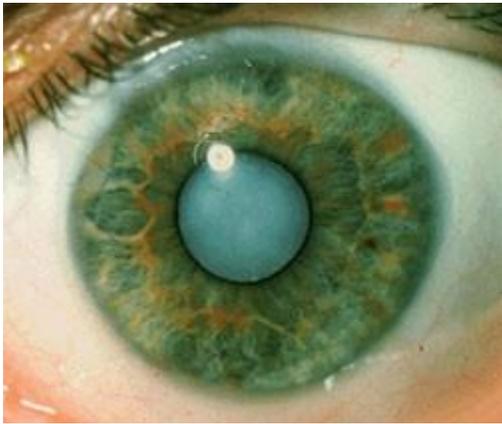


# Cataract

## WHAT IS A CATARACT?

A cataract is any cloudiness or opacity of the natural lens of the eye, which is normally crystal clear. There are many types of cataracts. Some cataracts are small and do not interfere with vision. Other cataracts are large and cause severe vision loss. [See figure 1]. People often think that cataracts can only happen in elderly patients, but they can happen in children as well.



**Fig. 1:** A cataract is any cloudiness or opacity of the normally clear lens of the eye.

## HOW COMMON ARE INFANTILE AND CHILDHOOD CATARACTS?

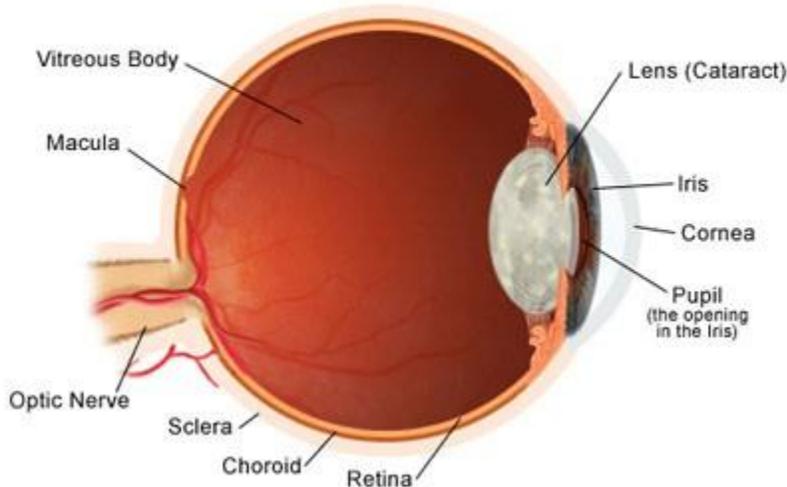
Approximately 3 out of 10,000 children have a cataract. The incidence is variable throughout the world.

## HOW DOES A CATARACT CAUSE VISION LOSS?

Light enters the eye and is focused onto the retina (inner surface of the back of the eye) which senses the light and transmits the signal to the brain. A cataract may stop light from reaching the retina and prevent the eye from seeing. (see figure 2) In order for a child to develop good vision, the child has to have clear light hit the retina so that the brain receives a clear image. If there is a cataract blurring the light, it limits the child's visual development and results in [amblyopia](#). Prompt and sometimes immediate treatment is necessary to

prevent permanent vision loss. This is in contrast to adults, where cataracts develop after normal visual development so the vision loss can be reversible.

### Example of a Cataract



- **Fig. 2:** A cataract interferes with vision because it obstructs the lens of the eye through which light passes, causing light to refract differently than in a healthy eye.

### WHY ARE SOME BABIES BORN WITH A CATARACT?

Pediatric cataracts often occur because of abnormal lens development during pregnancy. Cataracts can result from genetic or eye structural problems, they can run in families, be caused by infections, or they can occur spontaneously without a known cause. Lens malformations that occur in conjunction with medical problems are often the result of a genetic or metabolic problem. These cataracts may be present at birth or may develop during childhood. Most pediatric cataracts are isolated findings and are not associated with other abnormalities.

### DO ALL CATARACTS IN BABIES AND CHILDREN NEED TO BE REMOVED?

No. Some cataracts are small or off center in the lens. These cataracts do not need to be removed because vision develops normally, even if the cataract is left in place.

### HOW ARE BABIES AND CHILDREN FOUND TO HAVE CATARACTS?

Doctor exams either by a GP or pediatrician find many babies' cataracts at birth with the “red reflex” test before they leave the hospital. Cataracts can be detected at well baby checkups as well. Parents find some of them themselves. Cataracts often show up in exams as an absent or irregular red reflex.

## WHAT TYPES OF CATARACTS OCCUR IN BABIES AND CHILDREN?

The human crystalline lens consists of three parts including a center part (nucleus), an outer part (cortex), and a capsule surrounding the cortex. Cloudiness can occur in one or more parts of the lens:

- A lamellar cataract is cloudiness between the nuclear and cortical layers of the lens [See figure 3]
- A nuclear cataract is cloudiness of the center part of the lens.
- A posterior sub capsular cataract is a thin layer of cloudiness that affects the back surface of the lens cortex, just inside the capsule. This type of cataract can often be associated with medication use such as steroids. [See figure 4].
- An anterior polar cataract is a small, usually central opacity of the front part of the lens capsule. Anterior polar cataracts generally do not grow during childhood and are typically not visually significant. They are often managed without surgery [See figure 5].
- A posterior polar cataract is a central opacity at the back of the lens [See figure 6].
- Persistent fetal vasculature can be associated with a pediatric cataract. During development of the eye, a blood vessel extends from the optic nerve (in the back of the eye) to the developing lens to provide nutrients to the young, growing lens. This blood vessel normally disappears before birth. If the blood vessels do not go away, it can result in a plaque-like cataract on the back of the lens. The persistent stalk extending from the back of the eye toward the cataract can cause retinal abnormalities as well. These particular cataracts are often more difficult to treat and have a worse prognosis because of the other associated eye abnormalities.
- A traumatic cataract results from either a blunt or penetrating force that damages the lens. The cataract can form shortly after the trauma or months to years after the injury [See figure 7].

## **AT WHAT AGE SHOULD A CATARACT BE REMOVED FROM AN INFANT OR CHILD?**

Cataracts that interfere with vision should be removed as soon as is safely possible, especially if the cataract is present at birth. A delay in cataract removal can interfere with normal development of the vision centers in the brain. Tiny cataracts that do not seem likely to interfere with vision may be carefully and frequently monitored, but should be removed at the earliest sign of a vision problem. If a cataract is very small or off center, glasses and/or patching may be helpful for visual development and surgery can be delayed or avoided completely.

## **HOW IS A CATARACT REMOVED IN INFANTS AND CHILDREN?**

A tiny incision is made into the eye and an opening is made in the front of the lens capsule. The very soft and cloudy inner part of the child's lens is suctioned out of the capsule. Younger children may require an additional opening in the posterior lens capsule with some vitreous gel removal (called a vitrectomy). An [intraocular lens \(IOL\)](#) is then sometimes placed within the empty lens capsule either during the same surgery or in a subsequent second surgery. Generally, an IOL is not placed in a patient less than 1 year of age. Dissolvable stitches are used to close the wounds.

## **WHAT ARE THE RISKS OF CATARACT SURGERY IN INFANTS AND CHILDREN?**

Cataract surgery performed by an experienced surgeon is generally very safe. However, no surgical procedure is without risks. The risks of pediatric cataract surgery include infection, inflammation, retinal detachment, development of glaucoma, displacement of the intraocular lens, development of capsular cloudiness and development of vitreous cloudiness.

## **HOW DOES THE EYE FOCUS ONCE THE CATARACT IS REMOVED?**

The lens inside in the eye focuses light so the eye gets a clear image whether viewing in the or up close. Once the lens is removed, it can no longer focus light inside the eye. There are several methods to restore focusing ability of the eye: 1) a permanent IOL is placed inside the eye, 2)

a contact lens can be placed on the surface of the eye (contact lenses have to be removed and cleaned regularly), 3) glasses can be used to focus the light rays. Glasses once the cataract is removed are often very thick and cause magnification, so they are generally not a good option when only one eye is affected.

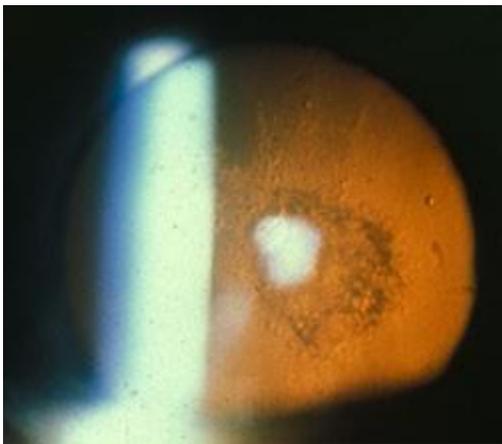
It is not unusual for a child to develop some degree of amblyopia and may need to patch to strengthen the weaker eye.

### **WHERE CAN I JOIN A SUPPORT GROUP OF FAMILIES WITH CHILDREN WITH PEDIATRIC CATARACTS?**

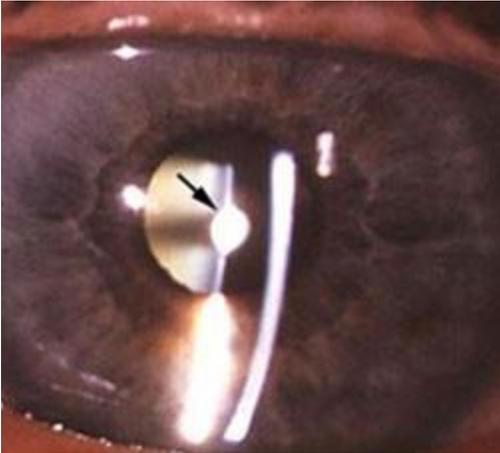
- o [The Pediatric Glaucoma and Cataract Family Association](#)



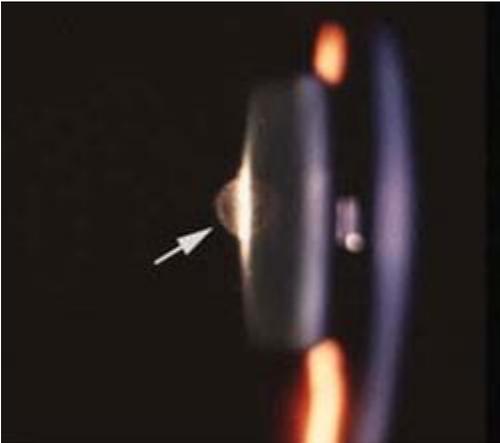
**Fig. 3:** Lamellar cataract



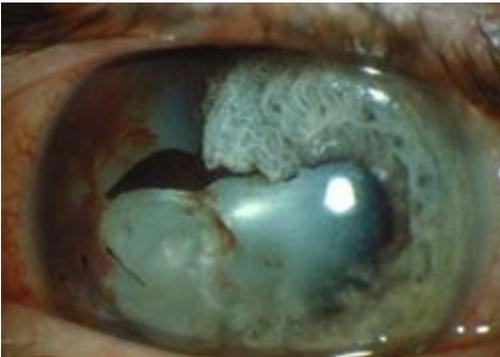
**Fig. 4:** Posterior sub capsular cataract.



**Fig. 5:** Anterior polar cataract.



**Fig. 6:** Posterior polar cataract.



**Fig. 7:** A traumatic cataract results when either a blunt or penetrating object damages the lens.

[How is pediatric cataract surgery done?](#)



**Updated 04/2021**