e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
( Peer-Reviewed, Open Access, Fully Refereed International Journal )
Volume:06/Issue:11/November-2024 Impact Factor- 8.187 www.irjmets.com

# CATARACT

**Akshay Parasram Chautmal*1**

*1Osh Medical University.

DOI: https://www.doi.org/10.56726/IRJMETS63208

## ABSTRACT

A cataract is cloudy portion in the lens of the eye leads to decrease of vision .Cataracts develops very slowly and affects one or both eyes Symptoms includes faded colours, double vision , trouble with bright lights, and difficulty of vision during night This may effect in daily activities like driving, reading, or recognizing faces.it may also results in falling Cataracts cause 51% of blindness cases and 33% of visual impairment

## I. INTRODUCTION

A cataract is an eye condition in which the lens of the eye lens is said to be cloudy or opaque. Some people's vision is only slightly affected, whereas others might lose their eyesight very quickly.

Globally, at least 2200 million people have farsightedness or nearsightedness. Out of these 1 billion patients can be cured or can be prevented by taking measures.

It is estimated only 36% of people worldwide with a distance vision impairment due to refractive error

Cataracts mostly affect more than 50 people. The risk increases with age: between the age of 60and 76 have a cataract.

Cataracts are the very common cause of blindness in developing countries because due to opacity on lens light can't pass. Cataract surgery includes removing the cloudy lens and replace it with an artificial lens.

India

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 of 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.

Keywords: cataract ,blindness, vision.

Sign:

Early Signs:

1. Cloudy or blurry vision: Distorted or fuzzy vision, especially at night.
2. Double vision: Seeing double images in one eye.
3. Sensitivity to light: Discomfort or glare from sunlight, lamps, or car headlights.
4. Colors appear faded: Dull or yellowish colors.
5. Difficulty reading: Trouble reading small print or needing brighter lighting.

Advanced Signs:

1. Vision loss: Gradual loss of vision, especially in bright light.
2. Halos around lights: Seeing rings or halos around light sources.
3. Ghosting: Seeing ghostly images or shadows.
4. Eye pain: Mild to moderate eye pain or discomfort.
5. Redness or swelling: Rarely, cataract can cause eye redness or swelling

Any opacity in lens is called cataract.

mc cause of gradual painless loss of vision → Cataract.mc cause of blindness in India Cataract.

Blindness:

Program NPCBvi (National Programme for Control of Blindness and visual Impairment).

Definition visual acuity <3/60 in the better eye with best possible correction or visual field less than 10°.

TYPES:

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
( Peer-Reviewed, Open Access, Fully Refereed International Journal )
Volume:06/Issue:11/November-2024 Impact Factor- 8.187 www.irjmets.com

Types of cataract: acquired & congenital

Acquired:1. metabolic cataract

2. Traumatic cataract

3. Complicated cataract

4. Age related

Metabolic cataract:

Diabetes mellitus causes 1. Snow flake cataract (cortical cataract). mc in type I om (Young adults).

2. Presenile cataract: mc in type 2 Dm (senile cataract before so years of age) it occurs due to increased carbamylation of crystallines.

3. Fluctuating refractive error

4. Diabetic retinopathy.

Galactosemia causes:

Oil droplet cataract (posterior subcapsular cataract).This is the only reversible cataract.Galactosemia is an autosomal recessive disorder.Galactose → Glucose

Galactose its metabolites galactitol (dulcitol accumulate in the lens to cause cataract.

It causes:

Sunflower cataract Due to the deposition of cuprous oxide and it can affect multiple sites of the lens. It is stellate shaped.

Kayser-fleischer ring → Golden brown ring due to the deposition of copper in descemet's membrane in the periphery of cornea.

There is no loss of vision due to KF ring.

ring is seen in all patients with neurological manifestations (Deposition of Cu in basal ganglia).

Seen in around 50% patients with hepatic involvement. Starts superiorly Inferiorly Laterally

Snow flakes cataract

Oil droplet cataract

Christmas tree cataract

sunflower cataract

Treatment:

Chelating agents Penicillamine and trientine (Lifelong). KF ring disappears after 3-5.0years.

a maintainence therapy with zinc acetate, it stops the absorption of copper

Traumatic cataract :

1. Blunt trauma causes rosette shaped cataract which is a posterior subcapsular cataract

a. Infrared rays causes Glass blower's cataract, occurs due to true exfoliation of lens capsule.

3. Lightning/electric shock Anterior capsular opacities.

Senile cataract:

is also known as age related cataract. It occurs around 51 to 70 years of age.

1. Nuclear cataract AKA Central cataract. HARDcataract

clinical features Loss of vision in daytime Improvement of vision in dim light/night.

CONGENITAL:

Pathogenesis of cataract (C) starts in utero and presents at birth or at later life.

Classification:

• Infantile cataract:

Opacities develop before I year of age.

Causes severe vision loss as it interferes with foveal Axation.

Foveal fixation develops around 3-4 months of age.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
( Peer-Reviewed, Open Access, Fully Refereed International Journal )
Volume:06/Issue:11/November-2024 Impact Factor- 8.187 www.irjmets.com

Foveal fixation: Brain ascertains that fovea is the best point of vision by 3-4 months of age. Then on visual axis oriented. Such that the light coming from object falls on fovea.

Fovea: most sensitive part of retina. High concentration of cones.

Central vision is through fovea.

Developmental cataract:

Opacities presents after I year of age.

mininal vision loss.

Will not interfere with foveal fixation.

Blue dot/punctate cataract:

Scattered small blue coloured opacities.

Puncta: Dot.

most common developmental cataract/ mc congenital cataract/mc congenital cataract that is visually insignificant. Associated with Downs syndrome.

Key facts

Cataracts are the m/c of vision loss in the world.

Sun exposure ( uv-A & uv-B) can increase your risk of cataracts.

Risk factor

Increases age.

Sunlight .

Severe diarrhea dehydration .

Vitamin A. C E deficiency .

Smoking .

Corticosteroids .

Genetics.

Diabetes.

Symptoms:

develop blurred, or foggy vision — you may have problem reading, driving at night or seeing faces or other things clearly become sensitive to light and glare find that objects seem to have a brown or yellow shade have the sense of seeing double, or that things look distorted see 'halos' around lights.

## II. PREVALENCE OF CATARACT IN INDIA

The commonest age group affected was 60–80 years, closely followed by the 40–58 years age group. The prevalence of nuclear sclerosis (NS), cortical (CC), and posterior subcapsular cataract (PSC) was found to be 65.1% (3,418), 24.7% (1,289), and 43.3% (2,276), respectively. Among mixed cataracts, (NS + PSC) had the highest prevalence of 39.5%. Smokers were found to have 1.17 times higher odds of developing NS than non-smokers. Diabetics had 1.11 times higher odds of developing NS cataracts and 1.04 times higher odds of developing CC. Patients with hypertension showed 1.28 times higher odds of developing NS and 1.31times higher odds of developing CC.

**DIAGNOSIS:**

Visual acuity test

A visual acuity test is said to be an examination that examines how a person sees. A basic test used as visual acuity test is Snellen test.

In Snellen test, a patient will read letters or numbers from a distance covering one eye.

Pupillary response

During this test, the doctor will examine the structures like cornea, iris, lens in the eye to check signs of cataracts.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
( Peer-Reviewed, Open Access, Fully Refereed International Journal )
Volume:06/Issue:11/November-2024 Impact Factor- 8.187 www.irjmets.com

Tonometry test

It is a diagnostic test that measures the pressure inside the eye, or intraocular pressure. It will measure pressure of CSF in the eye.

Slit lamp examination

In this exam, the doctor will use a dye to get better view of structures.

## III. TREATMENT

Cataract surgery is the only way to remove cataracts and restore your clear vision. During cataract surgery, an ophthalmologist removes your whole lens with capsule of clouded natural lens and replaces it with an intraocular lens (IOL). An IOL is an artificial lens that permanently stays in your eye.

Phacoemulsifaction most commonly done surgery nowadays.

Steps:

1. Preoperative:

Dilate the pupil: mydriatic and cycloplegic, usually: Tropicamide + phenylephrine or cyclopentolate.

Local anaesthesia:

1. Topical.

2. Peribulbar.

3. Retrobulbar.

Peribulbar > Retrobulbar:

Bupivacaine + Lignocaine + 1: 2,00,000 Adrenaline + Hyaluronidase (for better penetration).

Nowadays, topical anesthesia used:

Proparacaine eye drops.

universal prophylaxis: 5% povidone iodine or betadine solution instilled into the conjuntival sac.

## IV. REFERENCE

[1] https://pib.gov.in/Press ReleseDetailm.a spx?PRID=1944598
[2] https://www.impriindia.com/research/r eports/npcbvi-eye-care-statistics/
[3] https://shs.bihar.gov.in/nhm- programme-details?
[4] id=Mzl=&page=national-programme- for-control-of-blindness-and-visual- impairment-npcb-vi-
[5] https://sansad.in/getFile/loksabhaque stions/annex/179/AU2140.pdf? source=pqals
[6] https://pib.gov.in/Press ReleasePage.as px?PRID=1813653
[7] https://www.lompocvmc.com/blogs/20 21/june/what-are-cataracts-and-how- are-they-treated-
[8] https://www.webmd.com/eye- health/detecting-eye-diseases- conditions
[9] https://www.allaboutvision.com/video/
[10] https://www.teachershealth.com.au/he althmatters/body-mind/cataract- questions/
[11] https://www.thesenior.com.au/story/67 87974/cataract-risk-reduced-by- exercise/
[12] https://indiavisionatlasnpcb.aiims.edu /npcb-vi/
[13] https://daman.nic.in/nhm/documents/ 2019/664-22-02-2019.pdf
[14] https://nhm.hp.gov.in/storage/app/me dia/uploaded-files/guidelines%20of%20npcb.pdf
[15] https://pib.gov.in/Press Relese Detailm.a spx?PRID=1944598
[16] https://www.impriindia.com/research/r