Purpose: to define the tomography changes of lamina cribrosa (LC) and its scleral canal depending on type and stage of diabetic optic neuropathy (DON).

Methods. 575 patients (1150 eyes) with type 2 diabetes mellitus (DM) and 50 non-diabetic control persons (100 eyes) aged 55.9±7.8 years were examined. LC thickness was measured with optical coherent tomography (OCT) using LC_Thickness_programm.m and main_low_noise_filters_programm.m. The area of LC scleral canal was measured with SD OCT using the LC_cut_position_programm.m and LC_diameter_calculation_programm.m.

Results. A correlation between type and stage of DON and LC thickness in diabetic patients was found. An average index of LC thickness in diabetic patients without DON was 1.4 times higher than in controls; in subclinical stage of axial DON – 1.9 times higher, in initial stage – 2.1 times higher, in severe stage of axial DON and diabetic papillopathy – 2.6 times higher, in anterior ischemic DON – 2.7 times higher, in dystrophic stage – 3.1 times higher than in controls (303±56 μm) (p<0.001). Scleral canal area in diabetic papillopathy was 35% less and in anterior ischemic DON was 21.6% less than that in controls. A direct correlation between the area of LC scleral canal and the state of optic nerve head was found in diabetic papillopathy and ischemic DON (r=0.89, p<0.001 and r=0.93, p<0.001 correspondingly).

Conclusions. A direct correlation between type and stage of DON and scleral LC thickness in patients with DM was revealed. Narrowing of LC scleral canal and thickening of LC were found to change in diabetic papillopathy and ischemic DON. Disclosure: No