

An Unusual Laryngeal Complication Following Inferior Alveolar Nerve Block

SUMMARY

Local anaesthetic administration is the most common procedure that accompanies almost all procedures in dentistry. Some of immediate post-injection local complications are fairly common, whereas some are less frequent and rarely reported. Some complications can be bizarre and difficult to explain. In this cases report, 2 cases of unusual laryngeal complications following inferior alveolar nerve block are presented.

Keywords: IAN Block; Complication; Acute Hoarseness

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CASE REPORT (CR)

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Introduction

Local anaesthetic (LA) administration is the most common procedure in dentistry. Although this procedure accompanies almost all dental procedures, it has many potential risks for the patient⁶. When LA is administered carefully and within recommended dosage limits, they have established an enviable record of safety⁷. Even though some life threatening systemic reactions may occur, most adverse effects or complications are local and temporary.

LA complications can be classified as local or systemic⁷. Local and immediate post-injection, in-the-chair complications, such as needle breakage, pain or burning sensation on injection, penetration of a blood vessel (venous or arterial), haematoma, oedema, tissue blanching, nerve damage, facial nerve paralysis, amaurosis, diplopia and adverse drug interactions (overdose, allergy or idiosyncrasy)⁷ to anaesthetic injections are fairly common⁶, some are less frequent and rarely reported. Such complications can be bizarre and difficult to explain. Especially neurological complications following the administration of a local anaesthetic can be alarming.

There is only 1 case of vagus nerve inhibition reported following dental anesthesia. Including the very

recent ones, some textbooks do not even mention this complication. In this cases report, 2 acute hoarseness and mild dysphagia immediately after local anesthesia administration are presented.

Report of Cases

Case 1

A 33-year-old man had received an inferior alveolar nerve (IAN) block for endodontic treatment of his right mandibular second molar. A few seconds after the injection, hoarseness occurred and he complained of dysphagia and claimed respiration difficulty. He was immediately referred to the Oral and Maxillofacial Surgery Clinic where he was evaluated for laryngeal oedema, bronchospasm and airway obstruction. None was present and the symptoms were diagnosed as complications of the local anesthesia.

The complication was explained to the patient and he was followed-up until the symptoms completely resolved, which lasted approximately 2 hours.

Case 2

A 42-year-old man had had LA injection for the IAN block for endodontic treatment of his right mandibular

first molar. Immediately after the injection, hoarseness occurred but he did not have any other complaints. He was immediately referred to the Oral and Maxillofacial Surgery clinic for further evaluation. The symptom was again diagnosed as LA complication. He completely recovered after approximately 3 hours.

Both patients were clear of any systemic diseases and the injections were performed by using a LA solution of 4% articaine hydrochloride and 1:200.000 epinephrine hydrochloride (Ultracain D-S; Aventis, Istanbul, Turkey) with 50 mm, 27-gauge needles.

Discussion

Complications of IAN blocks have been reported in the literature and during the past decades, some studies have investigated the frequency of immediate complications during the administration of a LA^{3-5,6}.

Neurological complications have been reported as rare complications of local anaesthesia and can be divided into: a) those that arise as a direct result of the procedure itself (IAN block and posterior superior alveolar nerve block); and b) those due to the toxicity of the agents used².

Campbell et al¹ reported the development of Horner's Syndrome, which arose due to penetration of the LA through the lateral pharyngeal and prevertebral spaces, causing blockade of the stellate ganglion. The features of the syndrome include:

- flushing of the face on the same side;
- ptosis of the eyelid;
- vasodilatation of the conjunctiva;
- pupillary constriction; and (occasionally)
- a rash over the neck, face, shoulder and arm of the ipsilateral side.

The case described by Campbell et al¹ also had a hoarse voice and difficulty in breathing due to the involvement of the recurrent laryngeal nerve. All of these effects were transient¹. In the presented cases, none of the above-mentioned symptoms of Horner's Syndrome was observed but only the laryngeal complications occurred right after the administration of articaine HCl. Hoarseness, dysphagia, and claimed respiration difficulty resolved within 2-3 hours.

A possible cause of the hoarseness was reported as the involvement of the recurrent laryngeal nerve. It may

be caused by accidentally medially located injection but in the presented cases, as the doctors did not report an unusual technique during injection, an anatomic variation was taken into consideration as a possible cause.

Fortunately, permanent damage to nerves, facial and oral tissues are extremely rare. Being aware of the anatomy and the properties of LA solutions, the clinician should be cognizant of even these rare complications that can occur during regional nerve blocks, and should be prepared to manage them.

This cases report highlights an event where individual anatomic variation of the sympathetic nerve may allow anaesthetic solution to be delivered to an ectopic site, which will cause unusual signs and symptoms, such as hoarseness and laryngeal complications. Fortunately, these complications were temporary and resolved totally by the time local anaesthesia resolved.

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