



Assessment of Vision and Complications After Treatment of Posterior Capsular Opacification Using Nd YAG Laser Along With Medications

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ABSTRACT

Nd:YAG laser capsulotomy is most frequently performed technique and preferred over surgical capsulotomy because of many advantages such as safe, effective and non invasive. The aim of this study is to evaluate the visual outcome and complications of Nd:YAG Laser capsulotomy. A total of 100 patients presenting with complaints of decreased vision and with evidence of posterior capsular thickening after treatment with Nd:YAG Laser were included. 86% patients had visual acuity 6/18 to 6/6, 12% and 2% patients were observed with visual acuity of 6/24 to less and hand movement or counting fingers from 1/2 meter respectively. Out of 100 selected patients 4% were observed with increased intraocular pressure and macular edema. 2% had corneal edema, Anterior uveitis nad Retinal tear. Diagnosing and Treating the complications which arise after Nd:YAG capsulotomy with appropriate medications improves the vision of patients and also serious adverse effects can be prevented.

KEYWORDS : Nd:YAG Laser, Posterior Capsular Opacification, Complications

INTRODUCTION:

For cataract extraction, posterior chamber Intra ocular lens (IOL) implantation is the most frequently performed surgical technique. After Extra Capsular Cataract Extraction (ECCE), posterior capsular opacification occurs, which is the most common complication and results in decrease visual acuity of the patient.

Posterior capsular opacification (PCO) causes decrease in visual acuity by formation of plaque on epithelial posterior capsule. Decrease in visual acuity is due to proliferation, transformation and migration of lens epithelial cells on to anterior capsule [1]. In India, 13.5% of patients has decreased visual acuity due to PCO [2].

Posterior Capsular Opacification is also known as "Secondary cataract or After cataract". P.C.O acquires by two methods: If PCO persist during ECCE is known as "Primary PCO" and if it develops after ECCE is known as "Secondary PCO" which is most common than previous one.

Treatment of PCO is posterior capsulotomy which can be performed either by surgical capsulotomy (membranectomy) or by Nd:YAG (Neodymium:Yttrium-Aluminum-Garnet) Laser capsulotomy. Nd:YAG laser capsulotomy is most frequently performed technique and preferred over surgical capsulotomy because of many advantages such as safe, effective and non invasive [3].

Few complications may be associated with Nd:YAG laser posterior capsulotomy such as IOL (Intraocular Lens) optical damage/pitting, Postoperative raised intraocular pressure, Uveitis, Macular edema, Retinal tears/retinal detachment and IOL subluxation [4].

The aim of the present study is to evaluate the visual outcome following Nd:YAG Laser capsulotomy and complications of Nd:YAG Laser capsulotomy.

MATERIAL AND METHODS:

A Prospective study done from May 2013 to April 2014 among patients attending the Outpatient Department of Ophthalmology, at Government General Hospital, Ananthapuramu. Informed consent has taken form all the patients and ethical committee approved to do this study.

Persons treated with Nd:YAG Laser Capsulotomy along with other medications for Posterior Capsular Opacification which has developed after ECCE were considered to do this study. A total of 100 patients presenting with complaints of decreased vision of at least 3 lines in Snellen's chart and with evidence of posterior capsular thickening on examination with slit lamp biomicroscope were included in the present study.

Patients with subluxated IOL, postoperative complications, aphakic eyes were excluded from this study.

All details regarding age, sex, socioeconomic status, history of date of cataract surgery, time interval between cataract surgery and onset of decreased vision were collected.

Treatment was given to patients for PCO by Nd:YAG Laser capsulotomy along with topical and systemic drugs. Prescribed medications were:

1. NSAIDS (Flurbiprofen, Nepafenac etc.) - eye drops - 3 or 4 times daily for 1 month
2. Timolol (0.5%) eye drops - twice daily for 1 month
3. Tab. Acetazolamide 250 mg - 3 times a day for 2 days.

After treatment, patients were advised to come for follow up every week for 4 weeks. All the patients were underwent Ophthalmic examination including anterior segment of eye by slit lamp biomicroscope, posterior segment of eye by ophthalmoscope, Intra Ocular Pressure measurement, visual acuity measurement with Snellen's chart.

Visual acuity and complications after Nd:YAG Laser capsulotomy were assessed, entered into excel sheet and analyzed.

RESULTS:

A total of 100 patients with decreased vision after treatment of PCO with Nd:YAG Laser capsulotomy were assessed during their follow up.

Visual acuity was tested every week during follow up and those with decreased vision were advised with glasses. Visual acuity was tabulated in Table 1

Table No.1 showing number of patients with different visual acuity

Visual Acuity	No. of Patients	Percentage
6/18 to 6/6	86	86
6/24 to less	12	12
Hand Movement or Counting fingers from 1/2 meter	2	2
Total	100	100

Complications after Nd YAG Laser capsulotomy was evaluated. Among patients with visual acuity 6/18 to 6/6 observed that there is no complications. Among patients with less visual acuity than 6/18, complications were observed such as increased Intra Ocular Pressure, Corneal edema, Anterior uveitis, Macular edema, Retinal tear (Table 2).

Table No.2 Showing various complications of Nd:YAG Laser capsulotomy

Complications	No. of patients	Percentage
Increased IOP	4	28.5%
Macular edema	4	28.5%
Corneal edema	2	14.2%
Anterior uveitis	2	14.2%
Retinal tear	2	14.2%
Total	14	100

Out of 100 selected patients 4% were observed with increased intraocular pressure and macular edema. 2% had corneal edema, Anterior uveitis and Retinal tear.

DISCUSSION:

Posterior Capsular Opacification is the most common complication occur after extra capsular cataract extraction with posterior chamber intra ocular lens implantation resulting decreased vision. It needs Nd:YAG Laser Capsulotomy for good vision for the patients to perform their occupation or daily work pattern without depending on others.

In the present study, visual acuity was assessed among Nd:YAG Laser capsulotomy treated patients. 86% patients had visual acuity 6/18 to 6/6, 12% and 2% patients were observed with visual acuity of 6/24 to less and hand movement or counting fingers from 1/2 meter respectively. Gore VS et al found that 91.5% had visual acuity between 6/18-6/6 and 8.5% of patients had 6/24 or less [5].

Nd:YAG laser capsulotomy can result in various complications including increased Intra Ocular Pressure, IOL pitting, Corneal edema, Anterior uveitis, Macular edema, Retinal tear and endophthalmitis [4].

Roger F Steinert et al [6] documented that Nd:YAG laser posterior capsulotomies not only causes glaucoma, they also worsens the condition of the patients with preexisting glaucoma. IOL pitting won't cause any vision problems as other complications of Nd:YAG laser capsulotomy [7]. Cystoid macular edema and Retinal detachment usually results after few months of Nd:YAG laser capsulotomy [6,7]. Fastenberg et al [8] observed retinal detachment within month of Nd:YAG laser posterior capsulotomies.

As per this study patients with visual acuity 6/18 to 6/6 observed that there is no complications. Among patients with less visual acuity than 6/18, complications were observed. Out of 100 selected patients 4% were observed with increased intraocular pressure and macular edema. 2% had corneal edema, Anterior uveitis and Retinal tear.

American Academy of ophthalmology [7] has found that 15 to 67% of Nd:YAG laser treated patients were presented with increased IOP, 0.55 - 2.5% were macular edema, 15-33% were IOL pitting, below 1% and 2.3 - 7% presented with Anterior uveitis and corneal damage respectively. They were also documented that retinal tear were observed in 0.08-3.6% patients and endophthalmitis was very rare.

IOP was recorded among 1.6% of patients after treatment with Nd:YAG laser [9]. Ejaz Ahmad Javed et al [10] documented that among 120 patients, 2 (1.67%) patients had corneal edema and 7 (5.85%) patients had anterior uveitis. Macular edema was observed in 4.4% of patients in the study by Harris WS [11].

Roger F Steinert et al [6] also observed that among 897 Nd:YAG laser posterior capsulotomies, 11 patients developed CME (Cystoid Macular edema), 8 patients developed retinal detachment.

Better to use topical and systemic medications along with Nd YAG Laser capsulotomy, to improve the visual acuity and to reduce the complications due to posterior capsular opacification. Complications occurred by Nd YAG laser capsulotomy should also treat as early as possible to prevent the further problems and to give good vision for the patients.

CONCLUSION:

Nd:YAG capsulotomy is a non invasive, objective and relatively safe technique for providing good vision to the patients when compared with surgical capsulotomy. Nd:YAG Laser capsulotomy produces few complications such as increased IOP, macular edema, corneal edema

etc., causing decreased vision which may be permanent even though it is a safe technique. So, diagnosing and treating the complications which arise after Nd:YAG capsulotomy at the earliest during follow ups with appropriate medications improves the vision of patients and also serious adverse effects can be prevented.

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