

*Younes Hadi, Harb Mahdi*

## **POSSIBILITY OF AS-OCT IN THE DIAGNOSIS OF CORNEAL DISEASES**

*Tutor: assist. Potapova E.S*

*Department of Ophthalmology*

*Belarussian State Medical University, Minsk*

**Relevance.** Differential diagnosis of corneal diseases and dystrophies is often and always difficult. Primarily limited to slit lamp examinations until optical coherence tomography of the anterior segment (AS-OCT). AS-OCT uses laser light with a wavelength of 840-1310 nm that enables real-time imaging of the entire corneal structures, such as epithelium, Bowman's layer, stroma, and Descemet's membrane and endothelium. The diagnosis of some corneal disorders can be clinical. However, clinical features may often be subtle or may even be subclinical and in such cases, this study aims to determine the use of AS-OCT in helping clinching the diagnosis.

**Aim:** to check the possibility of optical coherence tomography of the anterior segment (AS-OCT) in the diagnosis of corneal diseases.

**Materials and methods.** AS-OCT visualized characteristic changes in the cornea representing the structural and morphological changes in the underlying disorder. Corneal disorders that this study reviewed are keratoconus, corneal dystrophies, and infectious keratitis.

**Results and their discussion.** AS-OCT images managed to characterize corneal microarchitecture and regional epithelial thickness in patients with early keratoconus where epithelial thickness maps show that eyes with keratoconus have a thinner apical epithelium, and a typical inferior temporal cone has a correspondingly thicker layer of superior nasal epithelium. Salzmann's nodular degeneration was identified through imaging, where at the level of Bowman's layer, band keratopathy can be seen as hyperreflective material with some posterior shadowing. AS-OCT allows the demonstration of the characteristic Thiel Behnke dystrophy's saw-toothed hyperreflective material that is produced on the surface of Bowman's layer and frequently extends into the epithelium, and also hyperreflective material produced in the anterior stroma of patients with granular dystrophy. In cases of Acanthamoeba keratitis, keratoneuritis can be seen as hyperreflective lines in the anterior to mid stroma, where hyperreflectivity signifies corneal infiltration.

**Conclusion:** AS-OCT is a significant supplementary imaging technique for the differential diagnosis and subsequent therapy strategies for corneal diseases and delivers important information that enhances slit-lamp examination and genetic testing. It is also a useful tool for assessing and tracking corneal disorders' development in three dimensions. Yet alone not sufficient in diagnosing keratoconus.