

A Rare but Life Threatening Risk of Peribulbar Anaesthesia

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Abstract: *Peribulbar anaesthesia is the most commonly used anaesthetic technique in most of the intraocular surgeries especially in glaucoma and vitreoretinal surgeries. This is a case study of a 70 year old man who underwent a combined glaucoma and cataract surgery under Peribulbar anaesthesia and developed loss of consciousness and untoward complications of brainstem anaesthesia. Though the complications are very rare with Peribulbar anaesthesia, one need to be extremely careful and should be equipped with the necessary facilities to tackle the life threatening implications' if any occurs in the operation theatre.*

Keywords: Peribulbar anaesthesia, ocular surgeries

1. Introduction

Surgeries in ophthalmology are performed under a wide range of anaesthesia techniques. In 1884 it was Sir Carl Koller who used cocaine as a topical anaesthetic agent for the ocular surgery. Later Knapp introduced retro bulbar anaesthesia. However in the late 1980s Sir Davis and Mandel discovered the Peribulbar anaesthesia technique. Since then it has been the most popular and successful mode of anaesthesia for a wide variety of ocular surgeries¹. Peribulbar anaesthesia has several advantage when compared to retro bulbar as it is less painful, less rise in the intraocular pressure, avoidance of a facial block and most importantly there is minimum sight and life threatening complications like retro bulbar haemorrhage, damage to optic nerve which can cause loss of vision, oculocardiac reflex and brain stem anaesthesia³. In a prospective study done by Davis Mandel in 1994, he reported that though Peribulbar anaesthesia is safe it can still have life threatening complications. The incidence of brain stem anaesthesia was found to be 0.02% after Peribulbar block.

2. Case Study

A 70 year old male patient came to the eye OPD with complaints of reduced vision. He was not a diabetic and hypertensive and his systemic examination and blood parameters were well within the normal limits. After a thorough evaluation of the eye, the patient was advised to undergo a phacotrabeculectomy surgery of the right eye. It was recommended to perform the surgery under the Peribulbar block.

A 24 gauge disposable needle was taken for the block. The anaesthetic agent was a mixture of 1 % of Lignocaine and 0.5% Bupivacaine in equal proportion in 50 ml hyaluronidase. The area which had to be injected was cleaned with Povidone iodine. The patient was placed on the OT table in a primary gaze position. The needle was introduced through the skin of the lower lid sulcus in the inferotemporal region. The needle was then inserted in a vertically downward direction along the orbital wall 2.5cm deep. Aspiration was done and the volume of 8 ml of the anaesthetic agent was injected.

It was noted that after close to 5 minutes, the patient's speech started becoming incoherent and nystagmus was noted in both the eyes. The BP rose to 190/120 mmHg and tachycardia was seen (150 beats/min). The patient was immediately put on an oxygen mask. Since no spontaneous respiration was seen, the anaesthetist intubated the patient and put him on a mechanical ventilator. Simultaneously intravenous injection of Emolol (80mg) was given. In few minutes, the patients BP started to normalise but later it further started dipping down. Injection atropine (1mg) was given to control the hypotension. After 15 minutes the patient had an episode of a grandmal seizure. Intravenous Midazolam 2mg was given to control the seizure. The patient was monitored extensively and slowly the parameters started to stabilise. After an hour the patient was extubated and was kept under observation. The patient was discharged the following day. The surgery was performed 2 weeks later but this time it was uneventful and the outcome was a great success.

3. Discussion

When compared to retro bulbar anaesthesia, Peribulbar anaesthesia is a safer technique with fewer complications. Care has to be taken to maintain the ocular positioning of the patients while giving the block. The technique which was followed in our patient was the standard technique according to the literatures.

The doctor was at the head end of the patient while giving the block and the patient was asked to maintain the primary gaze position. However in some cases despite requesting the patients to maintain the primary gaze², some of them tend to look towards the doctor. As a result the eyeball rolls up and thereby exposing the optic nerve. This makes the nerve more susceptible to the approaching needle. However if the doctor approaches the patient from the side position and patients attempts to look towards the doctor, then in that case there would be rolling down of the eyeball and minimal damage of the optic nerve.

There are multiple ways and mechanisms as to how local anaesthetic toxicity can occur. In conditions where large volumes of the anaesthetic agent is given, it can lead to light headedness, auditory and visual disturbances, twitching of

the facial muscles, seizures followed by respiratory depression and then respiratory arrest. But in our case the volume of the drug taken was very minimal to cause a systemic toxicity. Moreover in our case the symptoms of respiratory failure came ahead of central nervous system excitement or seizures.

In scenarios where the anaesthetic agent⁴ is directly injected into the meningeal coverings of the optic nerve and gains access to the subarachnoid space it can lead to respiratory depression prior to CNS manifestations but then the initial cardiovascular events cannot be explained. But however accidental intra-arterial injection can lead to a rise in the level of the anaesthetic agent in the brain via retrograde flow through the internal carotid artery. And this can cause the cardiovascular manifestations like rise in pulse and BP. This is very temporary as observed in our case. But once the drug starts redistributing out of the brain, the symptoms tends to wane off.

Hence in our case the initial rise in BP and pulse could indicate an inadvertent intra arterial injection of the LA while the respiratory arrest and seizure could be due to injection of LA into the meningeal coverings. In cases of brain stem anaesthesia⁵ the signs and symptoms will start within 5 to 10 minutes after the block and complete recovery is gained within an hour. In our case study the patient had respiratory complications occurred in less than 5 minutes with altered consciousness. However the patient regained consciousness and was stabilised within an hour.

4. Conclusion

Complications with Peribulbar anaesthesia are quite rare. But it shows that one needs to be handy and keep the operation theatre well equipped along with trained personnel to handle the complications and emergencies.

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