

# Respiratory arrest after retrobulbar anaesthesia

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## Summary

This is a report of a patient who developed respiratory arrest some minutes after retrobulbar block was given for ocular anaesthesia before cataract extraction.

She was managed by artificial ventilation and haemodynamic support without any cardiac or neurological sequelae.

This report highlights this rare but fatal complication of suspected brain stem anaesthesia after retrobulbar anaesthesia.

Retrobulbar and peribulbar blocks should be performed in safe situations where individuals trained in airway maintenance and ventilatory support should be immediately available.

**Keywords:** *Cataract extraction, Respiratory arrest, Retrobulbar anaesthesia, Rare complications*

## Résumé

Il s'agit d'un rapport d'un patient qui est atteint d'arrêt respiratoire quelques minutes après le traitement avec le block retrobulbar pour l'anesthésie oculaire avant l'extraction de la cataracte.

Elle a été traitée à travers la ventilation artificielle et un soutien hémodynamique sans aucune cardiaque ou séquelle neurologique.

Ce rapport met en relief le rare complication grave d'un cas présumé du pédoncule cérébral de "l'anesthésie "après l'anesthésie retrobulbar. Les blocks retrobulbars et peribulbars devraient être traités dans des situations en sécurité ou les personnels formés dans la gestion des bronches et dans le système de soutien de ventilation devront être disponible immédiatement.

## Introduction

Ocular surgery especially cataract surgery are now more commonly performed under local anaesthesia.

Many eye surgeons consider the technique safe and easy to perform. The technique of peribulbar or retrobulbar anaesthesia is widely performed even at outreach surgical camps where high volume surgeries are done. Many times there will be no complications.

Accidental brain stem anaesthesia following retrobulbar block is unusual. Symptoms of this fatal complication have been reported in the literature<sup>2,3</sup> but not in Nigeria.

We report this infrequent but fatal complication of retrobulbar anaesthesia that needs emergency life support necessitating competent anaesthesiologists.

## Case report

M. A. hospital number 856181 is a 68 year old housewife admitted for right cataract extraction at the University College Hospital Ward in February 2000. She has had a left intracapsular cataract extraction done under local Anaesthesia in April 1996 with retrobulbar complications. Post operative period was uneventful.

The patient was re-admitted for right cataract extraction in February 2000. By this time she was on treatment for hypertension, and was controlled on amloride hydrochloride 5mg and hydrochlorothiazide 50mg ("moduretic") one tablet daily. During this admission, no premedication was given, as this was considered not necessary anymore in all the patients. With a 25-gauge retrobulbar needle, 3mls of 2 percent Xylocaine with 1:100,000

adrenaline was given into the retrobulbar space, while the patient was looking up and medially following the technique of Knapp.<sup>13</sup> Digital massage was applied to the globe. After five minutes the patients was noticed to breathe irregularly and she stopped breathing completely, all these over ten minutes with accompanied stiffness of limbs and she became unarousable presumably due to brainstem anaesthesia.

Artificial ventilation with 100 percent oxygen with a face mask first and then with endotracheal tube was administered by team of anaesthesiologists during this period of respiratory arrest. Blood pressure decreased from 130/80 mm to 90/60 mmHg, Pulse decreased from 78 beats per minute to 60 beats per minutes then 0.4mg atropine was given intravenously.

After a successful resuscitation she was extubated after about one and half hours. The surgery was deferred.

## Discussion

The Retrobulbar technique was introduced in 1884 by Knapp.<sup>2</sup> This local anaesthetic technique for ocular surgeries has become very popular among Ophthalmologists. It saves anaesthetic time, does not require sophisticated set up, it is administered with relative ease and associated with high surgery turnover. It is particularly very useful in set ups like eye camps.

Generally, this local anaesthetic technique carry low rate of complications.<sup>12</sup> Because of this, some Ophthalmologists have false sense of security and may not see much need of an anaesthesiologist. However, occurrence of a single life threatening complication in the life of an Ophthalmologist highlights the need for provision of emergency life support which the Ophthalmologist or cataract Surgeon may not be very conversant with.

Respiratory arrest has been documented as a complication of retrobulbar anaesthesia<sup>1-5</sup> and even following peribulbar anaesthesia.<sup>6</sup> Pekka Ruusuvaara et al<sup>2</sup> listed other complications that have been observed following retrobulbar anaesthesia. These are retrobulbar haemorrhage, globe perforation, central retinal artery occlusion, optic neuropathy, toxic reactions after intravascular injection and cardiopulmonary arrest.

It is because of these rare but significant complications that some surgeons started utilizing the peribulbar anaesthetic technique.

Brainstem complications have been reported to be greater when retrobulbar injections are given with the patients looking up and in.<sup>4</sup> Other workers who have reported respiratory obstructions following facial nerve block were Wilson and Ruiz<sup>7</sup> Rahinowiltz,<sup>8</sup> and Shoch.<sup>9</sup> Patients were reported to have experienced difficulty in swallowing, dysphonia and respiratory problems due presumably to the inadvertent block of glossopharyngeal and vagus nerves as they exist from the jugular foramen.

The case being reported here had not received a facial block before apnea was noticed. It is unlikely that the complication was caused by accidental intravascular injection because the difficulty in breathing started about 5 minutes after the injection and worsened within 10 minutes. Intravascular injections cause more dramatic collapse of cardiovascular and then respiratory problems.<sup>10</sup> In this patient the pulse and blood pressure were not severely affected. The patient did not have any seizure or retrobulbar haemorrhage, therefore the respiratory arrest was unlikely to be an adverse effect of intravascular injection.<sup>11</sup> Also she had a retrobulbar injection of similar anaesthesia some years back, hence the unlikelihood of this being an anaphylactic reaction. It is likely that brain stem anaesthesia occurred by accidental injection into the

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subarachnoid space via the subdural sheath of the optic nerve to the brainstem.

### Conclusion

Eye Surgeons have to have in mind this rare but fatal complications of respiratory arrest after ocular anaesthesia. It is suggested that individual trained in cardiopulmonary resuscitation must be available immediately to handle such cases.

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