Efficacy of synthetic and biological bioadhesives in scleral tunnel phacoemulsification in eyes with high myopia.

Authors: Alio JL, Mulet E, Sakla HF, Gobbi F

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Abstract:

PURPOSE: To study the efficacy of a synthetic (cyanoacrylate) and a biological (fibrinogen) bioadhesive in sealing scleral tunnel incisions in cataract surgery.

SETTING: Private institution with academic orientation.

METHODS: This controlled clinical study comprised 126 eyes with high myopia (axial length > 28.0 mm) divided into three groups based on method of incision closure 10-1 nylon anchor suture; cyanoacrylate (Histoacryl); fibrinogen (Tissucol). Phacoemulsification was done through a double-valved scleral tunnel incision with an 8.0 mm arc. In all eyes, a hyperconcave, 7.0 mm optic, posterior chamber intraocular lens was implanted.

RESULTS: Mean induced astigmatism at 12 weeks was 0.18 diopter (D) in the suture group, 0.50 D in the cyanoacrylate group, and 0.43 D in the fibrinogen group. The difference between the bioadhesive groups and the suture group was not significant. A mild inflammatory reaction occurred in the cyanoacrylate group. In the fibrinogen group, 3 eyes developed postoperative hypotony requiring reclosing of the incision with sutures and 5 eyes developed intraoperative hypotony requiring suture closure. These eyes were not included in the refractive analysis. These complications led to the suspension of the fibrinogen portion of the study after uneventful use of the bioadhesive in 26 eyes.

CONCLUSION: The results of this study indicate that bioadhesives, especially synthetic ones such as cyanoacrylate, are an effective alternative to sutures in scleral tunnel cataract surgery. Future improvements in bioadhesives could extend their application to other ocular incision types.