Laser Suture Lysis versus Removal of Releasable Sutures in the Management of Failing Blebs

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"إذابة الغرز بالليزر مقارنة بإزالة الغرز القابلة للفك في علاج الفقاعات الترشيحية الموشكة على الفشل"

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ABSTRACT

Purpose:

To compare the effect of laser suture lysis and removal of releasable sutures on the intraocular pressure in cases of failing blebs following standard trabeculectomy surgery in the early and late postoperative periods as well as their effect on the final outcome of trabeculectomy in terms of success or failure, and to detect and compare their complications.

Patients and Methods:

This prospective study included 40 eyes of 33 patients that underwent trabeculectomy using the Safe Surgery System, in Cairo University Hospital, and presented to Kasr El Eini Glaucoma Clinic with a failing trabeculectomy bleb during their follow up visits. Eyes that had undergone trabeculectomy with fixed scleral flap sutures (20 eyes) had Argon laser suture lysis (Suture lysis group), while eyes in which releasable sutures were used to close the scleral flap (20 eyes) had one or more of these sutures removed. Primary outcomes were the success rate and frequency of complications. Complete success was defined as IOP of 8 to 21 mmHg at the last follow-up visit. The use of glaucoma medications and/or bleb needling to achieve such a pressure was considered as qualified success, and failure was considered if no such pressure could be achieved, or if a devastating complication occurred.

Results:

Complete Success was achieved in 8 eyes (40.0%) in releasable sutures group and 5 eyes (25.0 %) in fixed sutures group, whereas 12 eyes (60.0 %) in releasable sutures group and 15 eyes (75.0 %) in LSL group were classified as having *Qualified Success* because they underwent bleb needling to control their pressures. In two eyes in releasable sutures group and 6 eyes in LSL group needling was not sufficient, and medications were added to control their IOP. We found highly significant intraocular pressure reduction in both groups during follow-up periods compared to preoperative values. Complications were few, relatively minor for both groups. We found no statistically significant difference regarding complications induced by either laser suture lysis or removal of releasable sutures.

Conclusion:

Both removal of releasable sutures and lysis of fixed one can successfully salvage a failing trabeculectomy bleb, especially when combined with needling whenever appropriate, and equally successful in terms of the complications rate.

Keywords:

Glaucoma, Trabeculectomy, Failing bleb, Laser suture lysis, Releasable sutures, Kasr Al Ainy Hospital.

INTRODUCTION

AIM OF WORK

LIST OF ABBREVIATIONS

Abbreviation	Full Name
5-FU	5-fluorouracil
AC	Anterior chamber
CF	Counting fingers
HMGP	Hand motion good projection
IOP	Intra ocular pressure
LSL	Laser suture lysis
MMC	Mitomycin C
ND:YAG	Neodymium Yttrium Aluminium Garnet
PACG	Primary angle closure glaucoma
VA	Visual acuity

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SAFE SURGERY SYSTEM IN TRABECULECTOMY

INTRODUCTION

The aim of trabeculectomy is to lower the intraocular pressure (IOP) in uncontrolled glaucoma in order to avoid glaucoma progression.

The maintenance of an IOP low enough to prevent glaucoma progression (target IOP) depends on a functioning filtering bleb. In recent decades, trabeculectomy, which involves removal of a block of limbal tissue beneath a scleral flap [1,2], has gained wide acceptance as an effective pressure-lowering procedure that minimizes the complications common to the earlier full-thickness techniques.[3]

The more recent addition of antimetabolites has significantly improved the success of trabeculectomy in patients at high risk for surgical failure, and has also improved our ability to provide maximal pressure lowering.[2]

Careful attention to preoperative preparation of the patient, intraoperative steps of the procedure and postoperative management are all essential to achieve the goal of significant IOP reduction with minimal complications. Closure of the scleral flap controls the egress of aqueous humor.[2]

Pressure management in the early postoperative period in case of interrupted sutures is done by **laser suture lysis (LSL)** which is performed by blanching and compressing the overlying bleb on the suture with either a **Hoskins** suture lysis lens or the edge of a Zeiss goniolens.[4]

Surgeons also have described several types of **releasable sutures to titrate the IOP postoperatively.**[5,6,7]

The sutures can be removed postoperatively by freeing their corneal end at the slit-lamp and then pulling downward, this pulls the loop out of the knot and frees the entire suture.[4,5] The main complication to be