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Eye Tumors: The Silent Threat to Vision – Know the Signs and Treatments

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Abstract

Eye tumors are not very common, but they can be very dangerous to vision and, in some cases, to life. These unusual growths can be either benign or malignant, and they can start in the eye (primary tumors) or spread from other parts of the body (secondary tumors). Benign tumors like nevus, hemangioma, and choroidal osteoma are usually not cancerous, but they can still make it hard to see, depending on how big and where they are. Malignant tumors, such as retinoblastoma in children, uveal melanoma in adults, and ocular lymphoma, present significant health hazards due to their capacity for local invasion and systemic dissemination. The clinical presentation varies significantly but typically encompasses blurred vision, visual field defects, alterations in iris color, ocular swelling, photopsia, floaters, or ocular pain. Early detection is very important for keeping vision and improving chances of survival. Ophthalmoscopy, ultrasonography, and advanced imaging techniques like MRI or CT scans are all used to make a diagnosis. A biopsy is done when it is needed to make a final diagnosis. Management strategies depend on the type, size, and stage of the tumor. They can range from watching small benign lesions to laser therapy, radiotherapy, chemotherapy, or surgery, including enucleation in severe cases. Regular eye exams, protection from UV rays, a diet high in nutrients, and not smoking are all ways to keep your eyes healthy and lower your risk. This review emphasizes the significance of awareness, prompt diagnosis, and suitable management of ocular tumors to avert permanent vision impairment and systemic complications.

Keywords: Eye tumors, benign, malignant, MRI, biopsy

Introduction

The human eye is a very specialized and fragile organ that is responsible for vision, which is very important for daily life, learning, and overall quality of life. The eye, like other parts of the body, can get sick with a number of diseases, including tumors, which are abnormal cell growths.¹ Eye tumors are not as common as other types of cancer, but they can seriously harm vision and, in some cases, even kill. Eye tumors can be either benign or malignant, and they can start in the eye or spread from other parts of the body.^{1,2} These tumors have different effects depending on where they



are, how big they are, and what kind they are. Because the eye has a lot of different parts and not a lot of space, even small tumors can make it hard to see. This article talks about the different kinds of eye tumors, what they look like, what causes them, and what treatments are available.

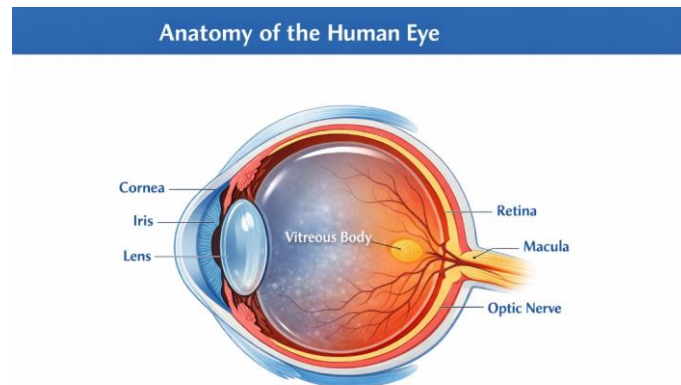


Figure 1 : Anatomy of the human eye showing major structures.

What is a tumor in the eye?

An eye tumor is an abnormal growth of cells that happens in or around the eye. It can be benign (not cancerous) or malignant (cancerous).² These tumors can form in the eye itself (primary tumors) or spread from other parts of the body (secondary tumors).

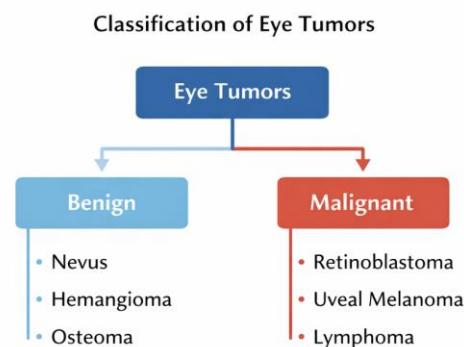


Figure 2 : Classification of eye tumors into benign and malignant types

1. Non-cancerous eye tumors

These tumors don't spread to other parts of the body and are usually less dangerous, but they can still affect vision and how the eyes work.

- Nevus: A growth on the eye that looks like a mole or a freckle.^{2,3}
- Hemangioma: A tumor made up of blood vessels that is usually found in the retina or choroid.³



- Osteoma: A slow-growing tumor in the choroid that usually doesn't cause any problems but can affect vision.³
- These tumors are cancerous and can spread, so they need to be treated right away.
- Retinoblastoma: A rare type of eye cancer that usually shows up as a white glow in the pupil.^{4,5}
- Uveal Melanoma: This is the most common type of eye cancer in adults. It affects the iris, ciliary body, or choroid.^{1,3}
- Lymphoma affects the lymphatic system in the eye and is often linked to systemic lymphoma.^{2,3}

Signs of eye tumors

Symptoms depend on the type and location of the tumor but may include:

- Blurry vision or sudden vision loss
- A growing dark spot on the eye
- Change in iris color
- Bulging or swelling of the eye
- Flashes of light or floating spots
- Eye pain or discomfort

Diagnosis and Treatment

1. For treatment to work, it is very important to find the problem early. To find eye tumors, use:
 1. Ophthalmoscopy is a way to look at the retina and other parts of the eye that are inside.⁴
 2. Ultrasound is used to find out the size and location of a tumor.⁴
 3. MRI or CT scan to get a clear picture of the eye and the areas around it.⁵
 4. Biopsy: Sometimes, samples of tissue may be taken for testing.⁵

Choices for Treatment

The type, size, and severity of the tumor affect how it is treated:

- > Observation – Small, non-cancerous tumors can be watched without treatment right away.⁶
- > Laser therapy is used to kill abnormal cells in small tumors.⁶
- > Radiation therapy is used to shrink or get rid of malignant tumors.⁷
- > Chemotherapy is used to treat cancerous tumors like retinoblastoma or lymphoma.⁷
- > Surgery: In some cases, it may be necessary to partially or completely remove the eye (enucleation).^{7,8}

Keeping your eyes healthy and preventing problems



Some eye tumors are caused by genetics, but taking care of your eyes can lower your chances of getting them:

- Regular eye exams—finding problems early leads to better results.⁹
- UV Protection: Wearing sunglasses can help protect you from harmful radiation.⁸
- A healthy diet full of foods high in antioxidants is good for your eyes.⁹
- Don't smoke. It lowers your risk of getting some types of eye cancer.⁹

Conclusion

If you don't treat eye tumors, they can be deadly. But if you catch them early and treat them, your chances of recovery go up a lot. If you have any strange eye symptoms, see an eye doctor right away. These growths can affect vision and the health of the eyes, whether they are benign or malignant. Regular eye exams are important for finding problems early so that they can be treated quickly and more effectively.¹⁰ If you notice any strange symptoms in your eyes, like changes in your vision, dark spots, or pain, getting medical help right away can make a big difference. Stay informed, put your eye health first, and see an eye care professional when you need to to protect your vision.

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Authors' contributions

All authors read and approved the final manuscript.

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Ethics approval and consent to participate

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