


A minified Swan-Jacob gonioscopic lens for in vivo gonioscopy, goniphotography, and goniotomy-like surgery in the eyes of small primates is described.

Recent work in our laboratory has involved goniotomy-like surgery and repeated gonioscopy in the eyes of small monkeys in vivo. We describe here a gonioscopic lens which has proved useful for these procedures.

Materials and methods. Several dozen cynomolgus (Macaca irus) and vervet (Cercopithecus aethiops) monkeys weighing between 1.3 and 4.8 kilograms were used. Non-operative gonioscopy was usually performed with an operating microscope or, occasionally, at a slit lamp. Goniotomy-like surgery was done under the operating microscope. The anesthetized monkey was placed in a head-holder, supine for the operating microscope, and prone for the slit lamp. Short or long-acting intramuscular general anesthetics were employed; topical anesthesia was not given.

A standard Swan-Jacob gonioscopic lens (Parsons Optical Laboratories, San Francisco, Calif.) was minified as follows: one end of a methylmethacrylate rod of approximately the same diameter as the lens was shaped to fit approximately into the concavity of the under surface of the lens. One end of another rod was shaped roughly to fit the convexity of the top surface of the lens. The handle of the lens was broken off, and under gentle heating with hot air, Kerr dental impression compound was used to seal the body of the lens firmly between the rods. Linear alignment was maintained by doing the sealing in the crook of a right-angle metal bracket. The single straight rod formed by the two methylmethacrylate rods and the lens body was then reduced to the desired diameter in a lathe and polished with polishing wax for plastic. Gentle heating with hot air permitted the now minified and polished lens body to be separated from the methylmethacrylate rods. Any dental impression compound remaining on the lens was

Fig. 1. Standard lens (left), diameter = 9.5 mm. Minified lens (right), diameter = 7.5 mm.
Fig. 2. Gonioscopy with minified lens in 1.8 kilogram cynomolgus monkey, with (A) and without (B) lid speculum. Note adequate field of view and large expanse of clear cornea not covered by lens.

Results. The minified lens (Fig. 1) easily fit the small monkey lid fissure and cornea, with (Fig. 2, A) or without (Fig. 2, B) a speculum. Lateral canthotomy was never needed. The curvature of the lens concavity was close enough to that of the cornea so that, in all the monkeys used, no coupling fluid was needed; it was only necessary that the cornea be moist. Enough clear cornea was left uncovered by the lens to permit the insertion of the goniotomy knife-cannula (Fig. 2, A and B). The field of view, although smaller than that of the standard lens, was adequate, and the optics were excellent.

Discussion. Minification of the standard Swan-Jacob gonioscopic lens is simple. The lens may be reduced to practically any desired diameter compatible with an adequate field of view. The minified lens is highly satisfactory for in vivo gonioscopy, goniophotography, and goniotomy-like surgery of the entire chamber angle circumference in the eyes of small primates.

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REFERENCE

Erratum. In the March, 1975, issue of the JOURNAL, page 185, the dose of retrobulbar alcohol should be 0.8 ml. instead of 8.0 ml.