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A COMPREHENSIVE HOMOEOPATHIC APPROACH TO CATARACT: EPIDEMOLOGY, CLINICAL INSIGHTS, AND THERAPEUTIC PERSPECTIVES

Dr. Srinivas Babu Kathi[1], Dr. Kavya Boini[2], Dr. Udutha Srija[3], Dr. Guguloth Harikka[4], Dr. Nune Navya[5], Dr. Padala Rishitha Prasad[6]

[1]ORCID: https://orcid.org/0009-0000-9121-6162 , [2]ORCID: https://orcid.org/0009-0001-2130-4439

[1]Medical Superintendent, Head of The Department of Homoeopathic Pharmacy, Hamsa Homeopathy Medical College, Hospital & Research Centre, Siddipet (Dist..), Telangana State 502279.

[2]Assistant Professor of the Department of Homoeopathic Pharmacy, Hamsa Homeopathy Medical College, Hospital & Research Centre, Siddipet (Dist.), Telangana State 502279.

[3]Internee; 2019-2020 Batch, Hamsa Homeopathy Medical College, Hospital & Research Centre, Siddipet (Dist.), Telangana State 502279.

[4]Internee; 2019-2020 Batch, Hamsa Homeopathy Medical College, Hospital & Research Centre, Siddipet (Dist.), Telangana State 502279.

[5]Internee; 2019-2020 Batch, Hamsa Homeopathy Medical College, Hospital & Research Centre, Siddipet (Dist.), Telangana State 502279.

[6]Internee; 2019-2020 Batch, Hamsa Homeopathy Medical College, Hospital & Research Centre, Siddipet (Dist.), Telangana State 502279.

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Abstract: **Prevalence of cataract blindness noted in study population was 3.49% whereas, in tribal area, of 5082 eyes, SVI was noted in 101 (1.98%) eyes and 134 (2.63%) eyes were blind.[1]**

The prevalence of cataracts increases massively with age, with rates ranging from 3.9% among individuals aged 55-64 to a huge 92.6% in those aged 80+. This age related trend really proves the growing burden of cataracts in ageing populations.

Asia represents a significant portion of the global cataract sufferers. India has made real progress increasing its cataract surgical rate from just over 700 operations per million by 2011. However, values change dramatically based on the region, particularly in rural and underserved areas. Whooping 15.2 million individuals. They also account for 39% of moderate to severe visual impairment, which means they affect about 78.8 million people.

As of 2025, cataracts are responsible for almost 45% of global blindness.[4]

Background: Cataract occurs when crystalline proteins in the lens partially unfold and subsequently aggregate.[2] Cataract is the leading reason of blindness worldwide and is defined by the reason presence of lens opacities or loss of transparency. The most common symptoms of cataract are decreased contrast, colour disturbance and glare. [3]

Homoeopathic medications help patients to avoid surgery and its side effects, which include infection, haemorrhage, and retinal detachment. Therefore, homoeopathic treatments for cataracts are advantageous for lens opacity and prevent the condition from worsening.

The most secure and organic method of treating cataracts is homoeopathy. Homoeopathic remedies can postpone or slow down the lens clouding process in the early stages of cataract development. Additionally, they aid in clearing up cataract-related vision haze. So we can avoid surgery and its negative consequences including bleeding, infection, and retinal detachment with homoeopathic treatment. [2]

Keywords: **Homoeopathic medications, crystalline proteins, homoeopathic treatments.**

1. INTRODUCTION

Cataract, or opacity of lens of the eye, is the most common easily correctable cause of blindness in developing regions of the world. In the industrialized countries, surgery for cataract constitutes on of the largest items of expense in the delivery of essential eye health care, with cataract extraction being performed about as often as appendicectomy. Cataract is one of the diseases of the greatest concern to a special programme, recently established by the world health organization, for the prevention of blindness, the aim of which is to "eliminate avoidable blindness and visual impairment", particularly in developing regions.[5]

Blindness due to cataract presents an enormous problem in india not only in terms of human morbidity but also in terms of economic loss and social burden. The WHO/NPCB (national programme for control blindness) survey has shown that there is a backlog of over 22 million blind eyes (12 million blind people) in india, and 80.1% of these are blind due to cataract. The annual incidence of cataract blindness is about 3.8 million. The present annual level of performance is in the order of about 1.6-1.9 million cataract operations.[6]

2. CONCLUSION

Homeopathy holds promising potential in the management of cataract both in early and slow progressing stages. By selecting the remedies based on the symptoms, it stimulates the body to self-repair mechanisms. It efficiently maintains the lens clarity, reduce the discomfort like glare, blurring, or visual fatigue and visual strain and enhance overall eye comfort.

Remedies such as calcarea carbonica, silicea, causticum, phosphorous, and calcarea flourica have been classically indicated by masters like kent, clarke, boericke, Phatak. The holistic nature of homoeopathy, addressing both the local pathology and the patient's general vitality, reinforces its role as a supportive and safe modality in cataract care.

While modern ophthalmology provides surgical procedures for advanced cataracts, homoeopathy serves as a preventive and supportive measure with its individualized prescriptions in non-invasive nature.

3. REVIEW OF LITERATURE

INTRODUCTION

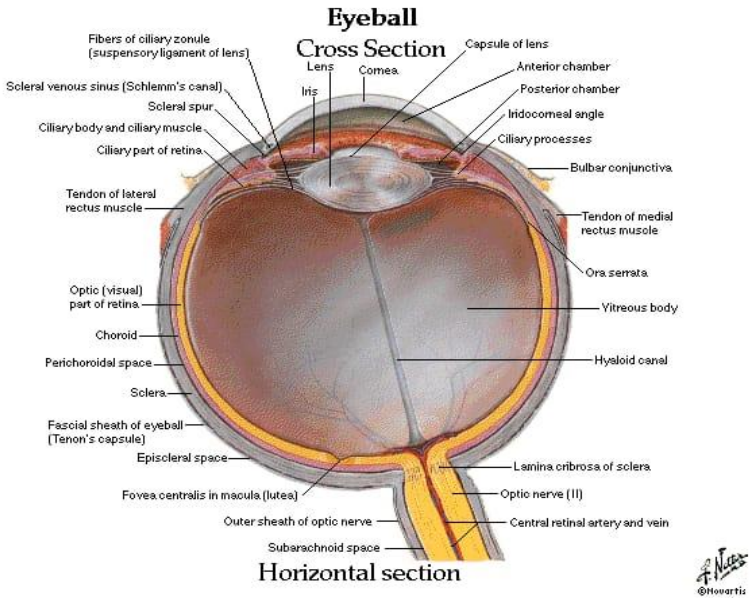

Image source: https://dentistryandmedicine.blogspot.com/2011/05/eye-diagrams-free-download.html?m=1

Lens is formed during 7th week. At first, the lens is supplied by hyaloid artery-a branch of the ophthalmic artery. Later on, the distal part of hyaloid artery disappears, and blood supply to the lens is stopped. Consequently the lens become avascular structure. The lens develops from the lenis vesicle – a derivative of surface ectoderm. Initially, the lens vesicle is lined by a single layer of cuboidal cells.

The cells of anterior wall of the vesicle remain cuboidal, whereas the cells of the posterior wall of the lens vesicle elongated, become columnar, and extend into the cavity of lens vesicle. As a result, the cavity of lens vesicle is obliterated. The

elongated cells of the posterior wall of lens vesicle further elongate considerably and loose their nuclie to form highly transparent primary lens fibers. The lens grow because new lens fibers (secondary lens fibers) are added to it by cells in the equatorial zone of lens. The cells anterior layer persist as epithelium.

Although the secondary lens fibers continue to form during childhood and lens increases in its diameter, the primary lens fibers becomes old and harder.[7]

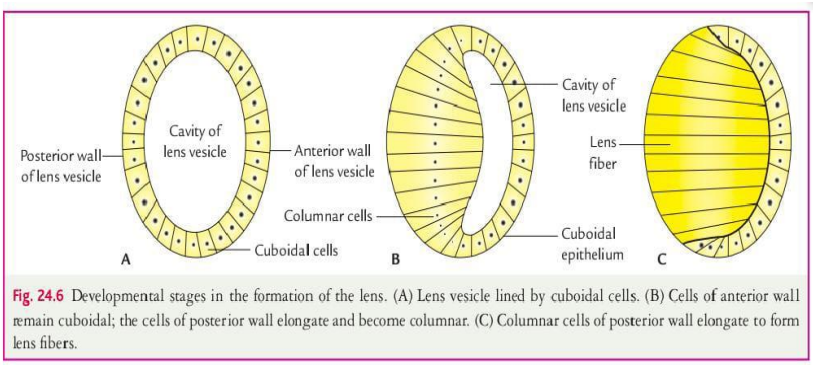

Fig. 24.6 Developmental stages in the formation of the lens. (A) Lens vesicle lined by cuboidal cells. (B) Cells of anterior wall remain cuboidal; the cells of posterior wall elongate and become columnar. (C) Columnar cells of posterior wall elongate to form lens fibers.

Image source: singh v. textbook of clinical embryology. 2nd ed. New delhi: RELX india pvt. Ltd.; 2017. ISBN: 978-81-321-4882-9 (pg no 309)

In the fetus, the lens is nearly spherical, and has a slightly reddish tint; it is soft and breaks down readily on the slightest pressure. A small branch from the arteria centralis retinae runs forward, as already mentioned, through the vitreous body to the posterior part of the capsule of the lens, where it branches radiate and form a plexiform network, which covers the posterior surface of the capsule, and they are continues around the margin of the capsule with the vessels of the pupillary membrane, and with those of the iris.

In the adult, the lens is colorless, transparent, firm in texture, and devoid of vessels. In old age it becomes flattened on both surfaces, slightly opaque, of an amber tint, and increased in density.

The crystalline lens, enclosed in the capsule, is situated immediately behind the iris, in front of the vitreous body, and encircled by the ciliary processes which slightly overlap its margin. The capsule of the lens (capsula lentis) is a transparent, structureless membrane which closely surrounds the lens, and is thicker in front than behind. It is brittle but highly elastic, and when rupture the edges rollup with the outer surface innermost. It rests, behind, in the hyaloid fossa in the forepart of the vitreous body; in front, it is in contact with the free border of the iris, but recedes from at the circumference, thus forming the posterior chamber of the eye; it is retained in its position chiefly by the suspensory ligament of the lens, already described.

The lens is a transparent, biconvex body, the convexity of its anterior being less than that of its posterior surface. The central points of these surfaces are turned respectively the anterior and posterior poles; a line connecting the poles constitutes the axis of the lens, while the marginal circumference is termed the equator.

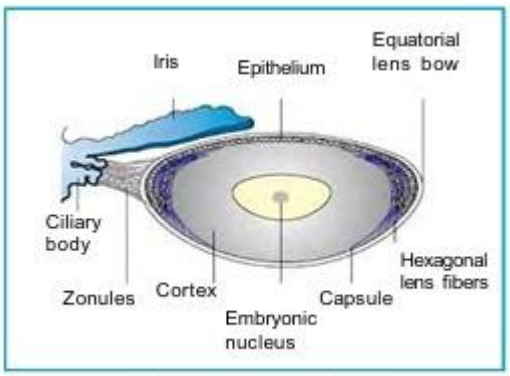

Fig. 1.1: Structure of lens

Image source: rai R. review of opthomology. 7th ed. Delhi: peepee publishers and distributors (p) ltd; ISBN: 978-81-8445-267-9 (pg no 1)

Structure- The lens is made up of soft cortical substance under firm, central part, the nucleus. Faint lines (radii lentis) radiate from the poles to the equator. In the adult there may be six or more of these lines, but in the fetus, they are only three in number and diverge from each other at angles of 120^0; on the anterior surface one line ascends vertically and the other two diverge downwards; on the posterior surface one ray descends vertically and the other two diverge upward. They correspond with the free edges of an equal number of septa composed of an amorphous substance, which dip into the substance of the lens.

When the lens has been hardened, it is seen to consist of a series of concentrically arranged laminae, each of which is interrupted at the septa referred to. Each lamina is builtup of a number of hexagonal, ribbon-like lens fibers, the edges of which are more or less serrated- the serrations fitting between those of neighboring fibers, while the ends of the fibres come into apposition at the septa. The fibers run in a curved manner from the septa on the anterior surface to those on the posterior surface. No fibers pass from pole to pole; they are arranged in such a way that those which begin near the pole on one surface of the lens end near the peripheral extremity of the plane on the other, and vice versa. The fibers of the outer layers of the lens are nucleated, and together form a nuclear layer, most distinct toward the equator. The anterior surface of the lens is covered by a layer of transparent, columnar, nucleated epithelium. At the equator the cells become elongated, and their gradual transition into lens fibers can be traced.[8]

Cataracts- opaque areas in the lens. “Cataracts” are an especially common eye abnormality that occurs mainly in older people. A cataract is a cloudy opaque area (or areas) in the lens. In the early stage of cataract formation, the proteins in some of the lens fibers become denatured. Later, these same proteins coagulate to form opaque areas in place of the normal transparent fibers.

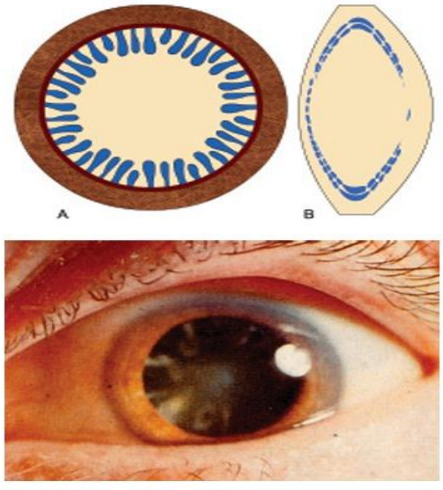

Fig. 8.6. Coronary cataract : A & B as seen by oblique illumination and in optical section with the beam of the slit-lamp, respectively, C, Clinical photograph.

Image source: A K khurana, comprehensive opthomology 4th ed. New delhi, new age international (p) ltd publishers, ISBN (13) : 978-81-224-2480-5 (pg no 173)

When a cataract has obscured light transmission so greatly that it seriously impairs vision, the condition can be corrected by surgical removal of the lens. When the lens is removed, the eye loses a large portion of its refractive power, which must be replaced by placing a powerful convex lens in front of the eye; usually, however, an artificial plastic lens is implanted in the eye in place of the removed lens.[9]

Nutrition of lens and cataract: Nutrition of the lens is maintained by the aqueous humour over the lens. Transparency of the lens is maintained by the normal nutrition and if this nutritional status is altered due to some dietary deficiencies then there comes a certain a pathological changes in the lens leading to opacity. This condition is known as cataract. Glutathione content in the cataract lens is greatly decreased and has got direct relationship with the degree of opacity in the lens.

It is the chief refracting medium of the eyeball. It is a transparent, elastic and biconvex lens, enclosed in a capsule. Posteriorly, it is more convex. It is circular, about 11mm in diameter. The thickness at the center is about 3.6-3.9mm. Refractive index: 1.40 at the centre. It is less in the periphery. It is held in situ by the suspensory ligament. Histology- It is composed of concentric layers of elongated modified cells. The peripheral parts are soft and nucleated, while the central part forms a dense non-nucleated mass with a higher refractive index. A single layer of columnar epithelial cells lies on the

anterior surface, just behind the capsule. From the central part of the anterior surface to the equator of the lens, the columnar cells undergo a gradual transition into the attenuated cells of the lens.

Function - To refract light and focus it exactly on the retina. Metabolism of lens isolated lens, when placed in a suitable microspirometer, can be shown to use O2 and eliminate CO2.

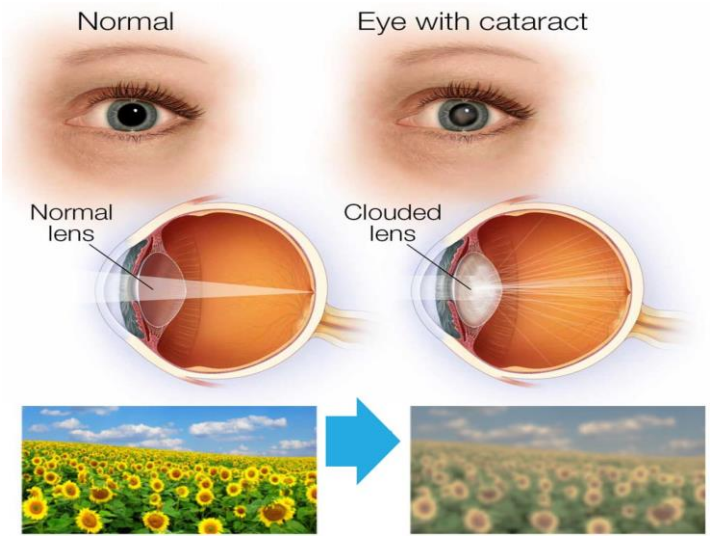

Image source : https://eyedrsandeep.com/motiyabind-operation-in-english/

Oxygen lack, CO2 excess and other pathological conditions cause degenerations of the lens. In the young, the lens is rich in cystine, which may be a part of glutathione, necessary for local tissue oxidation. As age advances, the cystine content fail.[10]

Definition: Any interference in the optical homogeneity of the lens is called cataract.

Classification:

a) Etiologically: (1) Senile (2) Metabolic (3) Complicated (4) Traumatic (5) Radiational (6) Toxic (7) Electric (8) Skin diseases (9) Osseus diseases (10) Syndromes.

b) According to maturity: (1) Immature (2) Mature (3) Hypermature.

c) Anatomically: (1) Capsular cataract- Anterior and Posterior (2) Subcapsular cataract- Anterior and Posterior (3) Cortical cataract (4) Supranuclear cataract (5) Nuclear cataract (6) Polar cataract- Anterior and Posterior.

Most common cause of acquired cataract is Senile cataract.

Etiology:

a) Heredity: Usually dominant.

b) Maternal factors
   1. Malnutrion.
   2. TORCHS infections, i.e., Toxoplasmosis, rubella, cytomegalovirus, herpes and syphilis.
   3. Drug: Thalidomide, corticosteroid.
   4. Radiation.

c) Fetal or Infantile factor:
   1. Anoxia.
   2. Metabolic:
      a. Galactosemia
      b. Neonatal hypoglycemia.
   3. Congenital anomaly: Lowe's syndrome, myotonia dystrophica.
   4. Birth trauma.
   5. Malnutrition.

d) Idiopathic.

TYPES:

A) Catarata Centralis pulverulenta:

1. Embryonic nuclear cataract
2. Opacity has powdery appearance
3. Does not affect vision

B) Zonular/ lamellar: Most common type of congenital cataract causing decreased vision

1. Involves the foetal nucleus
2. Etiology may be: A) Genetic: dominant inheritance B) Environmental: (1) vitamin d deficiency, (2) rubella infection in 7th - 8 week of gestation
3. Usually bilateral
4. Causes severe visual defect
5. Small linear opacities towards equator called riders are characteristic of lamellar cataract.

C) Sutural cataract: along anterior and posterior sutures

D) Anterior polar cataract

E) Posterior polar cataract

F) Coronary cataract: occurs in adolescence, club shaped opacities peripheral in distribution.

G) Punctate cataract: also called blue- dot cataract or catarata - punctate-cerulea bluish in peripheral part of adolescent nucleus and deeper cortex are seen. It is the most common type of congenital cataract.

H) Total congenital cataract.

I) Congenital membraneous cataract: it is due to total or partial absorption of congenital cataract.

Clinical features of cataract:

1. Misty vision with distortion of vision.
2. Loss of vision.
3. Coloured halos.
4. Black spots in front of eyes.
5. Glare.
6. Unilocular diplopia or polyopia seen in stage of intumescent cataract.

Complications of cataract:

1. Uveitis
2. Subluxation or dislocation of lens.
3. Glaucoma: Phacoanaphylactic / Phacomorphic / Phacolytic.

Management of cataract:

The first line of treatment in cataract is surgery.

1. ICCE (Intracapsular cataract extraction),
2. ECCE with PC IOL (Extracapsular cataract extraction),
3. Manual small incision cataract surgery,

4. Phacoemulsification,
5. Lensectomy with anterior vitrectomy,
6. Mydriatics/Optical iridectomy,
7. ECCE with PC IOL with primary posterior capsulotomy.

Surgical techniques:

- ECCE
- Small Incision Cataract Surgery (SICS).
    1. Manual small incisional cataract surgery.
    2. Phacoemulsification.

Management of paediatric cataract:

Management can be divided according to two age groups:

1. Patients younger than 2 years.
2. Patients between 2-8 years.

Guidelines for the choice of intraocular lens:

1. <2 years old:

Do biometry and under correct by 20%.

Or

Use axial length measurements only.

Axial Length	IOL diopteric power
17 mm	28 D
18 mm	27D
19 mm	26 D
20 mm	24 D
21 mm	22 D

Between 2 years to 8 years:

Do biometry and under correct by 10 %.

The under correction of the IOL, power is done to take into account the myopic shift of power as the child grows.

The total diameter of IOL in children should not exceed 12mm.

Complications of cataract surgery:

Operative:

1. SR muscle laceration.
2. Excessive bleeding during congenital flap preparation.
3. Irregular incision.
4. Injury to cornea, DM- detachment.
5. Iris injury and iridodialysis.
6. Accidental rupture of lens capsule.
7. Vitreous loss.
8. Expulsive haemorrhage.

Early Post operative:

1. Hyphema.
2. Iritis and iris prolapse.
3. Striate keratopathy.
4. Flat anterior chamber.
5. Bacterial endophthalmitis: painful.
6. Glaucoma due to retained viscoelastic.

Late Post operative: (All are painless conditions)

1. CME.
2. RD.
3. Epithelial in-growth.
4. Fibrous down growth.
5. After cataract.[11]

HOMOEOPATHIC REMEDIES ON CATARACT

1. **Calcarea fluorica –** flickering and sparks before eyes, mostly left. After writing sometime was no longer able to see distinctly, because of a blur or mist before eyes, with some aching in eyeball. Spots on cornea; opacities.[12] many cases of cataract have undoubtedly been influenced favourably by it. Used after operations, the tendency to adhesions is reduced.[13] scrofulous inflammation of cornea or conjunctiva, characterized by pustules, ulcers, lachrymation and photophobia, opacities after acute inflammation.[18]
2. **Euphrasia officinalis –** Watery eyes, as if swimming in tears, hot or acrid tears leaving a varnish-like mark. Sensation as of hair in eyes, want to wipe them. Bluish cornea. Tendency to accumulation of sticky mucus on cornea-removed by winking.[14] Photophobia, with spasms of the lids. Opacities of cornea; after injury. Cataract, with watery eyes.[15]
3. **Cineraria maritima –** this is an unproved drug, but is has been used with a good deal of success in cases of cataract as an external application. Traumatic cataract and corneal opacities, as well as senile cataract, have been removed this way.[16] has some reputation in the cure of cataract and corneal opacities.[13]
4. **Phosphorus –** cataract. Sensation as if everything were covered with a mist or evil, or dust, or something pulled tightly over eyes. Black points seem to float before the eyes. green halo about the candle light. Letters appear red. Atrophy of optic nerve. Optic neuritis. Retina-detached. Thrombosis of retinal vessels and degenerative changes in retinal cells.[13]
5. **Calcarea carbonica –** ulcers, spots and opacity of cornea. Dimness of cornea. Obscuration of the sight on reading or after a meal. A dark spot seen before the eyes on reading, accompanying the letters. Great photophobia and dazzling from too strong light. Confusion of sight, as if there were a mist, or a veil, or down, before the eyes, chiefly on reading, and on observing an object attentively.[16]
6. **Causticum –** appearance of a veil before the eyes; Foggy vision. Gradual weakening of vision until it is lost. Flickering before the eyes. Air seems full of the little black insects. Then, again, large black or green spots are seen. After looking at the light a Green spots appears and remains in the field of vision for a long time. Paralysis of the optic nerve.[17]
7. **Silicea –** vision confused; letters run together on reading. Cataract in office workers. After-effects of keratitis and ulcus cornae, clearing the opacity. Abscess in cornea after traumatic injury.[13] suppurations of the margins of the lids with burning, stinging and redness. Intense photophobia in all eye complaints.[17]
8. **Pulsatilla –** dim-sightedness, with s sensation as though there were something over the eye which the patient wishes to rub away; amaurosis; cataract. Crystalline lens clouded and of a greyish colour. Luminous circles before eyes, and diffusion of light of candles.[16]

9. **Sulphur –** dazzled by looking long at an object. Clouded sight when reading. Confused sight, as if directed through a mist. Dim-sightedness, cataract. Halo around lamp light; cataract.[16]

10. **Magnesium carbonicum –** opacity of cornea. Black spots before sight. Obscuration of crystalline lens (cataract).[16]

4. CONCLUSION

The homoeopathic management of cataract offers a wide range of remedies that act upon different stages and manifestations of the disease. Remedies like Calcarea fluorica, Euphrasia, and Cineraria maritima have shown beneficial influence in reducing corneal opacities and post-inflammatory changes, while medicines such as Phosphorus, Causticum, Pulsatilla, and Sulphur address deeper structural and functional disturbances of the lens, retina, and optic nerve. Others like Silicea and Calcarea carbonica aid in clearing opacities, improving vision, and mitigating chronic inflammatory sequelae.

Though clinical experiences suggest that these remedies can slow down the progression of cataract, reduce associated symptoms, and in some cases improve visual clarity, more systematic research and clinical trials are essential to establish their efficacy on scientific grounds. Homoeopathic therapeutics thus provides a complementary approach in cataract management, especially in early stages or as supportive care alongside conventional methods.

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