

# Recent Anterior Segment Imaging Techniques

Essay

**Submitted in partial fulfillment of  
M.Sc degree in Ophthalmology**

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# Aim of the work

To evaluate the various imaging techniques for investigating anterior segment diseases using ultrasound biomicroscopy, corneal topography and oculus pentacam.

## Introduction

*Imaging in Ophthalmology has considerably improved over the*  
Past years, but only selected techniques allow high resolution imaging of anterior segment. (**Wilkins et al 1996**).

From the imaging techniques of the anterior segment that provide high resolution, the ultrasound biomicroscopy (UBM), which is useful in diagnosis of a wide variety of glaucoma disorders, inflammatory diseases, anterior segment tumors and trauma. (**Woo et al 1999**). Nowadays, there are two instruments, which are rising in the field of ultrasound imaging. The very high frequency ultrasound (VHF) is also used in evaluation of corneal changes produced by refractive surgery. The three dimensional UBM

## *Contents of the essay*

*Will be as follow*

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**Corneal  
topography.....**

...

    Introduction.....

**Corneal optics and structure**

**Corneal shape**

**Principles of Corneal topography**

**Interpretation of topographic maps**

**Interpretation of topographic indices**

**Use of Corneal topography in refractive surgery**

**Ultra sound imaging**

**Introduction to Ultra sound**

    Pulse\_ echo system

**Ultra sound in ophthalmology**

        A\_ scan

        B\_ scan

**Ultra sound biomicroscopy (UBM)**

    Instrumentation

**Technique**

    Normal anatomy

**Indications for UBM**

    1. Glaucoma

    2. uveitis

    3. Trauma

    4. Opaque media

    5. Tumors

**New technologies**

**Very high frequency (VHF) Ultra sound**

**Advantages of the VHF Ultra sound**

**Clinical uses of VHF Ultra sound**

**Three-dimensional UBM**

**Clinical uses of 3\_D UBM**

**Oculus pentacam**

**History**

**Optical principle**

**Commercially available devices**

**Advantages of Oculus pentacam**

**Uses of Oculus pentacam**

## References

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