

The Morphological Changes of POV in Diabetic Patients and Its Correlation with Changes in Corneal Epithelium, Corneal Nerve, and the Fundus in Using Vivo Confocal Microscopy

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Abstract : Diabetes mellitus is a metabolic disease characterized by high blood sugar. A long-standing hyperglycemic state can lead to various tissue damage. Diabetic retinopathy is the most common and widely studied ocular complication and has become the leading cause of blindness in my country. At the same time, diabetes has profound clinically relevant effects on the cornea, leading to keratopathy and vision-threatening. The cornea is an avascular tissue and is sensitive to hyperglycemia, Keratopathy caused by diabetes is usually chronic, they are called diabetic keratopathy or diabetic neurotrophic keratopathy, leading to several diabetic corneal complications including delayed epithelial wound healing, recurrent erosions, neuropathy, loss of sensitivity. Corneal stem cell dysfunction in diabetic patients as an important influencing factor of diabetic keratopathy. The consequences of this condition are often underestimated. The limbus is located between the cornea and the sclera tissue. The limbal stroma consists of a series of radial elevations with fibrovascular centers known as palisades of Vogt (POV). Previous studies have shown that palisades of Vogt (POV), as the main site of limbal stem cells, plays an important role in the homeostasis of the corneal epithelium. Therefore, POV plays a vital role in the healing of corneal epithelial surgery and postoperative evaluation. IVCM can observe the condition of the corneal epithelium at the cellular level. It has profound significance and guidance for the evaluation of limbal and limbal stem cells. We have previously observed structural changes in POV in HSK and HZO patients on IVCM. At present, there have been reports involving limbal stem cell dysfunction in diabetic patients, but the specific pathogenesis is still unclear. However, there are no studies on POV morphological changes in patients with DM. Therefore, we performed statistics and compared the correlation between POV morphological changes and corneal epithelial basal cell density, corneal nerves, and length of disease in DM patients and normal humans using IVCM studies. At the same time, funduscopy was used to observe the correlation between the thickness of RNFL and the thickness of GCC and POV in diabetic patients. And to observe the correlation between SVD, DVD and POV for research.

Keywords : confocal microscopy, fundus, limbal stem cells, diabetes

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