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PRE-OPERATIVE ASSESSMENT OF PATIENT TO ANTICIPATE DECREASE IN VISION POST -CATARACT SURGERY.

Ophthalmology

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ABSTRACT

Cataract is the most common cause of almost half the world's blindness and is most often treatable by cataract extraction. Under the vision 20/20, The Right to Sight, cataract is given prime importance and targetted as 'easily treatable blindness', the next being refractive errors. Both these cannot be prevented but can definitely be treated, fairly easily, cheaply and effectively.

Surgeon's intention also is to give the best possible vision to the patient after removing the cataractous lens. Sometimes this cannot be achieved. An effort is here to find out why visual rehabilitation does not get successful and how it can be assessed and anticipated before the patient is taken up for surgery and avoid not only disappointment but also legal implications following the surgery.

KEYWORDS

Cataract Surgery, Visual Rehabilitation, Pre-operative Assessment.

Will I get good vision after surgery?, is the first question a patient asks when surgery for cataract is advised. Surgeon's intention also is to give the best possible vision to the patient after removing the cataractous lens. Sometimes this cannot be achieved. An effort is here to find out why visual rehabilitation does not get successful and how it can be assessed and anticipated before the patient is taken up for surgery and avoid not only disappointment but also legal implications following that.

Cataract is the most common cause of almost half the world's blindness[1,2,3,4,] and is most often treatable by cataract extraction. Under the vision 20/20, The Right to Sight, cataract is given prime importance and targetted as 'easily treatable blindness', the next being refractive errors. Both these cannot be prevented but can definitely be treated, fairly easily, cheaply and effectively.

Cataract extraction is the most frequently performed Surgery after 60 yrs of age. The first complication of Cataract Surgery is Aphakia. This is being corrected by several methods for achieving the visual rehabilitation, the common ones being, spectacle correction, contact lens fitting and the most popular IOL (Intra Ocular Lens) implantation.

Sometimes this visual rehabilitation is not up to the expectation. It should not come as a surprise to either the surgeon or the patient. To avoid such unwanted surprises certain pre-requisites have to be fulfilled. They are -

1) A detailed pre-operative history
2) A detailed general physical examination to rule out any co-morbid conditions
3) A detailed examination of the eye to rule out any co-existing ocular abnormalities.

A detailed pre-operative history and examination regarding the general ailments and their treatment history and ocular ailments and their treatment history is very essential and mandatory. Certain clearly evident sources of infection like blepharitis, meibominitis and conjunctivitis may be recognised immedietly. Chronic dacryocystitis may be complained of by the patient or may be diagnosed by simple observation like matting of eye lashes, or by a simple regurgitation test. These may contribute to the development of intra-ocular infections and ruin the outcome of surgery.

But certain subtle causes which can reduce the post-operative vision will have to be assessed pre operatively and anticipate the poor surgical outcome.

An effort is made to bring out these details of history and examination

1) History of Diabetes Mellitus

Diabetes mellitus forms one of the commonest co-morbid conditions in patients over 65 yrs[5].

Type I or Type II diabetes can affect the eye in several ways[6]. Patients may or may not be aware of their Diabetes. They have to be questioned and also investigated for this. Diabetes may be picked up for the first time before surgery.

Onset of cataract may occur at an earlier age in Diabetics when compared to the general population.

Diabetic Retinopathy and maculopathy invariably affect the vision before and after cataract extraction[5]. The stage of Retinopathy and Maculopathy plays a very important role. Advanced Non-Proliferative Diabetic Retinopathy (NPDR), Proliferative Diabetic Retinopathy (PDR) and Macular edema or ischaemia are the main culprits. So, the predictor of post- operative outcome is the pre-operative severity of retionopathy. Uncontrolled or poorly controlled diabetes definitely affects both the lens and retina. It causes reduced vision.

2) Essential Hypertension associated with diabetes can increase the retinal damage, especially when there is associated nephropathy and bring down the visual prognosis[7].
3) Age related macular degeneration (ARMD) affects approximately 40% of those over the age of 75 yrs. ARMD forms one of the most important and a very silent disease of the macula which may be detected after surgery in case the cataract is dense before surgery[8]. Since this condition is almost always bilateral, probably the prognosis of the second eye is taken care of.
4) Primary Open Angle Glucoma is another silent condition where the field of vision and the optic nerve head are affected. Most often, especially in rural population, POAG is mis-considered as cataract and the patient presents for examination only after a gross damage to the optic nerve has taken place. Sometimes cataract also is associated with POAG with much of optic nerve damage or field restriction. In such conditions, again, the visual prognosis is poor after lens extraction.
5) Secondary open angle or closed angle glaucoma also can damage the ocular structures like retina, optic nerve, iris and pupil and may come in the way of visual rehabilitation. In this, pseudo exfoliation is very common which poses many problems intra-operatively also.
6) Associated Retinitis pigmentosa[9] may cause symptoms from young age like night blindless. As observed in rural population, this is not given much weight and patients may not even mention about this when they present for cataract extraction.
7) Tobacco and Alcohol (Ethyl Alcohol) are well known reasons for Macular degenerations and Toxic Amblyopia. Bilateral caecocentral Scotoma in the initial period, followed by optic atrophy are observed in Toxic amblyopia.
8) Ametropic Amblyopia – a disparity of visual activity and refractive condition between the two eyes leads to suppression of one eye and

thus amblyopia. This may go unnoticed by the patients for decades.

9) Central Retinal artery[10] or vein occlusion[11] or even branch artery or vein occlusion may contribute to a very great extent in reducing the post-operative vision.
10) Tuberculosis or Hansen's disease can be present earlier which the patients either avoid as it is considered as a social stigma or ignore or forget to give a history. This might have produced uveitis or retiochoroiditis, macular lesions, optic atrophy etc.,
11) Old and forgotten injuries, penetrating or blunt, having involvement of either anterior segment lesions like corneal opacities or even a retinal detachment in the posterior segment. Probing questions may be necessary.
12) Uveitis – chronic uveitis can be bilateral leading to many of its complications like a hazy cornea, secondary glaucoma, posterior synichiae, exudative membranes, chorioretinitis, macular lesions, optic nerve involvement[12,13,14] can be seen along with a complicated cataract.
13) Vitreous opacities, detachments are common. vitreous haemorrhage and fibrous bands may be recognized by B-Scan or as a surprise post operatively.
14) Congenital anomalies like corneal dystrophies,. other anomalies like uveal coloboma, macular diseases like Stargardt's disease, optic nerve pit, oblique insertion of ONH may be seen post operatively. Toxoplasmosis also may be observed later.

In order to diagnose these pre-operative conditions, a detailed history is very important. Duration of diseases and treatment taken are asked for. The frequency of investigations carried out and the extent of control are asked for. It is a very common observation in rural population that, patient continues to take the prescribed medication without proper follow up, repeated investigations and advice. My very common observation is, patients stop the medication for both Diabetes and Hypertension when the readings come under control. They also feel that readings will keep reducing if they continue medication and one day it will reach zero level. This wrong opinion scares them and makes them stop medication. This may also be because they do not realise that Diabetes and Hypertension cannot be cured like some simpler ailments like cough, cold or fever. So, when the levels of BP or Sugar comes to a normal level, they stop the medication. This leads to progression of the disease and the associated ocular complications.

Coming to the examination, a thorough anterior segment examination can give lot of clues regarding many diseases.

Cornea: A hazy cornea may be due to degenerations and dystrophies. There can be corneal edema due to raised intraocular pressure, either primary or secondary Glaucoma. A few old keratic precipitates (KPs) on the endothelial surface may reveal an old uveitis. Corneal opacities are very important to be observed, to ruleout old and healed corneal ulcers, old injuries etc., Their location is even more important.

Anterior chamber: Depth of the anterior chamber, shallow, deep or irregular, presence of cells or protein matter may suggest either old uveitis, secondary glaucoma . – lens induced or even old injuries, if associated with adherent leucoma.

Iris: The colour, pattern and presence of either nodules or neovascularization may be telling important stories of uveitis, secondary glaucoma, diabetic retinopathy or even vascular occlusions, old or healed Tuberculosis or Hansen's disease. ICE syndromes should be kept in mind.

Pupil: It is the most important empty space in the eye which can tell about many changes that have occurred in the posterior segment and also anterior segment. A mydriatic pupil may be due to trauma,, an ill-sustained reaction to direct light, a non-reacting pupil, presence of relative afferent pupillary defect (RAPD), due to ONH (Optic Nerve Head) damage, an eccentric pupil, irregular pupil, ectrpion uveae, an exudative membrane in the pupillary area, as in old uveitis, powdering of the pupil in pseudo exfoliation, so on and so forth. A careful examination looking for pupillary reaction, direct and indirect in both eyes tested individually is a must.

Lens: The density of cataract and the position of cataract should be studied in detail. Phacodonesis due to hyper maturity, calcium deposition on the lens capsule, pseudo exfoliation should be looked for. Any lens induced glaucoma, intumescent cataract must be identified. The examination of a hypermature cataract and an intumescent cataract are of utmost importance to avoid intra operative complications as well, as it can affect the post operative vision directly.

Vitreous: Vitreous abnormalities, current or old, like detachments, haemorrhage or fibrous bands, persistant hyperplstic primary vitreous (PHPV), any opacities must be identified by either examination or by investigations.

Fundus examination: is a very essential part to study many diseases on which the visual prognosis is assessed as discussed earlier. But if the cataract is mature fundus examination cannot be done and so some simple investigations might have to be resorted to.

After a thorough examination, certain simple tests and investigations give some more details Very simple macular function tests like PL(perception of light), PR (projection of rays), Red and Green color perception and Maddox Red test are very easy to perform on both educated and illiterate patients and are highly informative.

Intra-ocular pressure recording cannot be ignored at all. B-scan can give details of vitreous and any posterior staphyloma or retinal detachment, Persistant Hyperplastic Primary Vitreous (PHPV), choroidal tumors, retinal tumors, etc.

Thus a few minutes spent talking to the patient and conducting some simple tests, can be very informative and avoid embarrasing situations to both patient and doctor after the surgery is over.

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