



Outcomes and ultrastructural changes of patients treated with intravitreal injection of tissue plasminogen activator (tPA) and C3F8 for submacular haemorrhage (SMH).



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BACKGROUND

Submacular haemorrhage (SMH) is a sight threatening condition for which no gold standard treatment exists. Tissue plasminogen activator (tPA) can be administered with vitrectomy or subretinally, however, a less invasive treatment approach is often desirable. We present outcomes of one of the largest studies-to-date of SMH treated with intravitreal injection tPA and C3F8.

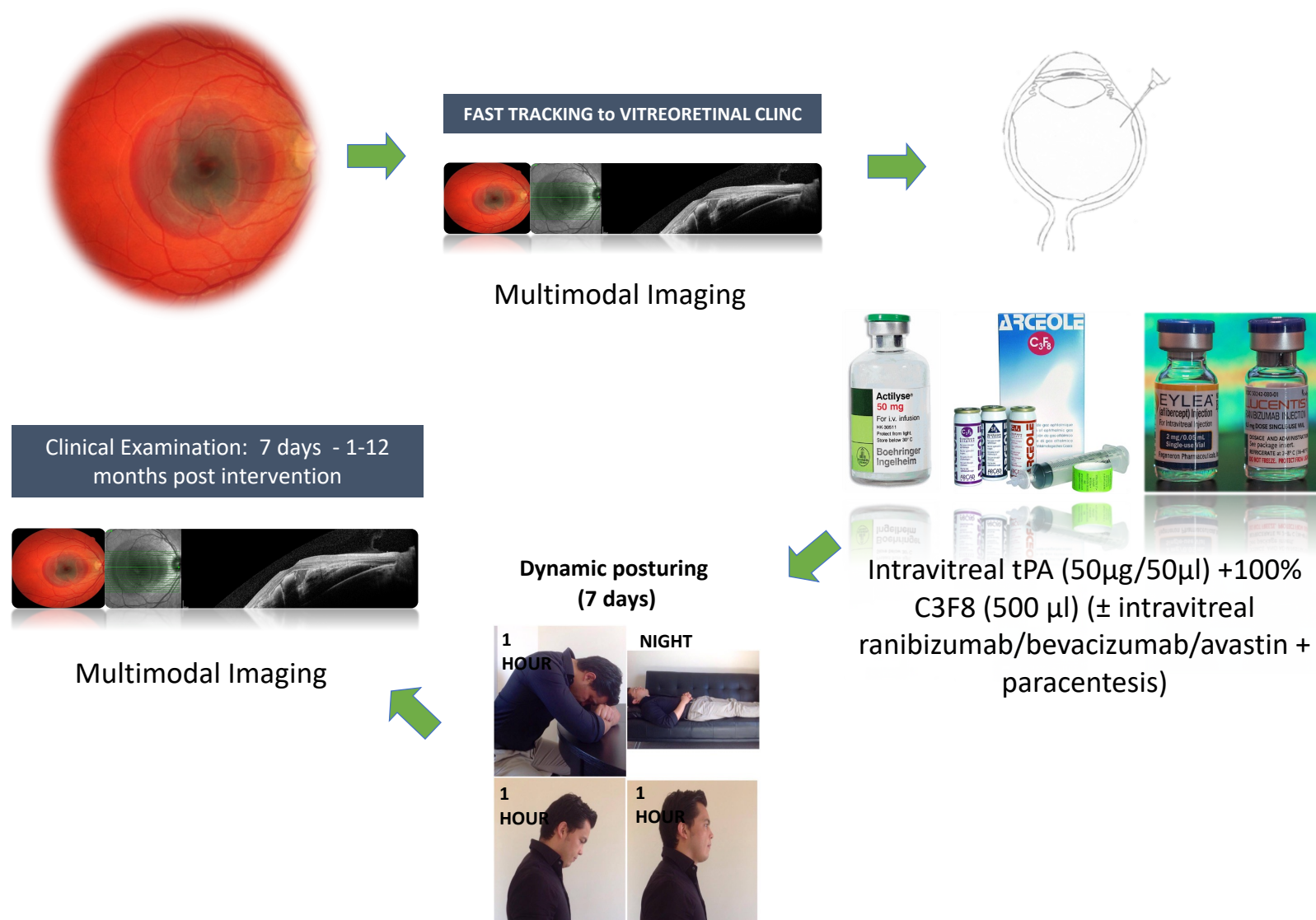
There is a paucity of data describing longer-term ultrastructural changes observed on optical coherence tomography (OCT). Historically SMH is not treated if more than 14 days duration.

We studied the ultrastructural changes and visual outcomes of patients receiving intravitreal tPA and C3F8 for the displacement of large SFH. In addition, subanalysis looked at duration, aetiology, causation and risk factors.

RESEARCH TEAM

WF-R: Literature review, design, patient identification, OCT evaluation, data collection and analysis
HB/MK/AD: Patient identification, OCT evaluation, data collection
JR: Data collection
GH-Y/PC: VR surgeon/ patient identification
NN/YY: MR consultant, patient identification
KB: Lead VR consultant, study design, patient identification

REFERRAL PROCESS



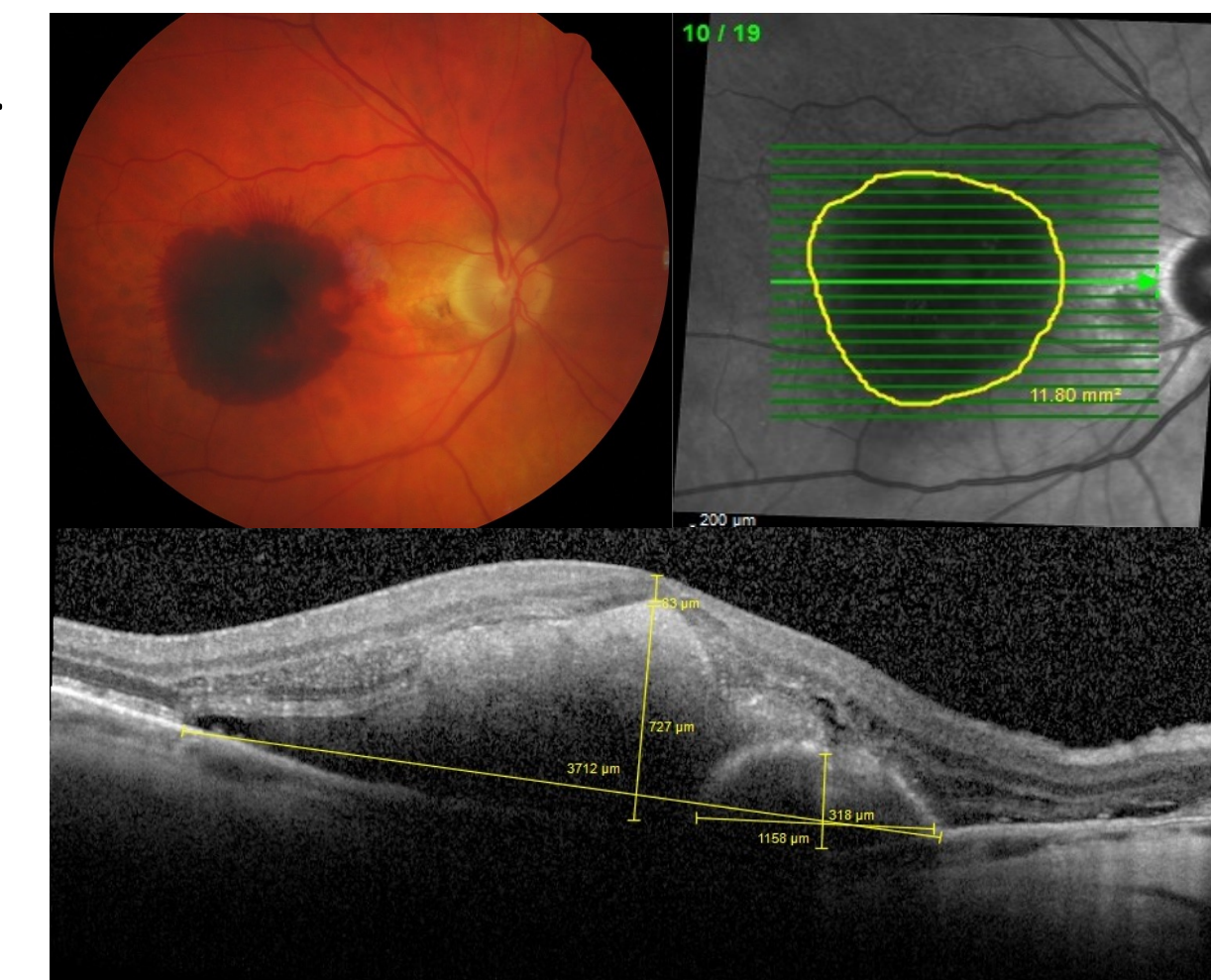
METHODS

Case notes for 74 patients that underwent tPA/gas (identified from database and pharmacy dispensary list) between Sept '15 and Nov '19 were retrospectively analysed.

Inclusion criteria: tPA gas for SMH + at least presentation, 1 month and 3 month VA and OCT data.

- 54 included
- 20 excluded:
 - 8 excluded due to insufficient data
 - 6 excluded as not SMH
 - 4 patients had tPA + vitrectomy
 - 1 excluded as offered but never underwent treatment
 - 1 tPA for intracameral clot only.

Demographics and VA were recorded. Mean changes in VA were calculated and compared using a non-parametric test.

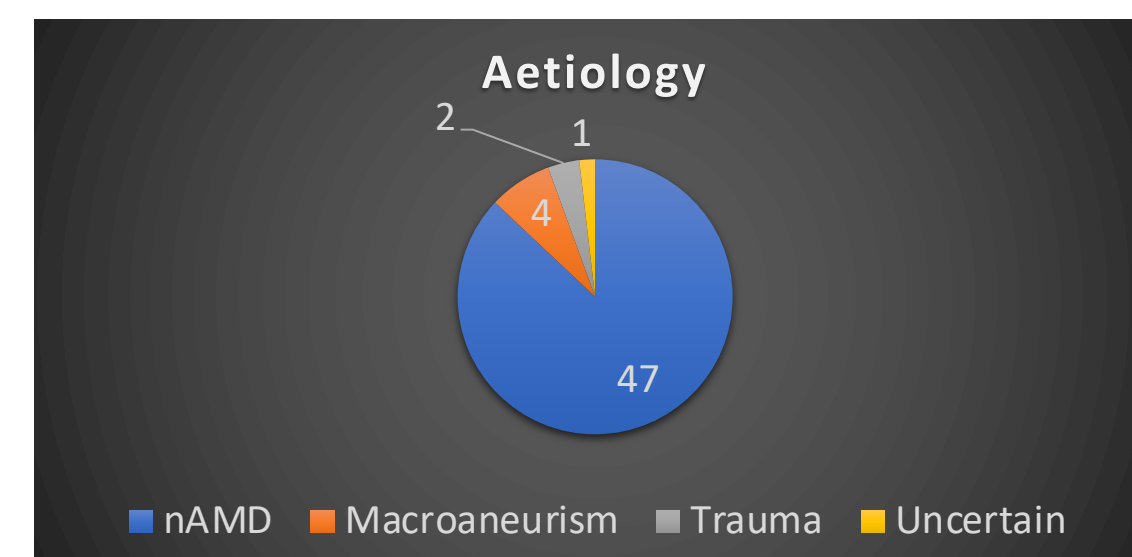


Ultrastructural parameters were obtained by mutual agreement between two clinicians. Changes on OCT and the percentage displacement of SMH evident at follow-up were calculated from pre- and post-op imaging.

Parameters evaluated through OCT images from horizontal scans centered on the most prominent foveal depression:

- SFH area
- Height and lateral width
- Central retinal thickness (CRT)
- Pigment epithelial detachment (PED) height and lateral width.

RESULTS



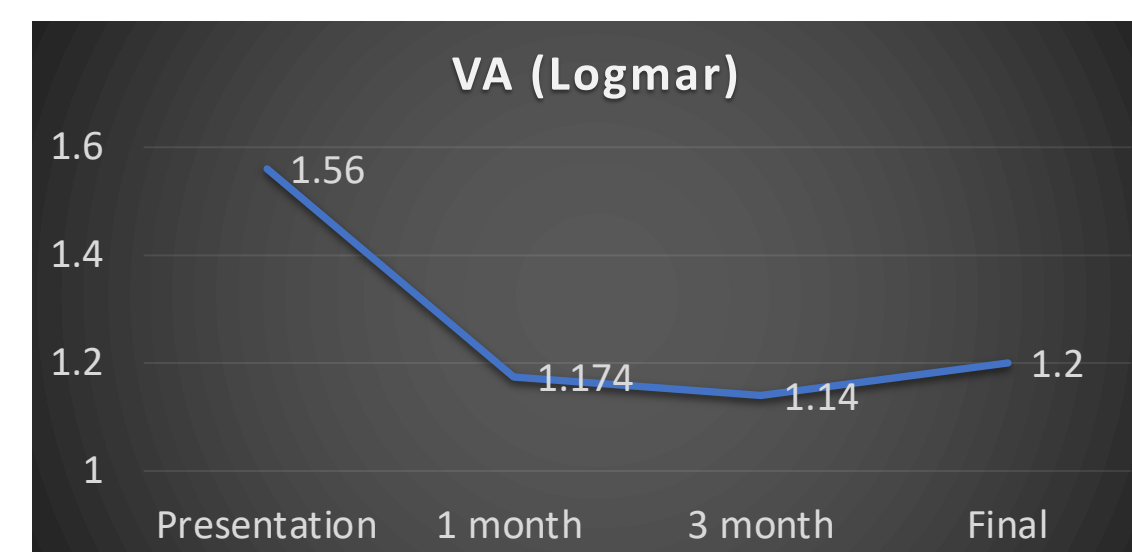
Mean age 79.2. 30 F: 24 M

Full 1 and 3 month data available for 54

Presenting IOP 15.5

34 phakic, 20 pseudophakic

VA data available for: 40 at 6 months, 31 at 12 months, 12 at 24 months, 7 at 36 months, 1 at 48 months.

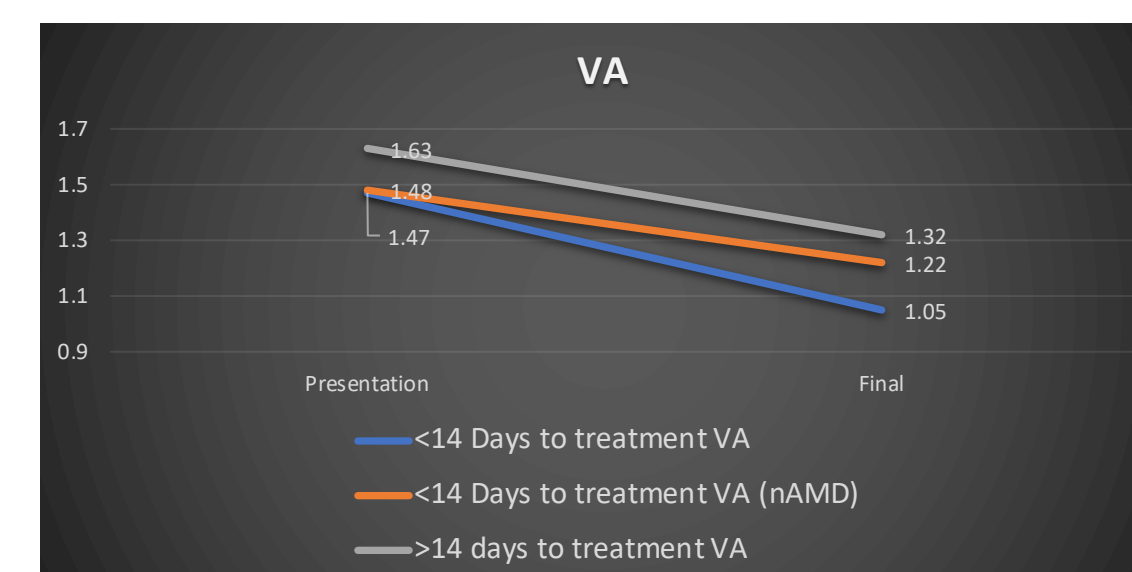


Presenting Mean VA logmar 1.56

Mean final VA 1.2 (0.36 gain – 18 L gain)

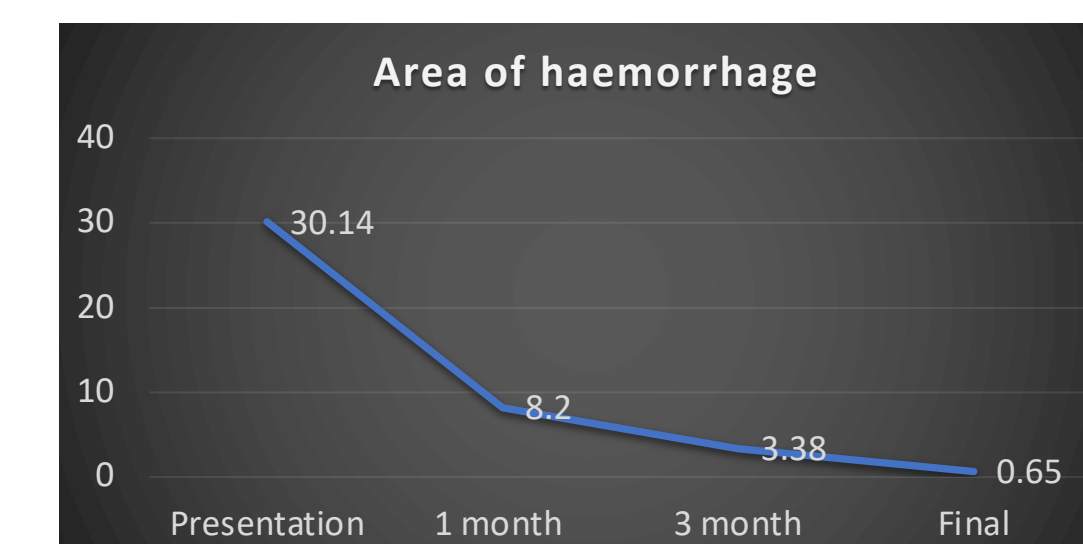
57% gained >0.3 (>15L); 13% loss of >0.3 (>15L)

Biggest gain: 2.62 L



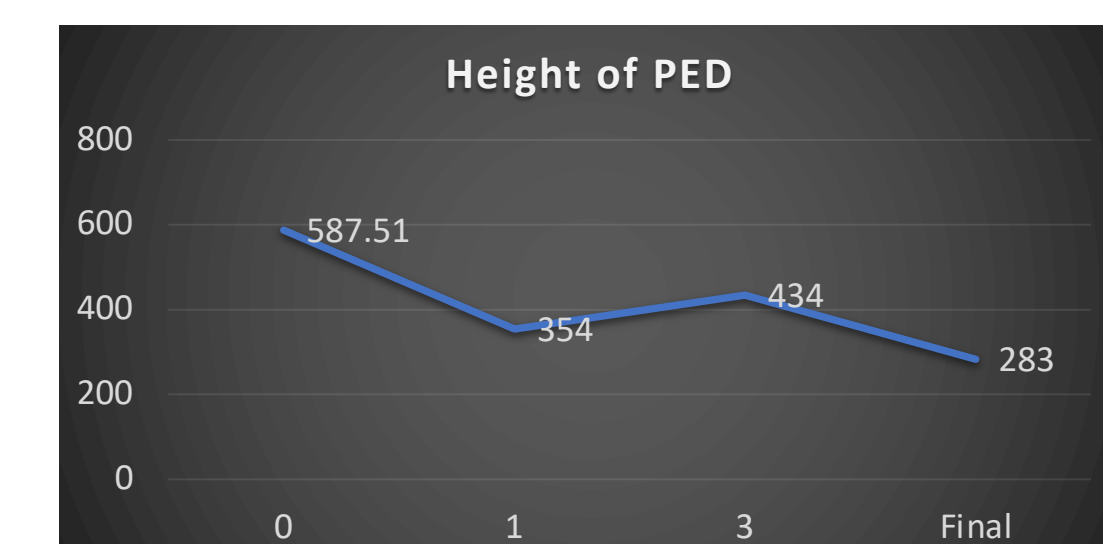
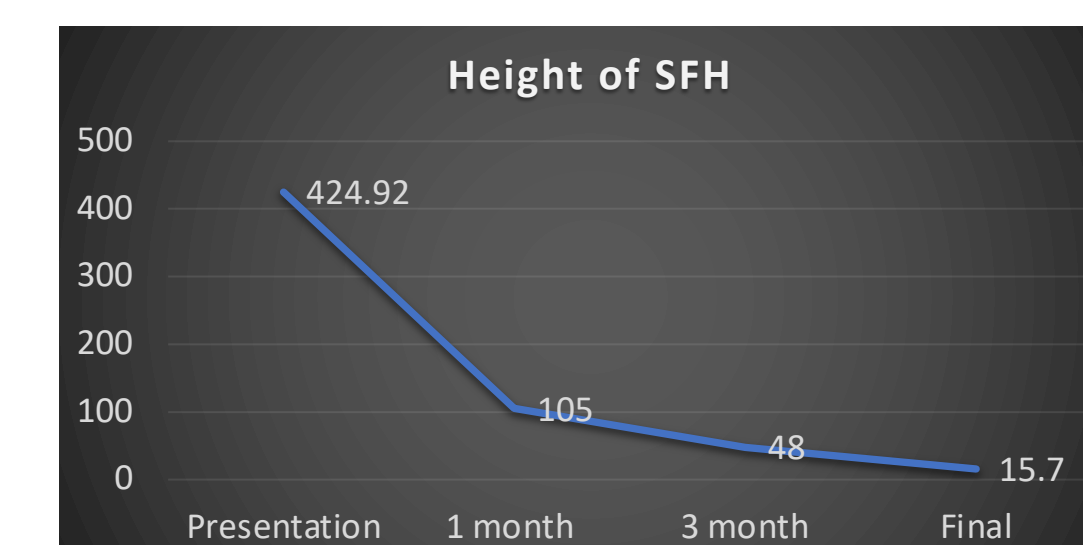
38 treated within 14 days: Mean final VA gain 0.42 (21L) – 0.26 (13L)

16 treated after 14 days: Mean Final VA Gain 0.31 (15.5L)



Mean presenting Area – 30.1 mm²

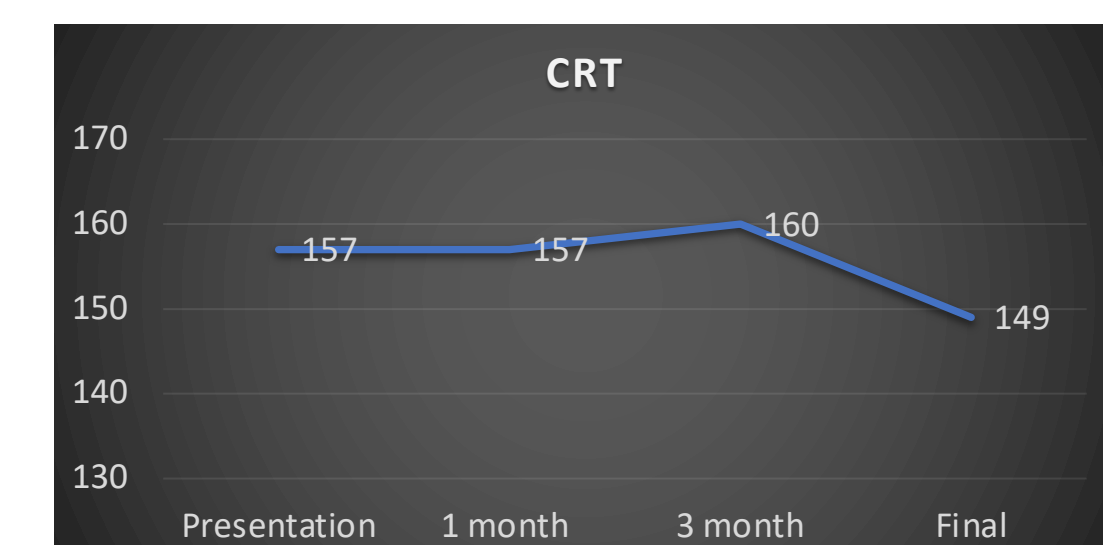
Height of SFH – 424 µm, Lateral width of SFH 5241 µm



CRT 157.1 µm

37 associated with PED

PED height 587 µm, PED width 1806 µm



CONCLUSIONS

- Intravitreal tPA and C3F8 improves both functional and anatomical outcomes in patients with large SFH even if >14 days duration.
- Intravitreal tPA and C3F8 is a relatively simple procedure with a good safety profile.
- Further long-term follow up data is needed to see longer term outcomes.