ORIGINAL ARTICLE

EXPERIENCE OF ND: YAG LASER POSTERIOR CAPSULOTOMY IN 500 CASES

Mahtab Alam Khanzada, Shafi Muhammad Jatoi, Ashok Kumar Narsani, Syed Asher Dabir and Siddiqa Gul

ABSTRACT

BACKGROUND/ OBJECTIVES: Posterior capsular opacification (PCO) is the commonest cause of glare and reduced visual acuity after cataract surgery. The Nd: YAG Laser is the alternate to surgical treatment for capsulotomy. To determine the time period of development of PCO, the complications of Nd: YAG laser during capsulotomy and post laser best corrected visual acuity, this study was carried out.

SETTING: Department of Ophthalmology Eye Hospital Hyderabad Sindh attached with Liaquat University of Medical and Health Sciences Jamshoro, Sindh – Pakistan; from January 2002 to March 2004.

METHODS: Five hundred pseudophakic eyes of 500 patients older than 15 years having PCO with decreased best corrected Visual Acuity (VA) of two or more Snellen's chart line and met the inclusion and exclusion criteria were selected from out patients department for Nd: YAG laser capsulotomy. Before laser treatment, the VA was assessed and all patients were examined on slit lamp for IOP and to rule out the causes for reduced vision other than PCO. Then 2-3 mm size capsulotomy was done with Q-switched Nd: YAG Laser, with Abraham's posterior capsulotomy lens, after topical anesthesia, by using minimum amount of energy and fewest numbers of pulses. Patients were followed for assessment of best corrected VA and for possible complications just after laser and at the end of 1st week, 2nd week and the 4th week. The post-laser treatment was advised in accordance with complications to each patient.

RESULTS: Of the five hundred eyes, 230 (46.0%) belonged to male sex and 270 (54.0%) females. The majority of patients i.e. 230 eyes (46%) had PCO between 3 to 12 months postoperatively. The mean period between cataract surgery and Nd: YAG laser capsulotomy was 2.06 years. The types of PCO were fibrosis in 339 (67.8%) eyes, Elschnig pearls in 102 (20.4%) eyes and wrinkling in 59 (11.8%) eyes. Pre-laser visual acuity was CF-6/60 in 262 (52.4%) eyes, 6/36-6/24 in 140 (28.0%) eyes and 6/18-6/12 in 98 (19.6%) eyes. Post-laser VA was improved to 6/9-6/6 in 372 (74.4%) eyes. Out of 500 patients, 40 (8.0%) eyes developed the complications due to YAG laser which included IOL pitting in 27 (5.40%) eyes, raised IOP in 04 (0.80%), uveitis in 03 (0.60%), iris bleeding (hyphema) in 03 (0.60%), vitreous in anterior chamber in 02 (0.40%), and cystoids macular edema (CME) in 01(0.20%) eye. None of the eye developed sight threatening complications like retinal detachment or macular hole. The 128 (25.6%) eyes did not achieve the significant improvement because of pre-existing pathology in the posterior segment that was not diagnosed at the time of screening due to thick PCO.

CONCLUSION: Nd: YAG laser capsulotomy is effective and convenient method for doing capsulotomy in all types of PCO. It is free from the risk of endophthalmitis found in surgical capsulotomy.

INTRODUCTION

Posterior capsular opacification (PCO) is the commonest complication of cataract surgery with an incidence of between 10% to 50% by 2 years postoperatively.[1,2] It is generally accepted that PCO formation is a manifestation of proliferation of equatorial epithelial cells across the posterior capsule. It consists of formation of Elschnig pearls, multiple layers of proliferated epithelium and cells showing myofibroblastic differentiation on the posterior capsule.[3] It causes reduction in VA and contrast sensitivity by obstructing the view or by scattering the light that is perceived by patients as glare.[4-6] It also decreases the field of view during therapeutic and diagnostic procedures.[7] There is considerable interest in its prevention. Biconvex and plano convex polmethyl methacrylate (PMMA) intraocular lenses (IOLs)[8-10] as well as silicone plates IOLs[11] have been reported to have beneficial effects on posterior capsular opacity. However, other modifi-

cations of IOL design or surgical technique have had little influence on development of PCO rates.[12] The treatment of PCO was surgical with needle either through anterior chamber or pars plana, which is not free from drastic complications such as endophthalmitis. Now a days this PCO is treated with Nd: YAG laser, which is safe, effective and out patient department procedure.[13,14] The avoidance of potential surgical complications such as endophthalmitis, and the shorter postoperative recovery has made the Nd: YAG laser capsulotomy a widespread and popular approach for treatment of PCO. In Nd: YAG laser posterior capsulotomy, some complications have been reported such as increased intraocular pressure (IOP),[15-21] cystoids macular edema,[18,22-24] retinal detachment[22,24-26], endophthalmitis,[14,16,18,22,23] anterior vitreous opacification and destruction[26,27], IOL damage and decentration,[15,18,28,29] posterior subluxation of IOL into vitreous cavity[30] and lowering of endothelial cell count of the cornea[31], as well as macular hemorrhage.[32] Complications are infrequent but very severe, having great impact on visual acuity.

PATIENTS AND METHODS

Five hundred eyes having PCO after extra capsular cataract surgery underwent Nd: YAG laser capsulotomy at the department of ophthalmology of Liaquat University of Medical & Health Sciences Jamshoro Sindh – Pakistan (Eye Hospital Hyderabad Sindh) during a period from January 2002 to March 2004. The patients for this study were selected from out patients department which included hospital patients and referred cases. The patients older than 15 years having PCO with uneventful extra capsular cataract extraction (ECCE) with posterior chamber IOL implant and having decreased best corrected visual acuity of two or more Snellens line were included in the study. The patients of PCO with IOL who were not enrolled in the study were cases below 15 years age, cases with postoperative complications such as endophthalmitis, dislocated IOL, IOL implanted in traumatic cataract, diagnosed diabetic patients with diabetic retinopathy, patients having combined procedure and simple ECCE. The pre-laser best corrected visual acuity was assessed. On slit lamp examination intraocular pressure, anterior and posterior segment abnormal findings were recorded, in all patients. The cornea was anaesthetized with topical application of either 0.5% proparacain hydrochloride (Alcaine) or 0.4% benoxinate hydrochloride (Novesine) eye drops and Abraham's posterior capsulotomy lens that provided proper focusing, magnification of anterior segment and stabilization of eye ball. The Q- switched Nd: YAG laser (SYL9000 YAG laser system) was used to make a hole of 2-3 mm in the posterior capsule, by using amount of energy ranging 1-6 milli joules (mj) and fewest numbers of pulses. The energy and pulses were increased gradually according to thickness of capsule and response in each case. Only those pupils were dilated with 1% tropicamide pre-operatively where pupillary diameter was less than 3mm. Patients were followed for assessment of best-corrected visual acuity and for possible complications just after laser treatment and at the end of 1st week, 2nd week and 4th week and treatment was advised in accordance with complications.

RESULTS

Of 500 eyes, 230 (46.0%) belonged to male sex and 270 (54.0%) females. The majority of patients i.e. 230 eyes (46%) had PCO between 3 to 12 months postoperatively (**Table I**). The most common types of PCO were fibrosis in 339 (67.8%) eyes, followed by Elschnig's pearls in 102 (20.4%) eyes and wrinkling in 59 (11.8%) eyes (**Table II**). Before YAG laser treatment, the visual acuity was CF-6/60 in 262 (52.4%) eyes, 6/36-6/24 in 140 (28.0%) eyes and 6/18-6/12 in 98 (19.6%) eyes (**Table III**). Post YAG laser treatment visual acuity was improved to 6/9-6/6 in 372 (74.4%) eyes (**Table IV**). The comparison of pre and post YAG laser treatment visual acuity (**Table V**) showed that 128 (25.6%) eyes did not achieve the significant improvement in visual acuity, because of preexisting pathology in the posterior segment such as age related macular degeneration (7.8%), diabetic retinopathy (6.20%), optic atrophy (3.6%), glaucoma (2.8%), myopic degeneration (2.4%), etc. which were undetected due to thick PCO (**Table VI – VII**).

TABLE I:

DURATION OF PCO DEVELOPMENT AFTER PC - IOL IMPLANT

Duration in Months	Number of PCO cases	Percentage
03-12	230	46.0
13-24	120	24.0
25-36	70	14.0
37-48	50	10.0
After 48	30	6.00
Total	**500**	**100%**

Mean period between cataract surgery and Nd: YAG laser capsulotomy was 2.06 years.

TABLE II:

TYPES OF POSTERIOR CAPSULE OPACIFICATION

Age in years	Number of eyes	Elschning's pearls	Fibrosis	Wrinkling
15-30	26	07	17	02
31-40	70	30	30	10
41-55	163	40	106	17
56 above	241	25	186	30
Total	**500**	**102 (20.4%)**	**339 (67.8%)**	**59 (11.8%)**

TABLE III:

PRE-LASER TREATMENT VISUAL ACUITY

Visual Acuity	Number of cases	Percentage
CF – 6 / 60	262	52.4
6 / 36 – 6 / 24	140	28.00
6 18 – 6 / 12	98	19.6
Total	**500**	**100%**

TABLE IV:

POST-LASER TREATMENT VISUAL ACUITY

Visual Acuity	No. of Cases	Percentage %
CF – 6 / 60	58	11.6
6 / 36 – 6 / 24	42	8.4
6 / 18 – 6 / 12	28	5.6
6 / 9 – 6 / 6	372	74.4
Total	**500**	**100%**

TABLE V:

COMPARISON OF PRE ND POST YAG LASER VISUAL ACUITY

Visual Acuity	Pre Laser V.A.	Post Laser V.A
CF – 6 / 60	262	58
6 / 36 – 6 / 24	140	42
6 18 – 6 / 12	98	28
6 / 9 – 6 / 6	00	372
Total	**500**	**500**

TABLE VI:

CAUSES FOR NO IMPROVEMENT

Cause	Number of cases (n=500)	Percentage
Age related macular degeneration	39	7.80
Diabetic retinopathy	31	6.20
Optic atrophy	18	3.60
Glaucoma	14	2.80
Myopic degeneration	12	2.40
Hypertensive reti-nopathy	06	1.20
Amblyopia	05	1.00
Retinitis pigmentosa	02	0.40
Cystoid macular edema	01	0.20
Total	**128**	**25.6%**

TABLE VII:

COMPLICATIONS OF ND: YAG LASER

Visual Acuity	Number of cases (n=500)	Percentage
IOL pitting	27	5.40
Raised IOP	04	0.80
Mild anterior uveitis	03	0.60
Iris bleeding (hyphaema)	03	0.60
Vitreous in AC	02	0.40
Cystoid macular edema	01	0.20
Total	**40**	**8.0%**

DISCUSSION

Opacification of posterior capsule is the commonest time-related complication of extra-capsular cataract extraction, more frequently in children and younger adults.[33-35] In this study of 500 cases, the average time from cataract surgery to Nd: YAG laser capsulotomy was 2.06 years, the minimum 3 months and the maximum more than 4 years. The majority of patients (46%) had PCO between 3 months to 12 months post-operatively. Apple DJ has noted the incidence of PCO upto 50% by two years post-operatively,[9] while other authors have reported the incidence of PCO upto 43% in five years duration after extra capsular cataract extraction[3] and in study of 369 eyes noted the frequency of PCO in 1.6%, 12.3%[35] and 26.5% after cataract surgery in the duration of 1, 2 and 3 years respectively. The duration of PCO development in this study is comparable with these authors. The reason for high incidence of PCO in early post-operative days may be the use of low quality IOL and poor polishing of posterior capsule. The types of PCO in this study were fibrosis 67.8%, Elschnig's pearls 20.4% and wrinkling 11.8%, while Hassan KS, et al. noted the fibrosis 44.64%, Elschnig's pearls 32.14% and wrinkling 1.8% in their study of 86 eyes.[17] The results of this study are also comparable with this study. In this study, twenty-seven eyes (5.4%) had inadvertent IOL pitting. In none of these cases the pitting accounted for significant IOL damage or visual impairment. Hassan KS, et al. has noted high incidence of IOL pitting 19.8% cases in a study of 86 eyes.[17] The retro focusing of laser aiming beam reduces the risk of IOL pitting,[37] but we believed that inspite of retro-focusing the high energy level can damage the low quality intra ocular lens. A transient rise in IOP after Nd: YAG laser capsulotomy has been well documented.[19] We noted the rise in IOP 8-10 mmHg from base line in four (0.80%) eyes during first 24 hours after laser treatment. In all of these, the IOP returned to normal level within one week by treating with topical -Blocker (0.5% Betaxolol) one drop twice a day. Potential risk factor for the development of immediate rise in IOP was found in aphakic eyes[37] and the use of higher total energy for capsulotomy.[38] Some authors have reported average 10 mmHg rise of IOP in one third of treated eyes.[37,39] Hussain MM in his study of 125 eyes treated by Nd: YAG laser capsulotomy found 25-30 mmHg rise in IOP in 1.6% cases,[43] whereas other authors have found average 6 mmHg rise in IOP in 37.9% aphakic eyes out of 29 eyes and 16.07% in pseudophakic eyes out of 57 eyes.[17] In this study, the incidence of rise in IOP is low because all patients had posterior chamber IOL implantation and we used very low energy level. Different authors have proposed several other theories like trabecular damage, cell debris and IOL material for rise in intra ocular pressure.[19,26,40] Iris bleeding (hyphema) was noted in three (0.60%) eyes. However, Harris WS found iris bleeding in four cases during YAG laser capsulotomy in a study of 342 eyes.[41] Etiology remains an enigma. We also noted that traveling of acoustic shock waves from the laser beam that focused too near to iris, damaged some microvessels of iris to bleed in anterior chamber. In this study, three (0.60%) eyes developed mild anterior uveitis. However, another author has reported mild uveitis in 31(36%) eyes out of 86 eyes,[17] hence, comparatively this incidence is very low in our study because we avoided laser treatment in early post-operative days and used low energy level. We also noted vitreous in anterior chamber after Nd: YAG laser capsulotomy in two eyes, whereas Harris WS has mentioned vitreous in anterior chamber in 4.4% cases in a study of 342 eyes.[41] It is suggested that rupture of anterior vitreous face causes herniation of the vitreous through capsulotomy hole around the margin of small optic IOL to anterior chamber. But visual acuity was not affected in these cases, however long-term follow-up is necessary for such patients to see the risk of vitro-retinal traction that may develop retinal detachment. We also observed the incidence of cystoids macular edema in one (0.20%) eye. While, Hussain MM found CME in 0.8% cases in the study of 125 pseudophakic eyes treated by Nd: YAG laser capsulotomy.[43] Our ratio is comparatively very low. The possible mechanism of CME is suggested that the prostaglandin released from the anterior segment, reaches the retina through vitreous and alters the permeability of para macular capillaries to develop cystoids macular edema.[42] Delaying the capsulotomy for 90 days after cataract surgery allows full recovery of the blood aqueous barrier, which can reduce the rate of cystoids macular edema[42]. In this study the best corrected visual acuity of 6/9-6/6 was achieved in 372 (74.4%) eyes and this is a dramatic improvement in VA after Nd:YAG laser

capsulotomy, where as 128 (25.6%) eyes did not show the significant improvement in visual acuity because of preexisting pathology in the posterior segment which was undetected due to thick posterior capsular opacity at the time of screening. Wilkins M, et al noted VA improvement in seven patients under non glare conditions and ten patients under glare condition out of seventeen.[44] Other authors have shown over all 91% improvement in the VA after laser capsulotomy.[45] Meanwhile, Hasan, et al noted improvement of VA after Nd: YAG laser capsulotomy on Snellen's chart as 1-3 lines in 42 out of 86 patients, 4-6 lines in 31 out of 86 patients and there was no improvement of VA in 13 patient due to preexisting fundus pathology.[17] That is why Nd: YAG laser capsulotomy has been accepted as standard treatment for PCO that rapidly improves the visual acuity.[46, 47]

CONCLUSION

The various sight-threatening complications are noted in the literature by different authors but our study noted CME in only 0.20% cases. We suggest that Nd: YAG laser is the relatively safe and cost effective and convenient method for doing capsulotomy in all types of PCO. In this regard, minimum energy combined with minimum number of precisely focused shots for achieving the desired effect should be used.

REFERENCES

1. Hollick EJ, Spalton DJ, Ursell PG, Pande MV. Lens epithelial cell regression on the posterior capsule with different intraocular lens materials. Br J Ophthalmol. 1998; 82:1182-88.
2. Kappelhof JP, Vrensen GFJM. The pathology of after cataract. A mini review. Acta Ophthalmol. 1992; Suppl 205:13–24.
3. Sundelin K, Sjostrand J. Posterior capsule opacification 5 years after extracapsular cataract extraction. J Catarct Refract Surg. 1999; 25:246-50.
4. Paulsson LE, Sjostrand J. Contrast sensitivity in the presence of a glare light. Theoretical concepts and preliminary clinical studies. Invest Ophthalmol Vis Sci. 1980; 19:401-6.
5. Tan JCH, Spalton DJ, Arden GB. Comparison of methods to assess visual impairment from glare and light scattering with posterior capsule opacification. J Cataract Refract Surg. 1998; 24:1626-31.
6. Kanski JJ. Clinical ophthalmology, a systemic approach. 4th edition: Butterworth-Heinemann, London. 1999: Pp. 169-70.
7. Martin RG, Sanders DR, Souchek J, et al. Effect of posterior chamber IOL design and surgical placement upon postoperative outcome. J Cataract Refract Surg. 1992; 18: 333–41.
8. Hansen S, Solomon K, McKnight G, et al. Posterior capsular opacification and intraocular lens decentration. Part 1. Comparison of various posterior chamber lens designs implanted in the rabbit model. J Cataract Refract Surg. 1988;14: 605-13.
9. Apple DJ, Solomon KD, Tetz MR. Posterior capsule opacification. Surv Ophthalmol. 1992; 37: 73-116.
10. Cummings JS. Postoperative complications and uncorrected acuities after implantation of plate haptic silicone and three-piece silicone intraocular lenses. J Cataract Refract Surg. 1993; 19:263-74.
11. Khalifa MA. Polishing the posterior capsule after extracapsular extraction of the senile cataract. J Cataract Refract Surg. 1992; 18:170–3.
12. Jagger JD, Marshall J, Hamilton AM. Nd: YAG laser in ophthalmology, practice, principles and early experience. Trans Ophthalmol Soc UK. 1985; 104:181.
13. Baratz KH, Cook BE, Hodge DO. Probability of Nd: YAG Laser capsulotomy after cataract surgery in Olmsted County, Minnesota. Am J Ophthalmol. 2001; 131:161-66.
14. Steinert RF, Puliafito CA, Kumar SR. Cystoid macular edema, retinal detachment, and glaucoma after Nd: YAG laser posterior capsulotomy. Am J Ophthalmol. 1991; 112: 373-80.
15. Stark WJ, Worthen D, Holladay JJ, Murray G. Neodymium YAG-laser; a FDA report. Ophthalmology. 1985; 92:209-12.
16. Bath PE, Fankhauseir F. Long term results of Nd: YAG laser posterior capsulotomy with the Swiss laser. J Cataract Refract Surg. 1986; 12:150-53.
17. Hasan KS, Adhi MI, Aziz M, Shah N, Farooqui M. Nd:YAG Laser Posterior Capsulotomy. Pak J Ophthalmol. 1996; 12:3-7.
18. Latif E, Khalid M, Aaqil M, Aasi NA. Use of topical Apraclonidine to prevent intraocular pressure elevation following Nd: YAG laser posterior capsulotomy. Pak J Ophthalmol 1999; 15: 108-12.

19. Richter CU, Arzeno G, Pappas HR, Steinert RF, Puliafito C, Epstein DI. Intraocular pressure elevation following Nd: YAG laser posterior capsulotomy. Ophthalmology. 1985; 92: 636-40.
20. Liesegegang TJ, Bonrne WM, Ilstrup DM. Secondary surgical and neodymcin-YAG laser decision. Am J Ophthalmol. 1985; 100: 510.
21. Piest KL, Kincaid MC, Tetz MR. Localized endophthalmitis, a newly described cause of the so–called toxic lens syndrome. J Cataract Refract Surg. 1987; 13:498-510.
22. Winther-Nielsen A, Johansen J, Pedersen GK, Corydon L. Posterior capsule opacification and neodymium:YAG capsulotomy with heparin-surface-modified intra-ocular lenses. J Cataract Refract Surg. 1998; 24: 940-44.
23. Bukelman A, Abrahami S, Oliver M, Pollack A. Cystoid ocular edema following Neodymium YAG laser capsulotomy; a prospective study. Eye. 1992; 6: 35-38.
24. Ober RR, Wilkinson CP, Fiore JV, Maggiano JM. Rhegmatogenous retinal determent after neodymium YAG laser capsulotomy in phakic and pseudophakic eyes. Am J Ophthalmol. 1986;101:8189.
25. Kumagai K, Ogino N, Shinjo U, Demizu S, Shioya M, Kayolleda. Vitreous opacification after neodymium YAG posterior capsulotomy. J Cataract Refract Surg. 1999; 25:981-84.
26. Lerman S, Thrasher B, Moran M. Vitreous changes after neodymium YAG laser irradiation of the posterior lens capsule or mid vitreous. Am J Ophthalmol. 1984; 97: 470-5.
27. Javitt JC, Tielsch JM, Canner JK. National outcomes of cataract extraction; increased retinal complication associated with Nd: YAG laser capsulotomy. Ophthalmology. 1992; 99:1487-97.
28. Nielsen NE, Naeser K. Epidemiology of retinal detachment following extracapsular cataract extraction; a follow up study with an analysis of risk factors. J Cataract Refract Surg. 1993; 19:675-80.
29. Ernest P. Posterior capsule opacification and Neodymium: YAG capsulotomy rates with AcrySof acrylic and PhacoFlex II silicon intraocular lenses. J Cataract Refract Surg. 2003; 29: 1546-50.
30. Sherrard ES, Malcolm G, Muir K. Damage to corneal endothelium by Q switched Nd: YAG laser posterior capsulotomy. Trans Ophthalmol Soc UK. 1985;104:524-8.
31. Majeed A, Bangash T, Muzaffar W, Durrani O. Macular hemorrhage: An unusual complication of Nd: YAG laser capsulotomy. Pak J Ophthalmol. 1998; 14:118-20.
32. Fagadau WR, Maumence AE, Stark WJ Jr, Datiles M. Posterior chamber intraocular lenses at the Wilmer Institute: a comparative analysis of complications and visual results. Br J Ophthalmol. 1984; 68:13-8.
33. Emery JM, Wilhelmus KA, Rosenburg S. Complications of phacoemulsification. Ophthalmology. 1978; 85: 141-50.
34. Pearce JL. Modern simple extracapsular surgery. Trans Ophthalmol Soc UK.1979; 99: 176-82.
35. Erie JC, Hardwig PW, Hodge DO. Effect of intraocular lens design on neodymium:YAG laser capsulotomy rates. J Cataract Refract Surg 1998; 24: 1239-42.
36. Ficker LA, Steel AD. Complications of Nd: YAG laser posterior capsulotomy. Trans Ophthalmol Soc UK. 1985; 104: 529-32.
37. Kraff MC, Sanders DR. Lieberman HL. Intraocular pressure and the corneal endothelium after neodymium-YAG laser posterior capsulotomy. Relative effects of aphakia and pseudophakia. Arch Ophthalmol. 1985; 103:511-4.
38. Boyd BF. YAG laser posterior capsulotomy in retinal detachment. Highlights of Ophthalmology. 1991; 19(12):5.
39. Channell MM, Beckman H. Intraocular pressure changes after neodymium-YAG laser posterior capsulotomy. Arch Ophthalmol. 1984; 102: 1024-6.
40. Trry AC, Stark WJ, Newsome DA, Maumence AE, Pina E. Tissue toxicity of laser-damaged intraocualr lens implants. Ophthalmology. 1985; 92: 414-8.
41. Harris WS, Herman WK, Fagadau WR. Management of the posterior capsule before and after the YAG laser. Trans Ophthalmol Soc UK. 1985; 104: 533-35.
42. Lindstrom. YAG laser posterior capsulotomy. Ocular Surgery News. 1987; 7:18.
43. Hussain MM. Complications after Nd: YAG Laser capsulotomy. Pak J Ophthalmol. 1996; 12: 13-5.
44. Wilkins M, Mcpherson R, Fergusson V. Visual recovery under glare conditions following laser capulotomy. Eye. 1996; 10:117-20.

45. Panezai MN, Shawani MA, Hameed K. Posterior capsular opacification (PCO) and Nd: YAG laser capsulotomy in Helpers Eye Hospital, Quetta. Pak J Ophthalmol. 2004; 20:115-8.
46. Murril CA, Satisfield DL, Van Brockiln MD. Capsulotomy. Optom Clin 1995; 4: 69-83.
47. Magno DV, Datiles MB, Lasa MS. Evaluation of visual function following neodymium: YAG laser posterior capsulotomy. Ophthalmology. 1997; 104: 1287-93.

AUTHOR AFFILIATION:

Dr. Mahtab Alam Khanzada *(Corresponding Author)*
Ophthalmologist
Department of Ophthalmology
Liaquat University Eye Hospital, Hyderabad, Sindh-Pakistan.
Email: dr.khanzada@yahoo.com

Prof. Shafi Muhammad Jatoi
Chairman
Department of Ophthalmology
Liaquat University Eye Hospital, Hyderabad, Sindh-Pakistan.

Dr. Ashok Kumar Narsani
Assistant Professor
Department of Ophthalmology
Liaquat University Eye Hospital, Hyderabad, Sindh-Pakistan.

Dr. Syed Asher Dabir
Ophthalmologist
Department of Ophthalmology
Liaquat University Eye Hospital, Hyderabad, Sindh-Pakistan.

Dr. Siddiqa Gul
Ophthalmologist
Department of Ophthalmology
Liaquat University Eye Hospital, Hyderabad, Sindh-Pakistan.