بسم الله الرحمن الرحيم

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TRABECULECTOMY WITH RELEASABLE SUTURES FOR GUARDED FILTRATION SURGERY

THESIS

Submitted in partial fulfillment of MD Degree in Ophthalmology

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﴿ قالوا سبحانك لا علم لنا إلا ما علمتنا
إنك أنت العليم الحكيم ﴾

• الآية ٣٢ سورة البقرة •

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LIST OF ABBREVIATIONS

ACD	Anterior chamber depth
ACG	Angle closure glaucoma
CT	Corneal thickness
GFS	Glaucoma filtration surgery
HS	Highly significant
IOP	Intraocular pressure
MS	Moderately significant
NS	Non significant
OAG	Open angle glaucoma

INTRODUCTION AND AIM OF THE WORK

INTRODUCTION

Glaucoma is a common world wide visual disorder, it is suggested that by the year 2000, 66.8 million people will have open angle glaucoma (OAG) and angle closure glaucoma (ACG) in nearly equal numbers. An additional 6.0 million people are estimated to have secondary glaucoma. The number of those estimated to be blind from glaucoma world wide by the year 2000 is about 6.7 million ***(Quigley 1996)***.

Treatment of glaucoma must aim at prevention of further optic nerve damage rather than reduction of intra-ocular pressure only . Medical therapy, laser surgery and glaucoma filtration surgery, all aim at this, but one of them may not suit all of them . Some patients respond to medical therapy, others do not, some patients prefer surgery from the very beginning others do not, previously the prevailing view was that incisional surgery is performed only when maximal tolerable medical treatment and laser therapy have failed to preserve the optic nerve functions and bring the intra-ocular pressure (I.O.P) to the target pressure aimed at, however, recently a debate aroused concerning the choice of initial treatment for primary open angle glaucoma. ***Lavin et al ; 1990*** advocated surgery as the initial treatment their points of argument are :-

- They present evidence of better results with surgery concerning I.O.P and visual acuity.
- They stress upon the possible bad effects of prolonged medications on the future Glaucoma filtration surgery (GFS).
- The adverse side effects of many medications (both morbidity and mortality).
- They consider the time needed to document failure of medical treatment as an irreparable loss of optic nerve functions.
- The high cost of using many medications for long period.
- The difficulty to get a complying patient especially with a multi-drop regimen. ***(Lavin 1990)***.

Other surgeons support the view of initial medical treatment and claim that :-

- The validity of results of surgery in some reports is questionable.
- The risk of both operative and anesthetic complications should not be ignored.
- The recent current progress in the field of ocular pharmacology concerning anti glaucoma treatment may give a better chance to medical treatment.

The best policy in this respect is to decide the modality of initial treatment on an individual basis, and in Egypt we have to consider in particular the following problems.

- Patient's compliance and follow up facility.
- Cost of treatment.

Therefore we can safely decide on initial surgery to patients who are considered at risk for failure of medical treatment ***(El-Guindi 1993)***.

Aim Of The Work

In this thesis a releasable suture technique will be used in the closure of scleral flaps, aiming at allowing an initial tight closure to eliminate or reduce the aqueous over-filtration in the early postoperative period with an option to increase aqueous out flow in the early postoperative period, avoiding the frequent early postoperative complications resulting from, hypotony, shallowing and loss of anterior chamber.

REVIEW OF LITERATURE

History Of Glaucoma Filtration Surgery

Before the 1800s the term "GLAUCOMA" was used without reference to a specific disease process. It was merely a label applied to an inflamed eye with poor vision in which the pupil appeared to have a greenish-blue color. It was not until the early 1800s that elevated I.O.P was found to be a cardinal feature of the disease. Before long paracentesis was suggested as a surgical method to relieve this condition. Von Graefe tried paracentesis in cases of acute glaucoma but found its effect to be temporary. Because he believed that excision of the iris reduced aqueous secretion, in 1856 he performed a sector iridectomy on a 51-year-old woman with acute glaucoma. The dramatic improvement in this patient established iridectomy as the standard operation for glaucoma for the next several decades. The formation of a filtering bleb (which occurred in over 20% of Von-Graefe's patients who under went iridectomy) was thought to be an inadvertent and undesirable complication of surgery ***(Sugar 1981)***.

Toward the later part of the nineteenth century, ophthalmic surgeons began to realize that iridectomy by it self would not relieve all cases of glaucoma. They found that "chronic glaucoma" (Which in today's terminology includes both open angle and chronic angle closure glaucoma) was not relieved unless a filtering bleb had inadvertently formed after iridectomy.

It gradually became obvious that if intraocular pressure was to be successfully lowered in "chronic glaucoma", it was necessary to create an artificial path for aqueous to escape into the subconjunctival space.

The goal of glaucoma surgeons for over the past 100 years has been to devise a method of creating such a pathway through the wall of the eye to communicate between the anterior chamber and the subconjunctival space, allow adequate egress of aqueous, remain permanently open, and be associated with a minimum of complications ***(Belcher, 1992)***.

The multitude of operations developed over the last century reflects the difficulties involved in designing the ideal filtering operation.

The first attempts at surgical treatment of glaucoma were made by ***Mackenzie (1830)*** and ***Middlemore (1835)*** by paracetnesis and scleral puncture.

The first successful surgical procedure was ***Von-Graef's iridectomy (1857)***.

Critchett (1858), developed the operation of iridesis (iris inclusion in corneal section).

A procedure to manage chronic simple glaucoma was made by ***De Wecker*** with his anterior sclerotomy (1867) to produce a filtering cicatrix through which intraocular fluid leaves the eye.

In 1871, he modified the scleral section one millimeter

behind the limbus to avoid iris prolapse. In 1894, he tried the effect of iridodialysis after making a keratome incision at the limbus. The iridodialysis was performed by pulling the iris towards the pupil.

Argyl Robertson (1876), performed trephining of the sclera behind the ciliary body.

Bader (1876), introduced a similar procedure like that of De-Wecker anterior sclerotomy in which the corneal puncture and counter puncture were as close as possible to the iris insertion and the sclera was divided along one third of the limbal circumference leaving a large conjunctival bridge.

Panas (1884), made an incision below and temporal, and plunged the Graefe knife through the iris for 8-10mm. cutting both iris and sclera and made a 2 to 3mm. exit incision.

In ***1903-1907, Herbert*** performed his small flap sclerotomy with some modification in 1913. He was the first who suggested iris inclusion as a filtering operation.

LaGrange (1906), designed filtering operation of partial sclerectomy and iridectomy.

Hein (1906), introduced his cyclodialysis and ***Holth (1906)***, performed his iridencleisis.

Fergus (1909), revived trephine over the ciliary body and passed a spatula in the anterior chamber.

In ***(1909), Elliot*** described his operation of corneo-scleral