GLAUCOMA DRAINAGE DEVICE IN A CASE OF NEO-VASCULAR GLAUCOMA.

PRESENTER- DR. PRIYANKA S. AHER

GLAUCOMA DRAINAGE DEVICE

DR. D.Y. PATIL VIDHYAPEETH, PUNE
(Deemed to be University)

- Glaucoma drainage devices are designed to divert aqueous humor from the anterior chamber to an external reservoir, where a fibrous capsule forms about 4-6 weeks after surgery and regulates flow.(1)
- These devices have shown success in controlling intraocular pressure (IOP) in eyes with previously failed trabeculectomy.
- The most commonly used valved implant is the Ahmed glaucoma valve, AGV.
- The Aurolab Aqueous Drainage Implant (AADI) is a non-valved glaucoma drainage device (GDD).(2)

1-Salim S, Aref AA, Moore DB, Tripathy K, Seibold LK. Glaucoma Drainage Devices [Internet]. Eyewiki. 2024 Aug 9 [cited 2024 Nov 30].
2-Sisodia VPS, Krishnamurthy R. Aurolab Aqueous Drainage Implant (AADI): Review of Indications, Mechanism, Surgical Technique, Outcomes, Impact and Limitations. Semin Ophthalmol. 2022 Oct-Nov;37(7-8):856-868. doi: 10.1080/08820538.2022.2082254. Epub 2022 Jun 3. PMID: 35656796.

PATIENT PROFILE

DR. D.Y. PATIL VIDHYAPEETH, PUNE
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- 48 years old male
- Shopkeeper by profession
- Residing at Nigadi Pune

CHIEF COMPLAINTS

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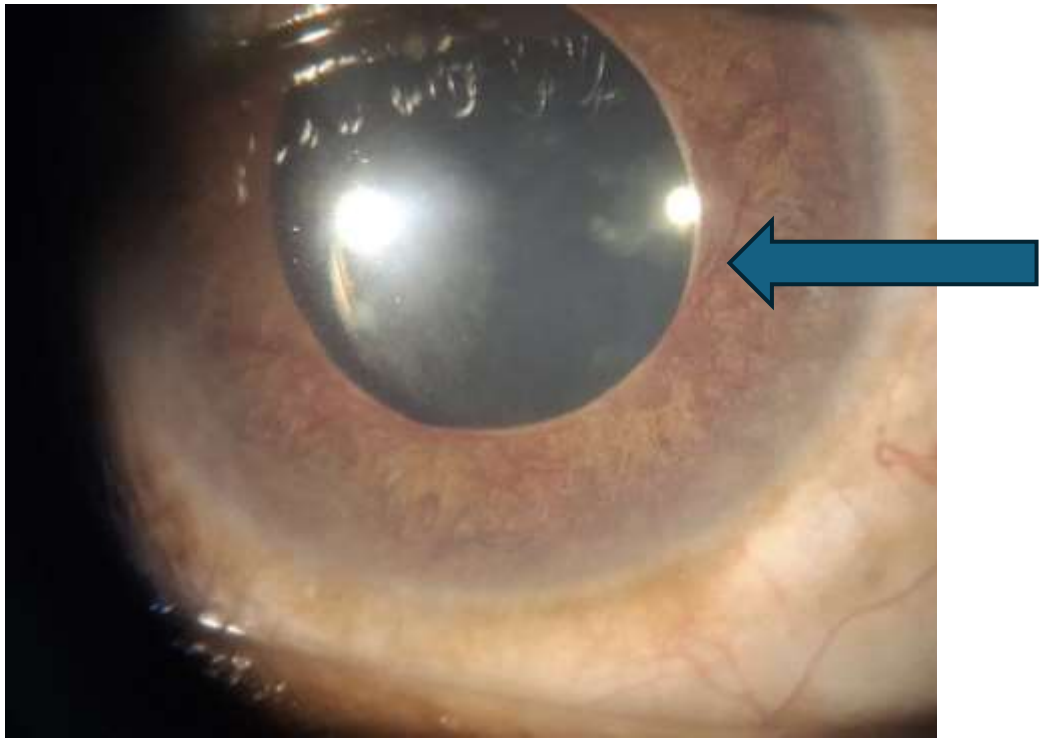
- Patient came to the out patient department with complaints of diminution of vision in both eyes (LE)>(RE) since 4-5 months.
- He also complained of watering and redness in (LE) since 4-5 months.



HISTORY OF PRESENTING ILLNESS.

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- Patient was apparently alright 5 months ago when he started developing diminution of vision in both the eyes (LE>RE) which was insidious in onset, gradually progressive and painful in nature along with headache since 4-5 months.
- History of redness in left eye 4-5 months.
- No h/o discharge.
- No h/o photophobia, colored halos.
- No h/o nausea, vomiting.
- No h/o any ocular trauma.

PAST HISTORY

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- Patient is k/c/o DM since 9 years and on medications. (uncontrolled)
- H/o (BE) cataract surgery in 2018
- Patient was on blood thinners since 2 months.

- Family history: No history of similar complaints in the family.
- General and systemic examination: WNL

OCULAR EXAMINATION.

	RIGHT EYE	LEFT EYE
VISION	6/36p -6/12p(+1.50,-4.00 x 110*)	1/60 PR accurate in all quadrants-NI on Ph
NEAR VISION	N10- N8(+3.00DS)	N36-N24 (+3.00DS)
COLOUR VISION	Intact	Impaired
EXTRAOCULAR MOVEMENTS	Normal	Normal
HEAD POSTURE	Normal	Normal
EYELIDS	Normal	Normal
EYELASHES	Normal	Normal
EYEBROW	Normal	Normal
ORBITAL MARGIN	Continuous, non tender	Continuous, non tender

ANTERIOR SEGMENT EXAMINATION

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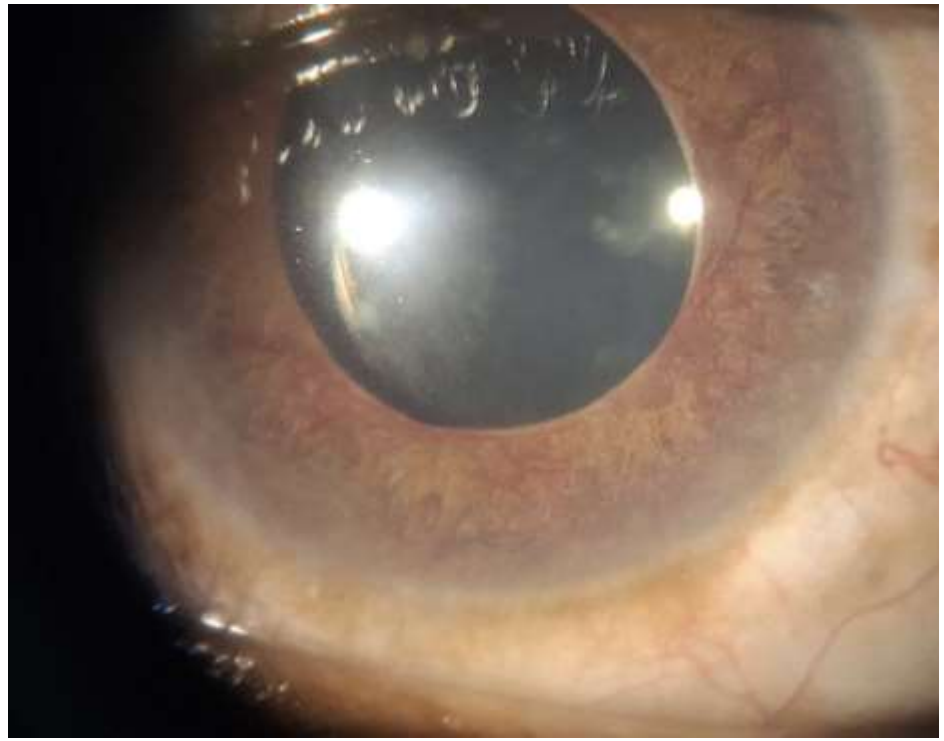
	RE	LE
CONJUNCTIVA	WNL	WNL
CORNEA	Clear	Clear
ANTERIOR CHAMBER	Well formed Van Hericks- PACD =1/4th CT	Well formed Van Hericks- PACD= <1/4th CT(Temporally)
IRIS	Normal pattern	Thin, arborising, fenestrated tuft of blood vessels at pupillary margin
PUPIL	C/C/RTL	C/C/SRTL-4mm mid-dilated Gr.1 RAPD
LENS	Pseudophakia	Pseudophakia



FUNDUS EXAMINATION

	RIGHT EYE
MEDIA	Clear
OPTIC DISC	~1.7x1.5mm in size and vertically oval in shape with peripapillary atrophy
CUP-DISC RATIO	0.6
NEURORETINAL RIM	Inferior and superior thinning noted.
MACULA	Multiple dot and blot hemorrhages with hard exudates + para and perifoveally. Thickening +
FOVEAL REFLEX	Absent
GENERAL FUNDUS	Dilated tortuous vessels + in all quadrants, Multiple dot-blot hemorrhages + in all quadrants NVE + along superotemporal arcade.

FUNDUS EXAMINATION

	LEFT EYE
MEDIA	Hazy
OPTIC DISC	~1.7x1.5mm in size and vertically oval in shape with peripapillary atrophy
CUP-DISC RATIO	0.8
NEURORETINAL RIM	Inferior thinning noted.
MACULA	Multiple dot-blot hemorrhages + perifoveally and parafoveally
FOVEAL REFLEX	Absent
GENERAL FUNDUS	Dilated tortuous vessels + in all quadrants, Multiple dot blot hemorrhages + in all quadrants, NVE + along superotemporal arcade.

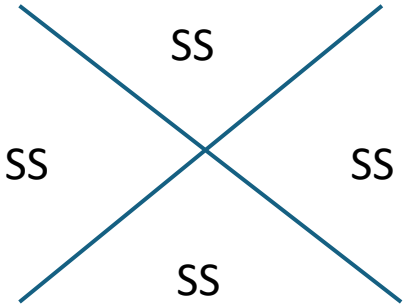
EXAMINATION

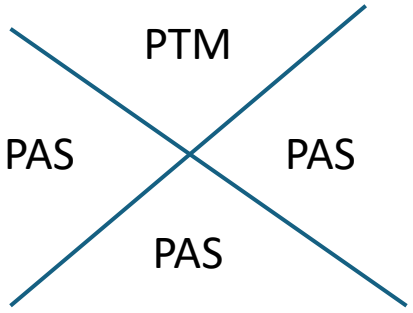
- On Goldmann applanation tonometry, (at 12pm)

(RE)- 18mmHg

(LE)- 40mmHg

- On GONIOSCOPY:





MANAGEMENT

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- Patient was diagnosed as (BE) Proliferative Diabetic Retinopathy with (LE) Neovascular Glaucoma.
- Patient underwent (BE) Pan retinal photocoagulation and was started on anti glaucoma medications in the left eye.
- He was given intravitreal anti VEGF injection in the left eye.

- Tab Diamox 250mg BD for 3 days.
- (BE) E/d COMBIGAN BD.
- (LE) E/d Predforte QID
- (LE) E/d Atropine TDS
- (LE) E/d Dorzox TDS.

MANAGEMENT.

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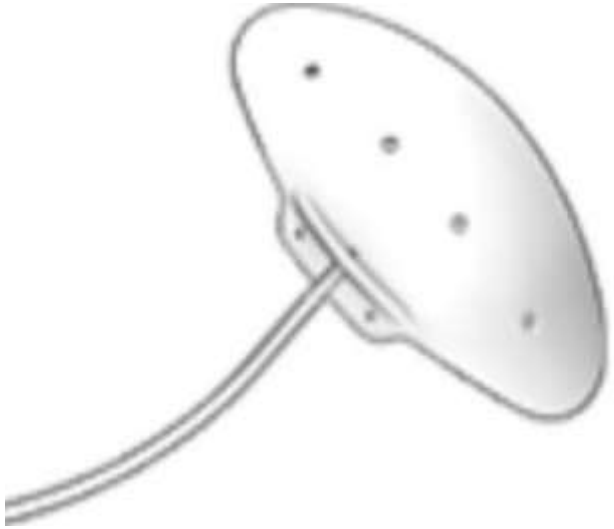
- Patient’s intraocular pressure did not get controlled with topical medications. So patient was planned for glaucoma drainage device.



PLACEMENT OF GLAUCOMA DRAINAGE DEVICE (AADI)

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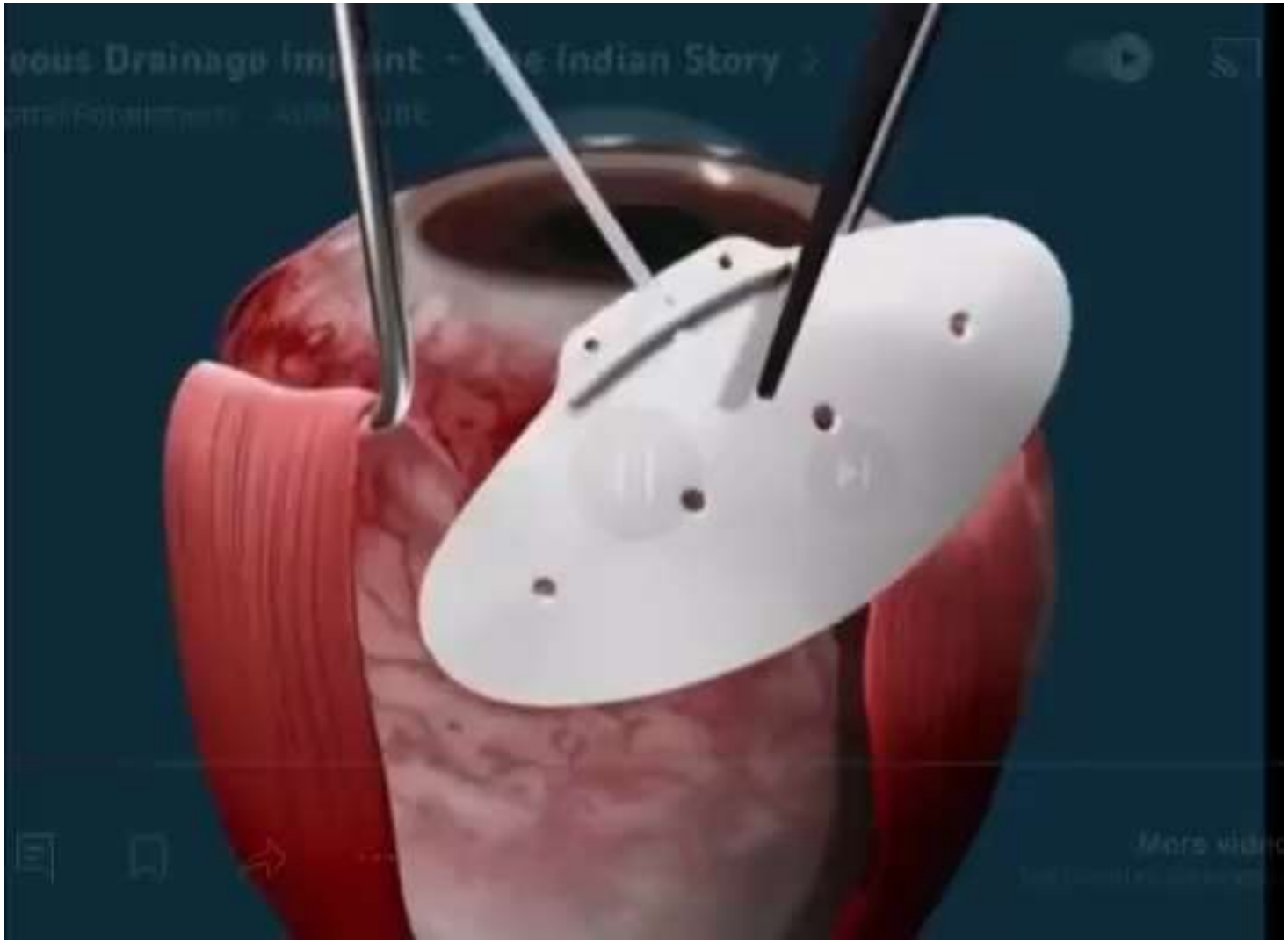

INTRA-OP PICTURES.

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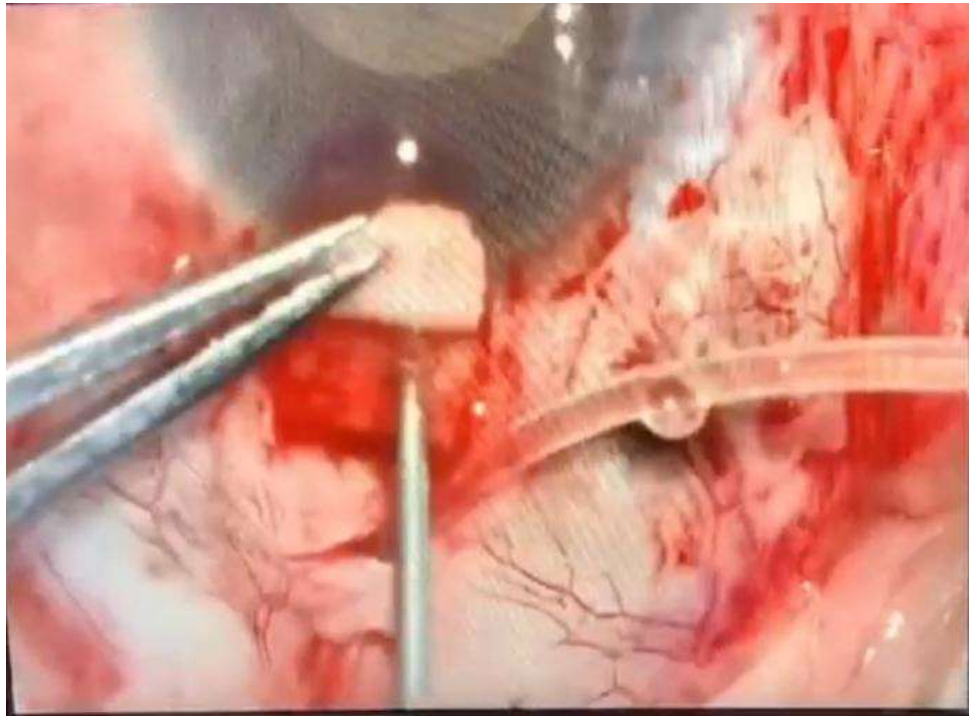
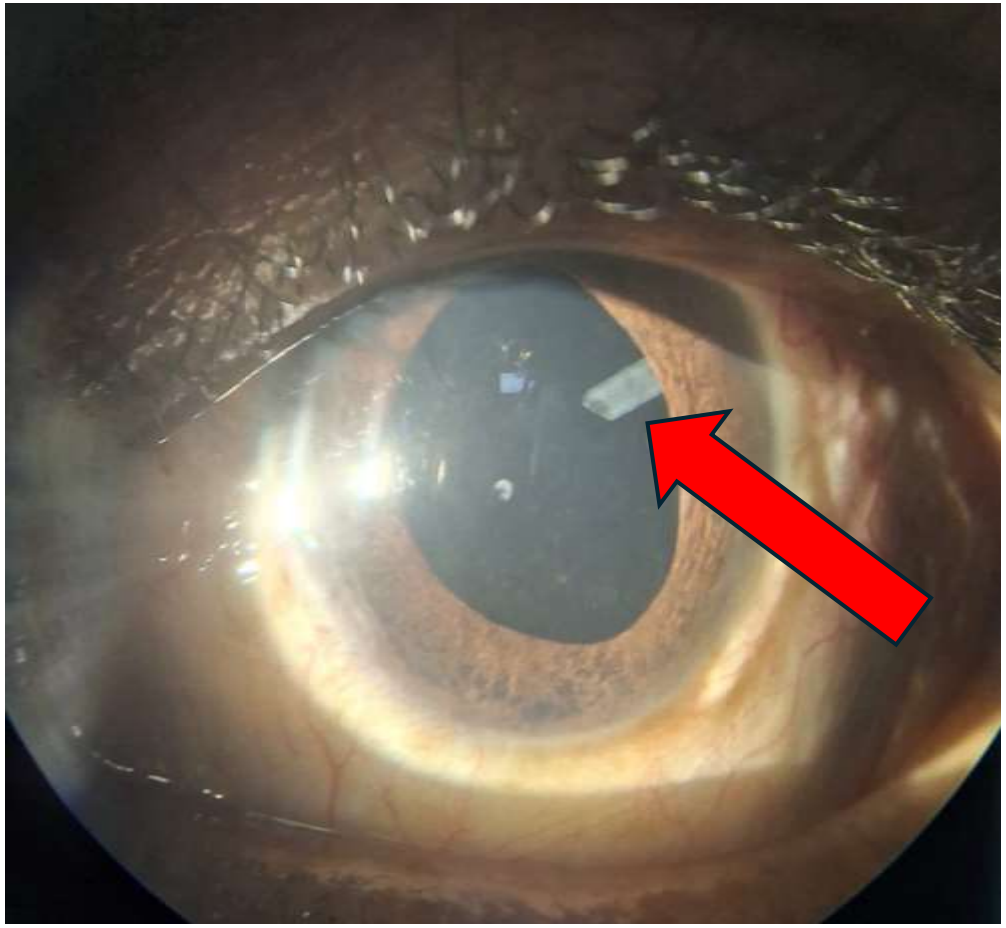


POST OPERATIVE FOLLOW-UP

- Follow up intraocular pressure of the left eye came down to 9 mmHg on POD-1 and 17 mmHg on one month of follow up.



DISCUSSION

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- Neovascular glaucoma (NVG) is characterized by the formation of new blood vessels over the iris and the angle of the anterior chamber seen commonly in Diabetic and Hypertensive patients with complications.(3)
- Glaucoma drainage devices are used in the management of refractory glaucomas.
- Examples - Glaucomas associated with aphakia or pseudophakia, neovascular glaucoma, trauma, uveitis, epithelial downgrowth, iridocorneal endothelial syndrome, vitreoretinal disorders, and penetrating keratoplasty.(4)

3-Mishra C, Meyer JJ. Neovascular glaucoma.
4-Assaad MH, Baerveldt G, Rockwood EJ. Glaucoma drainage devices: pros and cons. Curr Opin Ophthalmol. 1999 Apr;10(2):147-53. doi: 10.1097/00055735-199904000-00012. PMID: 10537766.

AADI (AUROLAB AQUEOUS DRAINAGE DEVICE)

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- A glaucoma drainage device can successfully control intractable glaucoma even after a very long period of time. (5)
- AADI is a low-cost non-valved GDD with successful results in both adult as well as pediatric refractory glaucomas.(6)
- AADI results in a significant reduction in the intra ocular pressure (IOP) and also in the number of antiglaucoma medications (6).
- AADI is cheaper and also made in India.

5- Purtskhvanidze K, Saeger M, Treumer F, Roider J, Nölle B. Long-term results of glaucoma drainage device surgery. BMC Ophthalmol. 2019 Jan 10;19(1):14. doi: 10.1186/s12886-019-1027-z. PMID: 30630462; PMCID: PMC6327392.
6- Sisodia VPS, Krishnamurthy R. Aurolab Aqueous Drainage Implant (AADI): Review of Indications, Mechanism, Surgical Technique, Outcomes, Impact and Limitations. Semin Ophthalmol. 2022 Oct-Nov;37(7-8):856-868. doi: 10.1080/08820538.2022.2082254. Epub 2022 Jun 3. PMID: 35656796.

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THANK YOU