Conjunctival inclusion cyst following sub-Tenon’s local anaesthetic injection

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Sub-Tenon’s local anaesthesia has become a popular technique of infiltrative anaesthesia for small incision cataract surgery. We report the development of an inclusion cyst of the conjunctiva following this technique. The aetiology of this complication and how it can be avoided are discussed.


Keywords: anaesthesia, local, sub-Tenon’s; complications, conjunctival inclusion cyst

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Case report

A 68-year-old man with cataract and glaucoma underwent an uneventful clear corneal temporal tunnel phacoemulsification and intraocular lens implantation of the right eye under sub-Tenon’s local anaesthesia. Two years later, during routine follow up for his glaucoma, a conjunctival cyst was noticed adjacent to the caruncle of the right eye, the site of the sub-Tenon’s local anaesthesia (Fig. 1). The cyst had apparently developed over the previous 4–6 months. Apart from cataract surgery, there was no history of any other previous ocular injury or surgery. Apart from hypertension, his general health was unremarkable. The cyst was about 8 mm in diameter, transparent and multiloculated. There was no pigmentation of the conjunctiva or increased vascularity. Rose Bengal staining did not show any focal dryness or thinning of the cornea as a result of this cyst. A clinical diagnosis of conjunctival inclusion cyst secondary to sub-Tenon’s local anaesthesia was made. Although quite conspicuous, the cyst was not giving rise to any discomfort. The patient was reluctant to undergo biopsy or excision and hence histological confirmation could not be obtained. The patient continues to be monitored.

Discussion

Sub-Tenon’s local anaesthesia has become a popular infiltrative local anaesthesia technique for cataract surgery because of its safety, faster anaesthetic effect and patient preference for no-needle local anaesthesia. Although infrequent, serious ocular complications such as globe perforation, orbital haemorrhage, rectus muscle trauma, orbital cellulitis, intraocular haemorrhage and retinal artery occlusion have been reported even with this technique. Serious systemic morbidity, such as prolonged loss of consciousness and stroke, has occasionally occurred. These are acute events and hence are readily noticed and recorded. Inclusion cyst formation as a complication is a late event and has not yet been reported. Elevated lesions of the eyeball, like cysts, if present close to the limbus, can prevent uniform coating of the cornea by the tear film, resulting in focal dryness (staining with Rose Bengal dye) and eventually thinning of the cornea (dellen).

Inclusion cysts of the conjunctiva can be congenital or acquired. Acquired inclusion cysts form as a result of implantation of conjunctival epithelium underneath the stroma following injury or surgery. They can be unilocular or multilocular. Conjunctival inclusion cyst formation has been reported following strabismus surgery.
surgery and scleral tunnel phacoemulsification, which are all surgical procedures where the conjunctiva is disturbed. The initial description of this technique involved making a snip in the conjunctiva, raising a small bleb to identify the tenon’s fascia and then making a further snip to enter the sub-Tenon’s space. However, this procedure is not strictly followed. The common practice is to grasp both conjunctiva and tenon’s fascia 5 mm away from the limbus in the inferonasal quadrant of the globe. A small incision is then made in this tented tissue with blunt tipped Westcott scissors. The closed scissors are then slid through to create a tunnel or to ensure that the sub-Tenon’s space has been opened. The blunt cannula is then passed through this along the curvature of the globe to reach posterior to the equator. Then the anaesthetic is injected slowly. It should be remembered that the conjunctiva is loosely adherent to the underlying tissues on moving away from the limbus. A large fold of conjunctiva is likely to be grasped because of this laxity and the surgeon’s or anaesthetist’s intent to grasp the tenon’s fascia as well in the same grip. In such a case, unless care is taken to make a small nick, a large cut in the conjunctiva will result. Novice surgeons or anaesthetists tend to make larger cuts. Small snips result in a small oval hole in the conjunctiva. Large snips result in an arcuate hole with a redundant conjunctival flap on one edge (the caruncle side) which can potentially roll inwards (Fig. 2). The introduction of the closed scissors or the cannula can fold this flap of conjunctiva inwards, leading to implantation of conjunctival epithelium and eventual cyst formation.

The following steps will help to avoid this potential complication: (1) always make smaller snips as they result in small oval holes; (2) hold the scissors perpendicular to the globe which will avoid the formation of arcuate holes; (3) hold the edge of the conjunctival tear, while inserting the

scissors or the cannula, to stop edge inversion; (4) check at the end of the procedure that there is no visible edge inversion, especially in large cuts, and if inversion is present, gently tease the edges with Moorfields forceps to undo it.

In conclusion, this case highlights the need for close attention to the surgical technique of even the simple step of making a conjunctival incision to avoid this complication.

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