INTRODUCTION

Ultrasound is an indispensable tool in medical imaging and has an important role in ophthalmologic diagnoses. Conventional B-scan examinations produce two-dimensional cross-sectional views of the eye and orbit. This method of imaging is the most important examination technique for intraocular lesions, particularly in the presence of anterior segment opacities; however, there are limitations to conventional ultrasound ***(Pavlin et al., 1991)***.

The use of high frequencies, in the 20 to 100 MHz range, for ocular imaging has greatly improved the resolution of ocular ultrasound. Pavlin, Sherar and Foster applied the techniques of using higher frequency ultrasound to image living structures and they named this process of ocular imaging "Ultrasound Biomicroscopy" ***(Pavlin and Foster, 2002)***, that is, the imaging of living structures at microscopic resolution ***(Pavlin et al., 2008)***.

Ultrasound biomicroscopy **(UBM)** uses high-frequency ultrasound (50 MHz) to produce in vivo images of the anterior segment with resolution as high as 50 μm ***(Palvin et al., 1991 & 1992)***, and achieves tissue penetration of 4-5 mm ***(Pavlin and Foster, 1995)***.

UBM gives images in living eyes without affecting the internal relationship of the imaged structures. It provides information that was unobtainable by other non-invasive approaches. It now allows structural details of the angle, visualization of the area posterior to iris and ciliary body; and to quantify precisely anatomic relations among the anterior segment structures including for example: anterior chamber depth **(ACD)**,

angle opening distance **(AOD)** 500 µm from scleral spur, trabecular-iris angle **(TIA)**, and iris-lens angle **(ILA)** ***(Pavlin and Foster, 1995)***.

Before **UBM**, cataract surgeons did not have a reliable postoperative technique to check whether the intraocular lens haptics were really situated in the bag as intended. As the peripheral parts of the haptics are hidden behind the iris, which makes it impossible to visualize them in any other way in vivo ***(Pavlin et al., 1992)***.

UBM provides a unique method to test the exact IOL location and its relationship to adjacent ocular structures. Moreover, **UBM** provides reproducible measurements of the distances between the IOL and these structures. It produces short wavelengths, that provide high resolution and accurate measurements but at the expense of penetration ***(Jimenez-Alfaro et al., 2001)***.

Scanning is performed with the patient in the supine position under standardized room lighting conditions (under topical anesthesia in adults while in children we use sedation) using an eye cup which is inserted between the lids and filled with saline solution ***(Pavlin and Foster, 1995)***.

Myopia is the most common ocular abnormality, with 25% of the population of the United States being myopic. In contrast, pathologic myopia, also known as high myopia or degenerative myopia, is rare, occurring in roughly 2% of the population. The spherical equivalent of an eye with high myopia is more than -6.00 D, or an axial length greater than 26.5 mm ***(Blinder et al., 2003)***.