

学位論文の要旨

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- 学位論文名 Visual Function and Vision-Related Quality of Life after Vitrectomy for Epiretinal Membranes: A 12-Month Follow-up Study
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論文内容の要旨

INTRODUCTION

Epiretinal membranes (ERM) are cellular avascular proliferations on the retinal surface that can decrease visual acuity (VA) and cause metamorphopsia as a result of retinal wrinkling resulting from traction in the macular region. Previously, many favorable visual outcomes after vitrectomy for ERM have been reported, but the visual function was evaluated mainly based on VA in those studies. However, in patients with an ERM, metamorphopsia, rather than decreased VA, frequently is the reason for undergoing surgery. Therefore, traditional ophthalmologic measurements such as VA may not reflect patient satisfaction with the postoperative visual function.

The 25-item National Eye Institute Visual Function Questionnaire (VFQ-25) is used to evaluate the vision-related quality of life (VR-QOL). Recently, two studies have assessed the VR-QOL using the VFQ-25 before and after surgical removal of ERMs; however, both studies evaluated the VR-QOL during relatively short periods of 3 or 4 months postoperatively. After ERM removal, continuous improvements in VA, retinal thickening, and metamorphopsia have been observed for up to several years; thus, longer follow-up might provide additional information regarding patient satisfaction related to ERM removal.

The goals of the current study, therefore, were to evaluate the visual function and

VR-QOL and assess the relationship between visual function and VR-QOL for up to 12 months postoperatively in patients who underwent ERM surgery.

MATERIALS AND METHODS

Twenty-six eyes of 26 consecutive Japanese patients with an idiopathic ERM who underwent pars plana vitrectomy at Shimane University Hospital between November 2006 and January 2009 were prospectively recruited into the study.

Three parameters, i.e., the best-corrected visual acuity (BCVA), central macular thickness (CMT), and metamorphopsia, that were related to visual function or anatomy were assessed before (baseline) and 3 and 12 months postoperatively. The BCVA was measured using a decimal VA chart and converted to the logarithm of minimal angle of resolution (logMAR) VA. The CMT in the central 1 mm diameter subfield was measured using the optical coherence tomography (OCT). Metamorphopsia was evaluated using the Amsler chart, and the number of distorted squares on the charts was recorded as the metamorphopsia score. To assess the VR-QOL, the VFQ-25 questionnaire was self-administered 1 day at baseline and 3 and 12 months postoperatively. The VFQ-25 is comprised of 25 items in which patients are asked to assess the level of difficulty of particular visual symptoms or day-to-day activities. Each item was assigned to one of 12 subscales: general health, general vision, ocular pain, near activities, distance activities, social functioning, mental health, role difficulties, dependency, driving, color vision, and peripheral vision. The subscale score was converted to a score between 0 and 100, with 100 indicating the highest possible function or minimal patient impairment. The VFQ-25 composite score was calculated as the mean score of all items, except for general health items.

One of two experienced vitreous surgeons performed the surgeries (sutureless 25-gauge three-port vitrectomy). Patients scheduled for cataract extraction before vitrectomy underwent a conventional phacoemulsification procedure with intraocular lens implantation.

RESULTS AND DISCUSSION

The ERM was removed successfully in all subjects without significant complications. All patients completed the follow-up examinations at month 3 and 12. At baseline and month 3 and month 12, the logMAR BCVAs (mean±standard error of the mean) were 0.41±0.05, 0.17±0.04 (P=0.0001 vs. baseline), and 0.10±0.03 (P<0.0001 vs.

baseline, $P=0.0016$ vs. month 3), respectively; the CMTs (μm) were 402 ± 18 , 312 ± 9 ($P<0.0001$ vs. baseline), and 300 ± 7 ($P<0.0001$ vs. baseline, $P=0.0544$ vs. month 3); and the metamorphopsia scores were 202 ± 29 , 137 ± 27 ($P=0.0186$ vs. baseline), and 108 ± 26 ($P=0.0005$ vs. baseline, $P=0.0218$ vs. month 3). All subscales in the VFQ-25 were equal to or higher than baseline at month 3 and were the highest at month 12. The improved BCVA was correlated with improvements in two subscales ($r=-0.405$ – -0.574 , $P=0.0041$ – 0.0427) at month 3; the improved metamorphopsia score was correlated with the improved composite score ($r=-0.552$, $P=0.0058$) and three subscales ($r=-0.458$ – -0.507 , $P=0.0113$ – 0.0219) at month 12. No other correlations between the VFQ-25 scores and the three parameters reached significance at month 3 and 12.

Previous studies have shown that the postoperative composite score and other subscales significantly improved for 3 or 4 months postoperatively. However, to the best of our knowledge, no report has evaluated using the VFQ-25 to assess the VR-QOL in patients with an ERM later than 4 months after surgery. In the current study, we found that most subscales at month 12 were higher than at month 3 and that the composite score and five of 12 subscales at month 12 significantly improved from baseline. The current study found the most significant correlation between the changes in the composite score and the changes in the metamorphopsia score at month 12. During the same period, the changes in metamorphopsia were significantly correlated with changes in three of 12 subscales. Although the improvement in the BCVA was even more evident than the improvement in the metamorphopsia score at month 12, no significant correlation was observed between changes in the BCVA and changes in any VFQ scores. Taken together with these results, the current findings suggested that among the visual function and anatomic parameters, the improvement in metamorphopsia, even if its improvement was smaller than the improvements of other parameters, was associated most strongly with the improved VR-QOL achieved in patients who underwent vitrectomy to remove an ERM.

CONCLUSION

In conclusion, the current study suggested that surgical removal of ERMs improved visual function and VR-QOL. The improvement in metamorphopsia was the most important factor associated with better VR-QOL 12 months postoperatively.