Intraoperative Retrobulbar Hemorrhage following Subtenon Anaesthesia and Valsalva Manoeuver: A Case Report

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Introduction: An advantage of sub-tenon's over retrobulbar injection is the lower risk of retrobulbar hemorrhage (RBH) associated with the former. We present a case of RBH noticed intraoperatively during trabeculectomy surgery following subtenon anaesthesia and Valsalva manoeuvre.

Case Report: A 51 year old woman presented with poor vision OS first noticed two years prior to presentation. She was not a known hypertensive and had no prior history of bleeding disorders. Examination at presentation showed a visual acuity of 6/6-2 OD and HM OS, RAPD OS, open angles on gonioscopy OU, CDR 0.5 OD and 1.0 OS. Based on a diagnosis of Open-angle glaucoma and sub-optimal IOP control on medications, she was scheduled bilateral trabeculectomy. Preoperatively she had O'Brien facial block and then sub-tenon's injection just prior to commencement of right trabeculectomy. She coughed persistently and strained intensely throughout surgery. This may have been due to anxiety or a reaction to the anaesthesia, as she had no cough prior to surgery. She subsequently had persistent shallowing of the anterior chamber noticed during closure of the conjunctival flap. Proptosis was noted toward the end of the surgery. There was also marked temporal chemosis and subconjunctival hemorrhage. A diagnosis of RBH was made and she had prompt lateral canthotomy, Tab acetazolamide 500mg stat and ointment chloramphenicol application. The eye was padded and she was placed on Tab acetazolamide, Tab chymoral, Tab paracetamol and Tab prednisolone. She had sustained resolution of periorbital oedema, improvement in bleb morphology and was subsequently discharged on the 4th postoperative day. She was followed up in clinic and had complete resolution of periorbital oedema and subconjunctival haemorrhage as well as a functional bleb. She had good IOP control with good visual outcome.

Discussion: Retrobulbar hemorrhage (RBH) is a rare, rapidly progressive, sight-threatening emergency that results in an accumulation of blood in the retrobulbar space.[1] Spontaneous RBH is rare; 115 cases reported over a 24-year period in largest report[2], and only two reported cases of RBH following sub-tenon's anaesthesia.[3,4] Risk factors of RBH include hypertension, Valsalva manoeuvre, vascular malformations, dyscrasias etc.[2] Our patient was not hypertensive and had no known blood dyscrasias. She had sub-tenon's injection following which no features of RBH were noted at the time of injection. She however also had Valsalva manoeuvre as she coughed and strained during the surgery. A possible cause of the RBH could be a slow leak from vortex veins in the vicinity of the sub-tenon's injection or leakage from a pre-existing orbital vascular anomaly induced by the Valsalva manoeuvre. RBH could result in irreversible damage from optic nerve compression and CRVO/CRAO if no intervention is instituted promptly.[5] In this index case, the RBH was recognised on the table and the prompt treatment initiated may be responsible for the favourable outcome achieved. Rapid surgical intervention remains the mainstay of treatment.[6] The index patient responded well to lateral canthotomy, tab acetazolamide, tab chymoral and tab prednisolone. The trabeculectomy surgery was also successful, ensuring controlled IOP.

Conclusion: Sub-tenon's anaesthesia with Valsalva manoeuver can be a cause of intraoperative RBH. Urgent surgical intervention is key to management of this condition.

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