Sir,

Iatrogenic macula hole and consequent macular detachment caused by intravitreal trypan blue injection

The use of a dye to stain the internal limiting membrane (ILM) or epiretinal membrane (ERM) during macula hole or macular pucker surgery is a recent development that is growing in popularity.[1] By improving visualisation of the membrane, its removal can be made easier and safer, with reduced risk of mechanical damage to underlying retinal neural tissue. We report a case of iatrogenic macula hole with consequent macular detachment secondary to intravitreal trypan blue injection during phacovitrectomy for macular pucker.

Case report

A 77-year old lady was referred to Eye Casualty with a 2-week history of visual blurring in the right eye. Her best-corrected visual acuity (VA) was 6/36 right and 6/9 left. There were bilateral cataracts, and fundus examination revealed an extensive epiretinal membrane over the right macula causing wrinkling of the retinal surface. The posterior vitreal face was detached. She was referred to the vitreoretinal surgeon and was listed for right phacovitrectomy.

Local anaesthesia was achieved with a subtenon block using 4 ml of lignocaine 2%. After uncomplicated phacoemulsification of the cataract, pars plana vitrectomy was performed followed by fluid–air exchange. A 2 ml syringe attached to a blunt cannula was used to inject 0.5 ml of trypan blue solution (MembraneBlue, DORC, Netherlands) over the macula to stain the epiretinal membrane. During injection of the dye, there was an initial resistance of the syringe plunger followed by a sudden 'give'. Upon removal of the dye and air–fluid exchange, a blue, dome-shaped elevation of the macula was seen. No macula hole was visible peroperatively. The membrane peel was abandoned and vitrectomy ports closed. On day 1 review, the right macula was still detached with a full-thickness macula hole visible (Figure 1). Fluid–gas exchange was subsequently performed on day 3, using a 14% mixture of perfluoropropane (C_3F_8) gas and air. Postoperatively, the patient was instructed to posture face down for a week.

On follow-up a week later, the macula had flattened but the visual acuity was counting fingers at 1 m. At 1 month, the macula remained flat with extensive puckering and pigment clumping of the macula (Figure 2). At 3 months, her vision did not improve, and it was decided not to proceed with a further attempt at membrane peeling.

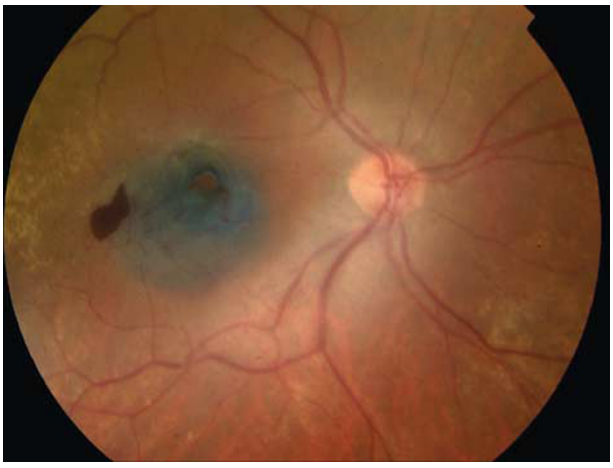

Figure 1 Macula hole and macular detachment with retinal staining by trypan blue dye.

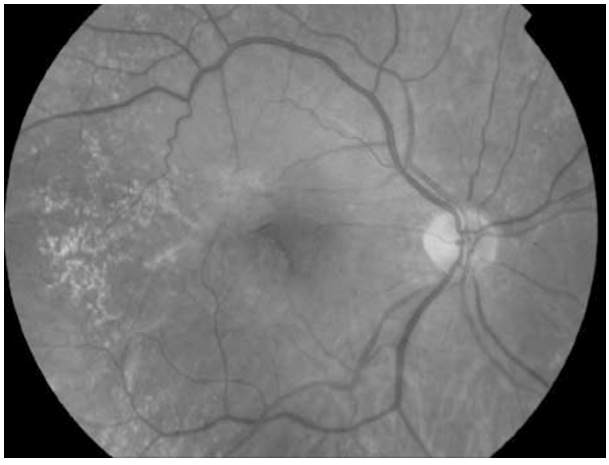

Figure 2 Flat macula with extensive epiretinal membrane and pigment clumping.

Comment

Staining of anterior lens capsule with trypan blue dye has proven to be a safe and effective method of enhancing visualisation during capsulorrhexis in cataract surgery.[2] Recently, staining of the ILM and ERM with trypan blue has been introduced to facilitate membrane peeling in vitrectomy. No peroperative or postoperative complications were described.[1,3] Follow-up after 3–4 months showed visual outcomes comparable to those without staining and did not reveal any adverse reactions related to dye use.[1,3] However, there are no studies regarding the effects of trypan blue in the longer term as yet.

It is recommended that trypan blue be applied to the membrane via a blunt cannula after fluid–air exchange,

in order to prevent aqueous dilution of the dye. The excess dye should then be removed from the vitreous body prior to air–fluid exchange to prevent unnecessary spreading of the dye.

The macular detachment experienced by our patient was caused by the collection of subretinal dye that occurred during the process of dye injection. This was most likely caused by the sudden ejection of a jet of dye at high speed from the cannula when the plunger became unstuck. As the cannula was pointed towards the macula and there was a lack of vitreous gel to buffer the jet of dye, the energy was sufficient to create a macula hole and force some dye through the hole into the subretinal space.

In order to prevent this from reoccurring, the following should be observed. Firstly, the cannula should be pointed away from the macula during dye injection. Secondly, a 1 ml syringe should be used, as it may allow better control of the injection process compared to higher-volume syringes. Thirdly, injection of the dye should be slow and controlled, such that the dye enters the vitreous cavity in a drip-like manner. This is probably better if carried out by an assistant. The plunger of the syringe should also be checked to ensure that it glides easily within the sleeve for a controlled injection.

It is important to remember that with any new surgical technique, a learning curve is always involved. Surgeons should therefore take the necessary precautions to minimise iatrogenic complications when trying out a new technique. This case demonstrates that even for a relatively simple procedure like injecting dye into the vitreal cavity, sight-threatening complications can occur.

References

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Sir,

Periorbital Oedema and epiphora as ocular side effects of imatinib Mesylate (Gleevec)

Introduction

We herein present our experience with epiphora, associated with imatinib mesylate, its causes, and management. Imatinib mesylate (Gleevec; Novartis Pharmaceuticals, East Hanover, NJ, USA) is a selective inhibitor of the bcr-abl, c-kit, and platelet-derived growth factor receptor tryrosine kinases and is a promising new targeted therapy for patients with chronic myelogenous leukaemia and gastrointestinal stromal tumours.[1–5] Imatinib mesylate is generally well tolerated, with frequent but mild side effects. Reported side effects include myalgia, fatigue, nausea, dyspepsia, diarrhoea, oedema, and liver-function abnormalities.[1] Approximately 70% of patients with chronic myelogenous leukaemia who receive imatinib mesylate develop mild to moderate regional fluid retention, usually limited to the periorbital region or legs. Rarely, fluid retention can be more generalized, with pleural or pericardial effusions, ascites, and anasarca. Treatment for most cases of imatinib mesylate-associated oedema consists of administering diuretics and decreasing the dosage.

Although periorbital oedema is a well-known side effect of imatinib mesylate and is mentioned as a common side effect in the drug insert prepared by the manufacturer and in several recently published reports of clinical trials.[6,7] To our knowledge, there are no published reports to date — aside from a report of one case of severe periorbital oedema[8]—focusing exclusively on ocular side effects associated with this medication. Here, we report a series of 12 patients treated with imatinib mesylate at our institution who reported epiphora as the main ocular side effect of this drug.

Methods

We retrospectively reviewed the records of all patients who were treated in clinical trials of imatinib mesylate at our institution between January and December of 2002