



Case report

Management of inadvertent needle penetration resulting in subretinal triamcinolone acetonide and retinal detachment

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ABSTRACT

Purpose: To report management of inadvertent needle penetration during subtenons triamcinolone acetonide administration resulting in retinal detachment.

Observations: A 71-year-old female with history of diabetes, hypothyroidism, and mild myopia underwent subtenons triamcinolone acetonide (TA) injection in the right eye for nodular scleritis. There was unexpected patient movement concurrent with the injection resulting in needle penetration, subretinal and intravitreal injection of TA, superotemporal retinal break, and macula-involving retinal detachment. The patient underwent partial subretinal TA removal, successful retinal detachment repair, and recovered 20/25 visual acuity.

Conclusions and importance: In spite of prominent subretinal TA and retinal detachment, successful repair of retinal detachment and recovery of good visual acuity is possible.

1. Introduction

Periocular injections for the induction of perioperative anesthesia and administration of local therapy is common. Complications including transitory muscle palsy, retrobulbar hemorrhage, central nervous system suppression, optic nerve trauma, and ocular penetration.¹ We report the case of inadvertent needle penetration of the globe during subtenons triamcinolone acetonide (TA) injection.

2. Case report

A 71-year-old female with history of diabetes, hypothyroidism, and mild myopia underwent subtenons triamcinolone acetonide (TA) injection in the right eye for nodular scleritis. There was unexpected patient movement concurrent with the injection resulting in needle penetration, subretinal and intravitreal injection of TA, superotemporal retinal break, and macula-involving retinal detachment (see Fig. 1). Two days later, the patient underwent 23-gauge pars plana vitrectomy, lensectomy, fluid-air exchange, endolaser surrounding the retinal break, and 16% perfluoropropane (C3F8) gas tamponade. At three month follow-up, the patient recovered 20/25 vision with an aphakic contact lens, physiologic intraocular pressure, and the retina remained attached with residual inferior subretinal TA (see Fig. 2).

3. Discussion

Needle penetration of the globe during retrobulbar and peribulbar injections are an uncommon, known complication of periocular injections.^{2–4} Risk factors include increased axial length, previous scleral buckling procedures, injection by non-ophthalmologists, poor patient cooperation during the injection, and use of sharp needles.² Pain, change in vision, hypotony and altered red reflex may be early signs of globe penetration.⁴ Sequelae of globe penetration include subretinal and vitreous hemorrhage, retinal detachment, proliferative vitreoretinopathy, and permanent vision loss.¹ In cases of retinal breaks without detachment, breaks may be treated using laser photocoagulation or cryotherapy. In cases involving vitreous hemorrhage or retinal detachment, vitrectomy and/or scleral buckling procedures may be considered. Strategies to prevent such complications include use of a finger to palpate and displace the globe away from the direction of the needle, having the patient maintain primary gaze to avoid injury to the optic nerve, ensure the needle is freely mobile from the globe and use of blunt cannulas when possible, injecting under conscious sedation or general anesthesia in cases of anticipated poor patient cooperation, and avoidance of multiple peribulbar injections when possible.⁵ Adequate explanation to the patient of the risks and alternatives of periocular injections is necessary. While subretinal TA crystals have been previously reported to be locally toxic to the outer retina and retinal pigment epithelium in animal models,⁶ no widespread toxicity has been noted, and the patient retains excellent vision. Longterm follow-up will

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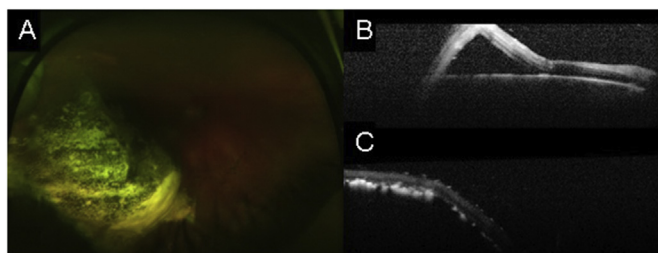


Fig. 1. Fundus photography (A) and optical computed tomography (B) demonstrate a macula-involving retinal detachment of the right eye. A superotemporal break is noted, and subretinal and intravitreal triamcinolone acetate crystals are noted inferotemporally in the area of retinal detachment (C).

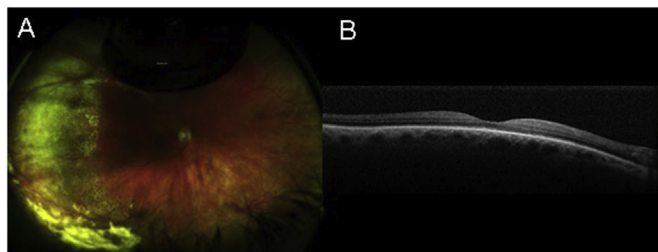


Fig. 2. Fundus photography (A) and optical computed tomography (B) demonstrating re-attached retina after 23-gauge pars plana vitrectomy, lensectomy, fluid-air exchange, endolaser, 16% perfluoropropane (C3F8) tamponade. A small residual gas bubble superiorly, temporal endolaser scar, and persistent subretinal triamcinolone acetate crystals inferiorly are noted.

be necessary to definitively rule out toxicity and delayed vision loss.

4. Patient consent

The patient consented to publication of the case orally, and this report does not contain any personal information that could lead to the

identification of the patient.

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Authorship

All authors attest that they meet the current ICMJE criteria for Authorship.

Conflicts of interest

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