Self- Reported Case of Ptosis as a Complication of an İnferior Alveolar Nerve Block

Tetiana Marusich*[1], Iuliia Solodovnikova*, Alina Ivaniuk*, Anatoliy Son*, Tetiana Muratova*

1. Department of Neurology and Neurosurgery, Odessa National Medical University, Valikhovsky Lane 2, Odessa, Ukraine, 65000

***Corresponding author:** Marusich T, MSc. PhD, Department of Neurology and Neurosurgery, Odessa National Medical University, Valikhovsky Lane 2, Odessa, Ukraine, 65000
E-mail : tatyanasav8@ukr.net

Abstract

An alveolar nerve block is one of the safest dental procedures nowadays. Nevertheless, it can be rarely followed by ophthalmic complications. The pathogenic mechanism of their emergence is not clear. Here is described a self-experienced case of ptosis after inferior alveolar nerve block. I visited the dentist with the painful inferior second premolar. After the examination, the dentist decided to perform the root canal treatment of the painful tooth. In 10 minutes after anaesthesia, I had blurred vision in my right eye, which was caused by partial ptosis. Despite these disturbances lasted for 5-7 minutes before complete resolution, they made me feel distressed.

Key words: Ptosis, conduction anesthesia, ocular complication

Case Report (HRU IJDOR 2021; 1(1): 7-9)

Introduction

Being one of the most frequent and safe dental procedures, the inferior alveolar nerve block is sometimes accompanied by such complications as allergies, local post-injection and, more rarely, ophthalmic ones. The first report of ophthalmic complication after dental anesthesia was described by Brain in 1936[1]. Steenen SA et al outline that in the period from 1936-2011, only 131 cases of ophthalmic manifestations were described after anesthesia of the inferior alveolar nerve [2]. Kavitha Patil et al. report that over the past several decades, ophthalmic complications after anesthesia of the posterior and middle alveolar nerves were observed twice as often as after the inferior alveolar nerve [3]. Among them, the most frequently reported were diplopia and amaurosis; however, complications such as blurred vision, mydriasis, retroorbital pain, miosis, enophthalmos, ophthalmoplegia, ptosis were also reported. The occurrence of ptosis as an ophthalmic complication was 16.7%. Ophthalmic manifestations, in almost all of the cases, were observed on the ipsilateral side of the anaesthetic injection and were transient, resolving after the termination of the anesthesia[4].The aim of this article is to increase awareness among dentists about these rare complications after conduction anesthesia, which would make visits to the dentists less exciting for both patients and doctors.

Case Presentation:

Being a 32-year-old woman neurologist, I visited outpatient dental clinic, complaining of the pain in the inferior second premolar on the right. The pain was acute with pressure, temperature changes, and radiated along the right branch of mandible. After reviewing the medical history, examining the oral cavity, the dentistdecided to perform a root canal treatment. The dentist performed an inferior alveolar nerve block on the right by injecting 1,8 ml of 2% lidocaine and epinephrine 1: 100,000.

Aspiration performed prior to the injection revealed absence of blood. There was no electric type of pain felt during the injection. In 10 minutes, I felt an increasinganesthesia in the right half of the mandible, the floor of the mouth and the front of the half of the tongue, also on the right. Chin and the lower lip were spared. A few minutes later, I had blurred vision, a feeling of a foreign body in my right eye. I was conscious; there were no other focal neurological symptoms, except for partial ptosis of the right (Fig. 1.).

Figure 1.

Clinical image of the author with a right side ptosis, 10-12 minutes after intraoral conduction anesthesia of the inferior alveolar nerve

In seven minutes, this condition gradually regressed, while the feeling of anesthesia along V3 on the right still remained. The dentistperformed the planned dental manipulation and removed the dental nerve. The aetiological factor for the pain was pulpal calcification.

Discussion

The inferior alveolar nerve is the largest branch of the mandibular trunk of the trigeminal nerve. It passes downwards along the lateral pterygoid muscle, outward and posterior to the lingual nerve and exits to the surface of the face through mental foramen, where it gives off its terminal branches: the incisal and mental nerves. Alongside, inferior alveolar nerve is accompanied by the inferior alveolar artery (a branch of the internal maxillary artery) and inferior alveolar vein.

Up to now, the exact mechanism of ophthalmic complications after the inferior alveolar nerve block is not well understood. However, the following ones are considered: intravascular administration of local anaesthetic, direct diffusion of local anaesthetic into the orbital fissure, cervical sympathetic blockade, reflex vasospasm [5].Inadvertent intravascular injection of anaesthetic, sometimes because of anatomical peculiarities, may lead to its reaching the orbit and causing ophthalmic complications. Direct diffusion of the anaesthetic into the orbital area is often observed after local anesthesia of the maxillary branch of the trigeminal nerve.

Some authors believe that there is a relationship between the pterygo-palatine fossa and the pterygoid venous plexus, which leads to the ingress of anaesthetic into the orbital vein and orbital fissure. Indirect entry of anaesthetic into the cavernous sinus area through the pterygopalatine plexus and, as a result, anesthesia of the III, IV and VI cranial nerves.

A cervical sympathetic block may cause ptosis as well as pupillary constriction, enophthalmos and increased temperature of the skin in the head-neck area (Horner's syndrome).

A needle trauma to the alveolar arterial wall can activate sympathetic fibers. This leads to the formation of a vasospastic impulse, which passes through the internal carotid plexus and reaches the orbit through the ophthalmic artery [6].

Conclusion

The most relevant pathogenic mechanism, in this case, is inadvertent intravascular administration of the anesthetic, with its reaching of the orbit and causing ptosis. The symptoms were transient and their regression was not associated with the termination of anesthetic. However, despite the short-term transient character, the situation was quite stressful. This could be avoided by increasing awareness about ophthalmic complications after intraoral anesthesia among doctors and patients.

Data Availability

The data that support the findings of this study are available upon reasonable request.

Consent

Informed consent was obtained from the patient. Written informed consent was obtained from the patient before the study.

Conflicts of Interest

No conflicts of interest related to this paper

Contributions of the authors:

Study conception and design: TM, IS
Analysis and interpretation of the data: AI, AS
Draft manuscript preparation: TM, AI, IS
Critical revision of the work: TM, AS
All authors reviewed the results and approved the final version of the manuscript

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