

ARVO 2015 Annual Meeting Abstracts

using a noncontact specular microscope. In small children specular microscopy images were taken in the lateral decubitus position under general anesthesia.

Results: Twenty eyes of 13 patients were included in the study. Mean patient age at time of surgery was 2.6 ± 1.5 months (1.3–6.8 months) and mean follow-up time was 49.2 ± 42.6 months (6–143 months). Eighteen eyes have undergone penetrating keratoplasty (PKP) and two eyes of the same patient have undergone endothelial keratoplasty (EK). Six eyes had additional intraocular surgeries post-transplant. The mean donor size was 6.8 ± 1.0 mm (5.0–8.5 mm). The mean endothelial cell count pre-keratoplasty and at last follow-up was 3045 ± 438 cells/mm² (2625–4083 cells/mm²), and 1514 ± 692 cells/mm² (693–2203 cells/mm²), respectively, reflecting 49.9 ± 22.5 % (26.0–77.5%) endothelial cell loss (ECL).

Conclusions: Paediatric keratoplasty has higher ECL compare to the reported adult ECL following penetrating keratoplasty. Whether this is related to the smaller size donor graft or to the more challenging surgical and anatomical properties of pediatric keratoplasty merits more investigation.

Commercial Relationships: Asim Ali, None; Uri Elbaz, None; Kamiar Mireskandari, None

Program Number: 1555 **Poster Board Number:** D0010

Presentation Time: 8:30 AM–10:15 AM

Assessment of corneal suturing performance using the Bioniko ophthalmic surgery models in inexperienced vs experienced ophthalmic surgeons

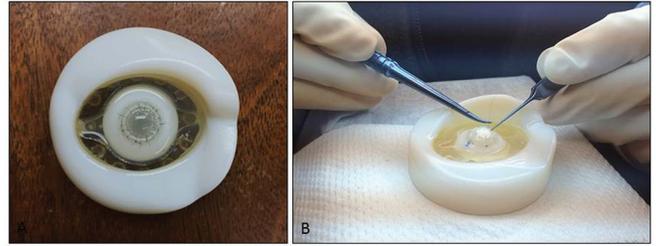
Florence Cabot¹, Priyanka Chhadva¹, Madhura Joag¹, Mariela C. Aguilar¹, Heather A. Durkee¹, Esdras Arrieta¹, Jean-Marie A. Parel^{1,2}, Sonia H. Yoo¹, Carol L. Karp¹. ¹Ophthalmology, Bascom Palmer Eye Institute, University of Miami Miller School of Medicine, Miami, FL; ²Brien Holden Vision Institute, University of New South Wales, Sydney, NSW, Australia.

Purpose: To assess the corneal suturing performance of inexperienced vs experienced ophthalmic surgeons using a new teaching tool: the Bioniko ophthalmic surgery models.

Methods: Prospective comparative study performed at Bascom Palmer Eye Institute, Miami, FL, USA. The Bioniko ophthalmic surgery models (Bioniko LLC, Miami, FL, USA) are made of polyacrylate material and are divided in 2 parts: the orbit model and the corneal (kerato) model. The orbit model simulates structures surrounding the eye and the corneal (kerato) model is the replaceable sclera ring with corneal button. Group 1 included inexperienced surgeons who were subdivided in participants undergoing a daily or weekly training on Bioniko ophthalmic surgery models vs participants who did not undergo any training. Group 2 included experienced ophthalmic surgeons who are familiar with corneal suturing. Each participant was asked to perform 16 interrupted corneal sutures in a penetrating keratoplasty fashion on a Bioniko ophthalmic surgery model. Time of surgery, space between each suture, radiality, length and symmetry of the suture (inner length, outer length and delta length = outer length – inner length) were recorded by a masked observer at baseline and 2 weeks after training on Bioniko ophthalmic surgery models.

Results: At baseline, mean time of surgery was 135min [90-180] in Group 1 and 45 min in Group 2. Two weeks later, mean time of surgery was 40min in Group 1 with training, 90min in Group 1 without training and 45min in Group 2. Mean space range between sutures improved from [1.0-2.5mm] to [1.0-2.2mm] in Group 1 with training. Mean suture length was 1.82mm [1.39-2.2] in Group 1 and 1.69mm [1.2-2.3] in Group 2. Delta length improved from 0.53mm [0-1.7] to 0.36mm [0-1.0] in group 1 with training and from 1.03mm [0.3-2.0] to 0.63mm [0-1.5] in Group 1 without training.

Conclusions: The Bioniko ophthalmic surgery model is a very useful tool to train inexperienced surgeons for corneal suturing. In this ongoing project, marked improvements in corneal suturing skills were noted within a 2 week period of training on those models.



Bioniko ophthalmic surgery model. A. The Bioniko corneal (kerato) model is mounted on the orbit model in order to mimic real surgical conditions. B. The surgeon performs corneal suturing in a penetrating keratoplasty fashion (16 interrupted sutures with 10.0 nylon).

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Presentation Time: 8:30 AM–10:15 AM

Improvement of centering and the shape of globes during penetrating keratoplasty in patients with narrow ocular fissure

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Purpose: This study was performed to analyze the safety (complications) and the improvement of surgery procedure in penetrating keratoplasty with blepharophimosis by adjustable sclera-fixation double ring.

Methods: Study design: retrospective study
The incidence of postoperative ptosis was compared between adjustable sclera-fixation double ring (n=10) and normal sclera-fixation double ring (n=10), both were used during penetrating keratoplasty. Patients were randomly selected.

Results: Under topical anesthesia, sclera-fixation double ring could be easily applied without damaging levator muscle of the palpebral, and sutured 4 points by 7-0 vicryl (polyglactin 910). This achieved excellent scleral fixation of the eye globe and facilitated suturing and improve safety during surgery. During the penetrating keratoplasty, surgery was performed with complete fixation of cornea in center, and prevent collapsing of eye globe. In adjustable sclera-fixation double ring, the incidence of post-operative ptosis was significantly lower than normal double ring (p<0.01)

Conclusions: Adjustable sclera-fixation double ring was useful for patients with narrow ocular fissure to improve safety and prevent postoperative ptosis during penetrating keratoplasty.

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