Summary

- In the last years there is increase in progress in corneal investigations to gain the best outcome of refractive surgery operations .

- It is important to evaluate the anterior and posterior corneal surfaces as well as the corneal thickness at different points for careful preoperative evaluation of the cornea to gain the best postoperative outcome of the refractive surgery.

- The corneal topography was the investigation of choice in the last decades. It performs evaluation of the anterior surface of the cornea only which resemble a disadvantage of it, because posterior corneal surface pathology such as posterior keratoconus can not be detected and missed in diagnosis.

- The Orbscan Π provides us with anterior and posterior corneal surface topography and corneal thickness at different points of the cornea, thus it overcomes the disadvantage of the corneal topography in evaluation of the posterior corneal surface, but it does not provide us with enough data about corneal thickness, because it gives us five points of corneal thickness only .

- The Anterior Segment Optical Coherence Tomography (AS – OCT) provides us with cross sectional images and pachymetry maps of the cornea . The high resolution of the images, being non contact and pachymetry maps are advantages of AS – OCT over Ultrasound Biomicroscopy (UBM).

- The pentacam provides us with many softwares by which we can evaluate the anterior and posterior corneal surfaces.It provides us with pachymetry maps and true net power map which resemble an advantage in careful evaluation of the cornea.