



Minimally Invasive Glaucoma Surgery as a Gateway to Better Filtration Surgery Outcomes

Ricardo De Sousa Peixoto*

University Hospitals Derby and Burton, Derby, UK

***Corresponding Author:** Ricardo De Sousa Peixoto, University Hospitals Derby and Burton, Derby, UK.

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Glaucoma is a potentially blinding optic neuropathy, characterised by progressive loss of retinal nerve fibre layer associated with characteristic optic disc changes and visual field loss [1]. The only significant risk factor that can be treated is elevated intra ocular pressure (IOP). Several landmark studies have shown that by lowering IOP, glaucoma progression can be slowed down successfully [1].

Several IOP lowering medications are available to treat glaucoma. These medications need long term daily usage. To prevent bacterial contamination, they are usually packed with preservatives. However, preservatives have long been associated with ocular surface toxicity [2-4]. Recently, several formulations of preservative free (PF) drops have been introduced to the market and their effect on the ocular surface is more favourable than preserved drops [2-4]. However, they are on average more expensive than preserved drops and may not be supported by already burdened healthcare services.

Surgical treatment of glaucoma for many decades relied mostly on filtration surgery, namely trabeculectomy, which relies on creating a passage for aqueous fluid to flow from the anterior chamber into the sub conjunctival space. Filtration surgery success depends greatly on a healthy non-inflamed conjunctiva [5]. Strategies to achieve better ocular surface health include swapping preserved IOP lowering agents for PF pre-operatively [6] and initiating a short course of steroid drops before surgery to decrease the conjunctival inflammation and prevent fibroblast activation. Mitomycin C has had a dramatic effect on the outcomes of trabeculectomy, but despite its use, trabeculectomy failure in an eye with ocular surface disease is still high [5].

Minimally invasive glaucoma surgery (MIGS) is a new type of glaucoma surgery, which is performed together with cataract surgery, and at the angle. They can bypass the trabecular meshwork with insertion of stents (iStent®), enlarge the Schlemm's canal (Hydrus®, ab interno viscocanaloplasty) or deroof the trabecular meshwork (Kahook Dual Blade®, TrabEx+™, gonioscopically assisted transluminal trabeculectomy).

There is extensive evidence that MIGS can lower IOP levels and reduce the need for topical glaucoma medications [7-9]. These two factors can work together to delay the need for filtering surgery and improve ocular surface. This will create conditions for better trabeculectomy outcomes and more positive quality of life for the patient.

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