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LETTER TO THE EDITOR

Modification of Swan-Jacobs lens for iridocorneal angle surgery

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Dear Editor:

At present, the goniolens must be pressed against the cornea to prevent air from entering the space between the goniolens and the cornea during goniosynechialysis (GSL) [1], trabeculotomy ab interno, sclerothalamotomy ab interno [2], and goniotomy. This pressure can cause Descemet's folds that blur the view of the iridocorneal angle. To overcome this, we have modified the Swan-Jacobs lens (Ocular Instruments, Bellingham, WA, USA) so that a clear view of the iridocorneal angle can be obtained during surgery.

For our modification, we cut the little finger of a size 7 surgical glove off and trimmed it to a length of about 17 mm. We then cut the tip of the finger off eccentrically to make a circular opening whose diameter was about 5 mm. Then a 1-mm-diameter hole was made 6.5 mm from the edge of the circular opening (Fig. 1a). The handle of the Swan-Jacobs lens was passed through this hole, and the Swan-Jacobs lens was pulled up into the tip of the finger, and the skirt around the Swan-Jacob lens was trimmed to be 4 to 5 mm. Then a 4 to 5-mm notch was cut in the skirt 4 mm from the edge of the circular opening opposite the handle (Fig. 1b).

A 20-gauge cannula was stuck through the skirt near the handle of the Swan-Jacobs lens, and its tip was adjusted to be at the lower edge of the lens. Tegaderm (3M, St. Paul, MN, USA) was used to tie the 20-gauge cannula to the handle of the Swan-Jacobs lens (Fig. 1b).

We then placed the modified Swan-Jacobs lens over the eye and kept the lens about 1 to 2 mm above and not touching the cornea. The 20-gauge cannula was used to perfuse warm balanced salt solution (BSS) into the space between the Swan-Jacobs lens and cornea. Any air in the space was pushed out through the notch in the skirt.

With this arrangement, the iridocorneal angle could be clearly seen without using any viscoelastic substance (Fig. 1c).

We have used this technique since December 2009 on three GSLs and 18 trabeculectomies ab interno (Fig. 1d). In all cases, we did not see any Descemet's folds on the cornea, and condensation on the lens was not present.

With our modified Swan-Jacobs lens, the iridocorneal angle can be clearly seen and surgery can be easily performed. The space between the Swan-Jacobs lens and cornea was continuously perfused with BSS, which eliminated the need to press on the cornea. This then prevented the formation of Descemet's folds, and the operation was easier and safer. The continuous perfusion of BSS also washed away any blood such as that from bridle sutures and keeps the surgical field clear and sterile.

Learning to make and use the modified Swan-Jacobs lens is easy and the surgery does not introduce any specific risks.

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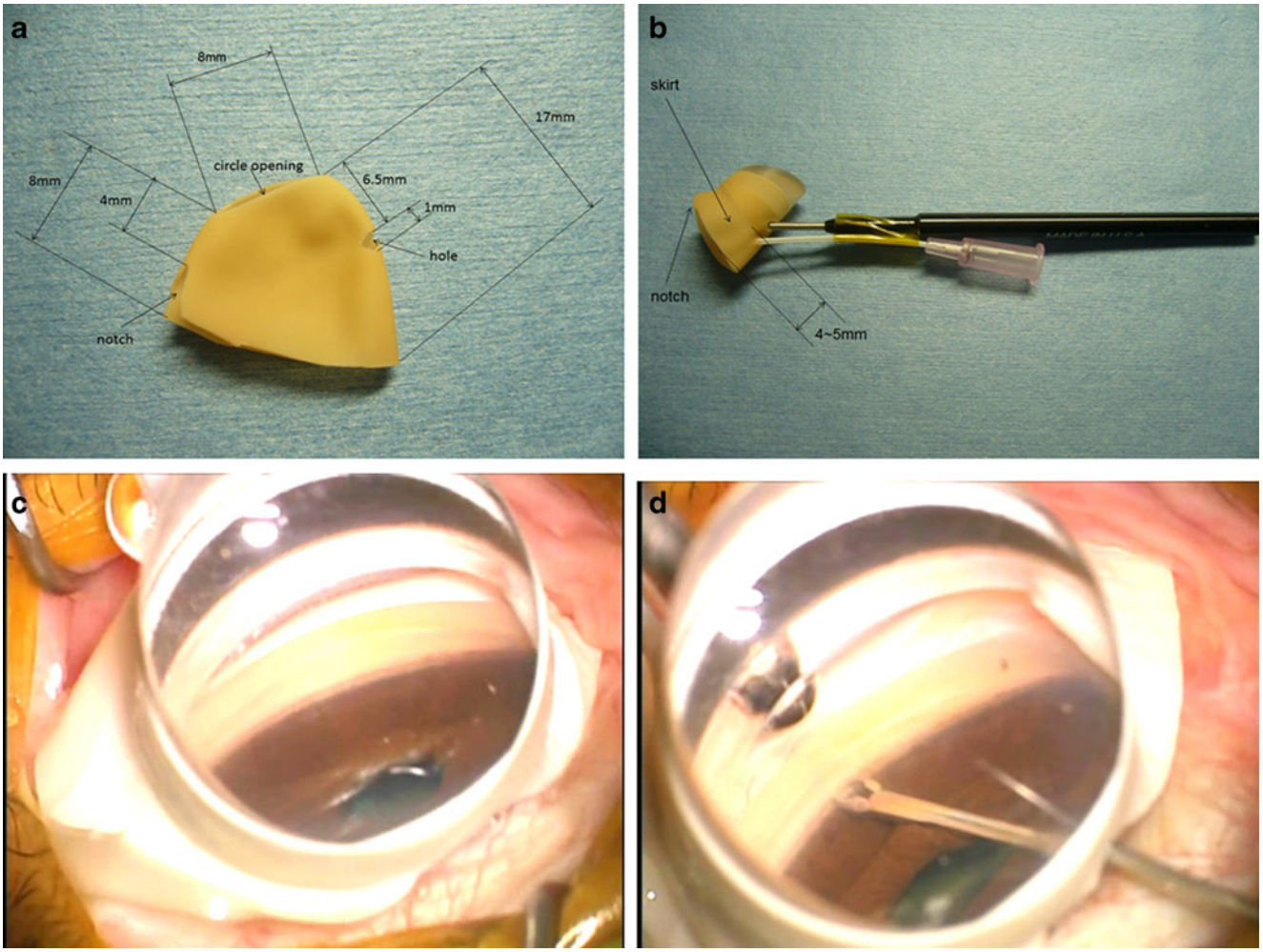

Fig. 1 Our modified Swan-Jacobs lens and its placement during surgery. **a** Tip a finger of surgical glove that was draped over the Swan-Jacobs lens. **b** Modified Swan-Jacobs lens. **c** The cornea iridocorneal angle through the modified Swan-Jacobs lens. **d** Trabeculotomy ab interno using modified Swan-Jacobs lens

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Akira Meguro: design, acquisition of data, making figure and final approval.

Nobuhisa Mizuki: conception, design, and final approval.

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