

RETROSPECTIVE REVIEW: Comparison of Long-term Patient Outcomes Between Ab Interno and Ab Externo Approaches for Xen-45 Gel Stent Implantation

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INTRODUCTION

Purpose: to compare the efficacy, safety, and long-term outcomes of ab interno versus ab externo placement of XEN45 gel stents, performed with or without combined phacoemulsification, in patients with glaucoma refractory to medical therapy. Outcomes included intraocular pressure (IOP), number of medications, and visual acuity.

METHODS

A retrospective case series was conducted at Illinois Eye Center with IRB approval, adhering to the tenets of the Declaration of Helsinki. Patients who underwent XEN45 implantation by the same surgeon between 2020 and 2022 were included. Eligible cases involved XEN45 placement with or without cataract extraction. Exclusion criteria consisted of patients with incomplete records, neovascular glaucoma, prior conjunctival surgery, history of scleral buckle, or concomitant incisional glaucoma surgery. One eye per patient was analyzed. Patients were grouped by surgical approach: ab interno (Group 1, n=39) or ab externo (Group 2, n=43).

RESULTS

Table 1: Analysis of Patient Demographics

POAG = primary open-angle glaucoma; PSG = pigmentary glaucoma; PXG = pigment exfoliation glaucoma

PATIENT DEMOGRAPHICS (N=82)	
Factor	N (%)
Surgical Approach	
Ab Externo	43 (52.4%)
Ab Interno	39 (47.6%)
Gender	
Male	33 (40.2%)
Female	49 (59.8%)
Ethnicity	
Caucasian	70 (85.4%)
African American	9 (11.0%)
Latinx/Hispanic	1 (1.2%)
Asian	1 (1.2%)
Native Hawaiian or Pacific Islander	1 (1.2%)
Language	
English	80 (97.6%)
Spanish	1 (1.2%)
Vietnamese	1 (1.2%)
Age (45-96)	
45 to 60	6 (7.3%)
61 to 75	30 (36.6%)
76 to 90	42 (51.2%)
> 90	4 (4.9%)
Diagnosis	
POAG	74 (90.2%)
PSG	4 (4.9%)
PXG	2 (2.4%)
Other	2 (2.4%)

Intraocular Pressure



Figure 1: Intraocular pressure (IOP), preoperative versus postoperative. POW indicates postoperative week; POM, postoperative month; POY, postoperative year.

Medications

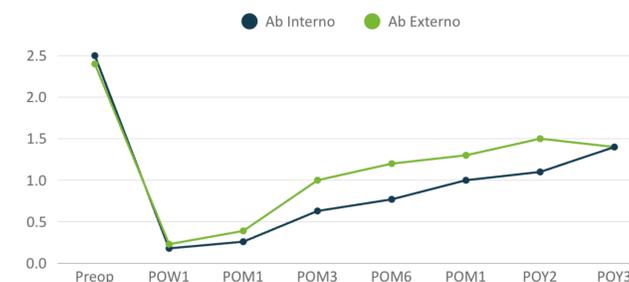


Figure 2: Number of medications, preoperative versus postoperative. POW indicates postoperative week; POM, postoperative month; POY, postoperative year.

BCVA

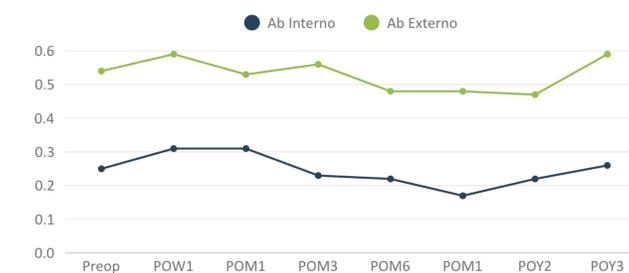


Figure 3: BCVA, preoperative versus postoperative. BCVA indicates best corrected visual acuity; POW, postoperative week; POM, postoperative month; POY, postoperative year.

DISCUSSION

Despite greater baseline disease severity in the ab externo group, long-term IOP control and medication burden were comparable between approaches. Differences in visual acuity and visual field outcomes were driven by baseline severity rather than surgical technique, reflecting real-world surgical selection. Interpretation of VF outcomes was limited by small sample sizes at later follow-up.

CONCLUSION

Ab externo XEN45 implantation demonstrates efficacy and safety comparable to the ab interno approach. Surgical approach selection may be guided by surgeon preference and patient-specific factors without compromising long-term outcomes in medically refractory glaucoma.

REFERENCES

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