Palatal Ulceration: A Complication of Regional Anesthesia of the Oral Cavity — A Case Report

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The technique of regional anesthesia involving buccal or palatal infiltration for both operative and endodontic work is usually free of complications. This technique of administration aims at depositing the anesthetic solution close to the apex of the involved tooth structures. Possible complications include needle breakage, prolonged pain, parathesia, trismus, hematoma, infection, edema, facial nerve paralysis, sloughing of tissues, and post-anesthetic intraoral lesions.

A possible site of soft tissue lesions is the palate. Factors such as the direct effects of the drug being administered, blanching of the tissues during injection, a relatively poor blood supply, and the possibility of reactivating the latent forms of a disease process such as herpes may all serve to promote tissue ischaemia and lead to a lesion.

**CASE REPORT**

A 16-year-old male college student presented to the emergency clinic complaining of severe pain in the palate at the site of an injection received the previous day for dental work. It was determined that he had received a palatal injection the previous day consisting of approximately 2 ml. of 2% lidocaine with 1:100,000 epinephrine in the area of the upper right first molar.

History and examination revealed the patient to be in good health but with poor oral hygiene. He had undergone dental treatment previously without exhibiting any signs of allergy to local anesthetic solutions. There was a temporary dressing of zinc oxide and eugenol in upper right first molar, and the palate was very tender to palpation.

Ulceration of the palate was evident. The main ulcer measured 10mm × 3.5mm, (Fig. 1); was crescent shaped with a smaller lesions mediomesially placed, measuring 7 mm × 4 mm. The center of each ulcer was covered by a grayish necrotic slough. A periapical radiograph revealed no periapical abnormality. A prescription for an anesthetic-antiseptic preparation (Chloraseptic) together with an oral analgesic was prescribed.

A sensitivity test was performed to determine whether this was a delayed type of hypersensitivity reaction to the anesthetic solution. It proved negative (Fig. 2). One week later, the patient reported an improvement in his condition and examination showed the ulcer to have partially healed (Fig. 3). After a period of two weeks, the ulcer had healed completely.

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DISCUSSION:
Modern local anesthetic solutions are relatively non-irritating to tissues with the exception, perhaps, of skeletal muscle; however, ulceration and necrosis after the administration of local anesthetic has been documented.4

Allergic reactions may account for some circum-scribed lesions while others may be derived from the pharmacological effects of the agents used; other lesions might result from physical injury. Rarely, infection of a contaminated solution or the use of a strong topical anesthetic prior to needle penetration may lead to mucosal damage.

Complications following the rapid injection of local anesthetic solutions, particularly those containing a vasoconstrictor, have been reported.1,2,3 Ischemia resulting from incorrectly administered local anesthetic solutions may manifest as tissue necrosis. Vasoconstrictors reduce the supply of oxygen to the injected tissue and promote the build-up of acidic by-products of metabolism. Local anesthetic solutions with vasoconstrictors are adjusted to a lower pH in order to preserve the vasoconstrictors; this, however, accentuates tissue acidity.

Allergic reactions to local anesthetics have been greatly reduced by the development and marketing of the amide local anesthetics, e.g. lidocaine and others. Although hypersensitivity reactions to local anesthetics may develop almost immediately after drug administration, most skin or dermatological reactions do not become manifest until several hours afterwards.

Epithelial desquamation may result from the application of a topical anesthetic agent to gingival tissues for a prolonged period of time. In the hard palate, a sterile abscess may form secondary to prolonged ischaemia resulting from the use of a local anesthetic solution containing a vasoconstrictor.

Other post-anesthetic intraoral lesions may result from recurrent apthous stomatitis and/or herpes simplex which can develop following any traumatic insult to the tissues. Herpes simplex, although most commonly observed extraorally, can develop intraorally on tissues attached to the underlying bone; for example, tissues of the hard palate.

Management of patients with intraoral lesions following the administration of local anesthetic solution is normally very conservative and consists of reassuring the patient and prescribing analgesics and/or topical antiseptic/anesthetic preparations. In many cases healing occurs within ten days of the onset of the lesion. In certain instances, where ulceration has taken a prolonged course, surgical intervention has been deemed necessary.4 An oral protective paste (Orabase® Plain) may also be prescribed.

To minimize the incidence of palatal lesions following the administration of local anesthesia, the following precautions are recommended:

1. Use of a topical anesthetic preparation should be used according to the recommendation of the manufacturer. Application should be limited to 1-2 minutes to maximize the effectiveness and minimize toxicity.

2. Anesthetic solutions containing relatively high concentrations of epinephrine (i.e. 1:50,000; 1:30,000) should be used with caution.

As an alternative, anesthetic solutions not containing a vasoconstrictor, such as 3% mepivacaine, may result in effective palatal anesthetic without soft tissue necrosis.

REFERENCES