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# Reviving XEN-63<sup>©</sup> Gel Stent Patency in Uveitic Glaucoma: A Novel Approach Using 10-0 Nylon Probe



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**XLIX Congresso SOSi 10-12 Aprile 2025 – Giardini Naxos (ME)**

*No author has conflicts of interest*

# XEN® Gel Stent for the Treatment of Open-Angle Glaucoma (On-Label Use)

> J Ophthalmol. 2017;2017:5457246. doi: 10.1155/2017/5457246. Epub 2017 Mar 1.

## XEN Glaucoma Implant with Mitomycin C 1-Year Follow-Up: Result and Complications

Ahmed Galal <sup>1</sup>, Alper Bilgic <sup>2</sup>, Rasha Eltanamly <sup>3</sup>, Amr Osman <sup>3</sup>

> Eye (Lond). 2018 Feb;32(2):324-332. doi: 10.1038/eye.2017.162. Epub 2017 Sep 1.

## One-year result of XEN45 implant for glaucoma: efficacy, safety, and postoperative management

S Z Tan <sup>1 2</sup>, A Walkden <sup>2 3</sup>, L Au <sup>2 3</sup>

Clinical Trial > Graefes Arch Clin Exp Ophthalmol. 2019 May;257(5):983-996.

doi: 10.1007/s00417-019-04251-z. Epub 2019 Feb 13.

## Two-year results of a multicenter study of the ab interno gelatin implant in medically uncontrolled primary open-angle glaucoma

Herbert Reitsamer <sup>1</sup>, Chelvin Sng <sup>2 3 4</sup>, Vanessa Vera <sup>5</sup>, Markus Lenzhofer <sup>1</sup>, Keith Barton <sup>6 7</sup>, Ingeborg Stalmans <sup>8</sup>; Apex Study Group

Multicenter Study > Clin Exp Ophthalmol. 2019 Jul;47(5):581-587. doi: 10.1111/ceo.13463.

Epub 2019 Feb 3.

## Four-year results of a minimally invasive transscleral glaucoma gel stent implantation in a prospective multi-centre study

Markus Lenzhofer <sup>1</sup>, Inga Kersten-Gomez <sup>2</sup>, Arsham Sheybani <sup>3</sup>, Husayn Gulamhusein <sup>4</sup>, Clemens Strohmaier <sup>1</sup>, Melchior Hohensinn <sup>1</sup>, H Burkhard Dick <sup>2</sup>, Wolfgang Hitzl <sup>1</sup>, Lisa Eisenkopf <sup>2</sup>, Fady Sedarous <sup>4</sup>, Iqbal I Ahmed <sup>4 5</sup>, Herbert A Reitsamer <sup>1 6</sup>

Observational Study > Acta Ophthalmol. 2022 Feb;100(1):e233-e245. doi: 10.1111/aos.14886.

Epub 2021 May 10.

## Three-year effectiveness and safety of the XEN gel stent as a solo procedure or in combination with phacoemulsification in open-angle glaucoma: a multicentre study

Herbert Reitsamer <sup>1</sup>, Vanessa Vera <sup>2</sup>, Simon Ruben <sup>3</sup>, Leon Au <sup>4 5</sup>, Jorge Vila-Arteaga <sup>6</sup>, Miguel Teus <sup>7</sup>, Markus Lenzhofer <sup>1</sup>, Andrew Shirlaw <sup>8</sup>, Zhanying Bai <sup>9</sup>, Mini Balam <sup>10</sup>, Ingeborg Stalmans <sup>11</sup>

Comparative Study > BMC Ophthalmol. 2020 Dec 17;20(1):490.

doi: 10.1186/s12886-020-01764-8.

## Outcome of a single XEN microstent implant for glaucoma patients with different types of glaucoma

Marc Schargus <sup>1</sup>, Theresa Theilig <sup>2</sup>, Matus Rehak <sup>2</sup>, Catharina Busch <sup>2</sup>, Caroline Bormann <sup>2</sup>, Jan Darius Unterlauff <sup>3</sup>



# **XEN® Gel Stent for the Management of Uveitic Glaucoma (Off-Label Use)**

> Clin Exp Ophthalmol. 2018 May;46(4):339-345. doi: 10.1111/ceo.13087. Epub 2017 Nov 29.

## **XEN-45 collagen implant for the treatment of uveitic glaucoma**

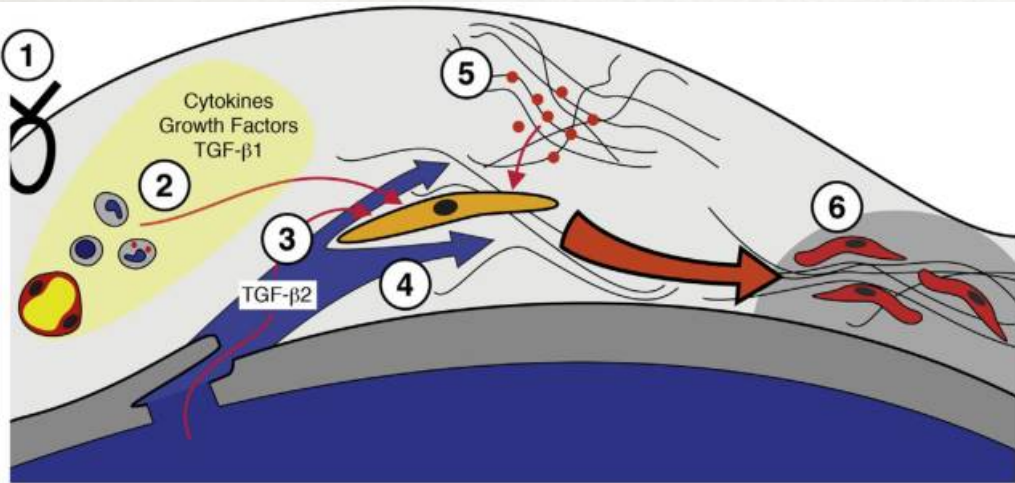
Chelvin Ca Sng<sup>1 2 3</sup>, Jing Wang<sup>1</sup>, Scott Hau<sup>1</sup>, Hla Myint Htoon<sup>3</sup>, Keith Barton<sup>1 2 4 5</sup>

> J Glaucoma. 2019 Dec;28(12):1061-1066. doi: 10.1097/IJG.0000000000001389.

## **Urgent Management of Secondary Glaucoma in Uveitis Using the Xen-45 Gel Stent**

Amreen Qureshi<sup>1</sup>, Nicholas P Jones<sup>1 2</sup>, Leon Au<sup>1</sup>

# Challenges: Inflammation and Fibrosis



**Table 1.** Risk factors for glaucoma filtration surgery failure.

Demographic and systemic risk factors	Ocular surface - independent risk factors	Ocular surface - dependent risk factors
	High pre-operative IOP	<b>GTOSD</b> Duration of medical therapy (years) Therapy regimen Cumulative dose of preservative
Young age African ancestry Diabetes	Advanced stage of disease (MD) Impaired visual acuity Intraocular neovascularization Intraocular inflammation	<b>Non - GTOSD</b> Previous cataract surgery Previous surgical violations of the conjunctiva Previous ocular trauma Concomitant inflammatory OSD

GTOSD = glaucoma therapy-related ocular surface disease, IOP = intraocular pressure (mmHg), MD = mean defect (dB) at visual field.

Review > Graefes Arch Clin Exp Ophthalmol. 2019 Jan;257(1):143-151.  
doi: 10.1007/s00417-018-4156-9. Epub 2018 Oct 11.

## Efficacy of glaucoma drainage devices in uveitic glaucoma and a meta-analysis of the literature

Wishal D Ramdas <sup>1</sup>, Jan Pals <sup>2</sup>, Aniki Rothova <sup>2</sup>, Roger C W Wolfs <sup>2</sup>

Review > Exp Eye Res. 2016 Jan;142:76-82. doi: 10.1016/j.exer.2015.03.021.

## Conjunctival fibrosis following filtering glaucoma surgery

Günther Schlunck <sup>1</sup>, Tobias Meyer-ter-Vehn <sup>2</sup>, Thomas Klink <sup>2</sup>, Franz Grehn <sup>2</sup>





# Needling: Indications and Considerations

- Gonioscopic evaluation to rule out obstruction of the device by iris tissue.
- Early intervention (within 2–3 months).
- Flat bleb with minimal or no filtration.
- Elevated intraocular pressure (IOP).
- Visible or slightly mobile implant gel under the conjunctiva.

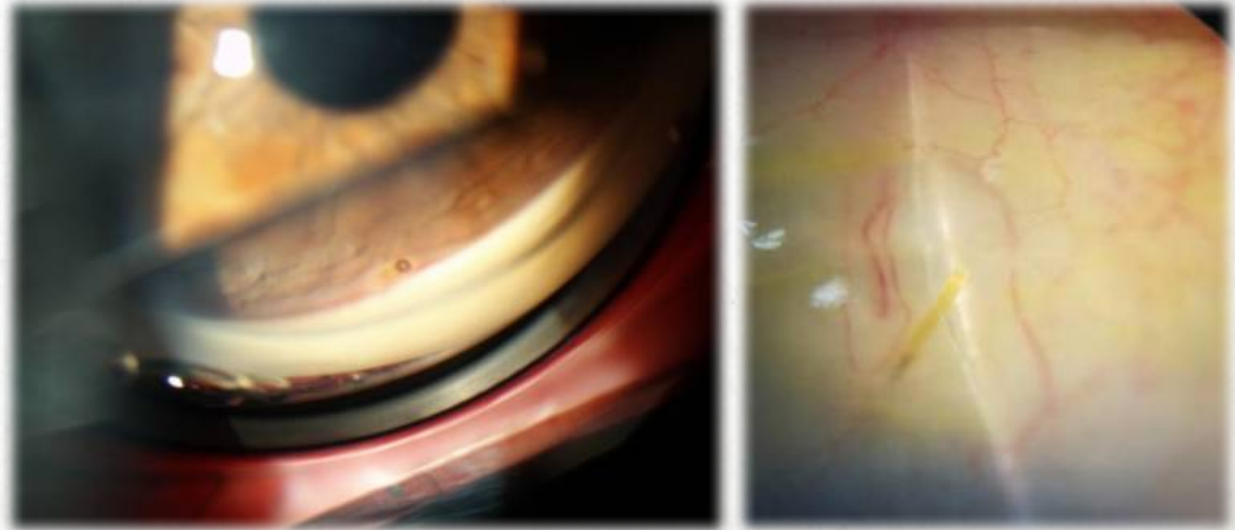
**Three distinct types of needling procedures can be identified:**

1. Dissection of fibrosis within the subconjunctival intra-Tenon space.
2. Clearing occlusions at the implant tip.
3. Needling of a cystic (encapsulated) bleb.

> [Eye \(Lond\)](#). 2019 Mar;33(3):353-357. doi: 10.1038/s41433-018-0206-0. Epub 2018 Sep 11.

## Identifying the predictors of needling after XEN gel implant

Neha Midha <sup>1</sup>, Harsha L Rao <sup>2</sup>, André Mermoud <sup>1</sup>, Kaweh Mansouri <sup>3, 4</sup>



## Needling: surgical technique

- Performed in the operating room
- Under subconjunctival anesthesia (bupivacaine + adrenaline)
- Anterior chamber (AC) stained with Trypan Blue
- Using a 30G or 27G needle (27G is stiffer) bent at 60°
- Releasing the distal end of the gel implant from the fibrous cap or sleeve obstructing it
- Subconjunctival injection of mitomycin C (MMC) 0.1 mg/mL at the end of the procedure





# Open conjunctival revision

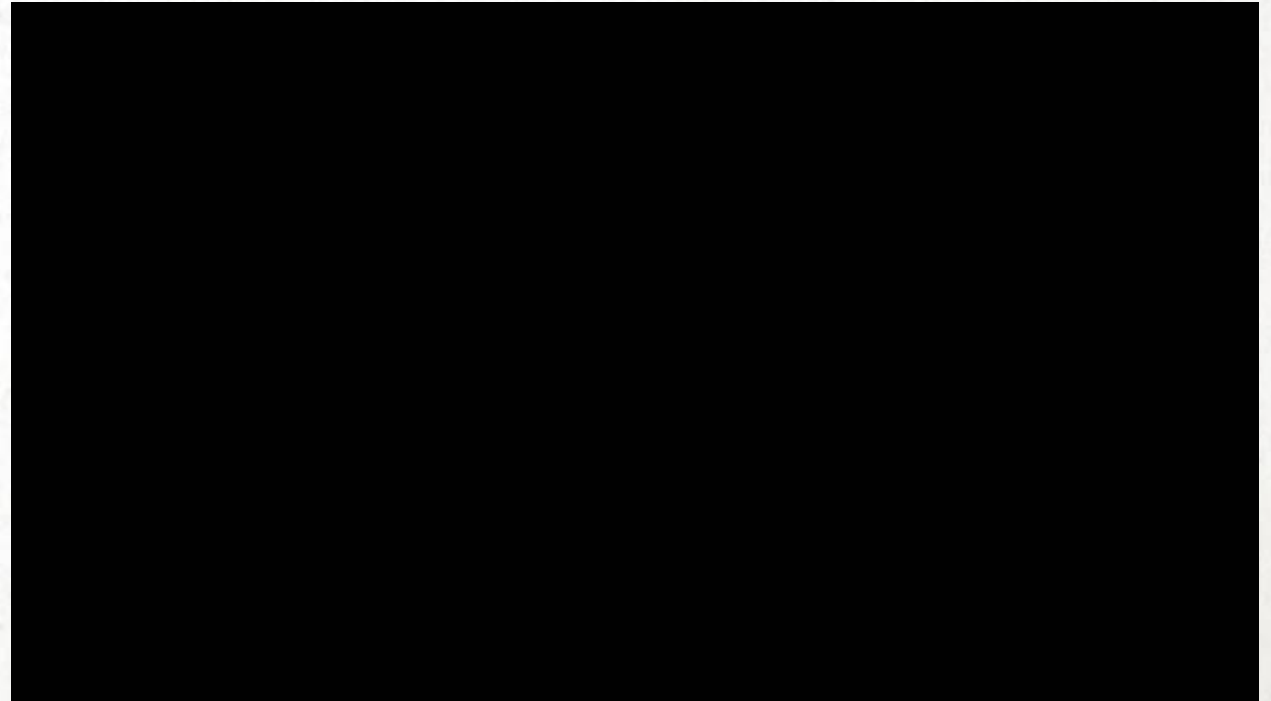
- Failed needling procedure
- Delayed intervention compared to the primary procedure (beyond 2–3 months)
- Fibrotic bleb with a poorly visible and immobile Gel Implant
- Releasing the distal end of the gel implant from the fibrotic cap and the implant body from the surrounding fibrous sleeve
- If the first implant is occluded, a second Gel Implant can be placed ab externo

Review > Ophthalmologe. 2020 Aug;117(8):806-810. doi: 10.1007/s00347-020-01127-0.

## [Open conjunctival revision after XEN45 gel stent implantation as a standardized procedure : A step by step guide. Video article]

[Article in German]

Randolf Alexander Widder <sup>1 2</sup>, Corinna Rennings <sup>3</sup>, Gernot F Rössler <sup>3 4</sup>



## Needling vs. Ab-Externo Revision

- More favorable outcomes with ab externo revision compared to needling.
- Ab externo revision appears superior to slit-lamp needling and may yield better results than primary surgery.

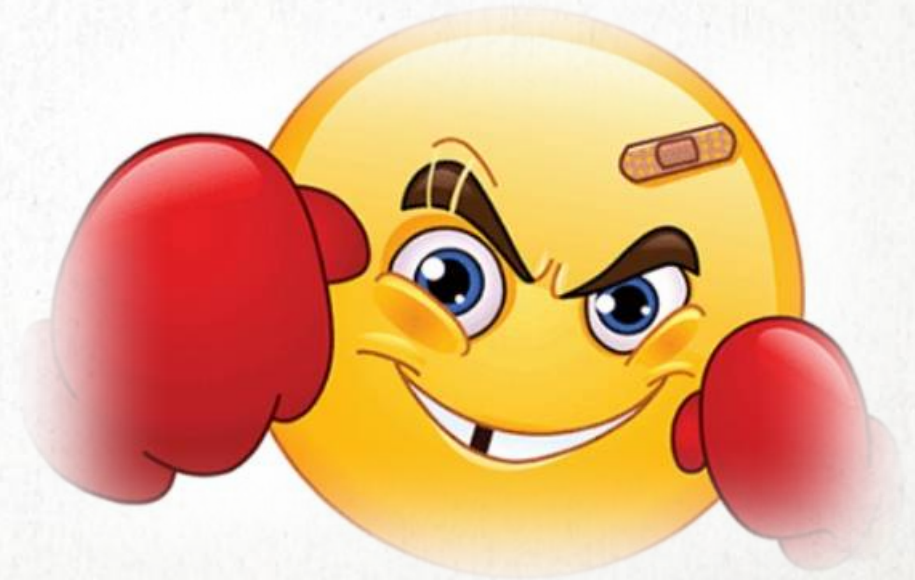
### Possible Reasons:

1. Uncertain positioning of the external end of the XEN in relation to the conjunctiva or Tenon's capsule.
2. Potential removal of Tenon's capsule during revision .

> Graefes Arch Clin Exp Ophthalmol. 2021 Sep;259(9):2761-2770. doi: 10.1007/s00417-021-05204-1. Epub 2021 May 11.

### Needling and open filtering bleb revision after XEN-45 implantation—a retrospective outcome comparison

Stefan Steiner <sup>1</sup>, Hemma Resch <sup>1</sup>, Barbara Kiss <sup>1</sup>, Daniel Buda <sup>1</sup>, Clemens Vass <sup>2</sup>





## Management of Intraluminal Obstruction: Recommended Approach

- In patients with a heightened inflammatory response, the XEN-63 Gel Stent may develop deep lumen occlusion, which remains unresponsive to conventional treatments.
- Ab externo surgical intervention using a 10-0 nylon probe to release the obstruction, followed by the application of mitomycin C.

Case Reports > J Curr Glaucoma Pract. 2024 Apr-Jun;18(2):74-78.

doi: 10.5005/jp-journals-10078-1445. Epub 2024 Jul 10.

### Reviving XEN63 Gel Stent Patency in Uveitic Glaucoma: A Novel Approach Using 10-0 Nylon Probe

Vincenzo Marchese <sup>1</sup>, Viviana Randazzo <sup>2</sup>, Rosanna Badalamenti <sup>1</sup>, Marco Anastasi <sup>3</sup>

# Conclusions

- There is no single standardized treatment.
- In patients with a heightened inflammatory response, the XEN-63 Gel Stent may develop deep lumen occlusion, which remains unresponsive to conventional treatments;
- This case report presents a novel surgical technique applicable to various glaucoma drainage devices, utilizing an ab externo approach with a 10-0 nylon probe;
- The demonstrated success in intraocular pressure (IOP) reduction suggests its potential as a less invasive alternative, to be considered before resorting to more aggressive surgical interventions.

Thank you for  
your attention