10.2 Examination Methods

Oblique Illumination of the Anterior Chamber

The anterior chamber is illuminated by a beam of light tangential to the plane of the iris. In eyes with an anterior chamber of normal depth, the iris is uniformly illuminated. This is a sign of a deep anterior chamber with an open angle (see Fig. 1.12).

In eyes with a shallow anterior chamber and an angle that is partially or completely closed, the iris protrudes anteriorly and is not uniformly illuminated (see Fig. 1.12).

Slit Lamp Examination

The central and peripheral depth of the anterior chamber should be evaluated on the basis of the thickness of the cornea. An anterior chamber that is less than three times as deep as the thickness of the cornea in the center with a peripheral depth less than the thickness of the cornea suggests a narrow angle (Fig. 10.2a). Gonioscopy is essential for further evaluation.

To evaluate the depth of the anterior chamber with a slit lamp biomicroscope, a narrow setting for the light beam should be selected. The beam should strike the eye at a slight angle to the examiner’s line of sight.

Anterior segment imaging devices that have recently become available (Visante OCT, Zeiss) provide a tomographic overview of the entire anterior chamber and its size (Fig. 10.2b).

Gonioscopy

The angle of the anterior chamber is evaluated with a gonioscope placed directly on the cornea (Fig. 10.3a–c).

Gonioscopy can differentiate the following conditions:

- Open angle: open angle glaucoma.
- Occluded angle: angle closure glaucoma.
- Angle access is narrowed: configuration with imminent risk angle of an acute closure glaucoma.
- Angle is occluded: secondary angle closure glaucoma, for example due to neovascularization in rubeosis iridis.
- Angle open but with inflammatory cellular deposits, erythrocytes, or pigment in the trabecular meshwork: secondary open angle glaucoma.

Gonioscopy is the examination of choice for identifying the respective presenting form of glaucoma.
10.2 Examination Methods

**Slit lamp examination to evaluate the depth of the anterior chamber**

![Slit lamp examination image]

Fig. 10.2  
(a) The depth of the anterior chamber is less than the thickness of the cornea on its periphery. The corneal reflex and iris reflection touch each other (arrow), indicating a shallow anterior chamber. Gonioscopy is indicated.

(b) Anterior segment imaging (Visante OCT, Zeiss) shows the narrowing of peripheral cornea and iris and the flatness of the anterior chamber.

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**Measuring Intraocular Pressure**

**Palpation** (Fig. 1.15, p. 14): Comparative palpation of both eyeballs is a preliminary examination that can detect increased intraocular pressure.
- If the examiner can indent the eyeball, which fluctuates under palpation, pressure is less than 20 mmHg.
- An eyeball that is not resilient but rock hard is a sign of about 60–70 mmHg of pressure (acute angle closure glaucoma).

**Schiøtz indentation tonometry** (Fig. 10.4): This examination measures the degree to which the cornea can be indented in the supine patient. The lower the intraocular pressure, the deeper the tonometer pin sinks and the greater distance the needle moves.