REVIEW OF LITERATURE
Cataract may be simply defined as an opacity in the lens. It is the most common and fortunately one of the most easily remedied cause of visual incapacity and blindness.

Though the history of cataract treatment goes back some 4000 years or probably further. This was in Hindu medicine in which Sushrute defined cataract as an opacity of lens due to derangement of intraocular fluid. He used to treat it surgically by couching.

The term glaucoma, first used in the Hippocratic writings, as yhavkwaa (glaucoma) was used to describe blindness coming on in advancing years associated with glazed appearance of the pupil (Duke Elder 1969). Originally both diseases glaucoma and cataract considered in the lens. Only at a later date, it was differentiated by Celsus (25 B.C. A.D. 50) and rufos (A.D. 95-117) and later by Galen (A.D. 131-210).

The first suggestion about glaucoma, that the disease is associated with a rise in intraocular pressure seems to occur in the Arabian writing of At Tobari (10th century). The first
original and clear recognition of such a condition in European writings, however is due to Richard Bamister 1622. The first original and clear recognition of glaucoma with raised ocular tension was given by Antoine - pierre Demours (1818) and clinical picture was the appearance of the colour of rainbow around lights.

After the introduction of ophthalmoscope Heinrich muller (1856) observed the phenomenon of cupping of optic disc.

The medical therapy for glaucoma was started by Adolfweber (1876) and advocated the use of the extract of Jaborandi (Pilocarpine). The surgical therapy for glaucoma started by William Mackenzie (1830) who introduced sclerotomy to relief the raised intra ocular tension. The modern surgical therapy for glaucoma was started by Curan (1920), who introduced peripheral iridectomy to reestablish the communication between posterior and anterior chamber. While Jacques Daviel (1748-53) a French surgeon introduced a new technique for the extraction of cataract.

The association of glaucoma with cataract is a common combination. These two coexisting condition have a problem of
treating at simultaneously and the development of cataract may aggravate the preexisting glaucoma.

The combined procedure in 4th or 5th decade of 19th century was not accepted widely. One reason for this, was the view that cataract surgery alone may result in better glaucoma control. Vonlint (1939) stated that if miotics have been able to control intra ocular tension, preoperatively, lens extraction would result in control after wards. Guyton (1945) also recommended the same procedure in survey of 100 cases of cataract extraction in eyes with chronic open angle glaucoma. Which was controlled medically pre-operatively.

Seudari et al (1967) stated that intra ocular pressure elevated to a higher level than pre operative level 6 month after cataract surgery alone. Becher (1967) reported that glaucoma surgery will be required in some cases even after cataract extraction and the operations available for an aphakic eye are well known to be traumatic and unpredictable in result.

Chandler (1947), Thomas (1947), Sourdille (1950), Heydheoker (1954-56) Mehra and Dutta (1963) recommended that the glaucoma surgery should be undertaken before cataract extraction. There are many objections to this
approach that the patient is exposed to double risk of two operation and filtering operation may itself accelerate the cataract progression (Sugar 1970).

Randolph et al (1971) gave an analysis of 166 eyes treated with various methods have concluded that if a patient has controlled or uncontrolled glaucoma with cataract, a cataract extraction should be done first. The patient with uncontrolled glaucoma with field defects provide the surgeon with the choice of cataract extraction or combined extraction-filteration procedure and it is ideal to obtain a filtering bleb, which will control the intraocular pressure without medications after cataract extraction.

This idea of simultaneous surgery for cataract and glaucoma by one stage operation was obviously attraction and many authors had described such operation in last three decades. The purpose of these operations had been to remove the cataract and at the same time to leave a fistulous channel for the drainage of aqueous.

Wright (1937) described combined extraction iridectomy-sclerotomy for case of cataract and severe glaucoma. In the question and answer section of 1941 issue of Archives of
ophthalmology, a combination of iridencleisis and cataract extraction was recommended for such cases.

In 1952, Guyton mentioned the use of combination of cyclodialysis and cataract extraction.

Bierge (1952) reported the first series of 25 eyes in which cataract extraction and iridenclesis performed simultaneously. In 88% cases glaucoma was controlled without further medical therapy.

Shmeleva (1972) of Russia combined cataract extraction with trabeculectomy. In all cases there was good hypotensive effect.

Jerndal and Ludstrom (1976) combined trabeculectomy with cataract extraction. The pre operative tension ranged between 20-60 mm of Hg. (Average 33 mm Hg). The post operative tension varied between 10-26 mm Hg. The average being 16 mmHg. Visual acuity improved in 14 eyes and unchanged in 2 eyes.

Edwards (1980) extracted 59 cataract with trabeculectomy and follow up period was varying between 6 months to
2 yrs. Visual outcome was better in chronic simple and narrow angle then secondary glaucoma.

Romen et al (1982) combined cataract extraction with trabeculectomy in 46 eyes. Tension turned normal in 33 (71.74%) eyes without drugs.

Skorpic C, Gnad P, Parousis P, Menapace R. evaluated trabeculectomy and intraocular lens implantation a combined procedure in 26 cases in eyes with open angle glaucoma. Phacoemulsification was performed in nine cases and planned ECCE in 17. In 23 eyes the PCIOL was implanted and in 3 eyes an ACIOL was used because of rupture posterior capsule. After a follow up period ranging from 4 to 29 months, the post operative results were satisfactory in all eyes treated. The patients achieved post operative intraocular pressure of 20 mm Hg or less. In 20% of the cases, however additional antiglaucoma medication was required. They interpreted that combined procedure provides effective one time treatment for cataract and glaucoma patients as well as optimal visual rehabilitation.

Civerchia L, Balent A. 1989 performed planned ECCE and PCIOL implantation in 4 eyes of 3 patients under going
surgery of acute angle closure glaucoma associated with cataract. They found no evidence of corneal decompensation, residual glaucoma or increased surgical morbidity in their patients. They concluded that acute glaucoma associated with cataract is not a contra indication to lens implantation.

Mc. Cartney DL, Memmer JE, Stark WJ. Maumence AE, Wong SK evaluated the efficacy and safety of combined trabeculectomy cataract extraction and IOL implantation in 108 consecutive operations. Postoperatively 89% of eyes achieved 6/12 or better visual acuity, Intraocular pressure control (less than or equal to 21 mmHg) was achieved in 92% of eyes.

Simmons ST, Litoff D, Michols DA, Sherwood MB, Speth GL 1987 evaluated ECCE with PCIOL with trabeculectomy in patients with glaucoma. They reviewed 75 consecutive cases of Triple procedure of the 75 eyes, 49 achieved visual acuity of 6/12 or better. Postoperatively IOP was 3.8 mm Hg lower than preoperative level at 2 months.

Wishart PK, Atkinson PL evaluated effect on IOP control in patients of glaucoma who underwent triple procedure in St pauls eye hospital liverpool. 23 eyes with primary chronic
angle closure glaucoma undergoing Triple procedure were studied. The long term effect was that majority achieve. The IOP less than 21 mm Hg.

Murchinson JF, Shields MR evaluated 3 surgical approaches for coexisting cataract and glaucoma in Duke university eye centre, Durham. 78 eyes with coexisting cataract and glaucoma underwent Triple surgery by one surgeon. Conclusion was that the 78% of the eyes underwent triple procedure achieved IOP < 21mm Hg and visual acuity 6/18 or more.

Longstaff S. Wormald RP. Mozover A. Hitching RA evaluated glaucoma triple procedure, efficacy of IOP control and visual outcome in Moorfields eye Hospital. London, England. They performed 63 triple procedures. Intraocular pressure was controlled satisfactorily in all cases, 25% required additional glaucoma therapy but fewer glaucoma medications. 86% achieved 6/12 or better visual acuity.

Fusco R. Guacci P., Ambrosio G., Murino N. 1990 had long term study of trabeculectomy and extracapsular cataract extraction with posterior chamber lens implantation, in 15 eyes with glaucoma. They interpreted that this procedure
offers the intraocular pressure control expected after trabeculectomy and at the same time gives the patients all visual benefits that cataract extraction with intraocular lens implantation warrants, without introduction of new complications.

Rurrato I., Ferrari M. evaluated extracapsular cataract surgery with PCIOL in glaucomatous eyes that had a filtering bleb operation they evaluated IOP and visual acuity and examined the visual fields during a follow up period of eight months. They compared these results with preoperative measurements. This study demonstrates that ECCE with PCIOL implantation is the optional solution for the eye that have had a filtering bleb operation to obtain a good functional result and IOP stabilization.

Wedrich A. MenapaceR. Radax U. Papapanos P. 1995combined Trabeculectomy and small incision cataract surgery. They did prospective study of 49 eyes with coexisting cataract and glaucoma, who had combined trabeculectomy, phacoenulesification and implantation of a folded polyhema intraocular lens through the trabeculectomy opening preoperatively, intraocular pressure was controlled (<20mmHg)
in 13 eyes and uncontrolled (>20 mmHg) in 36 eyes with medications. preoperatively visual acuity ranged from 6/12 to hand movement. At the end of the follow up, IOP was below 18 mmHg in all eyes, without therapy in 39 (80%) and with reduced therapy in 10. Visual acuity was improved in 42 patients. 38 achieved visual acuity of 6/12 or better. So Conclusion was that the combination of small incision cataract surgery and trabeculectomy is a successful surgical approach for long term visual rehabilitation and glaucoma control.

Hornova J., Kuchyuka P., Fucik M. 1995 done cataract extraction and intraocular lens implantation in 77 patient who were sufferers of glaucoma. They concluded that cataract extraction with IOL implantation in glaucoma patients should be combined with trabeculectomy because out of 77 patients operated 49 patients were on antiglaucoma therapy after the operation.

Cernea P and Enache D 1995 evaluated the extraction of crystalline lens with trabeculectomy in open angle glaucoma in 21 patients. The ocular tension before the operation was between 21-30 mm Hg in 15 patients, 31- 40 mm Hg in 4
patients and over 41 mm Hg in 2 patients. The visual acuity was below 2/60 due to opacity of the crystalline lens and the advance stage of the glaucoma. In all cases under observation ocular tension kept within 11-17 mm Hg. and vision was 6/24 or more.

Tanihara H., Negi A., Akimoto M. Nagata M. 1995 evaluated the long term results of combined trabeculectomy ab externo and cataract extraction in adult patients with either primary open angle glaucoma and pseudoexfoliation syndrome, in 60 eyes. IOP was well controlled 21 mm Hg or less in 54 eyes with or without medications.

Storr-Paulsen A., Perriard A, vangsted P did triple procedure in patient of cataract with coexisting open angle glaucoma in 19 eyes. Median decrease in IOP was significant through a 12 months observation period P<0.001. They concluded that it seems justified to extend the indication for combined surgery in cataract patients with coexisting open angle glaucoma in cases of uncontrolled IOP, poor compliance, or unacceptable mediation.

Chen W. Lin Z, wang N. Cre J. 1995 Dec. evaluated the effect of trabeculectomy combined with ECCE and PCIOL
implantation (triple surgery) on the patients of coexisting cataract and glaucoma. The IOP was controlled satisfyingly in all cases except one case required additional treatment of antiglaucoma drugs. 78.9% patients achieved visual acuity 6/9 or more.

Ellinghous G. Detry morel M. 1995. evaluated the effect of triple procedure in 34 eyes of patients with coexisting cataract and glaucoma that underwent triple procedure. Phacotrabeculectomy was performed in 21 eyes. 13 eyes received ECCE with trabeculectomy. Result showed mean decrease from preoperative pressure base line of 10.5 mm Hg within 1 month and patients achieved visual acuity 6/9 or more. Post operative hyphema and fibrinous anterior uveitis was seen in few cases.

Storr - paulsen A., perriard A. 1995 evaluated the effect of triple procedure in cataract patients with coexisting open angle glaucoma. Post operative median decrease in IOP was significant through a 12 months observation period. P < 0.001. Complication rate during operation and in post operative follow up period was low.

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