

Management of Intraocular Pressure in Iridocorneal Endothelial Syndrome using Preserflo® Microshunt

Chung Shen Chean, Neeharika Ghai, Huzaiifa Malick
Ophthalmology department, Leicester Royal Infirmary, Infirmary Square, LE1 5WW Leicester

Background & Aim

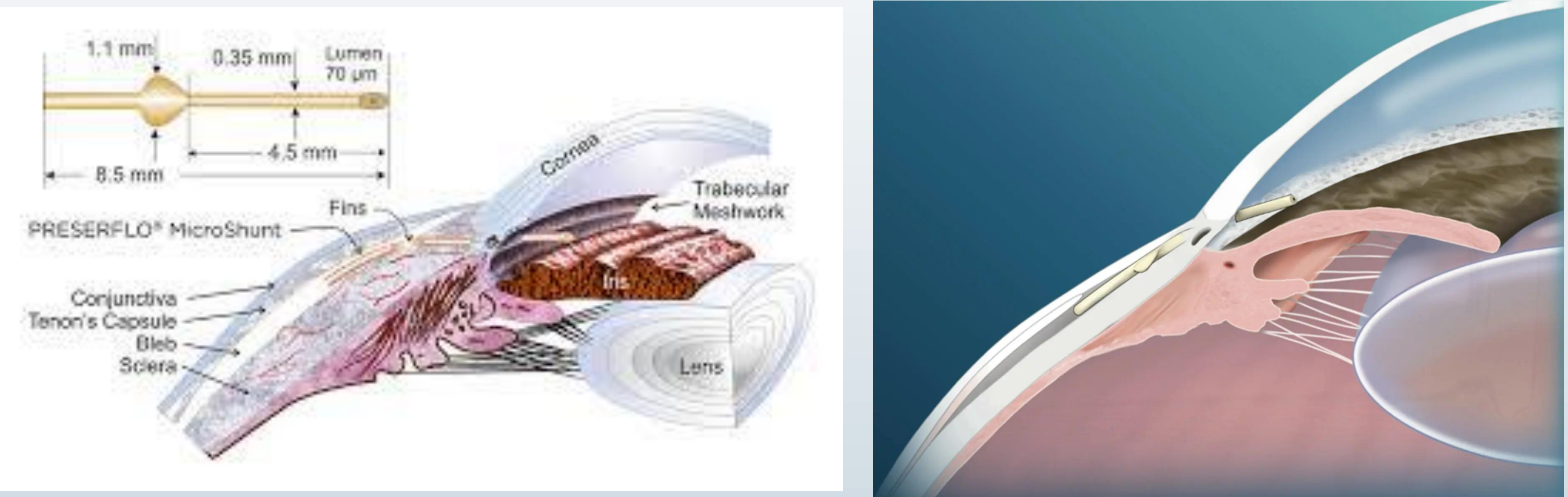
- Iridocorneal endothelial syndrome (ICE) is a rare condition defined by endothelial proliferation of the cornea, resulting in peripheral anterior synechiae (PAS), iris abnormalities, and secondary angle-closure glaucoma.
- Three clinical variants: Chandler's syndrome, essential iris atrophy, and Cogan-Reese syndrome
- Treatment of elevated intraocular pressure (IOP) in ICE syndrome is challenging, and surgical intervention is often required.
- Trabeculectomy gives only moderate surgical success with long term failure rates as high as 40-50%.
- Plated tube procedures also involve extensive tissue dissection.

We would like to demonstrate a case of successful management of uncontrolled IOP with Preserflo® Microshunt in a patient with ICE syndrome, with the longest reported follow-up to date in the literature.

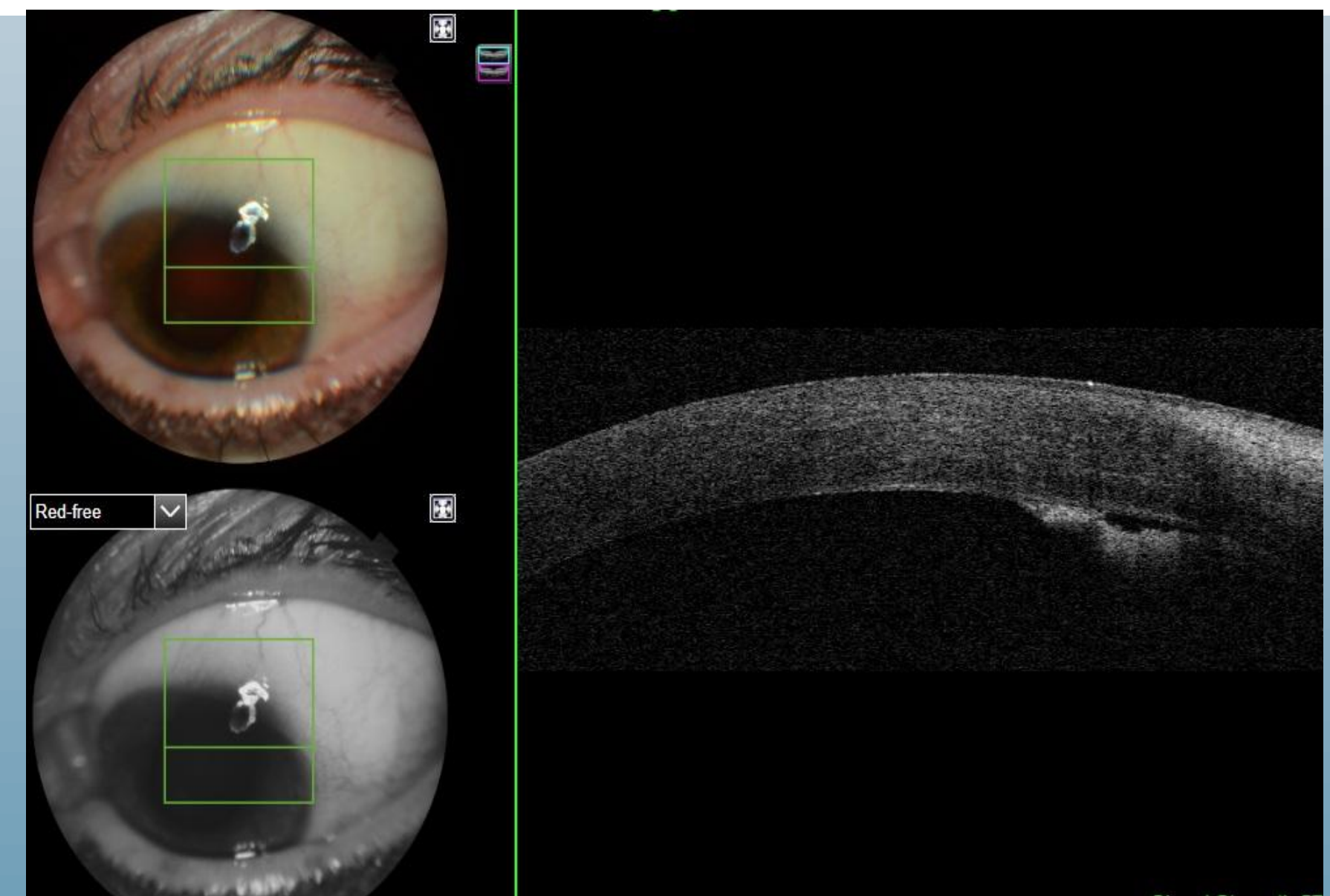
Case Presentation

- 65-year-old lady
- Presented with blurring of vision in the left eye (LE): Snellen's 6/6 unaided in the right eye (RE) and 6/15 in the LE. Corectopia in the LE.
- Pachymetry: Central corneal thickness 601µm RE, 590µm LE
- Refraction: +0.75/-0.25 x 90 in the RE and +2.25/-1.25 x 70 in the LE
- Patient underwent an uncomplicated cataract surgery and pupilloplasty in the LE
- 5 months later, she presented with IOP of 51mmHg in the LE, with corneal stromal oedema
- Gonioscopy: angle closure with areas of high PAS

Preserflo Microshunt



- 8.5mm long glaucoma device implanted in an ab-externo fashion
- intended to create an alternative pathway for the drainage of aqueous humour into the subconjunctival space



Anterior segment optical coherence tomography (AS-OCT) of the patient's LE showing an iridocorneal touch at 2 o'clock with an eccentric-shaped pupil

Outcome and follow-up

IOP values:

- Day 1: 4 mmHg
- Week 1: 5 mmHg
- Month 1 to 15: 9-11 mmHg
- Final IOP: 10 mmHg

- Patient not on any IOP-lowering medications
- No reported complication
- Snellen's best-corrected VA at the final post-operative follow-up (15 months post-operatively): 6/6 in the RE and 6/9.5 in the LE.

References:

- Silva L, Najafi A, Suwan Y, et al. The iridocorneal endothelial syndrome. Surv Ophthalmol. 2018;63(5):665-676
- Ruparelia S, Darwich R, Eadie BD. PreserFlo Microshunt for the management of intraocular pressure elevation in iridocorneal endothelial syndrome. Am J Ophthalmol Case Rep. 2023;32:101932.
- Chandran P, Rao HL, Mandal AK, Choudhari NS, Garudadri CS, Senthil S. Outcomes of primary trabeculectomy with mitomycin-C in glaucoma secondary to iridocorneal endothelial syndrome. J Glaucoma. 2016;25(7):e652-e656.
- Gambini G, Carlà MM, Giannuzzi F, Caporossi T, De Vico U, Savastano A, Baldascino A, Rizzo C, Kilian R, Caporossi A, Rizzo S. PreserFlo® MicroShunt: an overview of this minimally invasive device for open-angle glaucoma. Vision. 2022 Feb 9;6(1):12

Treatment

Acute treatment:

- Dorzolamide/timolol eye drop (Cosopt®) twice daily
- Latanoprost (Monopost®) once daily
- Apraclonidine (Iopidine®) eye drops three times daily
- Oral Acetazolamide 250mg 3 times a day

Due to uncontrolled IOP despite maximum medical treatment, patient was listed for a PreserFlo® Microshunt implantation with Mitomycin C. Pre-operative gonioscopy showed a suitable area in the angle for PreserFlo® implantation. Listing IOP was 34mmHg.

Preserflo® Microshunt procedure

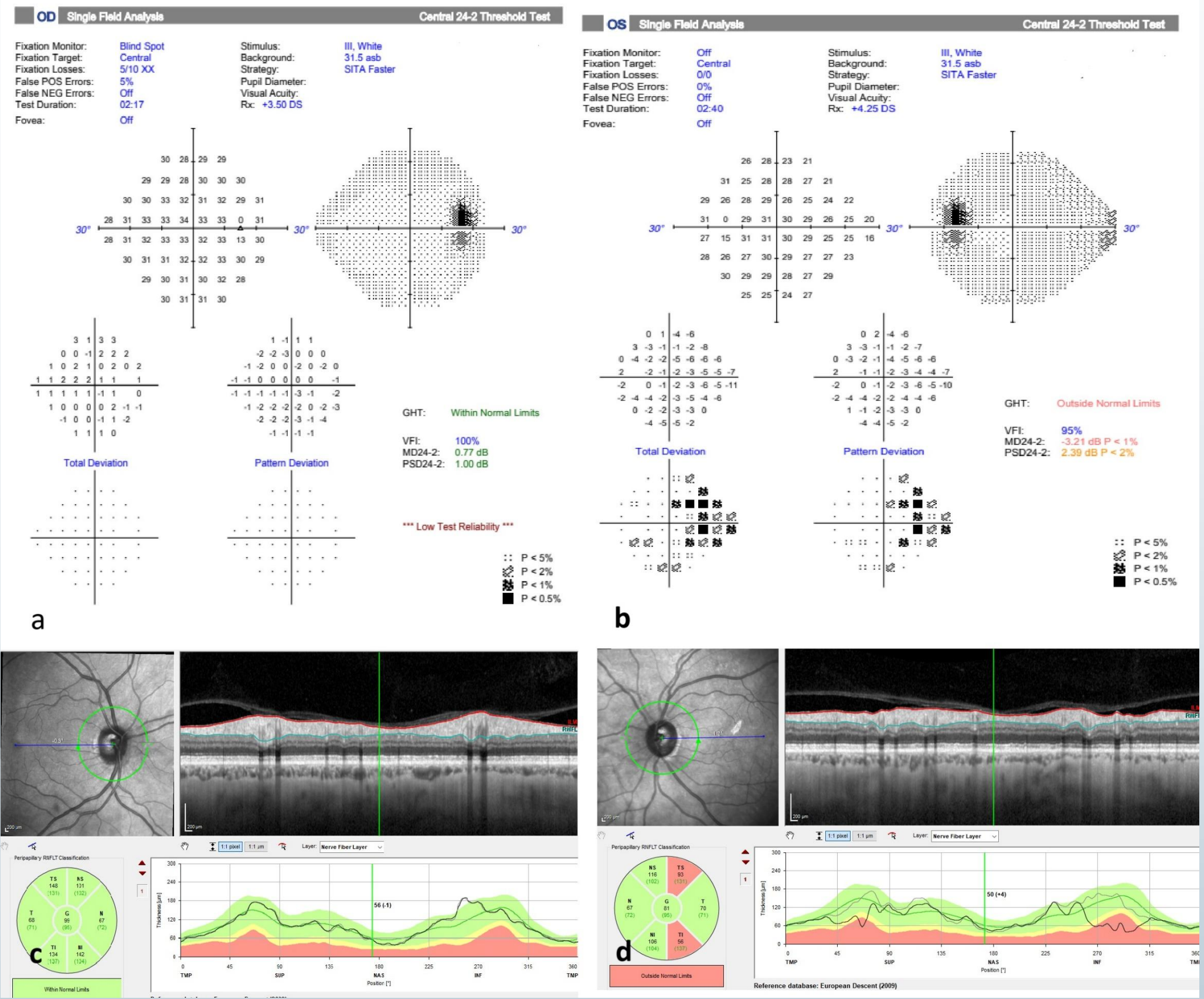
- Sub-Tenon local anaesthesia (Lignocaine 2% with epinephrine)
- Superior fornix base periotomy
- Sponge soaked in Mitomycin-C 0.4mg/ml applied to scleral bed and Tenon's capsule for 3 minutes
- 3mm posterior scleral pocket created
- 25G needle to create a trans-scleral tunnel
- Preserflo® Microshunt inserted at 2 o'clock position, successfully directed between areas of PAS
- Tenon's capsule and conjunctiva were closed with 10-0 Nylon
- Subconjunctival Cefuroxime and dexamethasone

Postoperative

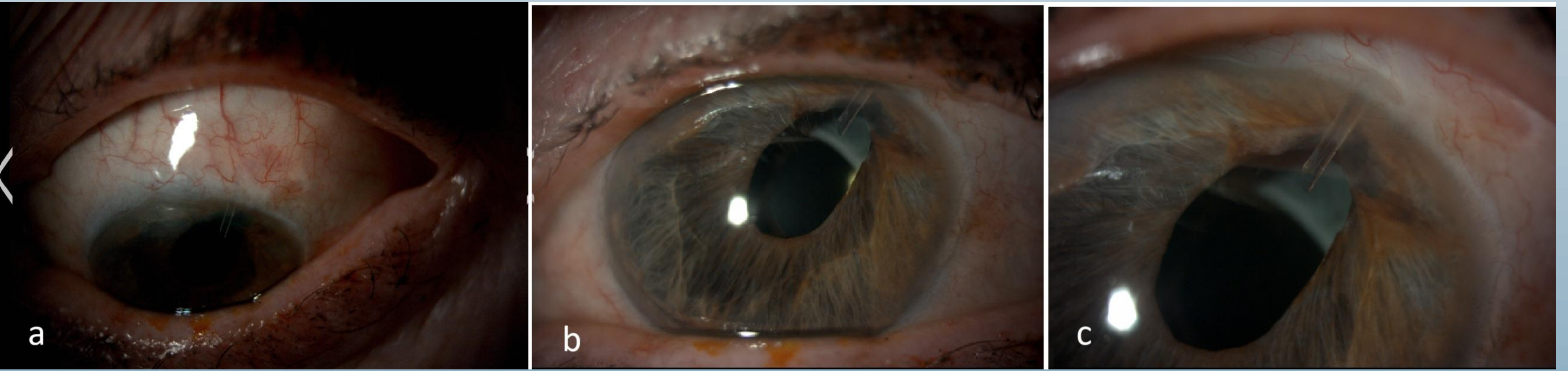
- 2-hourly topical Dexamethasone 0.1%
- Topical Chloramphenicol 4 times a day

Conclusion

- Preserflo® Microshunt may prove to be an effective treatment option for patients with secondary angle closure due to ICE syndrome who fail medical therapy.
- It may be possible to implant the microshunt on the usual nasal or temporal superior quadrants in these patients, providing that the tube entry is not obstructed by PAS. Careful pre-operative gonioscopy is recommended to achieve this.



Humphrey visual perimetry: nasal step in total deviation and pattern standard deviation chart of the LE, consistent with the quadrants of retinal nerve fibre layers (RNFL) thinning, whilst the RE remained unaffected



- a: Slit lamp photograph of the anterior segment of the LE showing Preserflo® Microshunt in the superotemporal quadrant with a diffuse bleb.
- b: Slit lamp photograph of the anterior segment of the pseudophakic LE showing Preserflo® Microshunt in-situ with a corectopia.
- c: Magnified photograph of the patient's LE of the Preserflo® Microshunt showing a white conjunctiva and a deep anterior chamber.