Case Report

Prolonged vertigo and ataxia after mandibular nerve block for treatment of trigeminal neuralgia

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Abstract

Common complications of neurolytic mandibular nerve block are hypoesthesia, dysesthesia, and chemical neuritis. We report a rare complication, prolonged severe vertigo and ataxia, after neurolytic mandibular blockade in a patient suffering from trigeminal neuralgia. Coronoid approach was used for right sided mandibular block. After successful test injection with local anesthetic, absolute alcohol was given for neurolytic block. Immediately after alcohol injection, patient developed nausea and vomiting along with severe vertigo, ataxia and hypertension. Neurological evaluation was normal except for the presence of vertigo and ataxia. Computerised tomography scan brain was also normal. Patient was admitted for observation and symptomatic treatment was given. Vertigo and ataxia gradually improved over 24 hours.

Key words: Craniofacial pain syndromes, mandibular nerve block, trigeminal neuralgia, vertigo

Introduction

Mandibular nerve block is commonly used for diagnosis and treatment of trigeminal neuralgia involving the mandibular division. Neurolytic blockade with absolute alcohol/phenol is usually required after diagnostic block to provide long term pain relief.[1] Common complications of this block are hypoesthesia, dysesthesia, chemical neuritis, sensory loss in mandibular nerve distribution and very rarely facial and oculomotor palsy and masseter muscle weakness leading to difficulty in chewing.[1-2] We report a rare complication in a patient with mandibular neuralgia, who developed prolonged severe vertigo and ataxia after neurolytic blockade of mandibular nerve with absolute alcohol.

Case Report

A 65 year old male patient presented to our pain clinic with complaint of right sided facial pain for the last 2 years. The pain was excruciating and confined to right lower jaw. He was diagnosed as a case of right sided trigeminal neuralgia involving the mandibular division (V3). He was on regular medication with oral carbamazepine 200 mg three times daily and gabapentin 300 mg twice daily. His symptoms had worsened in last few days and the pain became refractory to treatment. Patient's medical history was unremarkable. Clinical examination revealed pulse rate 70/minute and blood pressure of 140/90 mmHg. As the pain distribution was in the mandibular division, involving whole right lower jaw up to ear, neurolytic block of the right mandibular nerve was planned. Coronoid approach was used for right mandibular nerve block. The patient was placed in supine position with head tilted to left-side. After aseptic preparation and draping of the part, skin and subcutaneous tissue was infiltrated with 3 ml of 2% lignocaine. A 9.0 cm 22 gauge (G) needle was introduced perpendicularly in the middle of coronal process at midpoint of inferior border of right zygomatic arch. The needle was advanced to hit the lateral pterygoid plate. The needle was withdrawn slightly and directed posteriorly towards the ear so that it passed the posterior border of the pterygoid plate. The needle was then carefully advanced 0.5 cm each time till the patient reported paresthesia over mandibular region. After negative aspiration of blood, diagnostic block with 3 ml of 2% lignocaine was given. Five minutes after eliciting hypoesthesia in mandibular distribution, 1 ml of absolute alcohol (AA) was given for the neurolytic block. After about 5 minutes of the block, when the patient was allowed to sit up, he complained of severe giddiness (vertigo) and was not able...
to sit and stand up. Vertigo was associated with severe nausea and vomiting, however, patient’s hearing and speech was normal. The patient was immediately placed in supine position and vital examination revealed pulse rate of 60/minutes and blood pressure of 210/110 mmHg. The patient was given 500 ml of intravenous fluid (dextrose/saline) with 8 mg ondansetron intravenous and 10 mg nifedipine sublingually for treating vomiting and hypertension, respectively. Patient was continuously monitored in recovery room. After 30 minutes, the patient was reassessed and was found to have severe vertigo while sitting, and ataxia while walking. His blood pressure had decreased to 170/90 mmHg and his nausea and vomiting stopped. In view of persistent vertigo and ataxia, neurology consultation was obtained. Complete neurological evaluation was performed however, no significant abnormality was found except for vertigo and ataxia with tendency to fall on right side. It was decided to admit the patient in the ward for further investigation, observation and management. Computerized Tomography (CT) scan brain was performed to rule out any central cause of ataxia, which was found to be normal. Oral Betahistine 16 mg was started twice daily to treat vertigo. Ten hours after the block, the patient’s symptoms improved. Patient slept well in the night and was reassessed the next morning. By this time, patient had improved significantly and was not having vertigo, ataxia or nausea and vomiting. As the patient’s vertigo and ataxia had significantly improved and he was able to walk normally, he was discharged from the hospital with advice to come for regular follow-up after one week. The patient was found to be pain free with slight hypesthesia in the right mandibular distribution. The patient did not have any vertigo or ataxia. The patient was doing well without any pain in the subsequent follow-up.

**Discussion**

Usual complications of mandibular nerve block are hypesthesia, dysesthesia, sensory loss in mandibular nerve distribution, facial swelling and masseter muscle weakness.[1,2] Accidental injuries to the auditory tube while trying to locate or block the mandibular nerve are possible, as it is in close proximity.[3] Injury to auditory tube may lead to severe vertigo after the injection. If this occurs during or after the test injection following local anesthetic, one should defer the injection of neurolytic agent.[3] Our patient did not have any history of vertigo. Diagnostic test injection with 3 ml of 2% lignocaine was uneventful and there was no resistance to injection or symptom of auditory tube irritation, i.e. pain in ear, deafness etc. Patient developed severe vertigo and ataxia five minutes after the AA injection when he was allowed to sit-up, stand and walk. He also developed hypertension (blood pressure-210/110 mmHg) and two episodes of severe nausea and vomiting.

Konishi et al.[3] reported the first and only case report of vertigo during mandibular nerve block with AA. They attributed this to multiple factors: Firstly their patient had received multiple neurolytic blocks before, which probably had resulted in tissue inflammation and adhesion formation; secondly, the patient had pain in the ear during the advancement of the needle and there was high resistance to AA injection, indicating injury to auditory tube; and lastly, their patient also developed prolonged horizontal nystagmus along with vertigo.

The clinical manifestations in our patient were however different as he had not received any neurolytic block before, had no pain during injection and there was no resistance during injection of either lignocaine or AA. Our patient also did not develop nystagmus along with vertigo. We used a 22 G, 9 cm sharp tip spinal needle for the block, due to the non availability of blunt tip needle. We may have inadvertently injured the cartilaginous part of auditory tube with the block needle and a small amount of AA might have entered the auditory canal and reached the vestibular apparatus resulting in vertigo and ataxia.

In patients who receive repeated neurolytic mandibular nerve blocks, abnormal degeneration in the tissues surrounding the nerve should be considered and all agents should be injected precisely and slowly.[4] Whenever there is a suspicion of injury to auditory canal, it is advisable to defer neurolytic blockade with AA. Patients should be closely observed for at least an hour after the block when AA is used because stimulation of the vestibular apparatus may be delayed.[2] In the case reported, we did not observe any pain or resistance to injection to lignocaine or Alcohol which may have alarmed us about the complication.

Vertebrobasilar ischemia or posterior circulation stroke may present as vertigo, ataxia, diplopia, dysarthria and weakness of one or both side of body.[5] Our patient was 65 years old and developed vertigo, ataxia and hypertension after the neurolytic mandibular block. Our patient did not have nystagmus, diplopia, and dysarthria and was not a known hypertensive. He had vertigo and moderate ataxia. Features favoring vestibular ataxia, and not the central cerebellar ataxia included: Presence of severe vertigo, associated with body movement; presence of severe nausea and vomiting; severe ataxia with tendency to fall toward affected side; and increase in imbalance while walking with closed eyes. Neurology consultation was taken and CT scan brain was performed to rule out any possibility of stroke which was found to be normal.

We have presented a patient of trigeminal neuralgia, who developed prolonged severe vertigo, ataxia and hypertension after the mandibular nerve block with AA, which gradually
improved over 24 hours. We emphasize that in trigeminal neuralgia patients, who usually require repeated neurolytic mandibular block, the possibility of severe vertigo and ataxia should be kept in mind, as it may be associated with increased risk and complications, requiring prolonged observation and management. Use of guided techniques (nerve locator, fluoroscopy, ultrasound or CT guidance) can be considered in some selected patients.

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How to cite this article: Chaturvedi A, Dash HH. Prolonged vertigo and ataxia after mandibular nerve block for treatment of trigeminal neuralgia. J Anaesth Clin Pharmacol 2011;27:386-8.

Source of Support: Nil, Conflict of Interest: None declared.