Vitreous base visualisation through trans-scleral illumination with a standard 25-gauge light probe

ABSTRACT

Purpose To describe a technique of vitreous base visualisation through trans-scleral illumination using a standard 25-gauge light probe.

Methods All vitrectomies are performed using 25-gauge+ instruments and valved trocars. A non-contact viewing system is used to visualise the retina. After core vitrectomy and the necessary additional procedures, triamcinolone acetonide (Kenacort) is injected in the vitreous cavity. Then, the standard 25-gauge light pipe is covered with a sleeve obtained from a 20-gauge venflon cannula. The light brightness is increased to 100%, and the light probe used to indent the sclera and trans-illuminate the vitreous base. The vitreous cutter is activated between the crystals of triamcinolone acetonide and the retinal surface. Complete vitreous base shaving is carried out for 360°.

Results Iatrogenic peripheral retinal tears, as a result of vitreous shaving, occurred in 4.1% of cases with this technique.

Conclusions This method represents a valid and low-cost option to achieve accurate vitreous base shaving.

BACKGROUND

With current style of endoillumination, visualisation of the posterior vitreous and retina is adequately achieved. However, accessing pre-equatorial structures remains
METHODS

Surgical technique

All vitrectomies are done with the Alcon (Fort Worth, Texas, USA) Constellation vitrectomy system, with an integrated xenon light source, using 25-gauge + instruments and valved trocars. The Eibos system (Möller-Wedel, Wedel, Germany) is used to provide wide-angle viewing of the retina. After core vitrectomy and the necessary procedures (eg, membrane peeling) triamcinolone acetonide (Kenacort), diluted in 0.5 cc balanced salt solution (BSS), is injected in the vitreous cavity. Then, a sleeve obtained by cutting approximately 30 mm from the 20-gauge Venflon tm Pro cannula (BD, Helsingborg, Sweden) is used to cover the standard 25-gauge light pipe. This device reduces abrasion of conjunctiva and sclera and increases the rigidity of the light pipe (figure 1). Light brightness (usually at 36%) is increased to 100%, and intraocular pressure is set at 20 mm Hg (usually at 30 mm Hg). The light probe, modified by the sleeve, is used to indent the sclera and trans-illuminates the vitreous cavity. The residual vitreous then becomes visible as a relatively optically free space between the crystals of triamcinolone, dispersed in BSS, and the light transmitted through the retinal periphery. Vitreous base shaving is carried out for 360°. At the end of the procedure, careful inspection of the peripheral retina is performed and laser retinopexy carried out when needed. Residual triamcinolone crystals are aspirated.

RESULTS

The technique outlined in this paper, although similar to the one published by Veckeneer and Wong, presents some peculiar features and advantages.

Without PFCL, the double light reflex, as described by Veckeneer and Wong, is not seen.

The vitreous base is visualised as a crystals-free space (negative staining) between triamcinolone, freely moving in the vitreous cavity, and the light transmitted through the eye wall. Shringking of this space, along with delicate movements of the retinal periphery indicate that the vitreous gel is effectively being removed.
CONCLUSION
This technique integrates the idea of Veckeneer and Wong, and can represent a valid and low-cost option to achieve accurate vitreous base shaving for all those cases where PFCL might not be strictly necessary.

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Contributors GB: conception and design, acquisition of data, drafting and revising the article, final approval of the version to be published. PvdB: development of the described technique.

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