ESTIMATION OF WIDTH OF ANGLE OF ANTERIOR CHAMBER

INCIDENCE AND SIGNIFICANCE OF THE NARROW ANGLE

WILLIAM VAN HERICK, M.D., ROBERT N. SHAFFER, M.D., AND ARIAH SCHWARTZ, M.D.
San Francisco, California

The purpose of this study was: (1) to determine the accuracy of methods for evaluating the angle of the anterior chamber width without resorting to gonioscopy and (2) to determine the incidence of narrow angles in a normal population. The reliability of estimating angle width by use of flashlight inspection or slitlamp biomicroscopy has not previously been checked in any large series of patients. We evaluated over 5,000 patients seen for refraction. Four hundred eyes were examined by gonioscopy to determine the correlation with the estimated angle width. All narrow-angle eyes were gonioscoped. The clinician who fails to note a narrowed angle is missing a fundamental physical finding of vital prognostic importance to the patient; if mydriatics are used, for example, there is the risk of precipitating an angle-closure glaucoma with all its attendant physical and legal implications.

Gonioscopy is required in the classification of glaucoma. In the routine examination of nonglaucomatous patients it is impractical to perform gonioscopy; it is done only if the angles are thought to be narrowed. The ophthalmologist must know whether or not the angle is capable of occlusion; this permits him to make such objective judgments as:

1. Deciding on the safety of mydriasis in routine office examinations, prior to such surgery as cataract extraction, or its therapeutic use in such conditions as corneal ulcers or uveitis.

2. Advising a family physician or an anesthetist on the safety of prescribing belladonnalike alkaloids medically or preoperatively.

3. Determining the necessity of close follow-up evaluation of patients presenting changes in angle width.

4. Properly interpreting the patient's symptoms; halos, headaches, eye pain and blurred vision would be regarded as far more significant in a patient with angles capable of occlusion than in one with wide-open angles. Similarly, a patient with a complaint of blurred vision and eye pain following a mydriatic examination could be safely reassured if his angles were known to be wide open.

The use of a flashlight to examine the anterior segment of the eye and to elicit pupillary response to light is a routine ophthalmic practice. By directing the flashlight beam from the temporal side at the level of the pupil, the entire iris will be illuminated if the iris lies in a flat plane. This is characteristic of the deep-chambered eye of myopia and aphakia which has a wide-open angle (Grade 4) formed by the iris making a 45 degree angle with the trabecular surface. When the iris makes an angle with that surface of 20 degrees or less (Grade 2 to 0) the lens-iris diaphragm is displaced anteriorly, shallowing the anterior chamber. The flashlight beam will illuminate the temporal iris, but the nasal leaf of the iris will be shadowed in direct relationship to the convexity of the iris-lens diaphragm. This method of estimating angle width is reliable in the majority of cases.

With this flashlight method, however, the examiner must guard against misinterpretations. He may sometimes estimate the

From the Department of Ophthalmology, University of California School of Medicine. Presented at the First South Africa Ophthalmological Congress, Johannesburg, South Africa, September, 1968.

Reprint requests to William van Herick, M.D., Department of Ophthalmology, University of California Medical Center, San Francisco, California 94122.