

Letter to Editor

The iStent video cassette pedagogy: An innovative teaching guide for minimally invasive glaucoma surgery platform

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Dear Editor,

INTRODUCTION

Glaucoma is a leading cause of blindness worldwide. Shockingly, around 76 million people are affected by it, and this number is predicted to escalate to 111.8 million by 2040.^[1] One of the significant concerns surrounding glaucoma treatment is its economic burden. The continuous and regular use of anti-glaucoma medications can be quite costly.^[2,3] Additionally, the current surgical approach also has its own shortcomings.^[4] Therefore, it's crucial to explore alternative surgical management options. Minimally invasive glaucoma surgery (MIGS) offers us a reprieve from these setbacks.^[5] MIGS is the key to the future of managing mild to moderate cases of glaucoma with a good safety and economic profile.

PURPOSE

In this video, we provide a comprehensive bouquet of teaching videos with tips and tricks required for an iStent neophyte to learn about the proper technique of iStent (G1 and G2) implantation and to tackle commonly experienced setbacks [Video 1]. It also showcases a series of combined MIGS procedures and simulated training with a holographic three-dimensional (3D) eyeball model.

SYNOPSIS

This video compilation encloses the following teaching points.

The G1 iStent

1. The Glide: Proper implantation technique for G1 iStent [Figure 1]
2. Management of trabecular meshwork cheese wiring
3. The Nudge: Manoeuvres to confirm the position of the iStent
4. The Rebound: Tackling of iStent rebound due to trochar malfunction
5. Combined MIGS: G1 implant + Kahook dual blade goniotomy
6. Combined MIGS: G1 implant + Bent ab interno needle goniotomy.

The G2 iStent

1. Dimpling and Blanching: Proper implantation technique for G2 iStent
2. Lost but found: Correct method for retrieval of dislodged iStent.

THE OPHTHALMIC METAVERSE

In the field of ophthalmology education, a critical challenge for new residents and surgeons is understanding complex theoretical frameworks. A novel 3D simulator for iStent implantation practice addresses this challenge by providing a hands-on, immersive experience that enhances learning and skill development. This necessitates the ability to visualise detailed concepts effectively. To address this, we have developed an advanced cognitive tool, a 3D eyeball model integrated with real-time True Colour confocal images and angle structures providing a realistic learning experience unlike

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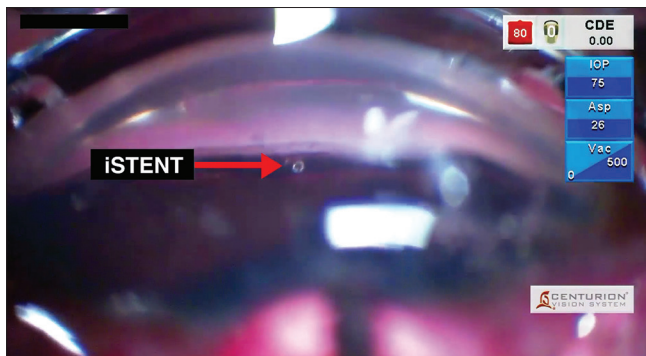
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Video available on: www.gjcsro.org

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Figure 1 : (a) iStent generation 1, (b) iStent company logo and (c) iStent registered trademark symbol.



Video 1: Video showing ‘the iStent video cassette pedagogy’.

animated models. This interactive tool empowers users to explore different eye components with varying magnifications, enhancing e-learning in ophthalmology. Furthermore, our innovation extends to a 3D model for iStent. Users can utilise an advanced interactive 3D touch interface to insert the iStent into the trabecular meshwork, experiencing haptic feedback for improved learning of the insertion technique. This approach, utilising high-resolution confocal fundus images and photoreal visuals, revolutionises 3D learning in ophthalmology education, serving as a state-of-the-art pedagogical tool and facilitating e-counselling within a holographic environment.

HIGHLIGHTS

In this informative video, viewers will gain a comprehensive understanding of the proper procedures for implanting iStents. The video takes a thorough approach to showcase the techniques used for implantation while also managing typical issues that may arise during the process. In addition, the video offers a simulated training process for iStent implantation, allowing viewers to gain a deeper understanding of the process. The implantation techniques are demonstrated in great detail, providing viewers with a clear and concise understanding of the process.

Ethical approval

The Institutional Review Board approval is not required.

Declaration of patients consent

The authors certify that they have obtained all appropriate patient consent.

Financial Support and Sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

Use of artificial intelligence (AI)-assisted technology for manuscript preparation

The authors confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript and no images were manipulated using AI.

REFERENCES

- Allison K, Patel D, Alabi O. Epidemiology of glaucoma: The past, present, and predictions for the future. *Cureus* 2020;12:e11686.
- Bhatt T, Golwala D. Review on cost of anti-glaucoma formulation available in India. *Biomed Pharmacol J* 2022;15:1213-25.
- Ramesh PV, Aji K, Ray P, Ramesh SV, Ramesh MK, Rajasekaran R, *et al.* Combating anti-glaucoma medication compliance issues among literate urban Indian population-has this fallen in our blind spot? *J Clin Ophthalmol* 2021;5:472-5.
- Ramakrishnan R, Khurana M. Surgical management of glaucoma: An Indian perspective. *Indian J Ophthalmol* 2011;59(Suppl 1):S118-22.
- Ramesh PV, Ray P, Senthil Kumar NK, Ramesh SV, Devadas AK. Commentary: Minimally invasive glaucoma surgery for a surgical take diversion: An economic perspective. *Indian J Ophthalmol* 2023;71:566.

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