

Session 2-M: Pediatrics: IOLs, Cataract Surgery

Title: Anterior Capsulotomy Part 1: Experimental Analysis

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PURPOSE: To compare elastic properties and scanning electron microscopic (SEM) appearance of five anterior capsulotomy techniques in a porcine model.

METHODS: Five anterior capsulotomy techniques (CCC, vitrectorhexis, multipuncture, RF diathermy and Fugo) were compared (20 eyes per technique). Extensibility was measured by calculating the mean stretch-to-rupture circumference of each capsulotomy as a percentage of its circumference at rest. Statistical analysis was performed using one-way ANOVA using post-hoc analysis. Edge characteristics were reviewed using SEM.

RESULTS: Extensibility of manual, vitrectorhexis, can-opener, RF and Fugo capsulotomy in %: 185, 161, 149, 145, 170. One-way ANOVA revealed a significant difference in extensibility ($P < .001$). The mean vitrectorhexis extensibility was significantly less than the manual, significantly greater than RF, but statistically similar to Fugo and can-opener techniques. SEM showed the most regular edge with the CCC technique. Fugo technique SEM was not as smooth as the CCC, but was smoother than RF.

CONCLUSION: In the porcine model, the CCC edge offered the best resistance to tear and also showed the smoothest, most regular edge by SEM.