Brainstem Anesthesia after Retrobulbar Anesthesia in Cataract Surgery: A Case Report

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ABSTRACT

Brain-stem anesthesia is a serious and rare complication of orbital regional anesthesia that may occur when the local anesthetic agent gains access to the central nervous system via a direct spread from the apex of the orbit or the submeningeal pathways. We report the case of a 66-year-old man who developed, after a retro-bulbar block for cataract surgery, a tonico-clonic seizures, hypotension and bradycardia-features of brainstem anesthesia. We present the clinical features, treatment and comments on how to prevent the problem. Although it is rare, and because it may be life-threatening in some cases, physicians who perform retrobulbar block should be aware of its features and various clinical manifestation in order to recognize and treat it. Also, facilities where ophthalmic surgery under local anesthesia are performed should be properly equipped in order to manage this complication.

Keywords: Brainstem anaesthesia, cataract surgery, retrobulbar block.

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I. INTRODUCTION

In ophthalmology, the majority of procedures are performed under local anesthetics. It allows a shorter hospital stay, a lower risk of complications and an option for patients with a contraindication to general anesthesia. There are several types of local anesthesia in ophthalmology: retro-bulbar, peribulbar, subtenon, caruncular and topical.

The choice of the right type of anesthesia depends on the surgical procedure, the patient’s background, and the surgeon’s choice, all of which provide comfort for the surgeon as well as safety and comfort for the patient. Locoregional anesthesia is always preferred to general anesthesia whenever possible as it presents less risk but not exempt from it.

We report the case of a brain stem anaesthesia in a 57 years old patient following a retrobulbar anaesthesia, in the ophthalmology department of the 20 August hospital in Casablanca.

II. CASE REPORT

A 66 year old patient with no previous pathological history and no known systemic disease was admitted for cataract surgery. The patient was admitted to the operating room at 3pm and monitored (blood pressure and peripheral venous line).

Retrobulbar anaesthesia was performed with a 21 G needle, with a solution of lidocaine 2% and bupivacaine 0.5% with respectively 4cc and 2cc. After disinfecting the skin with betadine, the needle was inserted into the inferior point at the junction of the outer 1/3 and inner 2/3 of the...
manifestations occur at lower blood levels of the anesthetic product than cardiovascular manifestations [1]. The time to the onset of signs after the injection of the anesthetic varies from 2 min to 10 mins [7].

Knowledge of the anatomy of the orbit and its structures and the cooperation of the patient are essential to minimize the risks despite the anatomical variations between individuals. Indeed, the primary position (looking straight ahead) appears to be the safest for performing the injection, as looking up and inwards exposes the optic nerve more [2], [7]. The size of the needle also plays an important role as it has been reported that the use of a needle smaller than 31mm is associated with less risk of brain stem anesthesia [5]. It is necessary and important to perform the injection in a setting with easy access to intensive care and resuscitation. After the anesthesia has been administered, it is necessary to monitor the patient with heart rate and oximetry in order to watch for possible complications and to be able to act in time (Fig. 2).

### TABLE I: PREVALENCE OF BRAINSTEM ANESTHESIA AFTER RETROBULBAR BLOCK [2]

<table>
<thead>
<tr>
<th>Study</th>
<th># of injections</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>[4]</td>
<td>6000</td>
<td>0.27</td>
</tr>
<tr>
<td>[8]</td>
<td>3123</td>
<td>0.79</td>
</tr>
<tr>
<td>[9]</td>
<td>3000</td>
<td>0.27</td>
</tr>
<tr>
<td>[10]</td>
<td>200</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Know the orbital anatomy and structures
Preoperative counseling of patients about the procedure & maintenance of gaze
Maintain the eye in a neutral position (patient should look straight ahead)
Use the appropriate needle (25G, 3mm long, and possibly without cutting edge)
Proper positioning of needle and check for intravascular entry
Do not insert the needle more than 31 mm
Do the “wiggie test”
Early recognition: Observe the patient for at least 15 minutes after the injection
Monitor with pulse oximetry, ECG*, and BPM measurement

*ECG: Electrocardiography  ‡BP: Blood pressure
Fig. 1. Precautions to reduce the risk of complication after retrobulbar block[5].

### IV. CONCLUSION
This case study shows that it is imperative to never minimize the potential risks of locoregional anesthesia, especially if it is potentially life threatening.

Performing this procedure with a good anatomical knowledge, in a safe place with patient monitoring, as well as knowing the early signs of a possible complication will allow a decrease in the incidence of these complications as well as a quick management of the patient.

### CONFLICT OF INTEREST
Authors declare that they do not have any conflict of interest.

### REFERENCES


