

Blown-up pupil after intranasal phenylephrine administration – don't be surprised, it's common

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Objective

Evaluate the physiologic effects of commonly-used medications in the operating room in order to anticipate both intended and unintended consequences of their use.

The Case

A 56 year-old overweight male with history of sialadenitis of the left submandibular salivary gland presented for sialendoscopy and sialolithotomy. General anesthesia was induced and patient's left naris was pretreated with Phenylephrine and lidocaine and serially dilated before a lubricated nasal RAE tube was introduced. After several attempts, the patient was successfully intubated via the left naris with the use of video laryngoscopy. The surgery proceeded uneventfully without any periods of hemodynamic instability or hypoxia. Upon emergence from anesthesia and removal of the nasotracheal tube, epistaxis was noted from the left naris. This was successfully treated with phenylephrine spray and pressure held to the nose. Upon arrival to the PACU, the patient's left pupil was noted to be dilated to 6mm but remained responsive to light, accompanied by subjective blurred vision and photophobia. Symptoms resolved on their own within 4 hours and he was cleared by Ophthalmology for discharge home.

Discussion

The patient presented with a unilateral blown pupil following emergence from general anesthesia with a nasotracheal tube. Prior to intubation, he received phenylephrine and lidocaine intranasally, and additional intranasal phenylephrine post-extubation for epistaxis. Phenylephrine is well-known to produce mydriasis when applied to the eye; it has long been used for precisely this purpose in ophthalmological procedures, where it can maintain pupillary dilatation for several hours. It is possible that some of the phenylephrine spray that was administered post-extubation was inadvertently introduced to the eye and produced the mydriasis that was observed in the PACU. Alternatively, this same effect could have been produced with the initial pretreatment of the left naris with phenylephrine and lidocaine via retrograde migration through the nasolacrimal duct. Topical lidocaine is known to facilitate dilatation of the pupil when given alongside a mydriatic agent. In a patient who presents with a unilateral blown pupil, the differential is fairly varied, including but not limited to CVA, neoplasm, cerebral lesion, or some kind of ocular trauma. While time is often of the essence when a neurological insult is suspected, it is important to maintain a broad differential and address more innocuous etiologies before exposing patients to unnecessary interventions.

References:
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