Ultrasound Biomicroscopy

- Living tissue at microscopic resolution
- Evaluate anterior segment

Ultrasound frequencies

- Higher than general medicine
- Penetration limits of conventional B scan 30 to 40 mm
- Penetration limits of Ultrasound biomicroscopy 5 to 10 mm

Instrumentation

- Foot pedal
- Eye Cup or Clear Scan Cover

http://www.eyesurgin.com/clearscan.html
Normal Anatomy
- Cornea
- Sclera
- Anterior chamber
- Lens

Normal Anatomy
- Iris
- Ciliary sulcus
- Ciliary body
- Posterior chamber

Normal Anatomy
- Anterior retina
- Muscle insertion

Most significant limitation
- Limited penetration of large lesions

Glaucoma
- Open Angle
- Closed Angle

Plateau Configuration
Glaucoma
- Iris positioning
- Choroidal Detachments

Angle Closure
- Clock Positions involved
- PAS

Surgical Outcomes
- Laser Iridectomy
- Iridotomy
- Trabeculectomy
- Tube placement

Anterior segment lesions
- Assessment of tumor margins
- Definition of the structures involved
- Measurement

Ciliary Body and Choroidal Lesions
- Define dividing line of structural involvement
- Incomplete imaging of large tumors

Courtesy of Nancy London, Ellex
Iris Nevus
- Plaque appearance
- May show posterior iris distortion

Iris melanoma
- Thicker than nevi
- Variable internal reflectivity
- Satellite lesions

Lens Abnormalities
- Definition of the structures involved

Cysts
- Low internal reflectivity
- Multiple loculations
- May be associated with solid lesions

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- Multiple loculations
- May be associated with solid lesions

Trauma
- Hyphema
- Foreign body
- Iridodialysis
- Cyclodialysis
- Corneal scarring
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- Hyphema
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Cyclodialysis vs Choroidal Detachment

Corneal Disease
- Edema
- Opacification
- Grafts
- Dystrophies

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Scleral Disease
- Staphyloma
- Episcleritis
- Scleritis
Scleral Disease
- Assessment of margins
- Definition of the structures involved
- Measurement

Intraocular Lenses
- AC lenses
- PC lenses
- IOL complications

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S/P Vitrectomy

UBM – An effective method of imaging anterior segment
- Can add information to clinical observation
- Improved ability to determine borders
- Greater precision in detecting changes
Thank you