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SMALL INCISION CATARACT SURGERY (SCLERAL TUNNEL WITH MANUAL PHACO)

Ophthalmology

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KEYWORDS

INTRODUCTION :

Ophthalmic surgery has undergone a great refinement in recent years. This is more evident in the field of cataract surgery. The successful cataract surgery is determined by the best & earliest possible function & rehabilitation, but the occurrence of post-operative astigmatism is a major hurdle to achieve this goal. Scleral tunnel incision with self sealing corneal valve with its inherent advantages of satisfactory wound strength & minimal induced astigmatism seems to be tailormade in the context of early & visual rehabilitation, in IOL patients. All these factors make the patient very happy since post operative restrictions are minimized and patient can return to work much faster with the small incision cataract surgery.

There are two types of small incision cataract surgery (SICS).

1. Manual phaco small incision cataract surgery
2. Phacoemulsification.

Phacoemulsification is a complicated technique and involve complex and expensive instruments which require a long learning curve.

Manual phaco can be done through small scleral tunnel incision and results are comparable to that of phacoemulsification.

MATERIAL AND METHODS :

The present study was conducted at Eye Deptt., P.M.C.H., Patna. For the purpose of evaluation, 30 patients were enrolled in the study. All of them were planned and underwent ECCE with PC IOL by small incision scleral tunnel with manual phaco technique. There were 14 males and 16 females. The age varies from 20 to 78 years. All patients were followed up for 3 months post-operatively.

Surgical Technique :

A 6mm Sclero-corneal tunnel was dissected. It has got three components :

(i) External scleral incision with razor blade
(ii) **Sclero-corneal tunnel :-** This horizontal tunnel, is made with bevel of crescent blade. It is extended upto 1-1.5 mm into the clear cornea.
(iii) **Internal corneal incision :-** This is created using a sharp 3.2 mm angled keratome. A side port incision is created, anterior chamber is entered with angled keratome, creating a 1-1.5 mm corneal valve.

A.C. is inflated with viscoelastics, & either a capsulorrhexis or can opener capsulotomy is done depending upon the case.

Next, nucleus is hydrodissected in A.C. Then under over of viscoelastics, the nucleus is hydro extracted out of the A.C. with the aid of irrigating vectis. The nucleus may exit in toto or piecemeal. Epinucleus and residual cortex are removed using 23 G simcoe canula. A single piece PCIOL is inserted into the bag. The residual visco elastic material is aspirated and A.C. is formed through the side port incision. Wound integrity is checked by pressing against the dome of the cornea and at the limbus. The conjunctival flap is draped over the wound and anchored by cautery. The operation is concluded by sub conjunctival injection of Gentamycin and Dexamethasone.

OBSERVATION :

(i) **Total number of cases :** 30 with PCIOL
(ii) **Operative constraints :** (a) Hyphaema 3 cases, (b) Sphincteric damages 2 cases & (c) residual cortex 3 cases.
(iii) **Post operative complications :-** (a) Striate Keratitis 4 cases, (b) moderate uveitis 2 cases.
(iv) Pattern of post operative astigmatism at follow up. (table-1)

Astigmatism	immediate	one month	three month
0 - 1 D	27	21	19
0 - 2 D	3	9	11

(v) Visual outcome as per table 2.

Visual outcome	No. of cases
6/9 or better	24
6/12	4
6/18 or less	2

DISCUSSION :

Sutureless surgery was first performed by Michael McFarland in January 1990. Paul Ernest first performed scleral tunnel with internal corneal lip. This three step incision with a corneal valve has many advantages. Surgical advantages include-better management of expulsive choroidal haemorrhage and an acute intra-operative cardiac problem. Its advantage to patient include No W.T.R. astigmatism strong wound, and hence early rehabilitation, lack of delayed filtering bleb, low incidence of hyphaema and decreased incidence of Iris prolapse.

Local mydriatic all settled down within a week or 10 days without affecting visual prognosis.

Post capsular rent with or without vitreous loss. This is an unavoidable complication in any type of cataract operation and this applies to this type of operation as well. In this series there were 10 cases of PCR with or without vitreous loss.

First 2 cases - small PCR without vitreous loss - PCIOL was introduced.

In 2 cases –Big PCR without vitreous loss-intracameral carpinol with ACIOL

In 4 cases –PCR with vitreous prolapse-ACIOL was used after doing manual open sky vitrectomy.

In rest 2 cases – secondary ACIOL
Implant dislocation was due to zonular dialysis either during capsulotomy or lens insertion which was referred to vitreoretinal surgeon.

Cystoid macular edema observed in 3% cases which was self limiting in most of the cases & in some cases it resolved with corticosteriod & Hypersol ointment.

Capsular Opacification : It is common in younger age group of the patient. It was treated with YAG LASER posterior capsulotomy.

CONCLUSION :

A planned ECCE and PCIOL is a safe and effective procedure. This has been made possible with use of operating microscope, irrigating & aspirating cannula & methylcellulos. 90% of the patient gaining 6/12 or better vision. Even more satisfying was the subjective response of the patients whose sight & mobility were restored to normal.

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