CASE REPORT

Surgical repair of a giant idiopathic macular hole by inverted internal limiting membrane flap

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SUMMARY

A 22-year-old male patient presented with gradual outward deviation of the right eye following corneal tear repair in that eye 8 years prior. He was asymptomatic in the left eye. On examination, his best corrected visual acuity was counting fingers at 2 m in the right eye and 20/80 in the left eye. The left eye showed a large macular hole, 2845 μm in diameter, with a retinal detachment at the posterior pole. The patient underwent pars plana vitrectomy, internal limiting membrane (ILM) peeling with inverted ILM flap technique and silicone oil injection. At the 1-week follow-up visit, there was growth of retinal tissue under the ILM flap. At 2-month follow-up, there was a complete closure of the macular hole and visual acuity was 20/100. At this time, the patient underwent removal of the silicone oil, following which visual acuity was maintained at 20/100.

This procedure is useful in cases with small-to-moderate holes, but in cases with large holes, anatomical closure is difficult to achieve. The inverted ILM flap technique may improve anatomical outcome following vitrectomy for large macular holes.

CASE PRESENTATION

A 22-year-old male patient presented to our clinic with gradual outward deviation of the right eye following corneal tear repair in that eye 8 years prior. He was asymptomatic in the left eye.

On examination, his best corrected visual acuity was counting fingers at 2 m in the right eye and 20/80 in the left eye. The right eye had a central corneal opacity with a normal fundus examination and was diagnosed to have sensory exotropia with amblyopia.

BACKGROUND

Vitrectomy with internal limiting membrane (ILM) peeling is a well-established method for the treatment of idiopathic macular holes (figure 1A–D).

INVESTIGATIONS

Optical coherence tomography of the left eye showed a large full thickness macular hole, approximately 2845 μm in diameter, with a retinal detachment at the posterior pole.

Figure 1 (A) Baseline colour fundus photograph showing a giant macular hole. (B) Optical coherence tomography (OCT) at baseline showing a large hole with retinal detachment. (C) OCT at 1 week showing a thin internal limiting membrane (ILM) flap with edges of the hole attached to the retinal pigment epithelium. Retinal tissue (thick arrow) is seen to be growing under the ILM flap (thin arrow). (D) OCT at 2 months showing the hole to be completely closed.

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TREATMENT

The patient underwent sutureless pars plana vitrectomy, ILM peeling with an inverted flap technique and silicone oil injection. The ILM peeling was performed after staining with brilliant blue dye.

OUTCOME AND FOLLOW-UP

The best corrected visual acuity at 1 week was 20/125 with +8.00 D sphere.

At 1-month follow-up visit, there was growth of retinal tissue under the ILM flap. At 2-month follow-up there was a complete closure of the macular hole and visual acuity was 20/100. At this time, the patient underwent removal of the silicone oil, following which visual acuity was maintained at 20/100.

DISCUSSION

Vitrectomy with ILM peeling is a well-established method for the treatment of idiopathic macular holes. The rationale for surgery is the identification and treatment of these vitreoretinal traction forces, either tangential, anteroposterior or both.¹

This includes pars plana vitrectomy, posterior vitreous removal, ILM peeling, filling of the vitreous cavity with a gas bubble and postoperative face-down positioning for 1 week.²⁻³ In addition to promoting hole closure, peeling of the ILM also reduces the probability of its reopening.⁴⁻⁵

This is a conventional procedure in cases with small-to-moderate holes, but in cases with large holes, anatomical closure is difficult to achieve. The inverted ILM flap technique⁶ improves anatomical outcome following vitrectomy for large macular holes.

Learning points

- ▶ Large macular holes can cause retinal detachment.
- ▶ Inverted internal limiting membrane (ILM) flap technique can close these large holes.
- ▶ Retinal tissue growth under the ILM flap can be demonstrated by optical coherence tomography.

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