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Implanting The Intraocular Lens in Patients Who Suffer from Cataracts and High Refractive Errors from Myopia and Hypermetropia

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ABSTRACT

Background and Objective: The fracture rate in the range recommended is planted in the event of a patient suffering from myopia/hypermetropia between 10 and -20 diopters in the case of the patient suffering from astigmatism and maximum refractive rate in the lens to +6 diopters.

Objective: This study aimed to examine patients after the surgery compared to visual acuity before and after the procedure.

Methods: This study included 25 patients who came to Al-habobi Teaching Hospital and underwent treatment by planting lens to get the best visual acuity.

Results: The difference between extracapsular cataract extraction (ECCE) and (phaco) emulsification resulting in cataract surgery was determined, where one is better than the other. 3 cases underwent E.C.C.E operation, and 22 cases underwent phaco surgery. phacoemulsification (PACHO) was good or better for visual acuity post-operation without complications, unlike E.C.C.E, which had some side effects such as astigmatism

Conlcusion: Phacoemulsification (PACHO) is better for visual acuity post-operation without complications, unlike additional E.C.C.E, which has some side effects such as astigmatism

Keywords: Implanting, Intraocular lens, Myopia, Hypermetropia.

INTRODUCTION

The eye lens is responsible for the concentration of rays coming from the body to focus on a point on the retina, which is transparent. If it occurs, opacity dubbed the term water Alawhita or cataract where surgery is required to remove the implant lens from other industrial place histories of the intraocular lens implantation. Sir Harold Ridley began planting lenses in 1958 after discovering it by chance when treating one of the pilots who was injured in the eye for some time in the First World War. Here, the glass plane entered and settled in the eye lens for many years. He thought that this glass material was inert and did not affect the eye, and here came the idea of planting the lens implanted into the eye instead of the process of eliminating the cataract or lens of the eye without replacement with other lenses [(1,2)].

The surgeries occur before planting lenses where the physician removes the lens dark without replacing other lenses, was the natural patient who sees well at a young age when infected with white water either with age or as a result of injuries or general diseases. For example, for diabetes or thyroid or topical diseases that cause white water, such as chronic inflammation of the iris, the doctor removes the lens of the eye without the dark lens. It was replaced by another patient who sees a distance of one meter without glasses, and the need to wear glasses is too heavy in order to see well [(3,4)].

This is a synthetic artificial lens that is implanted into the eye to substitute the natural lens, which is surgically eliminated as part of cataract surgery [(5)]. When the natural lens is eliminated, most of the eye's focusing capacity is compromised. To reinstate vision, one of three procedures is often employed 2 minutes ago [(6)].

1. The employed glasses are the first technique. The corrective lens is fairly thick, and the needed lens power is rather strong. For cataract surgery on one eye, this technique is less appealing, seeing as the magnification generated by the single thick lens may impair binocularity.
2. Wearing contact lenses is the second option, which is utilized for cataract surgery on one or both eyes. Handling Ana or tolerating contact lenses, on the other hand, can be challenging for certain toddlers.
3. Intraocular lens implantation is the third alternative, which takes place inside the eye.

Implant lenses vision intraocular surgery (2005) wagging specialists have relied on plant intraocular lenses that work in harmony with natural lens surgery and water disorders. This surgery was invented in 1992 at the fyodoror [(7)].

Institute in Russia lenses vision tests clinical intense has been made many efforts to develop, and markets, as the product is today, have label across the world and in the US confused with (since 2005) at odds corrects refractive error surgery in the cornea (especially lasik) [(8)].

An anterior sub-capsular cataract is a type of cataract that develops immediately beneath the lens capsule and is related to fibrous metaplasia of the lens epithelium. On oblique slit-lamp biomicroscopy, posterior sub-capsular opacity seems vacuolated, granular, or plaque-like (and looks black retro

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illumination), and it lies directly in front of the posterior capsule (figures 1 and 2) [9].

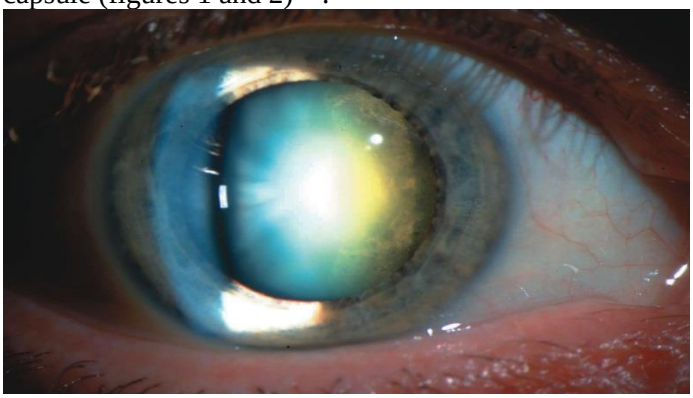

Figure 1. Show posterior subcapsular.

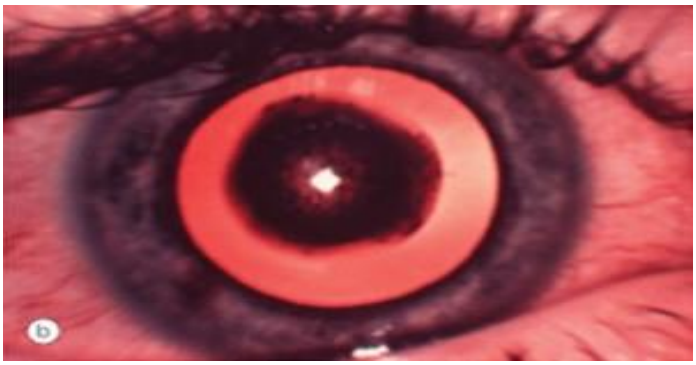

Figure 2. Show posterior subcapsular seen on retro illumination

A posterior capsular opacity has a greater impact on vision than a nuclear or cortical cataract owing to its placement near the nodal point of the eye. Near vision is more commonly affected than distance vision. Patients are especially distressed when myosis is present since it is caused by approaching vehicle headlights or strong sunshine. This cataract is better examined utilizing oblique slit-lamp biomicroscopy rather than retro illumination owing to the deposition of urochrome pigment. The nucleus becomes brown as it progresses (aburmesecent cataract). Such cataract is made up of hard consistency, which is surgically relevant (figures 3 and 4) [10].

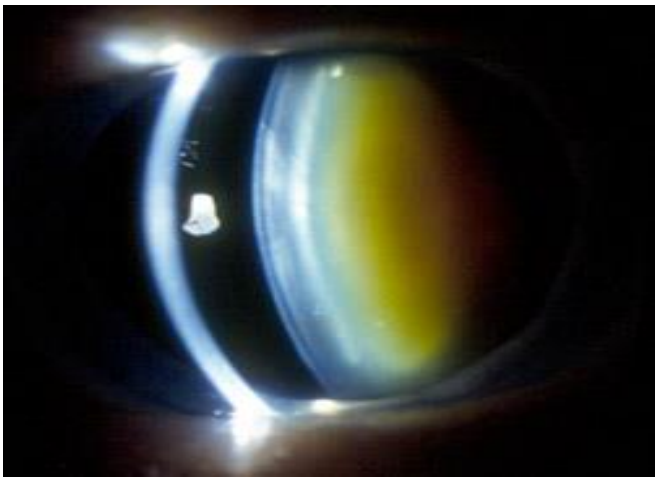

Figure 3. Nuclear Cataract

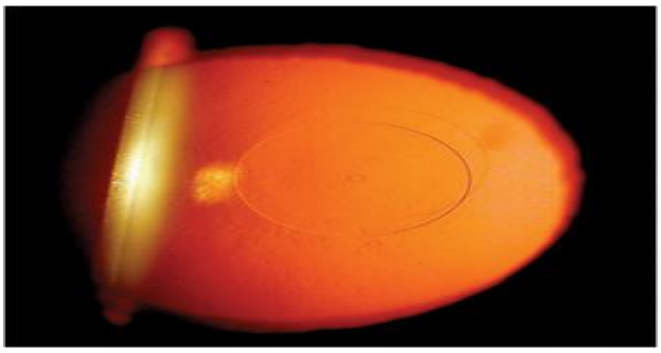

Figure 4. Early nuclear cannot be seen in retro illumination.

Nuclear cataract

A nuclear cataract develops as a result of the lens nucleus's natural aging changes being exaggerated. It is frequently related to myopia owing to an elevation in the nucleus's refractive index and enhanced spherical aberration. Consequently, certain older patients might be able to read without using glasses anymore (second site of the aged). A yellowish hue defines nuclear sclerosis in its initial stages [11].

Cortical Cataract

The equatorial cortex or the anterior-posterior is affected by cortical cataracts. Pertaining to hydration of the cortex, the opacities begin as clefts vacuoles between the lens fibers. Following opacification, the infer nasal quadrant commonly develops classic confirm (wedge-shaped) or radial spoke-like opacities. Light scattering is a common complaint among patients with cortical opacities (figures 5-8) [12].

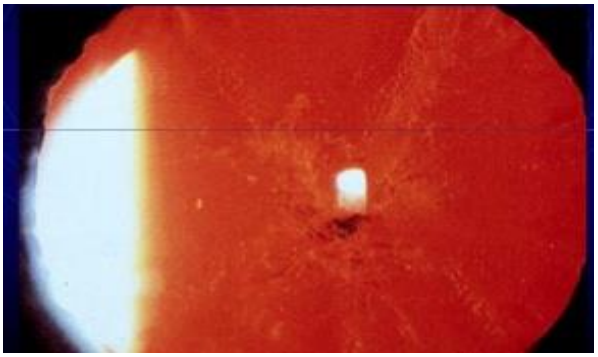

Figure 5. Cortical vacuoles are seen on retro illumination

Figure 6. Cuneiform is seen in retro illumination


Figure 7. Christmas tree

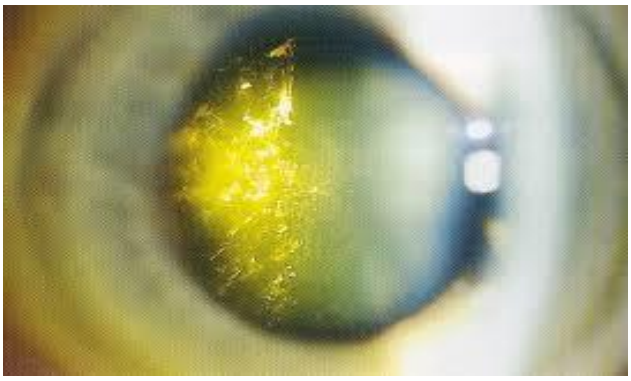
Figure 8. Christmas tree is seen in retro illumination

Christmas tree cataract

Christmas tree cataract is characterized by striking, polychromatic, needle-like deposits in the deep cortex and nucleus, which can be unilateral or in conjunction with other opacities [13].

CATARACT MATURITY:

1. Immature: a cataract is a condition in which the lens becomes extremely opaque.
2. Mature: it is a type of lens that is fully opaque (Figure 3).
3. Hyper mature: the interior capsule of a cataract has shrunk and wrinkled owing to water leakage from the lens.
4. Morgagnian: in liquefaction of the cortex, a cataract is a highly mature cataract with a lot of the nucleus, with 10 inferiorly.

Secondary cataract

Consequently, a secondary (complex) cataract forms [14] due to another main ocular disease.

Management of age-related Cataract

Pre-operative considerations

Indications for surgery

Visual improvement is the most frequent reason for cataract surgery; however, visual needs differ. Surgery is only recommended if the cataract has progressed to the point of causing trouble upon conducting regular tasks. If the patient intends to drive or keep working in a specified profession, vision below legally prescribed standards may require surgery [15].

Postoperative refraction

Emmetropia is commonly the optimum postoperative refraction, only with close work requiring spectacles (given an IOL is unable to accommodate). In reality, many surgeons strive for a modest amount of myopia (around 0.2 5D) to compensate for any potential mistake in wiring. Monovision is appealing to certain patients in which the non-dominant eye is left with -2.0 D myopic in enabling it to read while the dominant eye is left with Emmetropia. To solve this, the issue of pre-operative corneal lgmatisna correction gets crucial over time [16].

Positioning

An IOL is made up of two parts: the optic (the central refracting element) as well as the haptic, which are in touch with the ocular structures (capsular bag, celery sulcus, or anterior chamber angle), allowing the optic to be in the best possible position. The preservation of the capsular bag in contemporary cataract surgery allows the IOL to be placed in the optimum spot in the bag. Nevertheless, suppose the posterior capsule is ruptured after surgery. Then, the IOL may need to be positioned in the posterior chamber with the haptic stabilized in the chamber angle, unlike the previous two, PC-IOL [6].

METHOD

A prospective study was conducted on 25 patients (9 females and 16 males) whose ages ranged from 21 to 81 years. The patients were classified into two types of operations. Extracapsular cataract extraction (ECCE) presented in Table 1.

We took the visual acuity pre and post-operation from December 2015 to April 2016 in Ibn Al-Haitham Eye Hospital in Baghdad, supervised by Dr. Ali Mohamed Al-Bayt and Dr. Ehsan Mohsen Al-byte.

Ethical consent:

Ethical regulations of present study was in according to Haitham Eye Hospital protocols for experimental works. All participants agreed to participate in the experiments due to signing an informed written permission forms. All procedures and steps involving subjects have been performed in conformity with the principles outlined in the "World Medical Association's Declaration of Helsinki" .

RESULTS

A total of 25 patients presented in the tables 1 indicated that phacoemulsification (PACHO) is good or better for visual acuity post-operation without complications, unlike additional E.C.C.E, which has some side effects such as astigmatism (table 1; figures 9 and 10).

Table 1. Extracapsular cataract extraction.

case 1	Age	Gender	Type	Date	Pre-VA	Post-VA	20
case 2	65	F	Phaco R	23/9/2015	6/24	6/6	19
case 3	75	M	phaco(L)	18/6/2015	6/24	6/9	17
case 4	60	F	phaco(L)	07/03/2015	6/36	6/12	34
case 5	65	M	Phaco R	07/03/2015	6/60	6/24	19
case 6	62	M	Phaco R	01/03/2015	6/24	6/12	17
case 7	81	M	Phaco R	21-9-2015	6/18	6/9	15
case 8	51	F	phaco(L)	17/9/2015	CF-2M	CF-3M	14
case 9	64	F	ECCE(L)	14/9/2015	6/36	6/24	25
case 10	70	F	Phaco R	14/9/2015	CF-3M	6/60	16
case 10	50	M	ECCE(L)	11/05/2015	6/36	6/18	35
case 11	67	M	phaco(L)	29/10/2015	6/60	6/36	40
case 12	51	F	ECCE(L)	30/9/2015	6/24	6/9	10
case 13	21	M	Phaco R	28/10/2015	6/18	6/6	17
case 14	38	M	phaco(L)	25/7/2015	6/36	6/9	13
case 15	61	F	phaco(L)	09/03/2015	CF-1M	CF-3M	18
case 16	51	M	phaco R	30/4/2015	6/60	6/12	13
case 17	59	M	phaco R	27/9/2015	CF-3M	6/60	12
case 18	42	M	phaco(L)	01/11/2015	6/36	6/18	20
case 19	57	F	phaco(L)	17/7/2015	6/36	6/12	13
case 20	46	M	phaco(L)	03/01/2015	HM	6/60	22
case 21	59	M	phaco R	30/9/2015	6/60	6/18	18
case 22	70	M	phaco R	08/02/2015	6/36	6/36	17
case 23	74	M	phaco(L)	14/8/2015	CF-3M	CF-1M	14
case 24	35	F	phaco R	03/03/2015	CF-1M	6/18	20
case 25	69	M	phaco R	09/10/2015	6/60	6/36	19

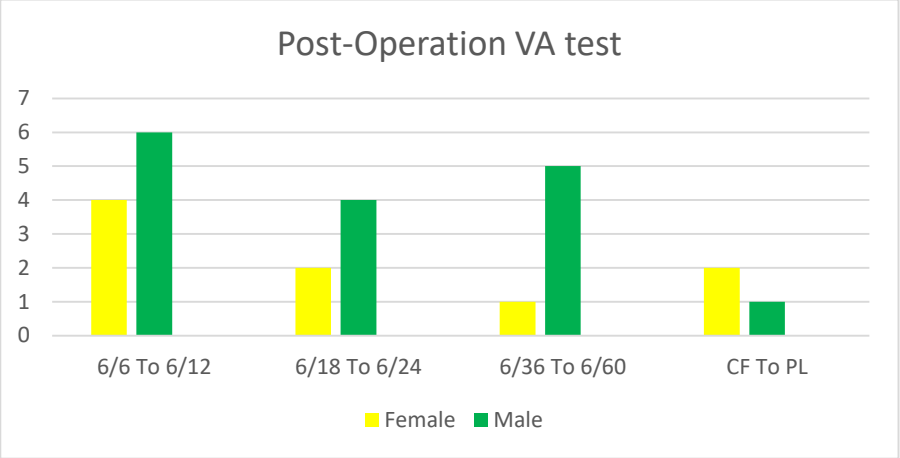

Figure 9. Post-Operation VA test

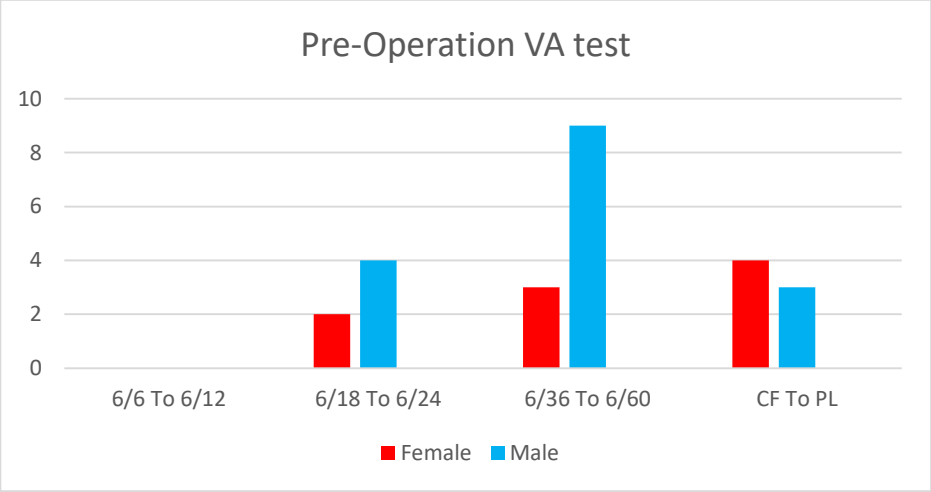

Figure 10. Pre-Operation VA test

DISCUSSION

We have proven that CIRC is a prediction event where it makes its prediction - negative CIRC gives (myopia) prediction errors that keep increasing (excessive). We also estimated the axial length error due to this error and the lens shooting from the point of view. These findings are supported by the histological radiographs effect in general. An image reflects an image that reflects refractions One of the new aspects of CIRC and prediction inaccuracy is the variation in the lens refractive potentiometer. Even the greatest IOL power calculators may be unsatisfactory occasionally, as we have discovered. Nevertheless, this episode shows that CIRC's events of an IOL occurring are small. And soon, it will start to improve in the future, and the current number of accounts will be identified [17].

Theorists assumed that the refractive index of the lens would differ uniformly. Even if the surface form of the cataract does not vary, this might result in the surface forces. When acquiring myopia in marriage, the shift in the modulus of change might occur across the lens rather than the majority of it occurring from the lens's surface [18]. The refractive index coefficient, also known as the coefficient of refraction, alters the length of the lens' optical path. The axial length of the eye is calculated. These products are used, which internal indicators are warm, warm, warm. No modification in axial length for sub-clauses of repair, as determined on ultrasound [19].

The effect of axial length estimation from CIRC is normally positive, although it might be negative in certain circumstances. Consider the case of a twenty-year-old patient at our office in Virginia and Southwest Africa. One eye was clean, with the refraction of 1.00 + 1.00 × 180 and uncorrected vision of 6/6. However, in 42 public blogs, a fifth-degree nuclear cataract is formed. The corrected vision was 6/18− with apparent refraction of 17.00 + 0.75 × 15. Myopia was measured at CIRC with 16.125 D. We seemed to have no grounds to assume that the eye had truly grown longer.

We were able to discover a technique in the slit lamp for actual predictions at the specified axial length, comparable to **Burns *et al.*** [20]. Furthermore, **Prins *et al***. utilized the grading system III to assess nuclear color. With cataract-induced myopia, dilated nuclear luminescence predicted axial length errors.

Both renderings include the CIRC. The CIRC ranged from −9.00 D to +1.75 D, which is much higher in the myopic direction, although 30% of our eyes experienced hyperopia and severe cortical cataracts are possible. However, there is a distinct change in myopia with cortical cataracts [17, 20]. We do not offer a fossil slit-lamp technique for cortical cataracts. In certain circumstances, eyes with minimally invasive examinations present with minimally invasive cataracts.

On the other hand, due to a change in the refractive index of the lens caused by the eye's lens significantly. This can result in an improvement Variable axial length measurement shows a refractive index error caused by cataracts, except the myopia is in the medium range, given the patient has a substantial change in myopia.

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