



Optic Disc Pit Treated with Human Amniotic Membrane: Is it a Lasting Solution?

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Abstract

Purpose: To analyze long term results of a novel surgical technique implicating the use of a human amniotic membrane patch (hAM) to settle a serous macular detachment in an optic nerve head pit.

Methods: We describe a case a 42 years old male affected by macular serous detachment associated with optic disk pit (OPD) treated with vitrectomy and intravitreal apposition of Human Amniotic Membrane

Results: Postoperative period recorded no complications; CDVA improved from 1.5 to 0.5 logMAR and OCT scan shows reduced serous macular detachment in the first year, unfortunately at 18 months an unexpected relapse occurred.

Conclusion: Considering the follow up, our case could open a debate for the long term effects of HAM apposition. Further case and additional techniques, or even a clinical trial may be necessary to additionally prove the full efficacy of this technique.

Keywords: Optic Disc Pit Treatment; Amniotic Membrane; Optic Disc Pit Maculopathy; Vitrectomy

Introduction

Optic disc pits (ODPs) are included in the broad of other cavitary anomalies of the optic disc, which embrace also optic disc coloboma, morning glory and extrapapillary cavitation. Optic disc pits (ODP) are rare congenital anomalies with an incidence of 1 in 11,000 patients, occurring similarly in men and women, usually monolateral [1]. Initially, symptoms are limited to arcuate scotomas or nasal/temporal step defects, resulting from loss or absence of the retinal nerve fiber layer at the location of the pit. Additionally, optic pit maculopathy (OPM), defined as serous macular detachment and/or retinoschisis, may occur in 50% or more of patients [2]. The natural history of untreated OPM is poor, with a typical final visual acuity less than 20/200 in the majority of eyes [2] admitting few patients with a spontaneous reattachment has been described [3]. There isn't a unanimous consensus regarding the optimal treatment, with various approaches that have been attempted, with inconstant results and a high incidence of recurrence, making this disease a challenging entity [4]. Nonsurgical ap-

proaches include laser photocoagulation, and topical after topical carbonic anhydrase inhibitors. Surgical approaches for treatment include pars plana vitrectomy to remove the hyaloid face with or without laser and rarely reported macular buckling. Other techniques designed to seal the ODP include an autologous scleral flap inverting peeled ILM into the ODP [5], scleral autologous flap⁶ and using Tisseel fibrin sealant [2]. We report an incomplete surgical recover after the use of a novel surgical approach including human amniotic membrane patch (HAM) in a ODPs eye with macular involvement.

Clinical Case

We present a case of a 46 years old male, with no other comorbidities, complaining vision loss in his left eye. Visual acuity was 1.5 logMAR on left eyes, and 0 logMAR in the adelpous eyes, that shows no sign of ODPs. Anterior segment examination was unremarkable and fundus examination revealed a serous macular detachment later confirmed with optical coherence tomography (OCT

Spectralis, Heidelberg Engineering, Germany) (Figure 1). In line with current literature [2,7], our therapeutic option was surgical: we scheduled pars plana vitrectomy 25G combined with ILM peeling and use of Human Amniotic Membrane (HAM) inserted in the temporal side of the disc, gently manipulated and stabilized with perfluorocarbon (PFCL) with no peripapillary additional laser performed, and injection of gas endotamponade (C3F8) as closing procedure. A face-down position for the first 3 days after surgery was requested to the patient. No major complications developed. An initial promising result with both reduction of the serous macular detachment and improvement in visual acuity was gradually noted in the post operative follow-up visit at 3 and 6 months, with a 0.3 and 0.5 logMAR, respectively. After one year OCT-scan continue to show the improvement of the serous macular detachment (Figure 2a) with the HAM still visible with retinal camera (EIDON imaging - Figure 2b) and a final stable CDVA of 0.5 logMAR. Unfortunately, a 18 month follow-up visit show ODP-M recurrence, with OCT shows a deterioration of the macular condition with increase of the intraretinal fluid (Figure 3) and subsequently visual regression (0.9 logMAR), opening the debate of this recurrence indeed.

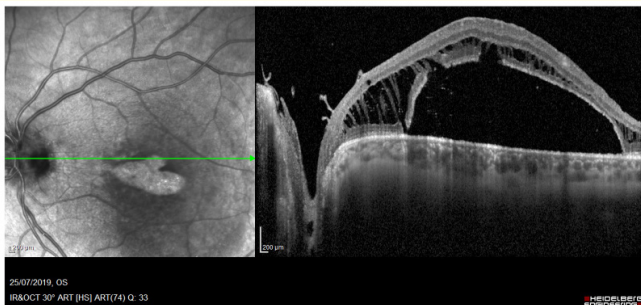


Figure 1

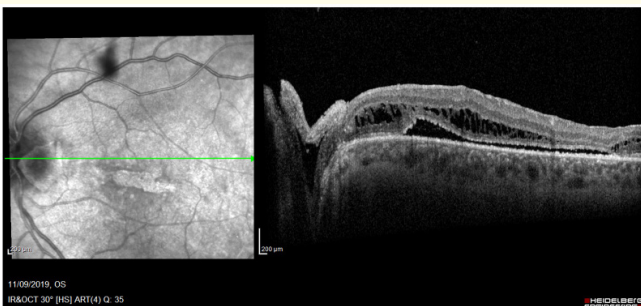


Figure 2a

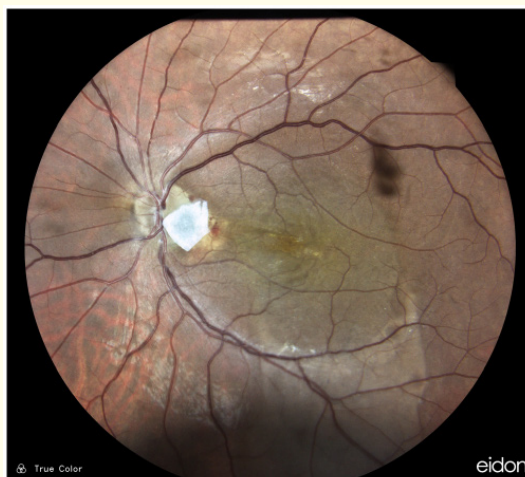


Figure 2b

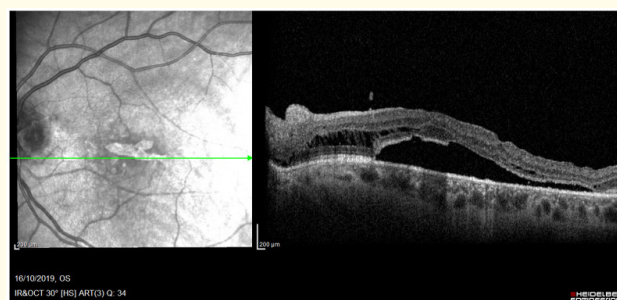


Figure 3

Discussion and Conclusion

Patient with OPD-M have an limited prognosis, with a natural history of gradual but unrestrainable worsening and an ending VA of 1.0 LogMAR or worse [4]. Up to date, pars plana vitrectomy with the use of ILM peeling and gas tamponade are the most used surgical choice. Recently, the use of the ILM transplant, derived from the macular hole surgery, into the optic pit has enhanced the percentage of success rate with a favorable subretinal fluid reabsorption compared to the standard technique [2]. Also the autologous scleral transplantation into the optic pit is advised as a validated technique with results paired with the ILM technique [6]. A successful subretinal and intraretinal fluid reabsorption were achieved in 12 months after surgery in all the treated cases with scleral flap

and ILM technique. In our patient the human amniotic membrane (HAM) was taken into account as an additional repairing scaffold due to its source of biologically active factors support healing and acts as an efficient substance for injury dressing, it does shows, anti-inflammatory, anti-fibrotic, and anti-angiogenic features [9], plus we thought HAM could be more malleable than scleral tissue considering this approach further suitable in a vitrectomy case scenario. Recently, some authors proposed the combined use of PPV and HAM apposition in ODP-M, with good results in a 14 months follow up [8]. Notwithstanding the correct positioning of the amniotic membrane and his stability as seen in OCT scan (Figure 3) we speculate that possible cause for this recurrence could be related to the choice of not perform micropulse laser [4] or the use of Gas tamponade, not performed by other authors [8]. Considering the longer follow up, our case could open a debate of the long term effects of HAM apposition in optic disk pit maculopathy. A wider case history and a standardized surgical protocol, or even a clinical trial may be necessary to additionally prove the full efficacy of this technique.

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Ethical Approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the local ethic committees and with the Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent

Informed consent was obtained from the patient.

Patient Consent

The patient has consented to the submission of the Letter to the journal.

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