

CATARACT AND ITS IMPACT ON VISION: MEDICAL, SOCIAL ASPECTS, AND TREATMENT METHODS

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Abstract: This article analyzes the negative effects of cataracts on vision, its medical and social consequences, and existing treatment methods. It scientifically examines the impact of cataracts on patients' quality of life and social activity. Cataract is considered the most common cause of blindness worldwide, mainly affecting older people. The article discusses the causes of the disease, its clinical features, diagnostic methods, and the most effective surgical treatment options. In addition, the influence of cataracts on patients' daily lives and the healthcare system is highlighted. The paper emphasizes the importance of preventive measures and the need to raise public awareness in combating cataracts. Cataract is a disease in which the transparency of the eye lens is lost, leading to decreased vision. It can affect one or both eyes. Treatment usually involves surgical replacement of the damaged lens with an artificial one.

Keywords: Cataract, social activity, clinical features, diagnostic methods, preventive measures, eye lens, World Health Organization (WHO), lens, cataract etiology, toxic cataract, polar cataract, capsular cataract.

Introduction. Vision is an integral part of human life—it determines the ability to perceive, understand, work, and enjoy a good quality of life. Among the most common diseases that cause vision loss in today's technological era, cataract holds a special place. Cataract is the clouding of the eye's lens, as a result of which a person begins to see the environment blurry and unclear. This disease affects not only the medical condition of a person but also their social and psychological well-being.

The term *cataract* (from the Greek *katarrhaktes*, meaning “waterfall”) refers to the clouding of the eye's lens, during which the light entering the eye is partially blocked, sometimes causing complete vision loss. Cataract is one of the main causes of blindness worldwide. According to the World Health Organization (WHO), more than 50% of blindness cases are associated with cataracts. This condition is especially common among elderly people, significantly affecting their daily activities, independence, and social involvement.

Etiology and Types of Cataract: Medical and Clinical Approach

Cataract is a disease characterized by the clouding of the eye's lens (crystalline lens) due to various causes, leading to visual impairment. The disease can be **congenital** or **acquired**. Although it mainly occurs in older adults, it may develop at any age.

According to the affected part of the lens, the following types are distinguished:

Anterior and posterior polar cataract,

Capsular cataract (involving the capsule around the lens),

Nuclear cataract (in the center of the lens),

Cortical cataract (in the peripheral layer of the lens),

Layered (zonular), spindle-shaped, total, or multiple cataracts.

If lens opacity occurs for the first time, it is called **primary cataract**; if it appears after surgery or removal of the lens core, it is known as **secondary cataract**.

The main causes of cataracts include:

Hereditary transmission;

Aging processes;

Endocrine inflammations;

Eye injuries or diseases;

Prolonged exposure to ultraviolet or radiation;

Toxic exposure (toxic or intoxication cataract);

Antioxidant deficiency.

In children, cataracts are usually congenital and appear in the first months of life. When the disease develops, opaque spots gradually appear in the lens, and vision deteriorates over time. Because symptoms often develop slowly, many patients seek medical help too late.

Clinical Symptoms of Cataract. One of the main symptoms of cataract is **blurred and cloudy vision**. If the surrounding objects become less distinct and the image looks foggy, an ophthalmologist should be consulted. Because of the opacity in the lens, light reflection is impaired, and the visual image becomes distorted.

In addition, **color perception deteriorates**. For example, white objects may appear yellowish, and cream colors may appear grayish. These changes develop gradually, so paying attention to subtle visual differences is important.

Another common symptom of cataract is **increased sensitivity to light**. Bright light sources, such as lamps or sunlight, cause discomfort or even pain. If such discomfort occurs, medical examination is recommended.

Cataract also causes **difficulty driving at night**, headaches, and increased glare from car headlights. If reading small text becomes difficult or letters appear fuzzy, this may indicate lens protein or water imbalance.

In some cases, **double vision** or “ghost images” may occur because of light scattering within the cloudy lens. Interestingly, in certain stages, near vision may temporarily improve before worsening again, signaling disease progression.

Types of Cataract. 1. Congenital Cataract. Congenital cataract develops during pregnancy due to various external or internal factors affecting the mother and fetus. The main causes include:

Exposure to toxic substances, medications, alcohol, or smoking during pregnancy;

Vitamin deficiencies (especially A and C vitamins);

Infectious diseases (measles, toxoplasmosis, rabies, influenza, etc.);

Rh incompatibility between mother and fetus;

Genetic disorders (Down syndrome, Marfan syndrome, galactosemia, etc.).

Congenital cataract is often detected at birth or early childhood. It may remain stable for life and require only regular monitoring, but if the opacity affects central vision, surgical intervention is necessary.

2. Acquired Cataract

Acquired cataract develops over time under the influence of various factors. Its main types are:

a) Senile (Age-related) Cataract. The most common type, developing after the age of 55–60. It occurs as a result of natural aging and oxidative processes in the lens. Senile cataract progresses through four stages: initial, immature, mature, and hypermature. Patients notice blurred vision, halos around lights, and double vision.

b) Traumatic Cataract Results from physical trauma, burns, or injuries to the eye. Lens structure is damaged, leading to gradual opacity.

c) Complicated Cataract Develops secondary to other eye diseases (glaucoma, uveitis, iridocyclitis) or systemic conditions such as diabetes mellitus. Diabetic patients are especially prone to cataract formation due to metabolic disturbances.

d) Radiation and Toxic Cataract Prolonged exposure to ionizing radiation, ultraviolet light, high temperatures, or industrial toxins (lead, mercury, naphthalene) can cause cataracts. Long-term use of corticosteroids also increases risk.

Clinical Diagnosis

In the early stages, patients report blurriness, halos, and light scattering. In advanced stages, vision decreases sharply or is lost completely.

Diagnostic methods include:

Visometry – measuring visual acuity;

Biomicroscopy – examining lens transparency;

Ophthalmoscopy – evaluating the retina;

Ultrasonography – identifying internal eye structures (especially in mature cataract).

Prevention. To prevent cataract development, the following steps are essential:

Consuming vitamin-rich foods (A, C, and E);

Wearing quality sunglasses to protect from UV rays;

Using protective computer glasses and resting eyes every 45 minutes;

Taking vitamin supplements to maintain eye health.

Conclusion. In conclusion, untreated cataracts may lead to severe complications such as retinal detachment, secondary glaucoma, and complete blindness. Cataract is also common in patients with diabetes mellitus. Recognizing early symptoms and consulting an ophthalmologist in time is crucial. A healthy lifestyle, a vitamin-rich diet, UV protection, and regular eye rest can prevent cataract formation. Moreover, having an eye examination at least once a year plays a vital role in maintaining eye health and preventing visual impairment.

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