

**CASE REPORTS****Third and Fourth Cranial Nerve Involvement Following Trigeminal Neurolytic Block with Absolute Alcohol**

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Trigeminal ganglion supplies sensory branches to side of face and scalp back as far as vertex, motor branches to muscles of mastication and ganglionic connection to ciliary, pterygopalatine, submandibular and otic ganglion. Trigeminal neuralgia (tic douloureux) is characterised by sharp, severe (paroxysmal) pain on the side of the face involving the trigeminal nerve root ganglion.<sup>1,2</sup> We describe a case with trigeminal neuralgia involving all 3 nerve roots in which a successful trigeminal neurolytic block was performed following which patient had involvement of 3rd and 4th cranial nerves.

**CASE REPORT**

A 40 year old female patient presented with paroxysmal severe burning of pain on left side of face which was aggravated by exposure to cold wind. It lasted for 1 to 4 hours and hampered patient's activity like eating and talking. Patient was initially managed with tab Tegretal 200 mg, inj Eptoin 100 mg, inj Meconerve, tab Pregabalin 75 mg, tab Baclofen 10 mg.

The patient got temporary relief with these medications but the pain recurred. Subsequently the pain became severe and was refractory to medications, following which she was referred to pain clinic for further management.

The patient was thoroughly evaluated and all routine investigations were within normal limits. A decision to perform trigeminal neurolytic block under C arm guidance was made and was posted for the procedure. A written informed consent was taken. Patient was kept nil by mouth for 6 hours and was premedicated with tab Alprazolam 0.5 mg on the previous night. Lidocaine test dose was given and found negative.

Under strict aseptic precautions, left side of the face was painted with povidone iodine and draped and the block performed by antero-lateral approach. A 23G spinal needle was inserted 3 cms lateral to the angle of the mouth at the level of upper second molar and needle was

advanced postero medially with the needle being aligned towards the pupil and the patient's gaze fixed straight. The needle was advanced lateral to pterygoid process under C arm guidance to enter the cranium through foramen ovale.

Paraesthesia was elicited and inj. lignocaine 2% 0.5 ml was administered after aspiration of blood and CSF was negative. Patient immediately reported complete relief of pain. The needle was kept insitu for 15 minutes, subsequently absolute alcohol 0.2 ml was injected after aspiration of blood and CSF was negative. Patient reported immediate relief of pain followed by development of Horner's syndrome.

Patient was put on a course of antibiotic, analgesics with serratiopeptidase for 3 days.

Symptoms of Horner's syndrome miosis subsided but ptosis persisted for which ophthalmological opinion was taken which confirmed oculomotor nerve palsy with loss of direct and consensual light reflex on the ipsilateral side. Patient also had involvement of 4th cranial nerve with involvement of superior oblique muscle (intorsion, abduction loss). Hence a diagnosis of 3rd and 4th cranial nerve palsy was made. Patient was immediately put on course of inj. Hydrocortisone 200 mg i.v followed by 100 mg tid for 3 days. Inj. Neurobion forte i.m was also administered. Patient was subsequently continued on tab Prednisolone 40 mg od for 4 weeks.

Subsequent ophthalmological review revealed improvement in 4th cranial nerve palsy by one week and improvement in 3rd cranial nerve by 8 weeks with return of motor supply to the eye. Corneal sensation was intact with no sequelae at 8 weeks. Patient does not have relapse of pain till date.

**DISCUSSION**

The gasserian ganglion lies lateral to the internal carotid artery and cavernous sinus and occupies the meckel's cave, located postero medial to the foramen ovale. The ocular

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motor and trochlear nerve are located close to the ganglion superiorly.<sup>1,2</sup>

Miles J et al reported complication in a series of trigeminal blocks using 3 techniques of radio frequency coagulation, surgical route section and neurolytic ganglion block. They noted higher complication with surgical route section compared to neurolytic ganglion block. Loss of corneal reflex was noted in 15%, with trigeminal motor weakness in 1% and oculomotor weakness in 1% of cases. Corneal ulceration resulted in 1% of cases.<sup>3</sup>

Ecker and Pearl et al noted incidence of corneal ulceration to the extent of 10 % while using ethyl alcohol in 0.05 ml aliquotes upto no more than 0.2 ml.<sup>4</sup>

Henderson et al in their study with alcohol neurolytic block noted a complication rate of 6 % of nasal ulceration.<sup>5</sup> Madrid reported 371 blocks of gasserian ganlion in which absolute alcohol was used in 72% of cases. He noted complication in 12 to 15% which included keratitis, weakness of the ipsilateral muscles of the mandibular nerve.

According to J J Bonica the ophthalmic complication rate can be reduced by selectively injecting into the involved nerve roots especially maxillary and mandibular.<sup>6</sup>

In our case since the patient had involvement of all the three divisions the block was administered by eliciting paraesthesia and alcohol was administered subsequent to confirmation of the position by lignocaine. Prompt treatment

with steroid helped in recovery of the 3rd and 4th cranial nerve involvement.

In conclusion, trigeminal neurolytic block with absolute alcohol offers very good pain relief. But the close relationship of other cranial nerves with the ganglion has to be kept in mind while administering the block. Prompt follow up and treatment of complications can reduce the permanent neurological sequale and offer good pain relief to patients.

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