Types of Cancer

Eye Cancer

What is eye cancer?

Cancer develops when cells grow out of control. The most common type of cancer that starts in the eye is ocular melanoma, also known as uveal or conjunctival melanoma, depending on which part of the eye is affected. Melanoma is a cancer that starts in melanocytes, or pigment-producing cells. Non-Hodgkin lymphoma may also start in the eye. The most common type of eye cancer in children is retinoblastoma, a cancer that starts in the retina. Cancer may also arise elsewhere in the body and spread to the eyes, a process known as metastasis. (See separate Basics about melanoma and lymphoma.)

Who gets eye cancer?

Eye cancer is rare. Around 3,000 people are diagnosed with cancers of the eye—mainly ocular melanoma—and around 400 people die from it annually, according to the American Cancer Society. Secondary eye cancers that spread from elsewhere in the body are more common than cancers that start in the eye.

The risk for most types of eye cancer increases with age. White people are much more likely to get melanoma than African Americans, and people with light-colored eyes are at somewhat greater risk of ocular melanoma than those with dark eyes.

What are the risk factors for eye cancer?

Exposure to ultraviolet (UV) radiation from the sun or tanning beds is the biggest risk factor for melanoma of the skin, but it is not yet clear whether this also raises the risk for ocular melanoma.

People with certain types of abnormal or atypical moles are more likely to develop melanoma in general, and they may be more prone to ocular melanoma. Family history is a rare risk factor for uveal melanoma.

What are the symptoms of eye cancer?

The uvea is the middle layer of the eyeball, consisting of the iris (the colored part), the choroid layer lining the eyeball and the ciliary body, which includes the muscles that focus the lens of the eye. About 90% of uveal melanomas arise in the choroid layer or ciliary body, with most of the rest originating in the iris. The conjunctiva is the thin, clear membrane covering the front of the eye. Conjunctival melanoma is very rare. Adnexal cancers develop in the eyelids or tear glands.

Symptoms of ocular melanoma may include blurry vision, “floaters” in the visual field and loss of vision, but these can also indicate other types of eye problems. Melanoma of the iris may be visible as a growing dark spot. Other symptoms can include changes in the size or shape of the pupil, bulging of the eyeball or changes of the position of the eyeball.

Uveal melanoma can travel through the bloodstream and often spreads to the liver. Melanoma of the iris usually grows slowly and is less likely to spread. Conjunctival melanoma tends to be more aggressive, and metastasis is more likely.

How is eye cancer diagnosed?

Melanoma of the iris may be visible as a spot, but ocular melanoma that occurs elsewhere is often not visible. Report any new or growing spots or sores in your eyes to your health care provider. You may be referred to an ophthalmologist, a medical doctor specializing in eye diseases. Ocular melanoma is often detected during a routine eye exam.

The process of diagnosis starts with a physical exam and medical history, including family history and duration of symptoms. An ophthalmologist will typically test your vision and eye movement and examine the inside of the eyes.

Imaging tests, including ultrasound, X-rays, computed tomography (CT), optical coherence tomography or magnetic resonance imaging (MRI), may be done to diagnose ocular melanoma and see whether the cancer has spread. A sample of abnormal tissue (a biopsy) may be collected to examine in a laboratory. Genomic testing may be done to provide more information about the cancer’s characteristics and how best to treat it.

How is eye cancer treated?

Treatment for ocular melanoma depends on how advanced it is when detected and whether it has spread to other parts of the body.

Surgery: Some ocular melanomas can be treated by surgically removing the affected part of the eye—if the cancer is localized—or the entire eyeball.

Laser therapy: Lasers may be used on small melanomas to destroy the tumor with infrared light and heat.

Radiation therapy: Radiation is a common treatment for ocular melanoma. One approach, ocular brachytherapy, uses radioactive seeds placed near the tumor. In some cases, radiation is used in conjunction with other forms of treatment.

Chemotherapy: Traditional chemotherapy works by killing fast-growing cells, including cancer cells. Systemic chemotherapy may be used if cancer has spread elsewhere in the body, though it is often not very effective against melanoma.

Targeted therapy: Targeted drugs work against cancers with specific characteristics. For example, they may interfere with signaling pathways that regulate cell growth. Ocular melanoma is less likely than skin melanoma to have BRAF mutations that make it susceptible to targeted therapies.

Immunotherapy: This type of treatment helps the immune system fight cancer. Checkpoint inhibitors, which unleash T cells to recognize and destroy cancer cells, are not as effective for uveal melanoma as they are for skin melanoma. A new type of drug, known as a bispecific T-cell engager, is approved specifically for uveal melanoma.

For more information on melanoma, see the following resources:

American Cancer Society: Eye Cancer

Melanoma Research Alliance

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