

Comparison of Small Incision Trabeculectomy (Minitrab-clear Corneal) with Conventional Trabeculectomy in Primary Open Angle Glaucoma

K Kavitha¹, N Sharmila¹, S Ganapathy Rajesh², C Suriya Kumar³

¹Associate Professor, Department of Ophthalmology, Theni Medical College, Theni, Tamil Nadu, India, ²Senior Assistant Professor, Department of Ophthalmology, Theni Medical College, Theni, Tamil Nadu, India, ³Assistant Professor, Department of Ophthalmology, Theni Medical College, Theni, Tamil Nadu, India

Abstract

Introduction: Primary open angle glaucoma is a symptom complex wherein there is damage to the optic nerve head with characteristic morphological and functional alterations in Optic Nerve Head (ONH).

Aim: To compare the recent surgical approach minitrab with conventional trabeculectomy with reference to post-operative success.

Materials and Methods: This prospective study was done in Theni Medical College Hospital, Theni, during the period of October 2015 to April 2016 in 40 eyes of 38 patients.

Results: Age of both groups were almost the same. The most common age group in both groups was 51-60 years. Sex distribution was equal. 65% were males and 35% were females. A mean pre-operative intraocular pressure (IOP) in minitrab was 28.4 and in conventional trabeculectomy was 31.8. Success rate was equal in both groups (85%). The mean reduction in IOP in mini-trabeculectomy was 15.4 and in conventional was 17.2 mm of Hg. Bleb characteristics - in minitrab the bleb was diffuse and low-lying while in conventional bleb was with microcysts, vascularized, overhanging, and few diffuse bleb. Change in K reading was not significant in mini-trabeculectomy compared to conventional.

Conclusion: Post-operative IOP control in mini-trabeculectomy cases were equivalent to conventional trabeculectomy.

Key words: Bleb, Conventional trabeculectomy, Mini-trabeculectomy, Optic nerve hypoplasia, Primary open angle glaucoma

INTRODUCTION

Primary open angle glaucoma (POAG) is a symptom complex wherein there is damage to the optic nerve head with characteristic morphological and functional alterations in optic nerve hypoplasia (ONH).

One of the most common causes for increased intraocular pressure (IOP) is due to the defective outflow facility through the intertrabecular spaces. Although the present

standard practice is to consider medical therapy, laser surgery and incisional surgery in the sequence of treating patients with chronic POAG, a trend to earlier surgical intervention is receiving considerable attention. A procedure with less trauma to the subconjunctival tissue has been evaluated in this study.¹

MATERIALS AND METHODS

This prospective study was done in Government Theni Medical College, Theni, during the period of October 2015 to April 2016. The study was performed in 40 eyes of 38 patients with POAG. Conventional trabeculectomy was done in 20 eyes, and mini-trabeculectomy was done in 20 eyes.

Of this, there were 25 male patients and 13 female patients. Age ranged from 21 to 72 years (Table 1).

Access this article online



www.ijss-sn.com

Month of Submission : 04-2016
Month of Peer Review : 05-2016
Month of Acceptance : 05-2016
Month of Publishing : 06-2016

Corresponding Authors: Dr. K Kavitha, 91 Pasupathi Nagar, 1st Street, Thapaal Thanthi Nagar, Madurai - 625 017, Tamil Nadu, India. Phone: +91-9443459330, 9677032124. E-mail: kavitheye@gmail.com

Exclusion Criteria

One eyed patients, narrow angle glaucoma, and secondary glaucomas were excluded.

Surgical Technique

A small 2.5 mm clear corneal partial thickness incision is made just within the limbus. A crescent blade was used to perform a intra-scleral pocket extending 2-3 mm posteriorly.²

A cystitome was mounted on a syringe with balanced saltsolution (BSS) and was passed under the intrascleral pocket to its end and then rotated 90° cutting the roof of the sclera pocket and entering the sub-Tenon’s space. The tip was observed under the Tenons and its position confirmed by injecting BSS which forms a sub-Tenon’s bleb.³

The initial corneal incision was deepened to enter the AC and using Kelly’s Punch trabeculectomy was done. A peripheral iridectomy was performed. The corneal incision was sutured with 10 0 Nylon suture. Subconjunctival steroid was given.

Conventional trabeculectomy was performed by the usual approach using Kelly’s Punch.⁴ Postoperatively all eyes of both groups were put on antibiotic steroid drops. On discharge IOP, keratometry, SLE, bleb characteristics

were documented. The patients were reviewed at 1 week, 1 month and 3 months.

RESULTS AND DISCUSSION

Timolol maleate 0.5% was used in 3 cases with IOP 22-28 mm of Hg in Group 1. In all three we were able to withdraw the drug after 1-2 months of therapy which indicates that the rise in IOP was transient and not related to bleb failure due to fibrosis.

In contrast, Group 2 patients of relative success needed two drugs for IOP control, and we were not able to withdraw the drug after 2 months. This indicates that failure is due to fibrosis (Table 2).

The cases were followed up for progression of field and fundus changes. In all cases of Group 1 where IOP was good, there was no progression of field defects or fundus changes.

In Group 1, most of the patients had diffuse low-lying bleb, only one case had no bleb but had good IOP control.

In Group 2-1 had bleb with microcysts, 2 vascularized bleb one of which was in relative failure group and another in failure Group, 1 had large overhanging bleb and 6 had raised localized bleb, of which one was under relative failure group, 10 had diffuse bleb (Table 3).

The main post-operative complication expected in the cases of mini-trabeculectomy would be change in K reading and astigmatism due to the corneal incision. However, from our study, it is obvious that change in K reading in mini-trabeculectomy is not much greater than that due to conventional trabeculectomy (Table 4). Hence, from this study, we can conclude that post-operative astigmatism is not a limiting factor.

CONCLUSION

Post-operative IOP control in mini-trabeculectomy cases were equivalent to conventional trabeculectomy. Intraoperative complications such as conjunctival buttonholing, iris prolapse, and descemet’s injury are almost nil. Post-operative complications such as shallow

Table 1: Age distribution

Age group (years)	n (%)	
	Mini-trabeculectomy	Conventional
21-30	1 (5)	Nil
31-40	2 (10)	1 (5)
41-50	2 (5)	1 (5)
51-60	9 (45)	10 (50)
61-70	1 (5)	Nil
71-80	1 (5)	Nil
>80	Nil	1 (5)

Table 2: Success rate

Results	n (%)	
	Mini-trabeculectomy	Conventional
Success	17 (85)	17 (85)
Relative	3 (15)	2 (10)
Failure	Nil	1 (5)

Table 3: Bleb characteristics

Type of trabeculectomy	Diffuse	Cystic	Vascularized	No Bleb	Overhanging	Raised localized
Mini-trabeculectomy	19	-	-	1	-	-
Conventional	10	1	2	0	1	6

Table 4: Change in K reading

Type of trabeculectomy	Change in K reading
Mini-trabeculectomy	0.5-0.75
Conventional	0.5-0.75

AC, choroidal effusion, overhanging bleb, cystic bleb, and leaking bleb are not seen in this procedure. Cosmetically good diffuse functioning bleb has been achieved with this procedure.

To emphasise again since we avoid traumatizing and insulting the conjunctiva and Tenons the problems related to the fibrotic activities of the conjunctiva and

Tenons are totally avoided.⁵ Hence, a perfectly done mini-trabeculectomy will definitely achieve a good post-operative IOP control with no complications.

REFERENCES

1. Cairns JE. Clear-cornea trabeculectomy. *Trans Ophthalmol Soc U K* 1985;104:142-5.
2. Van Buskirk EM. Trabeculectomy without conjunctival incision. *Am J Ophthalmol* 1992;113:145-53.
3. Ophir A. Mini-trabeculectomy without radial incisions. *Am J Ophthalmol* 1999;127:212-3.
4. Phillips CI. Trabeculectomy "ab externo". *Trans Ophthalmol Soc U K* 1969;88:681-91.
5. Lerner SF. Small incision trabeculectomy avoiding Tenon's capsule. A new procedure for glaucoma surgery. *Ophthalmology* 1997;104:1237-41.

How to cite this article: Kavitha K, Sharmila N, Rajesh SG, Kumar CS. Comparison of Small Incision Trabeculectomy (Minitrab-clear Corneal) with Conventional Trabeculectomy in Primary Open Angle Glaucoma. *Int J Sci Stud* 2016;4(3):118-120.

Source of Support: Nil, **Conflict of Interest:** None declared.