Sir,

Methodology of evaluating conjunctival appearance following sub-Tenon's block for phacoemulsification cataract surgery

Sub-Tenon's block is an unusual anaesthetic technique that produces a greater cosmetic blemish (due to injection and haemorrhage) than the surgery itself. Published studies, however, do not differentiate conjunctival redness due to conjunctival injection, subconjunctival haemorrhage produced by dissection and sometimes a small haemorrhage following phacoemulsification surgery. The redness of conjunctiva is reported as conjunctival haemorrhage in all published studies. Not surprisingly the incidence of conjunctival haemorrhage following sub-Tenon's block varies from 23 to 100%.[1,2] The assessment of conjunctival appearances has been devoid of objectivity.

The aim of this study was to assess conjunctival appearance after sub-Tenon's block with more objectivity by comparing photographs. We are not aware of any such method reported in the literature.

In total, 37 patients were included in this prospective audit. Informed consent was obtained from all patients prior to taking any photographs. All anaesthetists and ophthalmologists agreed to participate. The operated eye was photographed before sub-Tenon's injection, 6 min postinjection and then the following day. The participating anaesthetists and ophthalmologists were not shown any of the photographs until completion of the study.

All patients received sub-Tenon's block in the anaesthetic room by dedicated experienced ophthalmic anaesthetists. Topical anaesthesia was obtained by instilling tetracaine 1%. Sub-Tenon's space was accessed in the inferonasal quadrant between 3 and 5 mm lateral to the limbus using forceps and scissors. All patients received 4 ml of 2% lidocaine with 1:200 000 epinephrine and 10 IU/ml of hyaluronidase through a commercial 1 inch curved metal posterior sub-Tenon's cannula. Patients who were taking aspirin, warfarin or nonsteroidal anti-inflammatory drugs were not included in this audit. Phacoemulsification cataract surgery was carried out through a clear corneal incision, the globe being stabilised by counter pressure with closed Hoskin's forceps at the opposite limbus. All patients received a subconjunctival cefuroxime injection in the lower fornix at the end of surgery. All surgery was uncomplicated and no supplemental anaesthesia was required. Operating ophthalmologists were not informed of the particular technique or volume used for the sub-Tenon's injection. The photographs were graded on a scale of 0 to 2 by an independent observer and also operating ophthalmologists. The grading was performed as follows: Grade 0 – white, Grade 1 – slight redness and Grade 2 – significant redness and spread to other quadrants. No differentiation was made between redness caused by conjunctival injection or haemorrhage in this audit.

The demographics of the patients were comparable. Male to female ratio was 1:2 and mean age was 76 years (range 52–92 years).

Prior to the injection of anaesthetic, 100% of the eyes were classified as Grade 0. At 6 min after sub-Tenon's block, 21% of eyes were classified as Grade 0, 66% classified as Grade 1 and 13% classified as Grade 2. At day 1 postoperatively, 41% of patients were classified as Grade 0, 48 % were classified as Grade 1 and 11 % were classified as Grade 2.

Conjunctival haemorrhage has been reported in all published studies concerning sub-Tenon's block and the incidence approaches 100% as the length of cannula decreases.[2] While sub-Tenon's block is recognised as being simple and safe, it can be criticised because of redness due to conjunctival injection and/or haemorrhage. Handling of tissue during the block may lead to conjunctival injection. Disruption of small blood vessels during the block causes a small amount of bleeding which is unavoidable. Handling of tissues during surgery and antibiotics injection may add to the problem. The amount of bleeding is usually limited in most patients and no long-term sequelae have been reported but it can be aesthetically distressing to patients, relatives and healthcare professionals.

At present, there is no proven method of preventing conjunctival haemorrhage as a result of sub-Tenon's block. Some authors advocate the use of diathermy to the conjunctival area where the dissection is made[3] but a recent study has shown no such beneficial effect.[4] Passing reference is also made to the use of topical epinephrine and other vasopressors to reduce the risk of bleeding.[1] Despite a careful literature search, no definitive preventive method could be found. The incidence of conjunctival haemorrhage in a study involving 6000 sub-Tenon's block[5] was unusually low (7.4%) compared with other published studies using posterior metal sub-Tenon's cannulae (up to 50%).[6–8] The reason for this low incidence may have been due to lack of scoring system resulting in the exclusion of patients who had red eyes due to conjunctival injection.

Our study using photographs shows that those patients with Grade 0 immediately postoperatively, increased by the first postoperative day. The incidence of the slightly red eye decreased by the first postoperative day. This reduction may well have been due to conjunctival injection as haemorrhage is not likely to clear this quickly. This is also evident in Grade 2 patients

(significantly red) whose incidence remained fairly similar. This group comprised mainly patients with conjunctival haemorrhage but it would be difficult to exclude those with persistent conjunctival injection. It is also anticipated that the surgical procedure might have contributed to increase the incidence of red eye but we were unable to explore this because of the design of the study. The main objective of our study was to assess conjunctival appearance following sub-Tenon's block by an objective method and no attempt was made to differentiate between conjunctival injection or haemorrhage or indeed the influence of the surgical procedure. A remediable weakness of our methodology therefore, was in not specifying whether redness was due to haemorrhage or injection. Future methodology would therefore have a grading for redness followed by a suffix indicating injection, haemorrhage or both. Although crude, we feel this method of assessment if universally adopted, would provide a more reproducible method of assessing conjunctival appearance after sub-Tenon's block. As sub-Tenon's technique is still imperfect and continuously evolving[9] a more objective and reproducible method of assessment is essential.

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Sir,

Spontaneous cystoid macula oedema in chronic granulomatous disease: a new posterior segment sign

Chronic granulomatous disease (CGD) is a rare inherited disorder in which phagocytes lack a functional NADPH oxidase and so cannot generate superoxide anions. This impaired function leads to the failure to kill catalase positive microbes such as *Staphylococcus aureus*.[1] The most common form is X-linked caused by mutations in CYBB encoding $gp91^{phox}$, the heavy chain of flavocytochrome b(558).[2] Systemically, patients are characterised by hypergammaglobulinemia, hepatosplenomegaly, and lymphadenopathy. Typical ocular lesions associated with this condition are chorioretinal scars. We present a case of a young male who developed spontaneous macula oedema associated with this condition, which has not previously been described as an ocular complication.

Case report

A 10-year-old male with a genetically proven diagnosis of CGD had been referred to the Southampton Eye Unit because of a vitreous haemorrhage in his left eye. He had been under follow-up at Great Ormond Street and Yeovil Hospitals. Previously, he had had a bone marrow transplant in July 2002 and consequently developed graft versus host disease following this, which responded to steroids. He had also been noted to have chorioretinal scars bilaterally (Figure 1) that had no effect clinically on his vision and appeared to be stable.

He initially presented as an emergency to Yeovil Hospital with sudden loss of vision in his left eye (VA = HM) on 21 July 2003 due to a vitreous haemorrhage. A B-scan showed flat retina and the haemorrhage gradually resolved with no evidence of