Case Report

Unilateral retrobulbar hemorrhage immediately after bilateral strabismus surgery

Saad M. Al Thiabi

Abstract

Retrobulbar hemorrhage can be associated with periorbital surgeries or injections. However, it is rarely associated with strabismus surgery. We report a case of immediate unilateral retrobulbar hemorrhage in a child after strabismus surgery. The case was managed with urgent canthotomy and cantholysis to avoid excessive tension over ocular and periocular structures including the optic nerve.

Keywords: Retrobulbar hemorrhage, Strabismus surgery

Introduction

Retrobulbar hemorrhage is characterized by the accumulation of blood in periorbital soft tissue posterior to the orbital septum. This condition is usually associated with trauma, facial or orbital fractures or surgeries, periorbital surgery or injections. Retrobulbar hemorrhage after strabismus surgery is uncommon.1–3

Case report

A 4 years and 3 months old Saudi boy presented with residual esotropia and amblyopia in the left eye. He was a full-term baby with normal birth weight, with no known medical illness. The patient originally presented at 2 years of age with esotropia. At that time the patient was prescribed glasses with part time occlusion (PTO) therapy of the right eye were prescribed with no improvement. At 2 and half years old, the patient received botulinum toxin injection to both medial recti (5 units each) that was repeated 5 months later.

The patient had residual esotropia of 30 prism diopters at distance and esotropia of 45 prism diopters at near with significant inferior oblique overaction. After a thorough discussion with the ophthalmologist of the risks and benefits of treatment options, the parents elected for strabismus surgery one year after botulinum toxin injection.

The patient underwent uneventful bilateral medial rectus recession 6.0 mm posterior to the original insertion and bilateral inferior oblique anteriorization, 3 mm behind and 2 mm temporal to the inferior rectus muscle insertion (Scheie-Parks point).4 The medial rectus and inferior obliques were approached through fornix incisions. We noted excessive Tenon’s capsule. The inferior oblique was more difficult to isolate in the right eye necessitating a more posterior approach with the strabismus hook. The inferior obliques were isolated and detached from the original insertion and anteriorized with double armed 6–0 Vicryl® sutures on S-24...
needles. The medial recti were recessed with similar sutures. The conjunctival incisions were closed with interrupted 7–0 Vicryl® sutures.

Once the patient was sent to the recovery room, swelling of the right eye was noted. On examination, the patient had right eye proptosis and tense ecchymosis with limited extraocular motility. Anisocoria (larger in the right eye) was present with absence of afferent pupillary defect. The patient was diagnosed with acute retrobulbar hemorrhage.

Three hours later, canthotomy and cantholysis in the right eye were performed under general anesthesia. Postoperatively, the patient was prescribed oral amoxicillin, clavulanic acid and steroids and topical antibiotic, steroid and ice pack.

At one day postoperatively, the swelling in the right eye resolved and the pupils were isocoric. The fundus exam indicated a flat posterior pole and normal optic nerve heads bilaterally.

Although this was his first significant hemorrhage, we ordered an extensive hematological workup. The results of this workup were negative indicating normal complete blood count, prothrombin time, partial thromboplastin time, antithrombin 3 protein C, protein S, and in vitro bleeding time. The platelet count was normal but with a reduced total volume.

Magnetic resonance imaging (MRI) of the orbit was performed 4 days later under sedation. MRI studies indicated minimal episcleral enhancement with a focal area of prominent vascularity at the nasal aspect of the globe (Fig. 1).

Ten days postoperatively, the patient had no obvious proptosis with minimal subconjunctival hemorrhage in the right eye (Fig. 2). His esotropia improved with full extraocular motility.

Discussion

There are a few published cases of retrobulbar hemorrhage after strabismus surgery.1–3 In one report, strabismus surgery was performed on a 26 years old male for unilateral esotropia (medial rectus recession and lateral rectus resection). Prior to disinsertion, the medial rectus bled which was controlled with cauterization. The patient mentioned an episode of coughing after which he developed an orbital hemorrhage. The hemorrhage occurred 36–48 hours postoperatively which was managed by lateral canthotomy and exploration of the nasal aspect of the globe. Postoperatively, the patient was prescribed oral steroid for 5 days and topical steroids for 2 weeks.

Another case report documented a 2 years old male who had undergone bilateral medial rectus recession and bilateral inferior oblique myotomies and a retrobulbar hemorrhage occurred in the left eye approximately 24 hours postoperatively. The authors attributed bleeding to inadequate cautery of the inferior oblique muscle and a valsalva maneuver postoperatively due to sinusitis.2 In both previous reports, the hematological workup was normal.2,3

Although the hematological workup was normal in our case as well, the presentation was faster compared to the previous cases. However, the intervention was immediate as well. The resolution of signs and symptoms and the good postoperative outcome was likely due to the relatively quick intervention. We attribute the cause of bleeding to trauma sustained to one of the vortex veins while hooking the lateral rectus. This observation could explain the immediate presentation in our case. Hence, we suggest that surgeons avoid hooking the muscle far from its insertion point. Additionally, direct visualization of the inferior oblique hooking procedure is required. We recommend immediate intervention (i.e. lateral canthotomy and cantholysis) for any cases of retrobulbar hemorrhage after strabismus surgery.

Conflict of interest

The authors declared that there is no conflict of interest.

Acknowledgments

Special thanks for Dr. Pedro Mattar (Pediatric Ophthalmology Division), Dr. Silvana Schellini (Oculoplastics Division) and Dr. Gorka Sesma (Pediatric Ophthalmology Division) at
KKESH for their assistance in managing the case and writing this case report.

References

1. Todd B, Sullivan TJ, Gole GA. Delayed orbital hemorrhage after routine strabismus surgery. *Am J Ophthalmol* 2001;131(6):818–9.

2. Ares C, Superstein R. Retrobulbar hemorrhage following strabismus surgery. *J AAPOS* 2006;10(6):594–5.

3. Cates CA, Hodgkins PR, Morris RJ. Slipped medial rectus muscle secondary to orbital hemorrhage following strabismus surgery. *J Pediatr Ophthalmol Strabismus* 2000;37(6):361–2.

4. Parks MM. The weakening surgical procedures for eliminating overaction of the inferior oblique muscle. *Am J Ophthalmol* 1972;73(1):107–22.