Choroidal Vascularity Index and Choriocapillary Changes After Epiretinal Membrane Surgery

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Purpose

To study the structural changes in the choroid after idiopathic epiretinal membrane (ERM) surgery via optical coherence tomography angiography (OCT-A) and enhanced depth imaging optical coherence tomography (EDI-OCT).

Setting/Venue

Gazi University School of Medicine, Ophthalmology Department, Retina Service.

Methods

Changes in the structure of the choroid after ERM surgery were studied in sixty-six eyes of thirty-three patients with unilateral idiopathic epiretinal membrane using optical coherence tomography (OCT) with enhanced depth imaging (EDI) and OCT-angiography (OCT-A). Choroidal vascularity index (CVI), Haller layer/choroidal thickness (H/C) ratio, and choriocapillaris flow density (CF) were used to compare the structural characteristics of the choroid with fellow eyes. OCT and OCT-A measurements were obtained at the baseline and six months after the ERM surgery.

Results

The mean CVI (0.60±0.04) and H / C values (0.69±0.08) of the ERM group at the baseline were higher than the mean CVI (0.58 ± 0.03) and H/C values (0.64 ± 0.09) of the control group (p: 0.009 and p:0.04 respectively), while postoperative mean CVI (0.58±0.03) and H / C values (0.63±0.08) of the ERM group were found to be similar to CVI (0.58 ± 0.03) and H/C values (0.63 ± 0.09) of the fellow eyes. (p: 0.761 and p:0.827 respectively) In

and postoperative measurements. (p:0.161 and p:0.827, respectively). The mean CF (0.88 ±0.28) of the ERM eyes was lower than the mean CF (1.09 ± 0.07) of the fellow eyes while no difference was found between the mean CF of ERM eyes(1.08 ± 0.1) and fellow eyes (1.11 ± 0.09) at the postoperative measurements. (p:0.001 and p:0.463, respectively). In addition, CF was increased after surgery in the ERM eyes while no difference was found between baseline and postoperative measurements in the fellow eyes. (p:0.041 and p:0.507, respectively)

Conlusions

The CVI and H/C ratio decreases while CF increases following the epiretinal membrane removal in contrast to the fellow eyes. Decreased H/C ratio and increased CF suggest structural changes especially in the small-sized vascular layers of the choroid. Epiretinal membrane appears to alter the hemodynamic properties of the choroid which might be reversible by surgery

Financial Disclosure

We have no conflict of interest to disclose.

Comments

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