

## CASE REPORT



## An Unusual Pattern of Self-inflicted Injury after Dental Local Anesthesia: A Report of 2 Cases

Vikas Bendgude, Basavaprabhu Akkareddy, Bhushan Arun Jawale, Shantanu Chaudhary

### ABSTRACT

The local anesthetics used in dentistry are considered very safe and have a low incidence of adverse reactions associated with their administration. A frequent finding by clinicians engaged in treatment of children is, following a dental appointment requiring local anesthesia to treat dental disease, a child may bite his or her lip out of curiosity associated with the unfamiliar sensation of being numb or inadvertently because no pain is felt. We describe two unusual case reports of postanesthetic self-inflicted injuries in this article. The first being the ulceration due to lip biting and the scratch injury on the chin after inferior alveolar nerve block. The second report presents an unusual scratch injury on the ala of nose following maxillary infiltration anesthesia. The common treatment modalities and the possible methods of prevention are discussed.

**Keywords:** Inferior alveolar nerve block, Lip biting, Ulceration on lower lip, Complication of local anesthesia, Scratch injury.

**How to cite this article:** Bendgude V, Akkareddy B, Jawale BA, Chaudhary S. An Unusual Pattern of Self-inflicted Injury after Dental Local Anesthesia: A Report of 2 Cases. *J Contemp Dent Pract* 2011;12(5):404-407.

**Source of support:** Nil

**Conflict of interest:** None declared

### INTRODUCTION

The local anesthetics used in dentistry are considered very safe and have a low incidence of adverse reactions associated with their administration. These adverse events may be classified as either systemic or localized. Systemic complications can occur as a result of psychogenic reactions induced by anxiety, toxicity secondary to high levels of the drug in blood, or allergy.<sup>1,2</sup> Localized complications may manifest in a number of ways, especially in young children who do not have the ability to understand the dental team's message about not biting on the soft tissues of the lip, tongue, and cheek while 'numb' after a dental procedure. Thus, their occurrence does not necessarily imply poor technique by the dentist.

Although some dentists use shorter-acting local anesthetics such as plain mepivacaine on children to decrease the duration of postoperative analgesia, the most common local anesthetic used in dentistry is 2% lidocaine with epinephrine 1:100,000.<sup>3,4</sup> However, regardless of the type of local anesthetic used, postoperative soft tissue anesthesia can last several hours.<sup>5</sup> A frequent finding by clinicians engaged in treatment of children is, following a dental appointment requiring local anesthesia to treat dental disease, a child may bite his or her lip out of curiosity associated with the unfamiliar sensation of being numb or inadvertently because no pain is felt.<sup>6-8</sup> Accidental lip biting can also occur during postoperative eating or sleeping. Most dentists instruct caregivers to closely monitor younger dental patients who have received local anesthesia. However, lip biting cannot always be avoided.

However, some unusual complications are also reported in the literature, a classic example reported by R Paul et al suggesting marked pallor of the cheek in the anatomical distribution of the infraorbital nerve, which occurred during the administration of an inferior dental block (IDB).<sup>9</sup> Eulàlia Torrente-Castells et al reported an unique finding of postanesthetic ischemic necrosis of the skin on the right side of the lower lip and chin that was provoked by a spasm of the terminal branches of the inferior alveolar artery.<sup>10</sup>

This article describes two unique previously unreported complication of self-inflicted, injury on chin following inferior alveolar nerve block and injury on ala of nose following buccal infiltration anesthesia.

### CASE REPORT

#### Case 1

A 4-year-old male patient reported with his grandparents to the dental clinic for treatment of carious mandibular right

second primary molar. The tooth was anesthetized with inferior alveolar nerve block for pulp therapy. The treatment was uneventful and the patient was discharged with verbal and written postoperative instructions to the grandparents and patient. Next day the grandparents reported with the child complaining about a large ulcerative lesion on the right side of lower lip and a large scratch injury on the right side of chin (Figs 1 and 2). The history revealed that the grandparents were busy watching television on the previous evening, and the child was left all by himself during which he caused the self-inflicted injury.

On thorough clinical examination following application of local topical anesthetic and the history provided by the grandparents it was diagnosed that the ulcerative lesion of the lower lip and the scratch injury on the chin were because of the numbness caused by the inferior alveolar nerve block. Grandparents were counseled and palliative treatment with antiseptic mouth gel and analgesics was advised. On two weeks follow-up visit it was found that healing was satisfactory.

## Case 2

A 5-year-old male patient reported to the dental clinic for the treatment of badly carious upper left primary canine with no significant medical history. Buccal infiltration anesthesia was given in the upper left quadrant for pulp therapy of upper left primary canine. After the treatment patient was discharged with verbal and written postoperative instructions to the parents and patient. The next morning parents reported back to the clinic with the child having scratch injury on the ala of his nose (Figs 3 and 4). On questioning the parents, they replied that he scratched the nose due to the peculiar feeling of numbness and tingling sensation following the dental appointment. On clinical examination the injury was slightly reddish in appearance, measuring  $2 \times 2$  mm in size. As the lesion was nonpainful and area was maintained clean, a palliative therapy with topical antiseptic was advised. At 10 days recall visit the lesion had a satisfactory healing.



**Fig. 1:** Traumatic ulceration on lower lip and scratch injury on chin



**Fig. 3:** Self-inflicted scratch injury on ala of nose



**Fig. 2:** Close-up view of ulceration on lower lip



**Fig. 4:** Close-up view of scratch injury on ala of nose

## DISCUSSION

Self-inflicted injury is a potential complication of dental treatment involving local anesthesia particularly among children. A branch of the mandibular division of the trigeminal nerve, the inferior alveolar nerve is located bilaterally and is responsible for innervating the mandibular teeth and in addition to periodontal tissues, the anterior two-thirds of the tongue, the buccal mucosa and the lower lip.<sup>11</sup> A prospective study College et al published in 2000 found that 13% of children ages 2 to 18 experienced soft tissue trauma following unilateral or bilateral mandibular nerve block anesthesia. Not surprisingly, the incidence of soft tissue trauma was highest in the youngest age groups—18% among children less than 4 years of age, 16% in children ages 4 to 7, 13% in 8 to 11-year-old children, and 7% in children 12 years of age and older.<sup>12</sup>

To the parents and clinician, self-inflicted injuries following dental treatment using local anesthesia can present as a clinically alarming entity. This may explain why some health professionals have reportedly prescribed systemic antibiotics or ordered surgical incision and drainage procedures to treat these ulcers of nonbacterial origin. While these injuries commonly present with some localized swelling and edema, they are usually not infections and should be treated appropriately.<sup>7</sup>

The clinician needs to establish a protocol on how to diagnose and manage pediatric patients who present with lip biting secondary to dental local anesthesia. In order to make an accurate diagnosis, it is important to take a complete dental history. This includes collecting information on recent dental visits and whether mandibular teeth and soft tissue were anesthetized. Management of self-inflicted injuries following dental anesthesia is limited to palliative care.<sup>4</sup> If the child has bitten his/her cheek, lip or tongue, there will be swelling which may worsen over the next 2 to 3 days. A yellowish, white plaque (soft scab) will develop. This is part of the healing process. The lesion will heal over the next 10 to 14 days. If child complains of pain, he/she may be prescribed analgesics and topical application of local anesthetic gel to the area. Although it is not typically necessary, the literature also suggests that chlorhexidine gluconate (0.12%) can be used to debride the ulcerated soft tissue.<sup>13</sup> No medical or surgical intervention is necessary unless the injury becomes secondarily infected. The first signs of self-inflicted injuries are localized swelling, redness and pain, which are benign and will self-resolve overtime. The additional presence of a systemic fever and generalized malaise indicates infection and should be referred for further evaluation.<sup>5</sup>

Recently, several techniques for providing dental anesthesia without the postoperative numbing effects of mandibular blocks and maxillary infiltrations have been proposed. They include Intrasulcular injection technique—the periodontal syringe, Intraligamentary anesthesia STA system, Erbium lasers and injectable anesthetic reversal agent.<sup>14</sup> On an average, the anesthetic will wear off in approximately two hours after leaving the office. Child should be put on a liquid diet until the anesthetic action has worn off. When the anesthetic begins to wear off the lip or tongue may feel tingly. This is normal, however it may feel awkward to the child if he/she has never had anesthetic before. Assure the child that this is completely normal and that the lip and tooth is ‘waking up’.

## CONCLUSION

Although these kind of complications to local anesthetic are uncommon in dental practice, however they are probably under-reported. These signs and symptoms may be alarming for both the patient and dental practitioner, but reassurance is all that is required as they are self-limiting. The role of the parents or the caregivers during first few hours after the local anesthesia is imperative.

## REFERENCES

1. Lustig JP, Zusman SP. Immediate complications of local anesthetic administered to 1,007 consecutive patients. *J Am Dent Assoc* 1999;130(4):496-99.
2. Bennett RC. Monheim's local anesthesia and pain control in dental practice (7th ed). St Louis, MO: CV Mosby Publishing; 1984.
3. Malamed SF. Basic injection technique in local anesthesia. In: handbook of local anesthesia (5th ed). St Louis, Mo: Mosby; 2004:159-69.
4. McDonald RE, Avery DR, Dean JA. Dentistry for the child and adolescent (8th ed). Mosby; 2004.
5. Pinkham JR, Casamassimo PS, Fields HW, McTigue DJ, Nowak AJ. Pediatric dentistry: Infancy through adolescence (4th ed). Elsevier; 2005.
6. Haas DA. An update on local anesthetics in dentistry. *J Can Dent Assoc* 2002;68:546-51.
7. Donald Chi, Kanellis Michael, Marie-Eve Asselin Elaine Himadi. Lip biting in pediatric dental patients following dental local anesthesia: A case report: *J Pediatr Nurs* December 2008; 23(6) 490-93.
8. Guideline on appropriate use of local anesthesia for pediatric dental patients. *Reference Manual Pediatr Dent* 2005;27:101-06.
9. Paul R, Anand R, Wray P, D'sa S, Brennan PA. An unusual complication of an inferior dental nerve block: A case report. *British Dental Journal* 2009;206(1):9-10.
10. Torrente-Castells Eulàlia, Gargallo-Albiol Jordi, Rodríguez-Baeza Alfonso, Berini-Aytés Leonardo, Gay-Escoda Cosme. Necrosis of the skin of the chin: A possible complication of inferior alveolar nerve block injection. *J Am Dent Assoc* 139(12): 1625-30.

11. Kliegman RM, Behrman RE, Jenson HB, Stanton BF. Nelson textbook of pediatrics (18th ed). Elsevier; 2007. Campus, Vadgaon, Pune-411041, Maharashtra, India, e-mail: vikpedo.com@gmail.com
12. College C, Feigal R, Wandera A, Strange M. Bilateral versus unilateral mandibular block anesthesia in a pediatric population. *Pediatr Dent* 2000;22(6):453-57.
13. Ferretti GA, Brown AT, Raybould TP, Lillich TT. Oral antimicrobial agents—chlorhexidine. *NCI Monogr* 1990;(9):51-55.
14. Margolis FS. The dangers of being numb, June 2010;100(6). dentaleconomics.com

## ABOUT THE AUTHORS

### Vikas Bendgude (Corresponding Author)

Professor and Head, Department of Pedodontics and Preventive Dentistry, Sinhgad Dental College and Hospital, STES

### Basavaprabhu Akkareddy

Reader, Department of Pedodontics and Preventive Dentistry, Sinhgad Dental College and Hospital, Pune, Maharashtra, India

### Bhushan Arun Jawale

Reader, Department of Orthodontics, Sinhgad Dental College and Hospital, Pune, Maharashtra, India

### Shantanu Chaudhary

Professor, Department of Pedodontics, Rural Dental College, Loni Maharashtra, India