so the assistant can observe them and be prepared to restrain them if he should react and attempt to grab the dentist’s hands.

**Preparation of the Injection Site**

The injection site should be wiped clean with a sterile gauze immediately before the injection. Although antiseptics are frequently recommended, they usually are ineffective. The injection site, because of salivary stimulation, is usually recontaminated after an antiseptic solution
Figure 5, A–D. A, Incorrect chair position. Difficult to position the child’s head to inject any area and at the same time conceal syringe. The child may lunge forward easily. B, Correct chair position. The child is tipped back and injections may be performed more easily. It is difficult for the child readily to move upward or forward and he may be restrained easily. C, Incorrect chair position with insert. The child is able to lunge forward. D, This may simply be corrected by tipping the chair back. The insert contributes to the better utilization of an adult dental chair for small patients.

has been used. The important point is to wipe the area clean with a dry sterile sponge before inserting the needle.

Position of the Dental Assistant and Dentist

During the injection, the dentist and the assistant should be positioned properly so that the syringe may be exchanged easily. The dental assistant should be on the opposite side of the chair from the dentist and to the side or slightly behind the child. It is important that she be able to hand the syringe to the dentist from behind either side of the child’s head and then move into a position from which she can extend her left arm over the child’s arms. She should not have contact with the child unless he tries to grab the dentist’s hands, or if, from previous experience, this contact is indicated (Fig. 6,A–D).

During the injection, the assistant must be alert in order to anticipate abrupt movements of the child. Often at the instant the needle

* Child’s Seat, Cascade M/D Products, Inc., Ashland, Oregon.
Figure 6, A–D. The assistant's left arm extends across the child but does not contact his arms. The syringe is passed from behind the patient on the side the injection is to be given. It should be kept below the child's visual level (A). Note: the child is looking at the dentist. Some dentists prefer to have the assistant remove the protective covering from the needle (B); others prefer to remove it themselves (C). All is well during the mandibular block injection (D).

penetrates the soft tissues, the child will thrust his arms up, and it is at this time the assistant can block his attempt if her arms have been positioned properly. Quick, evasive movements of the child are potentially dangerous to his welfare because of the possibility that the needle may be inserted into the lip, nose, cheek, or even the eye. With some handicapped children and management problems, it may be necessary for the assistant to hold the child's head steady with her other hand.

At no time should the assistant talk with the child during the injection procedure unless the dentist has instructed her to do so, because it is important that the child listen to only one set of commands. These commands should be short and to the point.

Approach to the Injection

It is recommended that the operator stand when giving the injection because he can more easily use his hands, arms, and body to help control the child.
The dentist should stand in a right-front position when anesthetizing the mandibular and maxillary right quadrants and in a right-behind position when anesthetizing the mandibular and maxillary left and the maxillary anterior quadrants. If necessary, the patient’s head can be encircled with the arm and firm pressure applied when the maxillary left posterior, mandibular left, or maxillary anterior segments are being anesthetized (Fig. 7 A-C). It is important to note that pressure firmly but gently applied to counteract deliberate directional movements of the child is preferred to the injection of the anesthetic solution in an undesired location.

As soon as the tip of the needle penetrates the tissues, a small amount of anesthetic solution should be slowly and continuously expressed ahead of the needle as it is directed to the location of the nerve to be anesthetized. At the location where the solution is to be deposited, the operator should aspirate in order to determine the position of the needle point. If no blood is observed in the carpule, the remaining

Figure 7, A-C. A & B, Position of the left (control) forearm on the patient’s head during the maxillary anterior and left posterior injections. The fingers on the right (injection) hand contact the chin or face to provide stability in case the child should move suddenly. C, Position of the dentist’s left (control) hand for a left mandibular block injection. Note the position of the dentist’s forearm against the child’s forehead.
Figure 8, A–B. There is no acknowledged therapeutic benefit to be gained by thrusting the syringe and exposed needle into the child's sight (A). In fact, the child might view this "action" from a somewhat magnified point of view (B).

A predetermined amount of anesthetic solution may then be slowly deposited. Often, there is a temptation to hurry rapidly through this phase of the injection procedure, but this is absolutely unnecessary. Management of the child does not depend on rapid injection; in fact, the likelihood of creating an adverse situation is enhanced because of the pain that results from the pressure created by a sudden large amount of fluid expressed into the tissues.

The assistant should be alert, even if things appear to be proceeding smoothly. Conversation during the actual injection must be geared to the level of the child's understanding. Some men continuously chatter; others say very little. It is believed that the child should be instructed to keep his eyes open and possibly focus on some object. Often one can tell a great deal about a child's reactions by watching his eyes; it is also more difficult for the child to imagine wild things happening when his eyes are open.

Figure 9. A "sneak"!
Every benefit gained from the dentist's careful preinjection approach is lost when the left (control) hand is removed from the child's mouth before the syringe is out of sight.
Immediately after the injection, it is important that the dentist maintain control of the child’s head while he hands the syringe to the assistant and the syringe is placed out of sight. At this point many dentists fail to maintain proper precautions in keeping the needle from view, and they inadvertently hold it in front of the child or allow the child to see it as it is passed to the assistant (Fig. 8, A and B). The “sneak” look can happen before one is aware of it (Fig. 9).

Immediate Postinjection Instructions

As soon as the syringe has been secured, the child should be instructed to rinse his mouth, because it is very difficult for anyone to cry with a mouth full of water; and this immediately changes the aura of concentration. By the time he has finished rinsing, he has stopped crying. Once again, discuss the “funny feeling” and caution the child about biting his tongue and lips.

POSTOPERATIVE INSTRUCTIONS

Most postoperative traumatic soft tissue injuries occur because the dentist fails to instruct both the child and the parent about how to prevent them. Because of anesthesia in these tissues it is often quite tempting to the child to test for sensation simply by chewing or biting them. Most of us have experienced these too-frequent adverse consequences (Fig. 10).

Children who are able to understand the possible results of biting these tissues generally follow simple instructions and avoid injury. They should be informed that the anesthetic effect will gradually disappear and advised not to chew or bite the tissues. Perhaps the young child should have an object, such as a cotton roll, placed between the teeth until the tissue sensations return to normal.12 In any case, the parent

Figure 10. Postanesthetic traumatic injury of the lip which often may be avoided if the patient and parent are forewarned.
should be instructed to remind the child not to bite or chew the lips, tongue, or cheeks.

Since the injection procedure is not particularly popular with young patients, it is necessary to enlist the parents’ assistance to help stimulate a positive attitude in the child regarding future dental appointments. This should be discussed with the parents, and they should be requested to support your actions by simply being honest with the child if and when the local anesthetic procedure is discussed in the home. Perhaps many of the undesirable responses of the child simply reflect parental attitudes or opinions. In many instances, once communication is established between the dentist and the parent and the latter understands the important role of local anesthesia in dentistry, adverse responses of the child gradually disappear.

REFERENCES