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Case Report

TRANSIENT DIPLOPIA AND RESTRICTED LATERAL GAZE OF RIGHT EYE FOLLOWING POSTERIOR SUPERIOR ALVEOLAR NERVE BLOCK - A CASE REPORT

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ABSTRACT

We report a case of an elderly male patient aged 50 years, who developed transient diplopia and restriction of lateral gaze of right eye following administration of posterior superior alveolar nerve block for extraction of right maxillary posterior teeth. The condition was transient and the patient recovered after 5 to 6 hours.

Key words:

Diplopia, posterior superior alveolar nerve block

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INTRODUCTION

Local anesthesia which is routinely used in dentistry, can occasionally lead to local and systemic complications. Local complications such as paresthesia, hematomas etc. have been reported due to administration of local anaesthesia. Systemic complications such as toxicity, syncope etc. are also known to occur. Nerve related ophthalmic complications are rare but can occur following nerve block. These include diplopia, paralysis of extra-ocular muscles, etc. Most of these complications occur following posterior superior alveolar nerve block.^[1]

Here we are presenting a case of transient diplopia and restriction of lateral gaze of right eye secondary to posterior superior alveolar nerve block.

CASE REPORT

An elderly male patient reported to the Department of Oral and Maxillofacial Surgery with the chief complaint of pain in right maxillary posterior region. On examination, there was deep caries with maxillary third molar. Extraction of right maxillary third molar teeth was advised. Posterior superior alveolar nerve block was administered and the indicated tooth was extracted. Soon the patient developed diplopia. On examination, there

was restriction of lateral gaze of right eye but there was no dilatation of pupil. It was explained to the patient that the condition was temporary and will reverse back once the action of local anaesthesia wears off. The patient was referred to an ophthalmologist. After careful observation, the patient was discharged with a responsible attendant and he recovered after 5 to 6 hours.

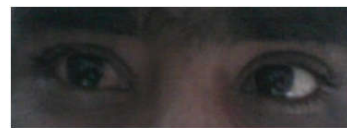


Image 1 Restriction of lateral gaze of right eye

DISCUSSION

Local anesthesia is regularly used in dentistry. Several local and systemic complications occur secondary to use of local anesthesia; but the neurological complications are rarely reported.

According to a literature review, out of 500 reported complications after local anesthesia administration over a period of 5 years, only 40 were neurological side effects. These

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complications include facial nerve palsy, post injection paresthesia, abducent nerve palsy, transient paralysis of 3, 4 and 6 cranial nerves etc.^[2] Most of these complications occur following posterior superior alveolar nerve block.^[1] Complications of posterior superior alveolar nerve block include orbital complications, the most common among these are temporary paralysis of oculomotor, trochlear and abducent cranial nerves.^[3] In 35.6% of cases, there is diplopia of ipsilateral eye due to posterior maxillary nerve blocks.^[4] In 1946, Goodside and Weigneist first reported about paralysis of sixth cranial nerve following sphenopalatine block.^[4,5]

The posterior superior alveolar nerve block is used to anaesthetize the maxillary posterior teeth and their surrounding structures.^[4] During anesthesia of maxillary nerve, there can be an indirect effect on one of the ocular muscles via infratemporal fossa or greater palatine canal. The possible mechanism by which the abducent nerve palsy can be caused are as follows [2]:

1. Direct anesthesia of abducent nerve through inferior orbital fissure.
2. Venous root: pterygoid plexus to inferior ophthalmic vein connects directly to extrinsic muscles of eye via infra-orbital foramen.
3. Deposition of solution into PSA artery reaches maxillary artery by backflow and then into middle meningeal artery. There is anastomosis between orbital branch of middle meningeal artery and recurrent meningeal division of lacrimal division of ophthalmic artery. The lateral rectus muscle, outer half of eyelids and lacrimal gland are supplied by the lacrimal artery.
4. From pterygoid plexus through the emissary veins of foramen ovale and lacerum, LA (local anaesthesia) reaches the AN (abducent nerve) within the cavernous sinus.^[2]

The LA solution can also diffuse through bony openings

1. The pterygoid venous plexus lie in infratemporal fossa. From here through emissary veins it reaches cavernous sinus through foramen ovale.
2. When LA is injected posterior to maxillary tuberosity or into greater palatine foramen, it reaches pterygopalatinefossa, from there the orbital apex where the abducent nerve lies.^[8] Prevention and proper management of complications following posterior superior alveolar nerve block:

To manage any complications the most important thing is patiently explaining and assuring the patient, its knowledge and appropriate treatment.^[3]

1. Use of short needle.^[4,10]
2. The nature is transient, hence explain and reassure the patient about the condition
3. Protect the eye with gauze dressing, until the anesthesia persists
4. Send the patient with a responsible adult
5. Evaluation by an ophthalmologist, especially if the condition lasts more than six hours.^[1]

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