



BACKGROUND

Thermal sclerostomy was once the most widely used glaucoma filtering procedure. Although this surgery has been supplanted by other procedures, it may still have a role for patients who require aggressive intraocular pressure (IOP) lowering. We evaluate the short and long-term outcomes of thermal sclerostomy.

METHODS

Data Source

- We identified twenty-four patients who underwent thermal sclerostomy between 1988 and 2003 at the Kellogg Eye Center.

Exclusion Criteria

- 1) Age <40 years, 2) Congenital or Juvenile-Type glaucoma, 3) Incomplete baseline or follow-up information

Measures and Outcomes

- Demographic data, best-corrected visual acuity, IOP, complications, and number of glaucoma medications were collected preoperatively and at postoperative day 1, 7, 30, 90, 365, and the last recorded visit or final visit documenting bleb failure.
- Blebs that were noted as no longer functioning or that required revision or additional incisional glaucoma surgery were recorded as having failed.

Statistical Analysis

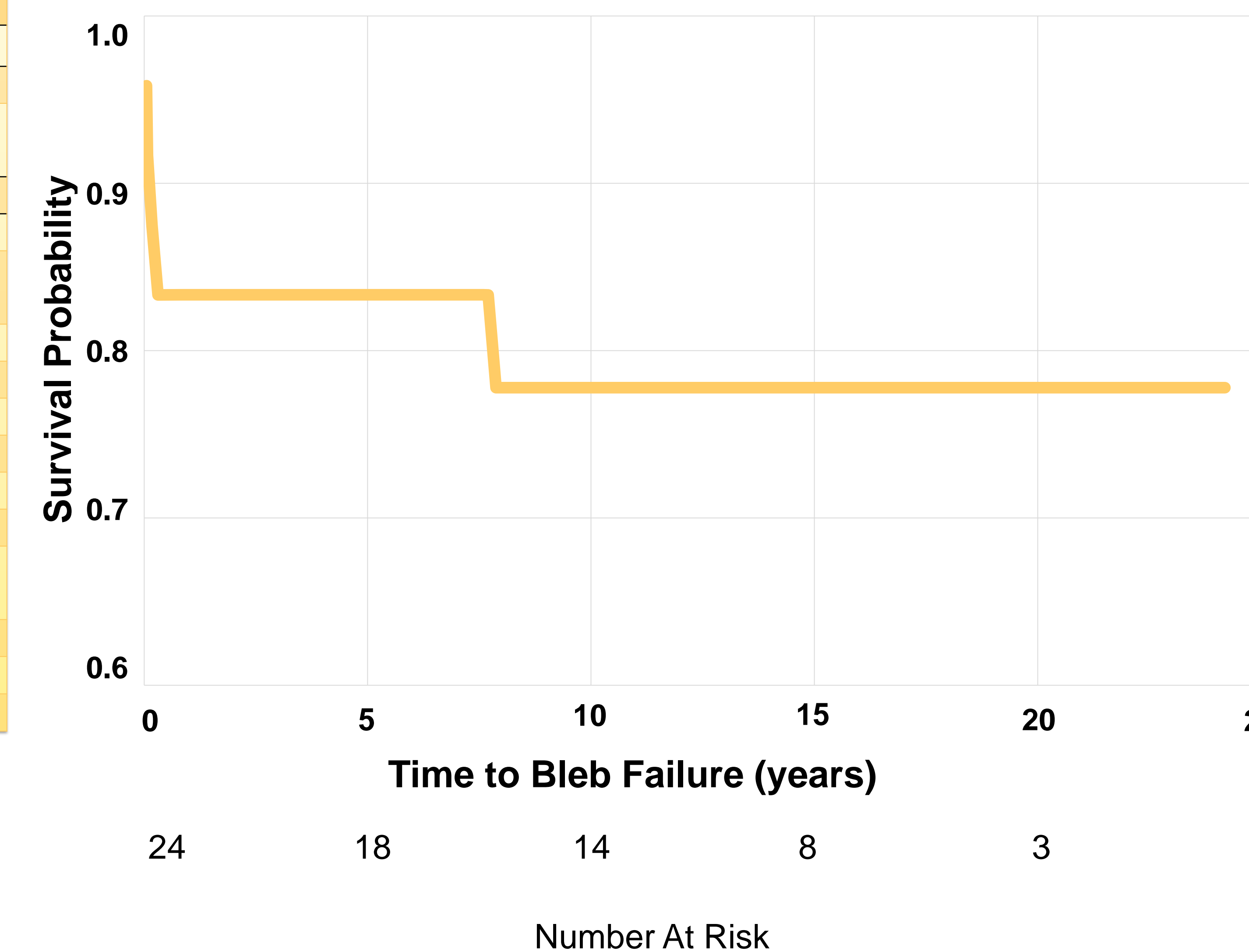
- The paired t-test was used to compare baseline visual acuity, IOP, and number of glaucoma medications at follow-up from baseline.
- Cox proportional hazard regression modeling was used to identify patient characteristics associated with bleb failure.
- Kaplan-Meier survival analysis was performed to evaluate bleb survival.

RESULTS

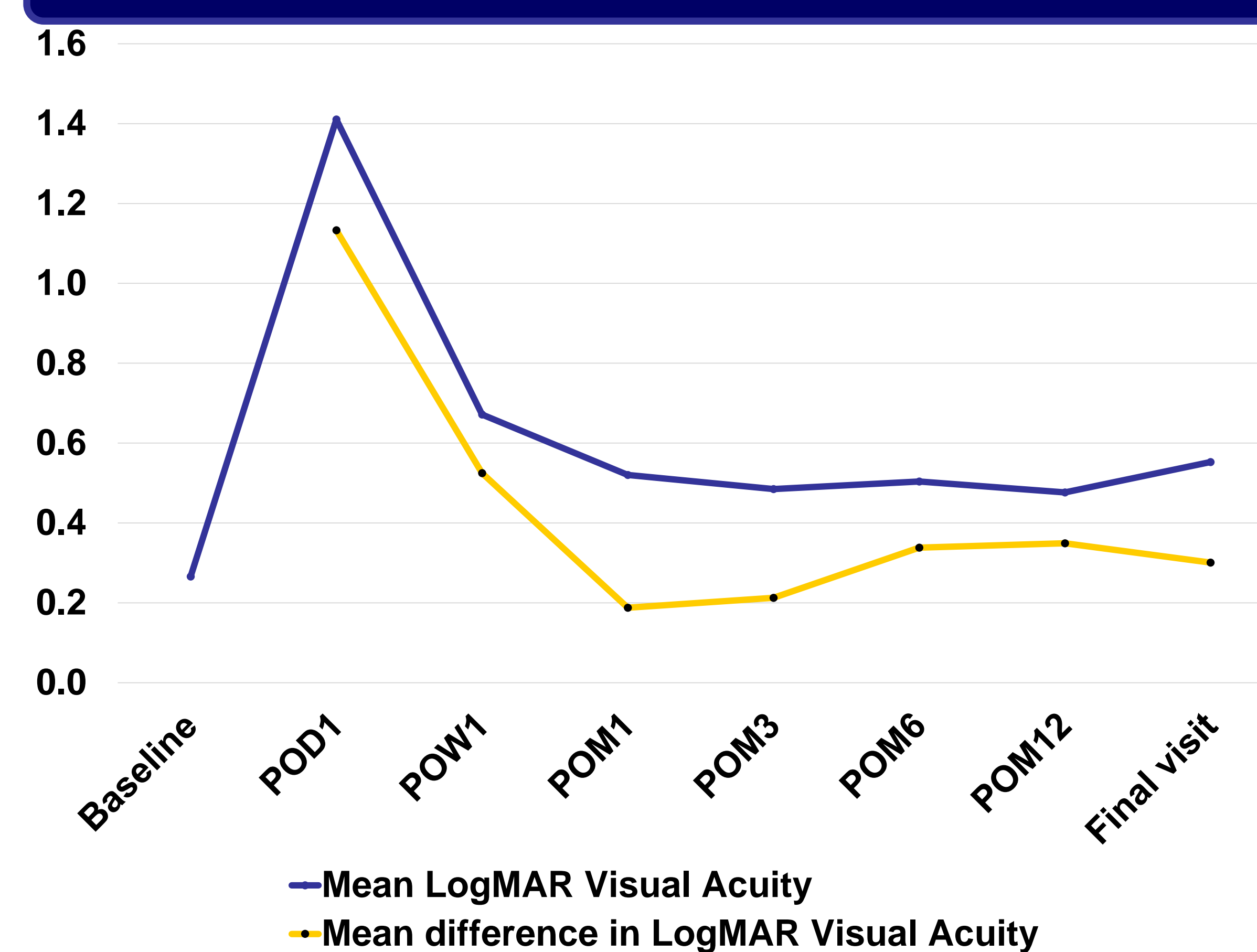
Patient Characteristics

N=24		
	Median (25th, 75th percentile)	
Age at surgery	64.1 (57.8-70.9)	
Years of follow-up until bleb failure or last recorded visit	11.9 (3.7-17.1)	
	%	N
Female	79.2	19
Race		
White	100%	24
Type of Glaucoma		
Primary-Open Angle	50.0%	12
Normal Tension	37.5%	9
Pseudoexfoliation	8.3%	2
Pigmentary Glaucoma	4.2%	1
Laterality		
OD	41.7%	10
OS	58.3%	14
Previous Laser	41.7%	10

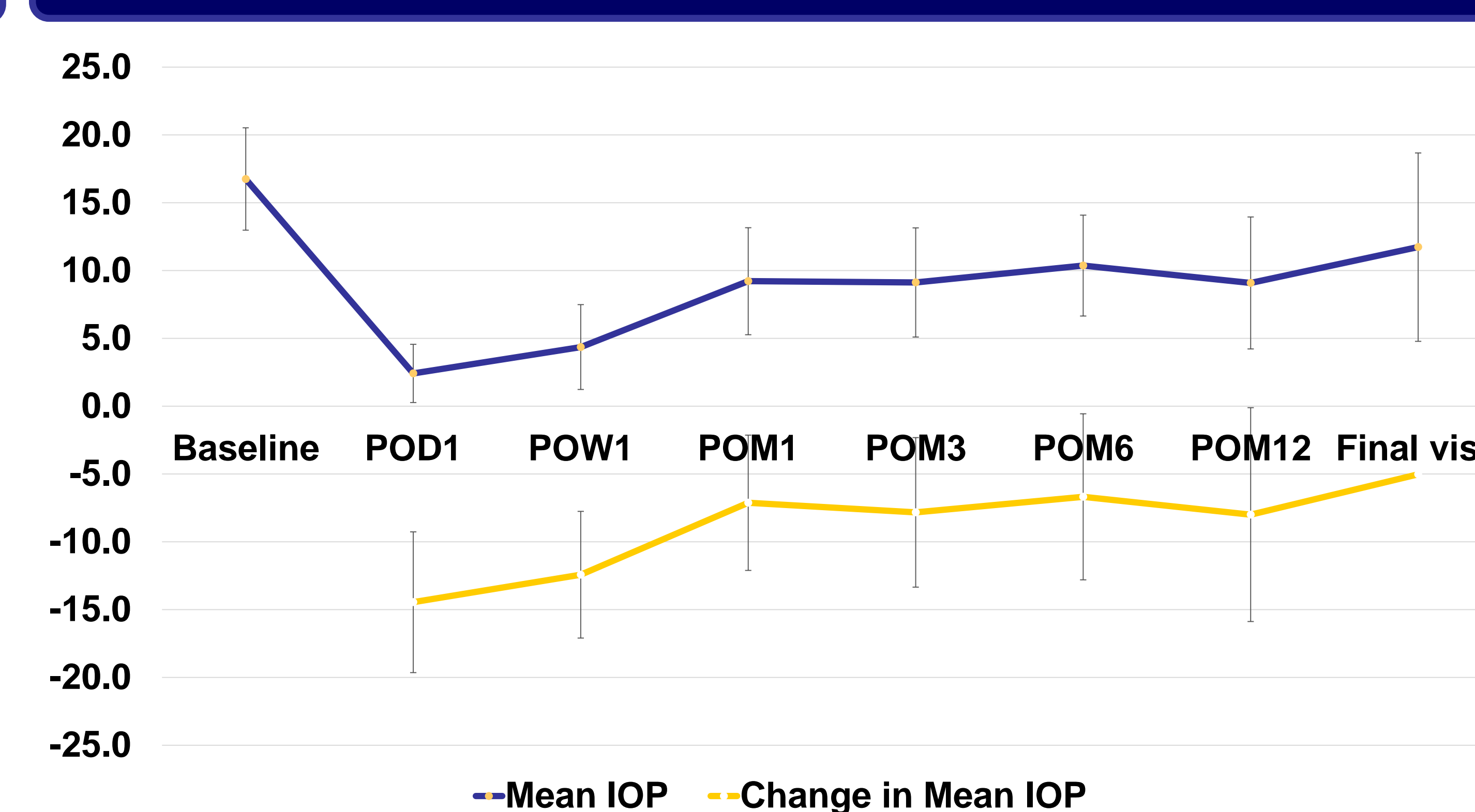
Time to Bleb Failure



Baseline and Follow-up Mean LogMAR Visual Acuity



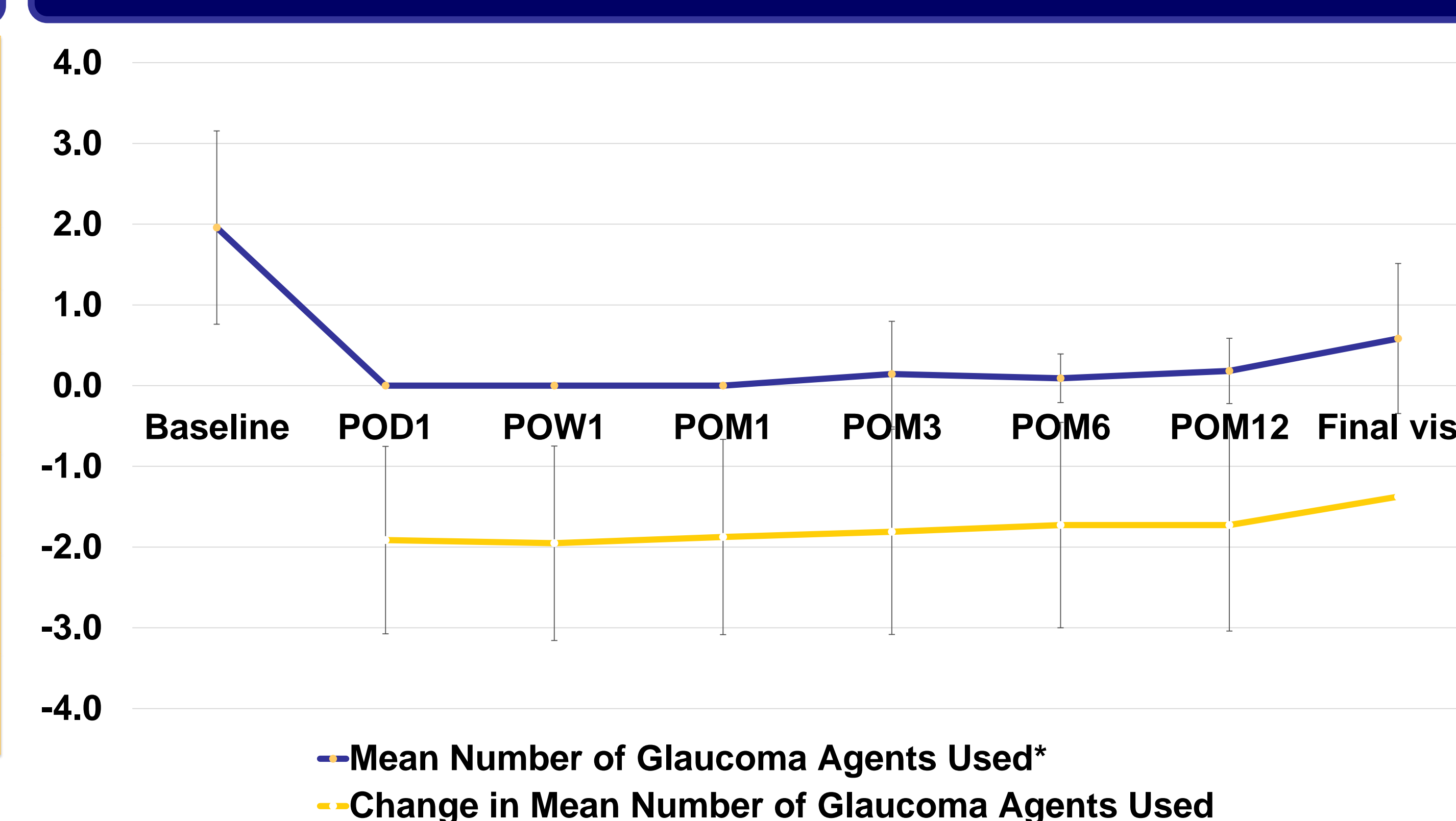
Baseline and Follow-up Mean IOP (mm Hg)



Bleb-related Complications and Subsequent Surgeries

Complication	N	Time of onset in Years (25th, 75th percentile)
Endophthalmitis	4	6.34 (1.14 - 10.7)
Blebitis	4	1.06 (0.19 - 6.23)
Bleb leak	4	1.22 (1.01-1.57)
Bleb failure noted clinically	4	0.12 (0.06 - 0.24)
Subsequent trabeculectomy	1	7.87
Repeat thermal Sclerostomy	1	0.31

Baseline and Follow-up Mean Number of Glaucoma Agents Used



*Includes topical and oral anti-glaucoma medications. Does not account for frequency of dosing of medications

DISCUSSION

Key Findings:

- High bleb survival rate of 79% at 10 years.
 - In comparison, in the Tube Versus Trabeculectomy study (TVTS), failure rate at 5 years was 29.8% for tubes and 46.9% for trabeculectomies
- A significant and sustained reduction in IOP was observed at each follow-up period.
 - Mean IOP at the final visit was 11.7 mm Hg.
 - In TVTS, mean IOP at 5 years was 14.4 mm Hg in tubes & 12.6 mm Hg in trabeculectomies.
 - Change in mean IOP was -8.0 mm Hg at one year and -5.0 mm Hg at the final visit.
- Only two patients required repeat incisional surgery.
 - Versus 9% in tube group, 29% in trabeculectomy group in TVTS
- Bleb survival was not associated with type of glaucoma, history of prior glaucoma laser procedure, or patient gender.
- There was a statistically significant reduction in the mean number of glaucoma agents used over 11.9 years of follow-up from 2.0 agents to 0.6 agents.
- Mean change in logMAR visual acuity after one year of follow-up was 0.3.
- Four patients (16.6%) developed endophthalmitis. Mean time of onset was at 6.3 years after thermal sclerostomy.

Study Limitations:

- Retrospective data
- Limited sample size
- Racially homogenous data set

Conclusions and Implications:

- These results suggest that thermal sclerostomy may still be a valuable surgical option for patients requiring long-term bleb survival accompanied by aggressive IOP control.

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