

Background

Various tools and techniques for submacular injection have emerged as critical interventions in ophthalmology, particularly for managing submacular hemorrhage (SMH) associated with conditions such as age-related macular degeneration (AMD)¹ and traumatic injuries, but also extended to other indications

Purpose

To investigate the possible indications of submacular injections in current ophthalmology practice while trying to standardize the surgical technique through a case series of patients operated at RFL

Injection method

Automated injection- VFC injection set 8-12 psi- 0.4 ml with 41G subretinal injection cannula attached to 10 ml VFC syringe. Site of injection: depends on the indication, usually superior / superonasal

Patients/Indications

Submacular hemorrhage: AMD-related: <7 days, thick fovea involving bleed, without hemorrhagic PED, Safe Dose: 25-50 mcg tPA (7 patients), Traumatic submacular hemorrhage +/- Choroidal rupture: rupture not involving fovea (2 patients), Reclacitrant/ Chronic FTMH² (3 patients) Persistent foveal fold (1 patients), Resistant Diabetic Macular Edema³(1 patient), Displacement of subfoveal PFCL (1 patient)

Outcomes

No adverse events documented with this technique in this case series.

Surgical technique was readily reproducible between different surgeons/ indications.

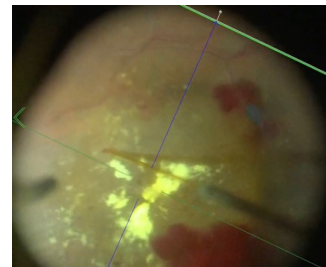
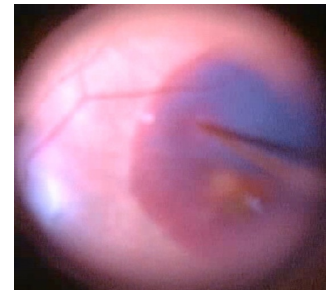
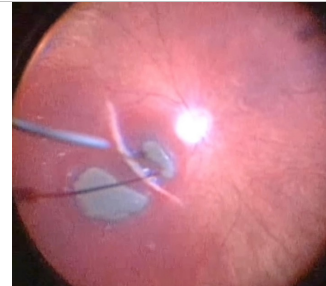
Visual improvement varied between different indications, with traumatic submacular hemorrhage patients achieving maximum and resistant diabetic edema achieving minimum improvement.

Conclusion:

Submacular injection can be a possible solution for different problems facing VR surgeons

It can be reproducible technique for various indication/ injectables

Each of these indications needs further studies to prove efficacy, reach standardization and document safety



References:

1. Iannetta, D., Maria, M., Bolletta, E., Mastrofilippo, V., Moramarco, A., & Fontana, L. (2021). Subretinal injection of recombinant tissue plasminogen activator and gas tamponade to displace acute submacular haemorrhages secondary to age-related macular degeneration. *Clinical Ophthalmology*, Volume 15, 3649-3659.
2. Carsten H. Meyer, Robert Borny and Nicole Horch. Subretinal fluid application to close a refractory full thickness macular hole, *International Journal of Retina and Vitreous*, 2017.
3. Elbaha, S., Hadi, A., & Abouhusein, M. (2019). Submacular injection of ranibizumab as a new surgical treatment for refractory diabetic macular edema. *Journal of Ophthalmology*, 2019, 1-5.