



# RETINA ROUNDUP

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## 1. DisCoVisc substituted for perfluorocarbon liquid stabilizing the detached retina during vitrectomy for rhegmatogenous retinal detachment

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### Abstract

#### Purpose:

To investigate the effectiveness of using DisCoVisc as an alternative to perfluorocarbon liquid (PFCL) in stabilizing the detached retina during rhegmatogenous retinal detachment (RRD) surgery.

#### Methods:

Thirty eyes of 30 patients with RRD underwent the DisCoVisc technique for stabilizing the detached retina. Following intraoperative air-fluid exchange and the aspiration of subretinal fluid, DisCoVisc was applied to seal retinal breaks, thereby stabilizing the detached retina. Subsequent removal of the peripheral and basal vitreous was then performed. Intraoperative vitrectomy duration, retinal reattachment rate, postoperative best-corrected visual acuity (BCVA), intraocular pressure (IOP), and intraoperative and postoperative complications were analyzed.

#### Results:

Retinal reattachment was achieved in 28 eyes (28/30, 93.3%). The base of the vitreous was removed with a mean time of  $10.17 \pm 2.94$  min, and the total vitrectomy time was  $22.93 \pm 4.97$  min. At the last follow-up, the BCVA was  $0.74 \pm 0.70$  LogMAR, showing a significant improvement over the preoperative value of  $1.44 \pm 1.25$  LogMAR ( $Z=2.700$ ,  $P=0.007$ ). On the first postoperative day, the IOP was measured at  $25.71 \pm 12.41$  mmHg, exhibiting a statistically significant elevation compared to the preoperative IOP of  $13.94 \pm 5.23$  mmHg ( $P=0.000$ ). There was no statistical difference in IOP at the last follow-up  $14.01 \pm 2.68$  mmHg compared to the preoperative IOP of  $13.94 \pm 5.23$  mmHg ( $P=0.923$ ). One patient developed macular hole after the operation, and there were no obvious complications during the operation.

#### Conclusions:

DisCoVisc can effectively stabilize the detached retina during vitrectomy for RRD. Most significantly, it eliminated the risk of subfoveal PFCL residue-related complications.

## **2. Impact of the Dexamethasone Implant on Slowing Diabetic Retinopathy Progression: Post Hoc Analysis of the MEAD Study**

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### **Abstract**

#### **Purpose:**

To evaluate the effects of dexamethasone intravitreal implant (DEX) treatment on Diabetic Retinopathy Severity Scale (DRSS) scores and disease progression in patients with diabetic macular edema (DME).

#### **Methods:**

The 3-year, randomized, phase 3 MEAD study evaluated DEX 0.35 and 0.7 mg versus sham (treatment at  $\geq 6$ -month intervals) in patients with DME. This post hoc analysis used data from the sham and pooled DEX arms.

#### **Results:**

The proportion of patients with  $\geq 2$ -step DRSS score improvement was significantly higher after DEX treatment compared with sham at 24 months only (8.8% vs 4.2%, OR=2.1,  $P=0.016$ ). Among those with  $\geq 2$ -step DRSS score improvement, the time to first  $\geq 2$ -step improvement was shorter with DEX ( $P<0.001$ ; median 400 days with DEX versus 713 with sham). There were no significant differences between the DEX and sham groups in the proportion of patients who progressed from non-proliferative to proliferative DR, but among those who progressed, the time to progression was lengthened with DEX ( $P<0.001$ ; median 531.1 days with DEX versus 191 with sham).

#### **Conclusion:**

This post hoc analysis of MEAD study data showed that DEX treatment may potentially have a positive impact on DR by reducing disease severity and slowing progression in DR patients with central DME.

### 3. Knife Cut Technique: A New Way for Intraocular Lens Explantation

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#### Abstract

#### Purpose:

We report a novel technique that enables to cut any kind of foldable lens and extract it using capsulorhexis forceps and a 1.2-mm single-use slit angled knife.

#### Methods:

The technique consists in using the capsulorhexis forceps to maintain and stabilize the intraocular lens (IOL) in the anterior chamber, and while one hand holds the IOL in that way, the second hand introduces a 1.2-mm slit angled knife through a paracentesis and cuts the IOL on 3/4 of his diameter. The IOL is then extracted in one or two pieces.

#### Results:

Since March 2021, we performed the technique in 82 eyes of 79 patients. Learning curve was very fast, and the technique was easily managed by two experimented surgeons.

#### Conclusion:

IOL explantation is not a simple surgical technique and requires potentially dangerous surgical maneuvers, hence, the description of several surgical techniques, and the existence of expensive extraction kits, which provide micro scissors and micro forceps to cut the lens more easily. We believe that the knife cut technique, which has never described to this day, is particularly interesting since it is cheap, easy to do, and useful for all foldable IOL explantation

#### 4. MACULAR BUCKLING COMBINED WITH INVERTED INTERNAL LIMITING MEMBRANE FLAP TECHNIQUE AND AIR TAMPONADE IN THE TREATMENT OF RETINAL DETACHMENT IN HIGH MYOPIA

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##### **Purpose:**

The study aims to assess the efficacy of integrating macular buckling with pars plana vitrectomy (PPV), the inverted internal limiting membrane flap technique, and air tamponade in treating macular hole retinal detachment in patients with high myopia.

##### **Methods:**

This retrospective study included 62 eyes from 62 consecutive patients diagnosed with highly myopic macular hole retinal detachment. The participants were categorized into two groups: the PPV group (n = 34) and the combination group (n = 28). Best-corrected visual acuity, axial length, progression of myopic maculopathy, rates of macular hole closure, and retinal reattachment were assessed and compared.

##### **Results:**

The mean follow-up duration was  $14.13 \pm 2.57$  months. The combination group demonstrated a significant higher rate of macular hole closure compared with the PPV group (79.41% vs. 100%,  $P = 0.011$ ). Retinal reattachment was successfully achieved in 100% of eyes in the combination group after the initial surgery, in contrast to 70.59% in the PPV group ( $P = 0.002$ ). The combination group demonstrated a significantly greater improvement in best-corrected visual acuity compared with the PPV group ( $P < 0.001$ ). The mean myopic maculopathy stage in the PPV group increased from  $2.12 \pm 0.69$  to  $2.38 \pm 0.92$  ( $P = 0.031$ ). The combination group exhibited no significant progression of myopic maculopathy postoperatively.

##### **Conclusion:**

The integration of macular buckling with the inverted internal limiting membrane flap technique and air tamponade seems to enhance both macular hole closure and retinal reattachment rates, along with notable improvements in best-corrected visual acuity among patients with highly myopic macular hole retinal detachment.

## 5. Association of Low Serum Vitamin D Levels with Proliferative Vitreoretinopathy After Rhegmatogenous Retinal Detachment Repair

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### Objective

To evaluate whether low serum vitamin D level is a risk factor for proliferative vitreoretinopathy (PVR) after primary rhegmatogenous retinal detachment (RRD) repair.

### Design

Retrospective, multi-site, case-control study

### Participants

Subjects undergoing pars plana vitrectomy (PPV), scleral buckle (SB), or combined PPV/SB for primary RRD in the Veterans Administration Healthcare System between January 1, 2015 and January 1, 2020. Subjects were required to have a serum 25-hydroxy vitamin D measurement within 1 year of RRD surgery and to have greater than 90 days follow up after surgery.

### Methods

Clinic notes and operative reports were reviewed to collect the following data points: sex, race, age, geographic location, date of diagnosis, eye laterality, macula and lens status, symptom duration, date and type of surgery, number and location of retinal tears, extent of RRD, presence of vitreous hemorrhage or choroidal detachment, date and level of vitamin D lab draw, development of PVR, and need for additional surgeries.

### Main Outcome Measures

Incidence of PVR following surgical RRD repair comparing the normal and low vitamin D groups

### Results

A total of 313 subjects met inclusion criteria, of whom 119 (38.0%) had serum vitamin D levels below the lab normal limit. Most subjects were male (96.4%) and Caucasian (82.4%). Amongst all subjects, 42 (13.4%) were diagnosed with PVR after initial surgical repair. On univariate analysis, subjects with low vitamin D levels were almost 4 times more likely to develop PVR than those with normal vitamin D levels (OR 3.95, 95% CI 1.98-7.87,  $p < 0.001$ ). This association of vitamin D level and PVR remained significant in multivariable analysis (OR 4.27, 95%CI 2.09-8.69,  $p < 0.001$ ) and when only considering subjects with a vitamin D lab draw prior to or within 90 days of RRD diagnosis. When evaluating vitamin D level as a continuous variable, each 1 ng/ml decrease in serum vitamin D below the lab specified lower limit of normal resulted in a 4% increase in the risk of PVR development (OR 1.04, 95% CI 1.02-1.08,  $p = 0.002$ ).

### Conclusions

To our knowledge, this study is the first to report an association between low serum vitamin D levels and an increased risk of PVR development after RRD repair. Future studies with more diverse patient populations are required to verify this potential association