

CLINICAL DIAGNOSTICS CORNEAL ULCERS

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Introduction. Corneal ulcer is a serious disease characterized by the presence of a defect and in the case of perforation, leading to loss of function of the organ of vision or death of the eye.

Purpose of the study. To assess the structure of the cornea using optical coherence tomography (OCT) of the anterior segment for the clinical diagnosis of the depth of the lesion in corneal ulcers.

Material and methods. Patients diagnosed with corneal ulcer were examined. OCT of the anterior segment was performed on the «SOCT Copernicus» device of the «Carl Zeiss» company at the Eye Microsurgery Department of the Grodno University Clinic. The thickness of the cornea and changes in the morphometric structure of the cornea were assessed. The study included 12 patients (12 eyes). The average age is 62.5 years. Men – 8, women – 4.

Results and discussion. Biomicroscopy (BM) showed diffuse epithelial and stromal edema in patients with impaired integrity and transparency of the cornea. Visual acuity was reduced to light perception in 4 eyes, from 0.01 – 0.04 in 8 eyes. In 9 eyes (75%), ulcers occupied a central position. The size of the ulcer was more than 4.5 mm. The ulcer was complicated by the presence of hypopyon in 8 eyes. According to OCT data, microcystic edema with multiple or single small cysts in 7 eyes was diagnosed in the corneal epithelium zone. Crater-like defects in the superficial and middle layers of the cornea were detected in 66.7% of cases – 8 eyes, slit-like defects were found in 4 eyes (33.3%), which were clinically the most severe. Diffuse thickening was determined in the corneal stroma in all patients; the corneal thickness in the edema zone averaged 706 μm . Single macrocysts with the threat of perforation and thinning of the cornea up to 100 μm were detected in 4 eyes. Folds of Descemet's sheath of the cornea were present in all patients. Upon detection of slit-like defects, patients underwent therapeutic keratoplasty with an amniotic membrane, which made it possible to preserve the organ of vision and reduce the duration of hospital stay.

Conclusions. OCT is a highly informative non-contact method that allows one to assess structural changes in the layers of the cornea, obtain a high-quality image of tissues with a resolution close to the cellular one, and determine the timing of keratoplasty in case of a threat of corneal perforation.