CATARACT: ETIOLOGY, CLINICAL FEATURES, DIAGNOSIS AND MODERN TREATMENT METHODS

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Abstract

Cataract is one of the most common ophthalmologic diseases and the leading cause of reversible blindness worldwide. It is characterized by partial or complete opacity of the crystalline lens, resulting in impaired vision. Cataract mainly affects elderly individuals, although congenital and secondary forms may also occur. This article discusses the etiology, classification, clinical manifestations, diagnostic methods, and modern treatment approaches of cataract. Special attention is paid to surgical management and preventive measures.

Keywords: cataract, blindness, lens opacity, ophthalmology, phacoemulsification, intraocular lens.

Introduction

Vision plays a crucial role in human life and daily activities. Cataract is a pathological condition in which the lens loses its transparency, leading to progressive visual impairment. According to the World Health Organization, cataract remains one of the major causes of blindness globally, especially among older adults. Early diagnosis and effective treatment are essential to prevent severe complications and improve quality of life.

Etiology and Risk Factors

Cataract develops due to structural and biochemical changes in the lens proteins. Several factors contribute to the development of cataract:

- Aging process;
- Genetic predisposition;

- Diabetes mellitus;
- Ultraviolet radiation exposure;
- Smoking and alcohol consumption;
- Long-term corticosteroid therapy;
- Eye trauma;
- Intraocular inflammation;
- Nutritional deficiencies.

Age-related cataract is the most prevalent form and is commonly associated with oxidative stress and degeneration of lens fibers.

Classification of Cataract

Cataracts are classified according to their etiology and anatomical location.

According to etiology:

1. Congenital cataract;
2. Acquired cataract:
   - Senile cataract;
   - Traumatic cataract;
   - Metabolic cataract;
   - Radiation cataract;
   - Drug-induced cataract.

According to anatomical location:

- Nuclear cataract;
- Cortical cataract;
- Posterior subcapsular cataract.

Clinical Features

Patients with cataract usually present with the following symptoms:

- Blurred or cloudy vision;
- Decreased visual acuity;
- Increased sensitivity to light;

- Double vision;
- Difficulty seeing at night;
- Frequent changes in eyeglass prescription;
- Fading or yellowing of colors.

The disease generally progresses slowly and painlessly.

Diagnosis

Diagnosis of cataract is based on ophthalmologic examination. The following diagnostic methods are commonly used:

- Visual acuity testing;
- Slit-lamp biomicroscopy;
- Ophthalmoscopy;
- Tonometry;
- Ultrasound examination in advanced cases.

Comprehensive eye examination helps determine the severity and appropriate treatment strategy.

Treatment

Currently, surgery is the only effective treatment for cataract. Conservative therapy may temporarily slow disease progression but cannot restore lens transparency.

Surgical Treatment

Phacoemulsification is considered the gold standard in cataract surgery. During the procedure, the opaque lens is emulsified using ultrasound and replaced with an artificial intraocular lens (IOL).

Advantages of phacoemulsification include:

- Small incision;
- Rapid recovery;
- Minimal complications;
- Improved postoperative visual outcomes.

Modern intraocular lenses can correct refractive errors and significantly improve visual quality.

Prevention

Preventive measures may reduce the risk of cataract development:

- Protection from ultraviolet radiation;
- Smoking cessation;
- Proper diabetes control;
- Balanced diet rich in antioxidants;
- Regular ophthalmologic examinations.

Conclusion

Cataract is a widespread ophthalmologic disorder and a major cause of visual impairment worldwide. Early diagnosis and timely surgical intervention provide excellent visual rehabilitation and improve patients' quality of life. Advances in microsurgical techniques and intraocular lens technology have significantly enhanced treatment outcomes.

References

1. American Academy of Ophthalmology. Cataract in the Adult Eye. San Francisco, 2021.
2. World Health Organization. Blindness and Vision Impairment Report, 2023.
3. Yanoff M., Duker J. Ophthalmology. 5th Edition. Elsevier, 2019.
4. Khurana A.K. Comprehensive Ophthalmology. Jaypee Brothers Medical Publishers, 2020.
5. Kanski J.J. Clinical Ophthalmology: A Systematic Approach. Elsevier, 2021.