



Evolution of Surgical Procedures for Treatment of Glaucoma

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DESCRIPTION

Glaucoma is a progressive eye disease characterized by increased intraocular pressure that can lead to irreversible damage to the optic nerve, resulting in vision loss. It affects millions of people worldwide and is a leading cause of blindness. While medication and laser therapy are commonly used to manage glaucoma, sometimes surgical intervention becomes necessary to halt or slow down the disease progression. Trabeculectomy is one of the most commonly performed glaucoma surgeries. It involves creating a new drainage channel by making a small incision in the sclera, the white part of the eye. This allows the excess fluid to drain, reducing intraocular pressure. Trabeculectomy has been successful in controlling glaucoma progression, but it is associated with certain complications such as hypotony and infection. In cases where trabeculectomy is not feasible or unsuccessful, tube shunt surgery may be recommended. A small tube is inserted into the anterior chamber of the eye, and the other end is connected to a reservoir device implanted beneath the conjunctiva. This allows the excess fluid to drain, reducing intraocular pressure. Tube shunts have shown promising long-term success rates and are preferred for certain types of glaucoma. Minimally Invasive Glaucoma Surgery (MIGS) procedures have gained popularity in recent years due to their minimal invasiveness and quicker recovery times. These procedures aim to enhance the outflow of aqueous humor, reducing intraocular pressure. Canaloplasty is a non-penetrating glaucoma surgery that focuses on restoring the natural drainage system of the eye. During the procedure, a microcatheter is used to dilate and clear the Schlemm's canal, a major drainage channel in the eye. This improves the outflow of aqueous humor, lowering intraocular pressure. Canaloplasty has shown promising results, with studies reporting long-term efficacy and

reduced dependence on medication. Endoscopic Cyclophotocoagulation (ECP) combines endoscopy and laser therapy to target the ciliary body, which produces aqueous humor. It involves inserting an endoscope through a small incision to visualize the ciliary processes, which are then treated with laser energy. This reduces the production of aqueous humor, effectively lowering intraocular pressure. ECP can be performed as a standalone procedure or in combination with other glaucoma surgeries.

The advancements in glaucoma surgery techniques have significantly improved patient care by offering more options and reducing the burden of medication dependency. Glaucoma surgery, particularly MIGS and canaloplasty, has been shown to reduce the need for multiple glaucoma medications. This not only simplifies the treatment regimen but also minimizes potential side effects associated with long-term medication use. Advancements in surgical techniques have led to improved success rates and long-term outcomes. The use of MIGS and other minimally invasive procedures has demonstrated effective intraocular pressure control, which is crucial in preventing further damage to the optic nerve and preserving vision. Traditional glaucoma surgeries often require longer recovery periods due to the invasive nature of the procedures. However, MIGS and other minimally invasive techniques typically have shorter recovery times, allowing patients to resume their daily activities sooner and experience less postoperative discomfort. The ability to perform glaucoma surgery in conjunction with other eye surgeries, such as cataract removal, is a significant advantage. This not only saves time and resources but also addresses multiple eye conditions simultaneously, leading to better patient outcomes and improved quality of life.

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