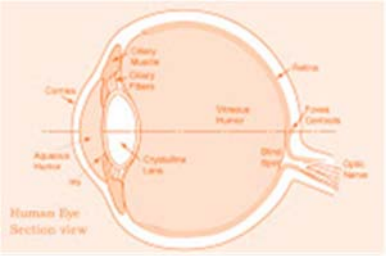
CATARACT



A cataract is a clouding that develops in the crystalline lens of the eye or in its envelope, varying in degree from slight to complete opacity and obstructing the passage of light. Early in the development of age-related cataract the power of the lens may be increased, causing near-sightedness (myopia), and the gradual yellowing and opacification of the lens may reduce the perception of blue colours.

Cataracts typically progress slowly to cause vision loss and are potentially blinding if untreated. The condition usually affects both eyes, but almost always one eye is affected earlier than the other.

Type of cataract.

A senile cataract, occurring in the elderly, is characterized by an initial opacity in the lens, subsequent swelling of the lens and final shrinkage with complete loss of transparency. Moreover, with time the cataract cortex liquefies to form a milky white fluid in a Morgagnian cataract, which can cause severe inflammation if the lens capsule ruptures and leaks. Untreated, the cataract can cause phacomorphic glaucoma.
Very advanced cataracts with weak zonules are liable to dislocation anteriorly or posteriorly. Such spontaneous posterior dislocations (akin to the historical surgical procedure of couching) in ancient times were regarded as a blessing from the heavens, because some perception of light was restorted in cataractous patients.

Age-related cataract is responsible for 48% of world blindness, which represents about 18 million people, according to the World Health Organization (WHO). In many countries surgical services are inadequate, and cataracts remain the leading cause of blindness. As populations age, the number of people with cataracts is growing.

Cause of cataract.

Cataracts are also an important cause of low vision in both developed and developing countries. Even where surgical services are available, low vision associated with cataracts may still be prevalent, as a result of long waits for operations and barriers to surgical uptake, such as cost, lack of information and transportation problem. The increase in ultraviolet radiation resulting from depletion of the ozone layer is expected to increase the incidence of cataracts.

Cataracts develop for a variety of reasons, including long-term exposure to ultraviolet light, exposure to radiation, secondary effects of diseases such as diabetes, hypertension and advanced age, or trauma (possibly much earlier); they are usually a result of denaturation of lens protein. Genetic factors are often a cause of congenital cataracts and positive family history may also play a role in predisposing someone to cataracts at an earlier age, a phenomenon of "anticipation" in pre-senile cataracts.

Cataracts may also be produced by eye injury or physical trauma. A study among Iceland air pilots showed commercial airline pilots are three times more likely to develop cataracts than people with non-flying jobs. This is thought to be caused by excessive exposure to radiation coming from outer space.

Cataracts are also unusually common in persons exposed to infrared radiation, such as glassblowers who suffer from "exfoliation syndrome". Exposure to microwave radiation can cause cataracts. Atopic or allergic conditions are also known to quicken the progression of cataracts, especially in children.

Cataracts can also be caused by iodine deficiency
Cataracts may be partial or complete, stationary or progressive, hard or soft.
Some drugs can induce cataract development, such as corticosteroids and Seroquel.

There are various types of cataracts, e.g. nuclear, cortical, mature, and hypermature. Cataracts are also classified by their location, e.g. posterior (classically due to steroid use) and anterior (common (senile) cataract related to ageing).

Although cataracts have no scientifically proven prevention, it is sometimes said that wearing ultraviolet-protecting sunglasses may slow the development of cataracts. Regular intake of antioxidants (such as vitamin A, C and E) is theoretically helpful, but taking them as a supplement has been shown to have no benefit. The less well known antioxidant N-acetylcarnosine has been shown in randomized controlled clinical trials to treat cataracts, and can be expected to prevent their formation by similar mechanisms. N-acetylcarnosine is a proposed treatment for other ocular disorders that are instigated, or exacerbated by oxidative stress including glaucoma, retinal degeneration, corneal disorders, and ocular inflammation.

Treatment of cataract.

When a cataract is sufficiently developed to be removed by surgery, the most effective and common treatment is to make an incision (capsulotomy) into the capsule of the cloudy lens in order to surgically remove the lens. There are two types of eye surgery that can be used to remove cataracts: extra-capsular (extracapsular cataract extraction, or ECCE) and intra-capsular (intracapsular cataract extraction, or ICCE).

Extra-capsular (ECCE) surgery consists of removing the lens but leaving the majority of the lens capsule intact. High frequency sound waves (phacoemulsification) are sometimes used to break up the lens before extraction.

Intra-capsular (ICCE) surgery involves removing the entire lens of the eye, including the lens capsule, but it is rarely performed in modern practice.

In either extra-capsular surgery or intra-capsular surgery, the cataractous lens is removed and replaced with a plastic lens (an intraocular lens implant) which stays in the eye permanently.

Cataract operations are usually performed using a local anaesthetic and the patient is allowed to go home the same day. Recent improvements in intraocular technology now allow cataract patients to choose a multifocal lens to create a visual environment in which they are less dependent on glasses. Under some medical systems multifocal lenses cost extra. Traditional intraocular lenses are monofocal.

Complications are possible after cataract surgery, including endophthalmitis, posterior capsular opacification and retinal detachment.