



RETINA ROUNDUP

March 2025





1. **Retina. 2025 Feb 1;45(2):215-221. doi: 10.1097/IAE.0000000000004294. PMID: 39733283.**

1. INFLUENCE OF FOVEAL GLIAL TISSUE AFTER MACULAR HOLE SURGERY ON OUTER RETINAL RESTORATION AND VISUAL ACUITY

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Purpose:

To investigate the impact of foveal glial tissue on the anatomical and functional results after macular hole (MH) surgery.

Methods:

This study included 141 consecutive eyes that underwent successful vitrectomy for full-thickness MH between January 2015 and December 2022. The best-corrected visual acuity and the length of outer retinal defects were evaluated preoperatively and at 6 months postoperatively. Macular hole with retinal detachment, recurrent MH, and traumatic MH were excluded. Multiple regression analyses were conducted on outer retinal restoration and visual acuity using foveal glial tissue size, surgical technique of internal limiting membrane peeling or inverted internal limiting membrane flap, and high myopia as explanatory variables.

Results:

Analyses revealed that the foveal glial tissue significantly limited the outer nuclear layer, external limiting membrane restoration, and ellipsoid zone restoration as well as best-corrected visual acuity improvement ($r = -0.380, P < 0.001$; $r = -0.314, P = 0.035$; $r = -0.530, P = 0.015$; $r = -0.00027, P = 0.001$; respectively). Meanwhile, the surgical technique and high myopia did not significantly affect the restoration of outer nuclear layer, external limiting membrane, ellipsoid zone, and best-corrected visual acuity after surgery.

Conclusion:

Foveal glial tissue after MH surgery attenuated outer nuclear layer, external limiting membrane, and ellipsoid zone restoration as well as best-corrected visual acuity improvement.

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2. *Retina*. 2025 Feb 1;45(2):325-329. doi: [10.1097/IAE.0000000000004267](https://doi.org/10.1097/IAE.0000000000004267). PMID: 39284032.

AN EASY WAY TO PREVENT VELOCITY-RELATED COMPLICATIONS DURING DEXAMETHASONE IMPLANT INJECTION IN VITRECTOMIZED EYES

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Purpose:

To assess the impact of inserting an ophthalmic viscoelastic device into the dexamethasone (DEX) implant needle on pellet velocity in simulated vitrectomized eyes.

Methods:

Dexamethasone implants were injected into a calibrated ex vivo test chamber filled with balanced salt solution. All DEX implants were administered by the same physician, aiming for the same button depression time. In Group 1, three DEX implant injections were performed without an ophthalmic viscoelastic device, while in Group 2, the ophthalmic viscoelastic device was safely inserted into the DEX implant needle using a 27-gauge cannula just before the injection. The slow-motion video mode of the iPhone 14 was used to record the procedures and calculate time and distance measurements.

Results:

Group 1 exhibited a mean velocity of 450 mm/second for the DEX pellet in balanced salt solution, compared with 54.57 mm/second in Group 2. Furthermore, DEX pellets in Group 1 had horizontal displacements of 24, 29, and 31 mm, while those in Group 2 had displacements of 17, 16, and 15 mm.

Conclusion:

Injecting an ophthalmic viscoelastic device into the DEX implant needle significantly decreases the velocity of the free pellet in balanced salt solution by 87.87%. This modification may help prevent potential velocity-related complications linked to DEX implantation in vitrectomized eyes.

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3. [Retina. 2025 Feb 1;45\(2\):257-268. doi: 10.1097/IAE.0000000000004309. PMID: 39454073.](#)

TRANSRETINAL PUNCTURE WITH A 41G CANNULA FOR POSTERIOR RESIDUAL SUBRETINAL FLUID IN FOVEA-OFF RETINAL DETACHMENTS TREATED BY VITRECTOMY VS FLUID TOLERANCE VS OTHER CONVENTIONAL DRAINAGE TECHNIQUES

A Comparative Study

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Purpose:

To compare functional and anatomical outcomes between posterior drainage of residual fluid using a 41G cannula, fluid tolerance (residual subretinal fluid), and conventional complete drainage methods, including removal through peripheral retinal breaks, perfluorocarbon liquid, and posterior retinotomy.

Methods:

In this retrospective, multicenter study, we evaluated cases for visual acuity at 3 months of follow-up. Secondary outcomes included surgical success, postoperative metamorphopsia, shifts, full-thickness folds, optical coherence tomography parameters, and safety. Subgroup analyses were also conducted.

Results:

Visual acuity did not differ significantly between the three main groups. Subgroup analyses revealed worse visual acuity for posterior retinotomy (20/270 in Snellen conversion, $P = 0.002$), with significantly more Grade C proliferative vitreoretinopathy (40.0%, $P = 0.003$). Residual subretinal fluid tended to offer better secondary outcomes, without statistical significance except for postoperative epiretinal membrane (30.8%, $P = 0.041$). Subgroup analyses found significantly more shifts with PFCL (91.7%, $P = 0.036$). No cases of postoperative full-thickness folds or macular holes were observed with the 41G.

Conclusion:

Our study introduced the 41G technique, indicating favourable outcomes for fovea-off retinal detachments. Nevertheless, fluid tolerance appeared to be the best option, offering a cost-effective and faster method, with an optimal microstructural profile and visual acuity comparable with that of complete drainage techniques.

PMID: [39454073](#).

DOI: [10.1097/IAE.00000000000004](#)



4. [Retina. 2025 Feb 1;45\(2\):363-366. doi: 10.1097/IAE.0000000000004164. PMID: 39714871.](#)

Pars Plana Vitrectomy With External Drainage for Nonexudative Retinal Detachment

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Purpose:

To describe a surgical technique for retinal detachment with undetected retinal breaks, which combines pars plana vitrectomy and external subretinal fluid (SRF) drainage.

Methods:

In this retrospective observational study, patients with a diagnosis of retinal detachment with undetected retinal breaks were enrolled. Standard three-port 25-gauge (G) core and peripheral pars plana vitrectomy was performed. Perfluorocarbon liquid was injected into the vitreous cavity to obtain posterior retinal flattening. Trans-scleral 27-G needle external drainage was performed approximately at 8 mm from limbus to drain SRF subconjunctivally. Prophylactic peripheral endolaser was performed on 360°. Sulfur hexafluoride 20% was used as tamponade.

Results:

In 14 of 15 patients, complete SRF drainage was obtained. In only one case, SRF did not leak out in the subconjunctival space. Neither intraoperative nor postsurgical complications were recorded. Flat retina with no SRF was observed in all samples, and no retinal detachment relapses were reported at each follow-up.

Conclusion:

External drainage combined with pars plana vitrectomy may represent a valid and safe option to drain SRF in retinal detachment cases with undetected retinal breaks. The advantages of the technique include the absence of dispersion of retinal pigment epithelium cells in the vitreous chamber, prompt dry retina, and low risk of postoperative retinal folds.

PMID: [39714871](#).

DOI: [10.1097/IAE.0000000000004164](#)

5. *Int J Retina Vitreous*. 2025 Jan 9;11(1):3. doi: 10.1186/s40942-025-00629-w. PMID: 39789631; PMCID: PMC11720305.

Faricimab efficacy in type 1 macular neovascularization: AI-assisted quantification of pigment epithelium detachment (PED) volume reduction over 12 months in Naïve and switch eyes

Cattaneo, J., Forte, P., Forte, G. *et al.* Faricimab efficacy in type 1 macular neovascularization: AI-assisted quantification of pigment epithelium detachment (PED) volume reduction over 12 months in Naïve and switch eyes. *Int J Retin Vitr* 11, 3 (2025). <https://doi.org/10.1186/s40942-025-00629-w>

Background

This study evaluates the efficacy of intravitreal Faricimab in reducing pigment epithelium detachment (PED) and fluid volumes in both treatment-naïve eyes and eyes unresponsive to anti-VEGF mono-therapies, all diagnosed with type 1 macular neovascularization (T1 MNV) over a period of 12-month.

Methods

A retrospective, single-center cohort study was conducted at the Jules Gonin Eye Hospital, Lausanne, Switzerland. Clinical records of treatment-naïve and non-responder switch patients presenting T1 MNV secondary to neovascular age-related macular degeneration (nAMD) from September 2022 to March 2023 were reviewed. Patients received a loading dose of three monthly Faricimab injections followed by a treat-and-extend (T&E) regimen. Multimodal imaging, including structural OCT and AI-assisted analysis, was used to quantify PED volumes and related fluid biomarkers at baseline, 3-month, 6-month, and 12-month follow-up. Statistical analyses included linear mixed models to evaluate differences and trends in intraretinal (IRF), subretinal fluid (SRF) and PED volumes.

Results

65 eyes of 65 patients were enrolled (female: 70.7%; mean age = 80.7yrs, SD = 6.9yrs). 80% had received anti-VEGF treatment (Switch group) and 20% were treatment-Naïve at baseline. At 12 months, intravitreal treatments were more frequent in the Switch group (mean number = 8.3 vs. 6.0; $p = 0.009$). BCVA improved at the 12-month follow-up in Naïve eyes (+ 6.9 ETDRS letters from baseline, $p = 0.053$) and was maintained in Switch eyes. No cases of intraocular inflammation were observed. Significant reduction in SRF and IRF volumes were noted in both groups. A significant reduction in PED volume was observed over the follow-up period in both groups (mean slope = -206 nL, 95%CL = -273/-138; p -value < 0.001).

Conclusions

Intravitreal Faricimab significantly reduced PED volumes in both treatment-Naïve and non-responder Switch patients over 12 months. The study highlights Faricimab's potential as an effective treatment option for T1 MNV in nAMD, offering significant improvements in PED volume and related fluid biomarkers

PMID: [39789631](#)

DOI: [10.1186/s40942-025-00629-w](#)

6. *Retina*. 2025 Feb 1;45(2):358-362. doi: 10.1097/IAE.0000000000004137. PMID: 39836928.

“Micro–Viscous Fluid Control”: A Simple Homemade New Tool to Access Subretinal Space in a Controlled Way

Boral, Subhendu Kumar MBBS, MD, DNBA; Dan, Shouvik MBBS, MSA; Mitra, Santanu MBBS, DOb. “Micro–Viscous Fluid Control”: A Simple Homemade New Tool to Access Subretinal Space in a Controlled Way. *Retina* 45(2):p 358-362, February 2025. | DOI: 10.1097/IAE.0000000000004137

Purpose:

To develop a simple tool to remove retained sub macular perfluorocarbon liquid bubbles (R-PFCL) and to inject recombinant tissue plasminogen activator safely in subretinal space in sub macular hematomas.

Method:

A retrospective, interventional study was performed where a simple homemade micro–viscous fluid control was developed to gain access to subretinal space in a controlled way. The rubber cap of the plunger of a 1-mL syringe was cut; this cut rubber cap of the plunger was fitted inside an empty 1-mL tuberculin syringe, and its end was fitted with the tubings of viscous fluid control of the vitrectomy machine. Now, viscous fluid control mode was activated by attaching a 38-G/41-G subretinal needle for extracting submacular PFCL bubbles (R-PFCL group, n = 12) and to deliver recombinant tissue plasminogen activator injection in significant sub macular hematomas cases (sub macular hematomas group, n = 32). Best-corrected visual acuity (BCVA), fundus photographs, and optical coherence tomography were analysed. Follow-up was done for at least 6 months.

Results:

Vision improved from preoperative mean BCVA logarithm of the minimum angle of resolution $0.99 (20/195) \pm 0.27$ to postoperative mean BCVA logarithm of the minimum angle of resolution $0.75 (20/112) \pm 0.21$ (P -value < 0.05) in R-PFCL group and from preoperative mean BCVA logarithm of the minimum angle of resolution $1.99 (20/1954) \pm 0.75$ to postoperative mean BCVA logarithm of the minimum angle of resolution $0.75 (20/112) \pm 0.37$ (P -value < 0.001) in sub macular hematomas group.

Conclusion:

Our homemade micro–viscous fluid control is a safe tool to extract retained sub macular PFCL bubbles and to deliver a precise dose of subretinal drugs like recombinant tissue plasminogen activator for a subretinal hematoma in a controlled way.

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7. Retina. 2025 Jan 1;45(1):88-94. doi: 10.1097/IAE.0000000000004274. PMID: 39325779.

ANTERIOR SUBTENON TRIAMCINOLONE INJECTION FOR REFRACTORY MACULAR EDEMA

A Retrospective Case Series

Felfeli, Tina MD, PhD*,†; Park, Megan BSc‡; Gorfinkel, Nathan S. BSc§; Shwarzman, Robert¶; Papanikolaou, John**; Shah, Paresh††; Kiss, Alex PhD‡‡; Mandelcorn, Efrem D. MD, FRCSC*,§§. ANTERIOR SUBTENON TRIAMCINOLONE INJECTION FOR REFRACTORY MACULAR EDEMA: A Retrospective Case Series. Retina 45(1):p 88-94, January 2025. | DOI: 10.1097/IAE.0000000000004274

Purpose:

To evaluate the effectiveness of anterior subtenon triamcinolone (AST) injections in the management of refractory macular edema.

Methods:

This is a retrospective case series of consecutive eyes with refractory macular edema treated with AST at a single vitreoretinal surgeon's practice at Toronto Western Hospital, University of Toronto, Canada in 2018 to 2023. Refractory was defined as persistent macular edema with a central subfield thickness of 250 μm or greater over a 24-week period, receiving at least four intravitreal antivascular endothelial growth factor injections. Vision outcomes and optical coherence tomography features for all eyes were compared for three visits pre-AST treatment and two visits post-AST treatment.

Results:

Ninety-three patients (119 eyes); diabetic macular edema (26%), and pseudophakic cystoid macular edema (74%), with a mean follow-up duration of 161 days were included. The presence of subretinal fluid ($P = 0.0013$), central subfield macular thickness ($P < 0.0001$), cube average thickness ($P = 0.0024$), and macular cube volume ($P = 0.0017$) significantly improved from pre-AST to post-AST treatment. Visual acuity also significantly improved from pre-AST treatment to post-AST treatment ($P < 0.0001$). There was no significant change in the intraocular pressures from pre-AST to post-AST ($P = 0.7920$), and no complications were noted throughout the follow-up period.

Conclusion:

The findings from this study suggest that AST injections show modest improvement in anatomical and functional outcomes and are safe for the treatment and management of refractory macular edema.

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