ANATOMICAL AND VISUAL OUTCOMES OF INVERTED INTERNAL LIMITING MEMBRANE FLAP TECHNIQUE VERSUS INTERNAL LIMITING MEMBRANE PEELING IN MYOPIC MACULAR HOLE WITHOUT RETINAL DETACHMENT

A Preliminary Retrospective Study

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Purpose: To compare the results of vitrectomy with internal limiting membrane (ILM) peeling and inverted ILM flap for treating myopic macular hole without retinal detachment.

Methods: Twenty-eight eyes of 28 patients undergoing vitrectomy with either ILM peeling (n = 16) or inverted ILM flap technique (n = 12) were included. Outcomes were myopic macular hole closure by optical coherence tomography and visual acuity at 6 months and at the end of follow-up.

Results: Closure of myopic macular hole was achieved in 13 eyes (81.2%) of the ILM peeling group and in 11 eyes (91.7%) of the inverted ILM flap group. The median length of follow-up was 18 months in the peeling group and 10.3 in the inverted group. There were not statistically significant differences between restoration of the external limiting membrane, external limiting membrane and ellipsoid zone, and none of both layers between the two groups. The median best-corrected visual acuity (logarithm of minimal angle of resolution) at the end of follow-up was 0.25 (20/35 Snellen) in the peeling group and 0.4 (20/50) in the inverted group (P = 0.027).

Conclusion: Both techniques were associated with high closure rates of myopic macular hole but the small sample size and the retrospective design prevents any claims of superiority of one technique over the other.

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Highly myopic individuals are known to be a high risk group for macular holes, with or without retinal detachment (RD) and retinoschisis.[1–4] The pathogenesis of myopic macular hole (MMH) and MMH with RD is not fully understood and is believed to be multifactorial, involving inwards tractions from abnormal premacular vitreous cortex adhesion, the internal limiting membrane (ILM) or the epitenial membrane, and external tractions from a posterior staphyloma.[5–8] Retinoschisis is common in highly myopic eyes and can progress to foveal RD and full-thickness macular hole.[9–11] Myopic foveoschisis combined with the presence of a premacular structure or foveal detachment predicts poor prognosis.[9]

Biomicroscopic diagnosis of MMH can be challenging due to posterior chorioretinal atrophy.[12,13] Optical coherence tomography (OCT) has become pivotal in the diagnosis and follow-up of MMH including the course of macular hole closure.[13–15] The successful closure of macular holes by pars plana vitrectomy (PPV) was first reported by Kelly and Wendel in 1991.[16] Since then, various surgical techniques adjunct to PPV have been proposed for improving anatomical and functional outcomes of MMH surgery,[11,17–20] including ILM peeling,[4] epiretinal membrane removal,[6] laser photocoagulation around the hole margin,[21] scleral buckling,[22] scleral

infolding,[23] and silicone oil tamponade.[24] However, a widely accepted technique for MMH closure has not yet been established.

Recently, the inverted ILM flap technique first described by Michalewska et al[25] in 2010 for large macular holes has been used for treating MMH with and without RD.[14,15,20] Although anatomical closure rates are high with the inverted ILM flap technique, there is no consensus regarding whether functional outcome is more favorable with the inverted ILM technique as compared to complete peeling of the ILM. The purpose of this study was to evaluate the anatomical and functional outcomes of the inverted ILM flap technique versus complete ILM peeling in patients with MMH without RD.

Methods

Study Design and Participants

This was a retrospective case series study consisting of patients who underwent the inverted ILM flap technique or complete ILM peeling for MMH without RD between February 1, 2011, and January 31, 2017, at the Ocular Microsurgery Institute (IMO, Instituto de Microcirugía Ocular) in Barcelona, Spain. Patients operated on or before January 1, 2015, underwent ILM peeling and those operated on afterward underwent the inverted ILM flap technique. The study was approved by the ethics committee of IMO medical center and was conducted in accordance with principles of the Declaration of Helsinki. Written informed consent for participation was obtained from all patients.

The inclusion criteria were as follows: 1) full-thickness macular hole without RD, 2) high myopia ($\geq$6 diopters and/or axial length $>$25.5 mm) determined by B-scan ultrasonography and/or an IOLMaster, and 3) follow-up period of at least 6 months. The exclusion criteria were as follows: 1) traumatic macular hole or history of eye trauma, 2) macular edema of any cause, 3) recurrent macular hole, 4) presence of glaucoma and/or any other chronic ocular disease, and 5) presence of systemic diseases such as diabetes mellitus.

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Surgical Procedure

All surgeries were performed by an experienced vitreoretinal surgeon (J.G.-A.). Vitrectomies were performed under retrobulbar anesthesia. All patients underwent standard 3-port 23- or 25-gauge PPV with posterior vitreous detachment by soft silicone-tipped cannula or active suction with the vitrectomy probe. If present, any epiretinal membrane was peeled. Internal limiting membrane was stained with a mixture of brilliant blue G and trypan blue (MembraneBlue-Dual; Dorc, Zuidland, the Netherlands) for 1 minute and then aspirated with a silicone-tipped cannula. In the group of complete ILM peeling, the ILM was peeled off in a circular manner for about two disk diameters around the macular hole using a forceps (Storz Single-Use Vitreoretinal Asymmetric Peeling Forceps, Aliso Viejo, CA) and then removed. The inverted ILM flap technique was performed according to the original description of Michalewska et al[25] with some modifications. During ILM peeling around the macular hole, the ILM flap was not entirely removed from the retina but a remnant was left attached to the periphery of the macular hole. Most of the peripheral ILM was removed carefully to not cut the entire flap with the vitreotome. To place the flap, a small amount of perfluorocarbon was introduced over the macula. Then, the remnant ILM flap was moved with a silicone cannula to invert the flap upside down and then pushed into the macular hole to fill it. The perfluorocarbon liquid facilitated manipulation of the inverted flap and surgical maneuvers. In phakic patients, if lens opacification prevented visualization of the fundus, standard phacoemulsification with intraocular lens implantation was performed before vitrectomy. Initial fluid–air exchange was performed peripherally to remove all the fluid before removing the central perfluoro-n-octane (HPF8; Alchimia srl, Padova, Italy) to avoid movement of the flap. The remnant fluid on the disk was removed to avoid movement of the flap too. After fluid–air exchange, we reconfirmed that the ILM flap remained in place. The ILM flap could be visualized through the filled air in the vitreous cavity because the ILM flap was stained with brilliant blue G. Consequently, gas tamponade (10% C_3F_8) was applied, and the patients were instructed to maintain a prone position for approximately 5 days after surgery.

Examination

Patients were examined before macular surgery and on Day 1, at 2 weeks, and at 3 months and 6 months after surgery. Preoperatively, all patients underwent a complete ophthalmologic examination, including best-corrected visual acuity (BCVA) according to

Table 1. Preoperative Characteristics of Patients With MMH Without RD Undergoing ILM Peeling or Inverted ILM Flap Technique

Variables	ILM Peeling Technique (n = 16)	Inverted ILM Flap Technique (n = 12)	*P*
Sex			
Men	5 (31.2)	6 (50)	0.281
Women	11 (68.7)	6 (50)	
Age, years, median (IQR)	60 (57–67)	59.5 (56–67)	0.882
Operated eye			
Right	9 (56.2)	3 (25)	0.079
Left	7 (43.7)	9 (75)	
Axial length, mm, median (IQR)	30.5 (26.9–33.5)	28.7 (25.8–30)	0.141
Axial length > 30 mm	8 (50)	3 (25)	0.268
Refractive error, diopters, median (IQR)	−15 (−19 to −8.5)	−9.5 (−13.8 to −7.3)	0.184
Posterior staphyloma	10 (62.5)	5 (41.7)	0.281
Foveoschisis	1 (6.2)	2 (16.7)	0.308
Lens status			
Phakic	7 (43.7)	5 (41.7)	0.912
Phakic intraocular lens	9 (56.2)	7 (58.3)	
BCVA, logMAR, median (IQR)	0.5 (0.35–0.85)	0.45 (0.4–0.8)	0.728
BCVA, Snellen chart, median (IQR)	20/63 (20/44–20/141)	20/56 (20/50–20/126)	
Macular hole (SD-OCT)			
Minimum diameter, μm, median (IQR)	264 (116–325)	307 (170–453)	0.341
Base diameter, μm, median (IQR)	543 (366–891)	723 (408–1,016)	0.413
Follow-up, months, median (IQR)	18.0 (6.1–35.4)	9.8 (6–12.2)	0.0884

Data expressed as frequencies and percentages in parenthesis unless otherwise stated.
IQR, interquartile range (25–75%).

Snellen fraction chart, slit-lamp examination and dilated funduscopy, axial length measured by optical biometry (IOLMaster 500 and 700; Carl Zeiss Meditec AG, Jane, Germany) or B-mode echography, intraocular pressure by Goldmann applanation tonometry, assessment of the presence or absence of posterior staphyloma by slit-lamp fundus examination and B-mode ultrasonography, assessment of the presence or absence of retinoschisis by spectral domain OCT (SD-OCT) using the Cirrus HD-OCT 4000 and 5000 (Carl Zeiss Meditec), lens status, assessment of the presence or absence of RD, and geometry of MMH including the minimum extent of the hole (minimum diameter) and the base diameter on SD-OCT. In all patients, the diagnosis of MMH was confirmed by SD-OCT. Postoperatively, complete ophthalmologic examinations included BCVA, intraocular pressure, slit-lamp, fundus assessment, and SD-OCT. High-resolution five lines scan was used to visualize the fovea's details. Macular hole closure was defined by SD-OCT as the complete disappearance of the hole and absence of neurosensory defect over the fovea. Flat-open and elevated-open MMHs were considered surgical failures.

Statistical Analyses

Categorical data are expressed as frequencies and percentages and continuous data as median and interquartile range (IQR) (25–75%) when data were not normally distributed. The BCVA was recorded as decimal value and converted to the logarithm of minimal angle of resolution (logMAR) and Snellen fraction for statistical analysis. The Fisher's exact test was used to compare categorical data. The Student's *t*-test was used to compare normally distributed continuous data, and the nonparametric Mann–Whitney *U* test was applied when the data were not normally distributed. Statistical significance was set at $P < 0.05$ for 2-sided tests. Statistical analyses were performed using StatsDirect version 3.0 software (StatsDirect Ltd, Altrincham, United Kingdom).

Results

During the study period, 16 patients (5 men and 11 women) (16 eyes) underwent vitrectomy using the ILM peeling technique and 12 patients (6 men and 6 women) (12 eyes) were treated with vitrectomy using the inverted ILM flap procedure. One patient has been treated in one eye with one technique and the other eye with the other technique. The median age of the patients was 60 years. The distribution of study variables was similar in the two groups (Table 1). Eight eyes in the peeling ILM group and 3 in the inverted ILM flap group had an axial length

Table 2. Anatomical and Functional Results in Patients With MMH Without RD Undergoing ILM Peeling or the Inverted ILM Flap Technique

Variables	ILM Peeling Technique (n = 16)	Inverted ILM Flap Technique (n = 12)	*P*
Macular hole			
Open	3 (18.7)	1 (8.3)	0.363
Closed at the end of follow-up	13 (81.2)	11 (91.7)	
Restoration of ELM at 6 months	10/13 (76.9)	5/11 (45.4)	0.246
Restoration of ELM and ellipsoid zone at 6 months	6/13 (46.1)	2/12 (16.7)	0.122
No restoration of ELM and ellipsoid zone at 6 months	3/13 (23.1)	5/11 (45.4)	0.468
BCVA (logMAR), median (IQR)			
At 6 months	0.3 (0.2–0.45)	0.4 (0.3–0.85)	0.142
At the end of follow-up	0.25 (0.2–0.4)	0.4 (0.2–0.8)	0.027
BCVA (Snellen chart), median (IQR)			
At 6 months	20/39 (20/31–20/56)	20/50 (20/39–20/141)	0.142
At the end of follow-up	20/35 (20/31–20/50)	20/50 (20/31–20/126)	0.027
Improvement of BCVA ETDRS Letters improvement			
At 6 months	+50	+0	0.016
At the end of follow-up	+50	+9	0.021
Increased BCVA			
At 6 months	13 (81.2)	4 (33.3)	0.010
At the end of follow-up	15 (93.7)	6 (50)	0.011
Increased or stable BCVA	15 (93.7)	9 (75)	0.154

Data expressed as frequencies and percentages in parenthesis unless otherwise stated.
ETDRS, Early Treatment Diabetic Retinopathy Study; IQR, interquartile range (25–75%).

>30 mm. The median BCVA (logMAR) was also similar (0.5 and 0.45 in the peeling ILM and inverted ILM flap groups, respectively) and Snellen fraction was 20/63 and 20/55, respectively. Minimum and base diameters of the macular hole were also comparable. Phacoemulsification in combination with PPV was performed in 6 eyes (37.5%) from the peeling ILM group and in 3 (25%) from the inverted ILM flap group. Also, one patient from the peeling ILM group developed cataract at follow-up. In this patient, cataract surgery was performed 16 months after the vitreoretinal procedure. The median (IQR) length of follow-up was 18 (6.1–35.4) months in the peeling ILM group and 10.3 (6–16.6) months in the inverted ILM flap group ($P = 0.168$).

Functional and anatomical results are shown in Table 2. Macular hole closure was achieved after vitrectomy with ILM peeling in 81.2% (13 eyes) and after vitrectomy with inverted ILM flap in 91.7% (11 eyes) with no significant differences between groups ($P = 0.363$). Postoperative SD-OCT revealed restoration of the external limiting membrane (ELM) in 10 of 13 eyes with closed macular holes in the ILM peeling group and in 5 of 11 eyes with closed macular holes in the inverted ILM flap group. The number of eyes with defects of both ELM and ellipsoid zone at 6 months was 3 in the peeling group and 5 in the inverted ILM flap group. Recovery of both layers was achieved in six and in two patients of closed macular holes for the groups of ILM peeling and inverted ILM flap technique, respectively. There were no statistically significant differences between restoration of the ELM, ELM and ellipsoid zone, and none of both layers between the two groups. Illustrative cases are shown in Figures 1–3.

The median (IQR) BCVA (logMAR) at the end of follow-up was 0.25 (0.2–0.4) and 20/35 (20/32–20/50) in Snellen fraction in the peeling ILM group as compared to 0.4 (0.2–0.8) and 20/50 (20/32–20/126) in Snellen fraction in the inverted ILM flap group ($P = 0.027$). Differences in improvements of BCVA at 6 months of surgery and at the end of follow-up were more favorable for the peeling ILM technique. A total of 81.2% of cases in the peeling ILM group and 33.3% in the inverted ILM flap group increased BCVA at 6 months ($P = 0.010$); the corresponding percentages at the end of follow-up were 93.7% and 50%, respectively ($P = 0.011$). In the subset of patients who underwent phacoemulsification, differences in BCVA between the peeling group and the inverted flap group were not observed.

Postoperative complications included one case of choroidal detachment that resolved spontaneously and ocular hypertension in five patients (ILM peeling, n = 3; inverted ILM flap, n = 2).

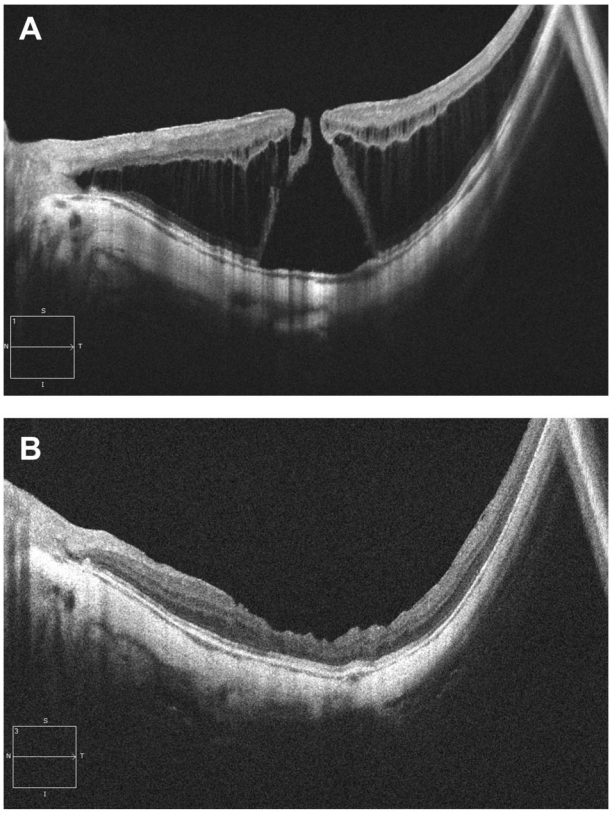

Fig. 1. A male patient with MMH treated with the inverted ILM flap technique. The axial length was 32 to 45 mm. Preoperatively, the OCT (**A**) showed a minimum macular hole of 163 μm and base diameter of 1,622 μm. The BCVA was 0.4 logMAR (20/50 Snellen chart). Postoperatively, OCT (**B**) at 12 months showed recuperation of ellipsoid zone and ELM. At 12 months, the BCVA was 0.1 logMAR (20/25).

One patient in the ILM peeling group developed RD 2 months after surgery, retinal reattachment was achieved, and the macular hole remained closed. A scleral buckle combined with vitrectomy was performed for RD. Also, one eye in each group required additional surgery. One patient underwent surgery in both eyes, with ILM peeling in one eye and the inverted ILM flap in the other.

Discussion

Results of this study show a similar closure rate with the use of the inverted ILM flap technique versus ILM peeling in patients with MMH without RD. In the original study of the inverted flap technique of Michalewska et al,[25] macular hole closure was observed in 88% of patients undergoing standard 3-port PPV and in 98% of patients treated with the inverted ILM flap technique. They hypothesized that this approach may induce glial cell proliferation, resulting in the macular hole filling with proliferating cells that enhance closure, as well as new positions of photoreceptors in direct proximity to the fovea.[25] Histopathologic studies showed that ILM being a base membrane acts as a scaffold and enables glial cell proliferation to close large macular holes.[26] The inverted ILM flap technique has been also successfully applied for surgical repair of MMHs.[27,28] Various modifications of the inverted ILM flap procedure have been described.[28–31] We used perfluorocarbon liquid to avoid malposition of the ILM flap during air–fluid exchange, as done before by other authors.[28] Malposition of the flap affects surgical success. Also, several reports have compared the "cover" and the "fill" techniques. Rossi et al[29] showed higher closure rates in fill eyes, although differences were not statistically significant, and similar BCVA improvements were found at 3 months. It seems that in the cover variant, the ILM operates as a bridge in the macular hole and allows for better closing of the inner defect. However, the fill ILM behaves like glue: it affects the inner layer but it seems to not affect the photoreceptors' line. However, whether it is required to cover or tuck the macular hole with the ILM flap remains controversial.[28,31] It has been suggested that it is only necessary to cover the macular hole with the ILM flap because surgical manipulation to tuck the ILM flap into the hole can potentially damage the retinal pigmentary epithelium.

In our patients undergoing the inverted ILM flap technique, the closure rate of 91.7% was similar to that reported by Michalewska et al[27] (100%) and Oleñik et al[14] (94%) in MMH. A total of 33.3% of patients showed improvement in BCVA at 6 months and 50% at the end of follow-up. It seems that the longer the follow-up, the greater that chances of improvement of visual acuity. Although significant differences in the duration of follow-up were not found, differences in BCVA improvement may be related to a longer follow-up in the peeling ILM group. The rate of BCVA improvement of 33.3% at 6 months is lower than 100% found in the study of Michalewska et al,[27] although final BCVA achieved in our study was similar to the 0.4 logMAR value reported by these authors. In fact, the mean initial LogMAR in the series of Michalewska et al[27] was 1, which is notably lower than 0.45 found in our patients. In 33 eyes with MMH without retinoschisis and axial length $\geq$30 mm, Oleñik et al[14] reported an improvement of visual acuity in 39.4% of the patients, which is similar to the present findings. In 6 patients with MMH without RD (mean axial length 29.5 mm) reported by Kuriyama et al,[20] initial macular closure was obtained in 5 (83.3%) and visual improvement in one eye, but the length of follow-up in this study was 6 months compared with a median of 10.3 months in our series.

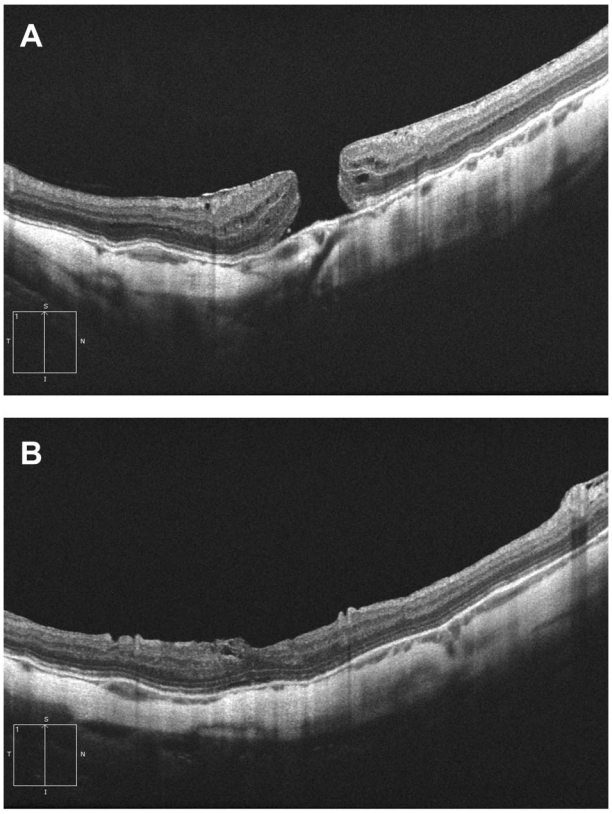

Fig. 2. A female patient with MMH treated with ILM peeling in the right eye. The axial length was 32.24 mm. Preoperatively, OCT (**A**) showed minimum macular hole of 163 μm and base diameter 1,622 μm. Preoperatively, the BCVA was 0.5 logMAR (20/63 Snellen chart). Postoperative OCT (**B**) at the end of follow-up (32 months) showed anatomical closure. Best-corrected visual acuity at the end of follow-up was 0.2 logMAR (20/31).

Internal limiting membrane peeling and gas tamponade is a well-established surgical option for MMH without RD, and without[4,13,17,32–35] or with associated retinoschisis.[11,36] Closure rates after vitrectomy and ILM peeling are usually high in most of the studies. In the present series, the closure rate was 81.2%, which is similar to that reported by others. In 24 highly myopic eyes with full-thickness macular hole without RD, García-Arumí et al[4] reported successful anatomical macular hole closure occurred 6 months postoperatively in 87.5% of cases with one surgery and in 100% with 2 surgeries. In 10 severely myopic eyes, Kwok and Lai[35] obtained an anatomical closure rate of 90%. Other authors reported closure rates ranging between 83% and 100%.[13,32–34] In relation to BCVA, the percentages of patients with vision improvement after ILM peeling in the different studies varied between 41% and 83%.[4,13,32–35] In this study, BCVA improvement was found in 81.2% of patients at 6 months and in 93.7% at the end of follow-up. The closure rate was the same as compared to the inverted ILM flap technique but a significantly higher number of patients had improvement of BVCA; however, the data are inconclusive and further studies would be required to answer which technique is better in high MMHs in relationship with visual and anatomical outcomes. It may be hypothesized that MMH surgery with better preoperative visual acuity (median BCVA in the ILM peeling group was 0.5 logMAR, 20/63 Snellen) has more chance for vision improvement. However, further studies with longer follow-up periods are needed.

However, in patients with MMH and retinoschisis, both closure rates (25[36] and 50%[11]) and visual acuity improvement (37.5[36] and 20%[11]) are lower in comparison with MMH without retinoschisis. In only one patient in our study who presented retinoschisis in the preoperative examination, the macular hole did not close after surgery.

Recently, Mete et al[37] have compared complete ILM removal and inverted ILM flap technique in 36 and 34 highly myopic eyes, respectively, with the rate of macular hole closure and visual acuity at 6 months as main outcome variables. Although the minimal

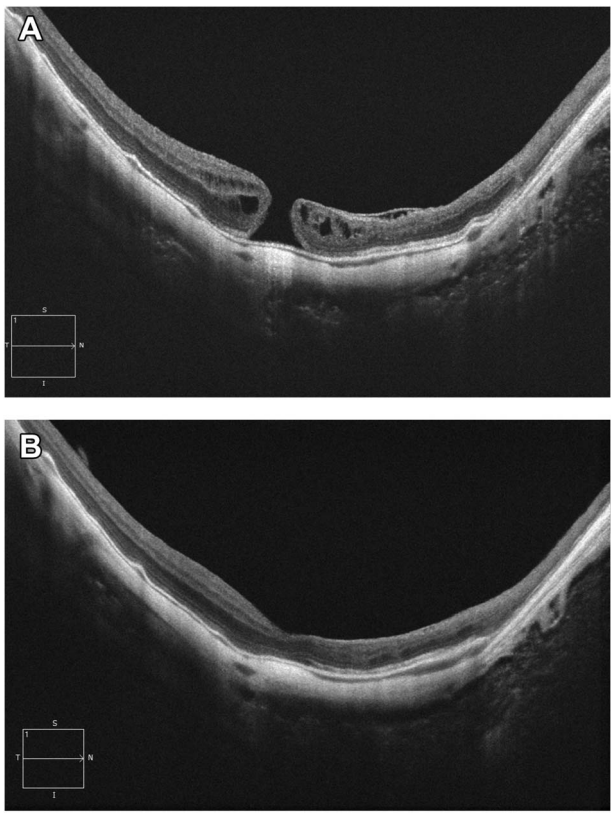

Fig. 3. A male patient presented with MMH in the right eye and was treated with ILM peeling. The axial length was 35.45 mm. Preoperatively, OCT (**A**) showed minimum macular hole of 200 μm and base diameter 536 μm. The BCVA was 0.5 logMAR (20/63 Snellen chart). Optical coherence tomography at 5 months (**B**) showed recovery of ELM and no restoration of ellipsoid zone (arrows).

macular hole diameter was significantly higher in the inverted ILM flap group, the rate of MMH closure was 61.1% in the peeling group and 94.1% in the inverted flap group. In the multivariate analysis, the inverted ILM flap technique was associated with 22 times higher probability of anatomical success, regardless of the MMH diameter. By contrast, Mete et al[37] reported significantly higher improvement of BCVA in the inverted flap group, whereas significantly better visual outcomes for the peeling technique were found in our study. This finding, however, should be interpreted with caution taking into account that this retrospective study was performed in a small number of patients and, therefore, any claims of superiority of one technique over the other should be examined prospectively in a larger number of patients. It is possible that the better preoperative visual acuity in the peeling group would have been associated with a higher likelihood of visual acuity amelioration after surgery. A prolonged follow-up period is necessary to assess differences in long-term visual outcomes between both techniques. In this study, one patient in the group of the inverted ILM flap technique showed complete closure of the macular hole at 6 months after surgery and reopened at 11 months postoperatively. It has been shown that visual acuity after successful macular hole surgery continues to improve over 2 years.[38]

Restoration lines (ellipsoid zone and ELM) were evaluated by OCT. Better visual outcome in the peeling group could be related to a greater proportion of recovery of both layers at 6 months as compared to the inverted flap group (46.1 vs. 13.3%). The same occurred in ELM restoration (76.9 vs. 45.4%). These findings may suggest that the peeling technique may allow for better improvement in visual acuity because of complete restoration of ELM and ellipsoid zones. It has been shown that integrity of the ELM is critical for achieving a normal IS/OS postoperatively.[15,39] Wakabayashi et al[39] have shown that the integrity of ELM signals on SD-OCT at 3 months was the most significant structural feature for predicting the 1-year postoperative BCVA in surgically closed macular holes. In the study of Hayashi and Kuriyama[15] of seven eyes with MMH without RD undergoing the inverted ILM flap technique, restoration of the inner segment and outer segment junction was achieved in 29% of cases and restoration of ELM in 43%, whereas the ELM was detected in 57% of cases, suggesting that ELM restoration is essential for recovering ellipsoid zone.

Limitations of the study include the retrospective design and the small sample size. It is possible that the different findings found in our series (better visual outcome with the ILM peeling technique) in comparison to a similar study with more study eyes (totally 70 patients) in which visual outcome was better for the inverted ILM technique[37] may be due to the small number of patients included in our study groups. A larger sample size would have improved the statistical power of the study and the conclusions would have been more properly supported. However, bias cannot be completely ruled out and the sample size of our study might not have been large enough to control for the interaction of some confounders. Further studies are needed to assess the influence of some potential confounders, such as axial length, the refractive errors, and presence of staphyloma. Also, chorioretinal atrophy was not evaluated due to the difficulty to establish a definitive diagnosis. The degree of myopic chorioretinal atrophy limits good visual outcomes.[11,40] The relationship between restoration lines and visual acuity was not investigated. Improvement of BCVA was higher in the peeling group than in the inverted flap group, although significant differences in foveal restoration between the study groups were not found. Despite the fact of a median follow-up of 9.8 months in the inverted flap group, a more prolonged follow-up period would be necessary to compare the long-term effect of both techniques on improvement of visual acuity.

In summary, this study adds evidence of the high rate of macular hole closure associated with the use of either the inverted ILM flap technique or the ILM peeling technique in the management of patients with MMH without RD. Visual outcome and external layers' restoration were better with the ILM peeling technique as compared to the inverted ILM flap procedure, but these findings should be interpreted with caution, given the small number of study eyes analyzed and the retrospective nature of the study. In this respect, conclusions regarding the superiority of one technique over the other cannot be established. Prospective studies with larger sample sizes and longer follow-up periods are required to definitively determine differences in visual outcome between both techniques.

Key words: myopic macular hole, internal limiting membrane, inverted ILM flap, ILM peeling, visual acuity.

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