

Classification of Cataract

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Defintition

A cataract usually is defined as an opacification of the lens or its capsule
In this sense, almost every adult has cataract

Classifications

Cataract is often categorised using morphological and/or aetiological classifications e.g., age related posterior subcapsular.

Morphological classification

- Capsular
- Subcapsular
- Nuclear
- Cortical
- Lamellar
- Sutural

Cortical

Nuclear

Subcapsular

Capsular

Congenital capsular thickening

Congenital capsular thickening may be associated with posterior or anterior polar cataracts and pyramidal cataract. The posterior form may be associated with a hylaid remnant.

Acquired capsular opacities

Acquired capsular opacities can occur with pseudoexfoliation, Infra-red radiation (*Glass blower's cataract*) or Secondary to blunt trauma when a *Vossius' ring* may be formed.

Subcapsular

Posterior subcapsular

Posterior subcapsular lens changes may be associated with *secondary or complicated* cataracts, *drugs* e.g., steroids, or be an *age related cataract (Cupuliform)*.

Anterior subcapsular

Anterior subcapsular lens changes may be associated with Wilson's disease (*sunflower cataract*) or with drugs e.g., amiodarone

Nuclear

Congenital

An example of a congenital nuclear cataract is that secondary to Rubella

Age related

Nuclear sclerosis cataract commonly seen in practice is the age related form.

Cortical

Congenital

Congenital cortical cataract is very common and they rarely interfere with vision. Examples include e.g., *blue dot cataract* and *coronary cataract*.

Age related

Age related cortical cataract is also known as *cuneiform* cataract that takes the form of "water" clefts and vacuoles. These often appear first in the inferior nasal quadrant of the lens possibly because this is most exposed to UV radiation.

Lamellar

Congenital

Lamellar cataracts are usually congenital and often involve one lamella of the foetal or nuclear zones. Radial, spoke-like opacities (or riders) also often surround the cataract.

Sutural

These are often known as “*Y*”-shaped” cataract.

Of course, more ore than one type of cataract can be present in an eye.

Aetiological classification

A further way of classifying cataract is by cause.

- Congenital
- Degenerative or “age related” (senile)
- Traumatic
- Secondary to other conditions (including metabolic causes)
- Toxic
- Hereditary

Congenital cataract

Congenital cataract can be a result of heredity (often autosomal dominant), pre-natal infections such as rubella or metabolic disorders.

Intrauterine infections

Examples include rubella and toxoplasmosis.

Maternal drug ingestion

Examples include thalidomide and corticosteroids.

Genetically transmitted syndromes

Microphthalmos is often associated with cataract.

Ocular conditions with associated anomalies

Examples include retinopathy of prematurity and some types of retinitis pigmentosa.

Secondary to metabolic disorders

Galactosemia and Wilson’s disease are two examples.

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In 50% of cases the cause is unknown (Dhillon & Fleck, 1996).

Degenerative or Age Related (senile)

Most adults have some degree of opacification of the lens and therefore technically exhibit cataract.

Subcapsular

Anterior subcapsular cataract (directly under the capsule) is associated with fibrous metaplasia of anterior lens epithelium.

Posterior subcapsular cataract (*cupuliform*) lies just in front of posterior capsule and is associated with posterior migration of epithelial cells.

Cortical

Cortical cataract commonly develops as radial or spoke shaped "water-clefts" (*cuneiform*) together with vacuoles. Cuneiform changes affect anterior, posterior and equatorial cortex affected

Nuclear sclerosis

Nuclear cataract is an exacerbation of the normal ageing of lens nucleus and appears as a yellowing of the nucleus.

Traumatic

Trauma is the commonest cause of unilateral cataract in young individuals ((*Kanski, 1992*)).

Opacities can be the result of various injuries including penetrating injury.

Concussion to the eye may cause the iris to be flattened against the lens leaving a Vossius' ring.

Secondary

Cataract can occur secondary to systemic disease or syndromes including metabolic disorders and due to local disease (ocular).

Secondary to systemic conditions

Many conditions can cause or be associated with cataract

Diabetes

Diabetes mellitus can cause an exacerbation of the progression of age related degenerative changes.

So-called (classical) diabetic cataract occurs during an acute and untreated hyperglycaemic episode and takes the form of cortical “snowflakes”. These occur due to osmotic over-hydration of the lens and can be anterior and/or posterior in position.

Galactosaemia

This metabolic disease produces an “oil droplet” cataract.

Wilson’s disease (hepatolenticular degeneration)

This is an anomaly of copper metabolism and produces a ring of copper in the peripheral cornea (Kayser-Fleischer ring) and a greenish coloured “sunflower cataract”

Atopic dermatitis

Cataract can occur secondary to atopic dermatitis and takes the form of bilateral posterior or anterior stellate opacities.

Down’s syndrome

15% of Down’s have lens opacities severe enough to cause a decrease in acuity (*Kanski, 1998*) and with a reported prevalence of up to 50% (*Scully, 1973*).

Secondary to local disease (or complicated cataract)

Anterior uveitis

Anterior uveitis can produce a posterior polar polychromatic cataract. Also, if uveitis not controlled, anterior and posterior subcapsular opacities can progress to complete opacification.

High myopia

High myopia can be associated with secondary posterior lens opacities as well as earlier development of nuclear sclerosis.

Glaukomflecken

These are grey-white anterior capsular or subcapsular opacities in pupillary zone pathognomonic with previous attacks of acute angle-closure glaucoma.

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Toxic

Many drugs can cause cataract.

Corticosteroids

Steroids used for prolonged therapy produce a posterior subcapsular cataract.

Amiodarone

Amiodarone can cause anterior capsular changes in up to 50% of patients. The opacities tend to be visually insignificant.

Other definitions

Immature or incomplete

The cataract is present but not visually incapacitating. Surgery may or may not be indicated.

Mature

The whole lens is opaque. Surgery is usually indicated.

Intumescent

The lens is swollen. Surgery is indicated.

Hypermature

The lens is shrunken, yellow and the capsule is wrinkled.

Morganian cataract

A hypermature cataract with liquified cortex and in which the nucleus settles inferiorly.

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