



# Anesthesia for Children Having Eye Surgery

## WHAT KINDS OF ANESTHESIA ARE THERE FOR CHILDREN HAVING EYE SURGERY?

There are two main types of anesthesia: local and general.

**Local anesthesia** numbs a specific area using medicine. Sometimes the medicine is injected with a needle or put on the area for surgery. For example, dentists use local anesthesia to operate on teeth. The person having surgery stays awake, can move and is aware of the procedure.

**General anesthesia** puts the whole body to sleep. People cannot move, are not aware of what is happening, and do not feel pain during the surgery.

For eye surgery, especially in children, general anesthesia is often used to keep them safe and still. General anesthesia is also sometimes needed for a complete eye checkup for a child who is not able to do a full eye exam in the office.

Sometimes, small eyelid procedures can be done under local anesthesia for older children who can stay still and calm.

## HOW IS ANESTHESIA GIVEN TO CHILDREN?

General anesthesia is usually given to children in two stages. First, a relaxing gas medicine is given through a face mask, causing the child to fall asleep. An intravenous (IV) line is usually placed in a vein of the arm or leg after a young child is asleep, this is to give other medicine for the surgery. Older children may have the IV line placed before going to sleep.

Sometimes, for short procedures, like opening a blocked tear duct, only the mask is used. But, for most eye procedures, a special breathing-tube called an endotracheal (ET) tube or laryngeal mask airway (LMA) is placed in the windpipe. This tube helps the doctors control the child's breathing and give the anesthesia safely. Medicine through the tube and the IV keeps the child asleep for the surgery. The breathing tube is taken out at the end of surgery before the child is fully awake. The IV can be removed in the recovery area once the child is drinking well and feeling well. Figure 1 is a photo of an endotracheal tube.



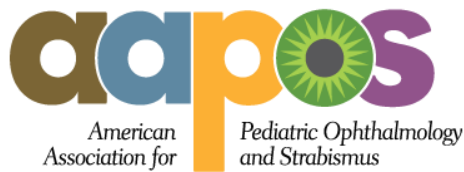
**Fig. 1:** Endotracheal Tube

## **HOW IS ANESTHETIC “SLEEP” DIFFERENT FROM NORMAL SLEEP?**

When a child is under anesthesia, it's different from regular sleep. The powerful medicines used affect the whole body. The anesthesiologist knows which medicines are best for the child and adjusts the medicines to keep the child comfortable and safe during surgery.

## **HOW SHOULD YOU PREPARE A CHILD FOR SURGERY?**

If your child is old enough to understand they are having surgery, it is important explain it to them so they feel comfortable. If the child is very young, staying calm and cheerful is helpful. Hospitals and surgery centers sometimes have services like Child Life to play and talk with children before surgery, making them feel more comfortable. Don't hesitate to share your questions or concerns. The staff, nurses, and doctors are there to make the surgery experience a positive one for your child.



## **IS A MEDICAL EXAM NEEDED FOR CHILDREN BEFORE UNDERGOING GENERAL ANESTHESIA?**

Yes. Before surgery a medical history and physical exam is needed to be sure the child is enough for the anesthesia and the surgery. This may be done by the child's primary care physician, the anesthesiologist or the ophthalmologist.

## **DO ANESTHESIA PROBLEMS TEND TO RUN IN FAMILIES?**

Yes, certain reactions to anesthesia can run in families. There are also medical problems that run in families that can cause problems with anesthesia. It is important to talk with your child's anesthesiologist about any bad reactions to anesthesia that happened to your child or your child's relatives. There are ways to handle problems from anesthesia, including medicines that can be given to help. It is important to share any concerns with your medical team so they can you're your child safe during surgery.

## **WHAT CAN A CHILD EAT OR DRINK BEFORE GENERAL ANESTHESIA?**

Before surgery with general anesthesia, patients must not eat or drink for a certain time, usually 4-8 hours. The exact time depends on the patient's age and the type of food or drink. The hospital or surgery center will give specific instructions for your child.

It is important not to eat or drink before surgery because having a completely empty stomach helps avoid problems like aspiration. Aspiration is when whatever is in the stomach gets breathed into the lungs, and it can cause serious problems like pneumonia. Not eating or drinking can be hard for anyone, especially children, but it's important for their safety.

The hospital staff will tell you what time your child must stop eating and drinking. Please follow these instructions carefully to avoid delaying or canceling the procedure.

## **CAN A MEDICINE BE GIVEN TO CALM A CHILD BEFORE GOING INTO SURGERY?**

For some surgeries, hospitals might give children a liquid medicine to calm the nerves and help with anxiety before the operation. This medicine can also help them forget the events right around the surgery but it may take the child longer to wake up from anesthesia. Please talk with your child's anesthesiologist about what is best for your child's surgery.

## **ISN'T GENERAL ANESTHESIA DANGEROUS?**

No. Patients are closely watched by the anesthesiologist while they are asleep. Serious reactions to anesthesia are very rare. Every safeguard is taken to keep the child safe while they are asleep.



**Fig. 2:** Parents can explain surgery to children who are old enough so that they understand why they are having surgery.

## **WHAT IS A LARYNGEAL MASK AIRWAY (LMA)?**

A laryngeal mask airway (LMA) is a special breathing tube placed on top of the vocal cords but not going past them like the other breathing tube/endotracheal tube (ET). This can help lessen irritation in the windpipe during surgery and lessen sore throats afterward [see figure 3]. LMAs are not good breathing tubes for every surgery. Your ophthalmologist and anesthesiologist will decide which tube is right for your child's surgery.



**Fig. 3:** Newer forms of Anesthesia often use special breathing tubes that can lessen irritation to the windpipe during surgery.

### **CAN A PARENT BE WITH THE CHILD WHILE ANESTHESIA IS GIVEN?**

Every hospital and surgery center has its own rules about parents being with their child when they go to sleep in the operating room or wake up in the recovery room. Please ask your ophthalmologist about the rules where they operate.

### **WHAT HAPPENS DURING THE RECOVERY FROM GENERAL ANESTHESIA AFTER SURGERY?**

After surgery, the anesthesiologist helps the child wake up which might take a few or more minutes. When it is safe, the breathing tube is removed and the child breathes normally again. They are then moved to the recovery room. In the next hour or so, the child slowly wakes up. During this they might feel groggy, cranky or confused. The recovery room staff takes good care of the child, checking heart rate, blood pressure, pain level and breathing.

In the next few hours the child will still be sleepy, a bit moody, and uncomfortable. The staff gives support and if needed, a mild pain medicine from the ophthalmologist or anesthesiologist. Most children can go back to their usual activities the next day. Sometimes, a child might sleep for hours after a surgery, especially after a long surgery or if they need extra pain medicine.

### **WHAT ARE THE SIDE EFFECTS OF ANESTHESIA?**

After eye surgery, especially after eye muscle surgery, children might feel sick to their stomach or throw up. Although these feelings may last for hours, it is not usually serious. It is important to keep the child calm and comfortable. Sometimes, medicine is helpful.



**Fig. 4:** Each hospital has its own rules about parents being with the child while they go to sleep in the operating room or wake up in the recovery room.

## **WHAT ARE THE RISKS OF ANESTHESIA?**

Serious problems from anesthesia like brain damage or death, are extremely rare. Generally healthy children deal with anesthesia as well as adults.

It is best not to do eye surgery when the child is sick. Anesthesiologists and surgeons need to know all medical problems the child has and all medicines the child is taking. They need to know about any anesthesia problems the child or any relative has had in the past.

Some studies state that children under 4 years of age who have anesthesia may have higher risks of problems with learning and development, especially with many times under anesthesia. This finding is being looked at scientifically as doctors and scientists work to give safe anesthesia to young patients. Sometimes the risk of anesthesia in a young child may be worth it if the surgery is needed to help the child see and develop normally.

Talk with your child's doctors before surgery with general anesthesia to understand the risks and benefits. You can also read the [SmartTots' article](#) for more information.

## **CAN STRABISMUS/EYE MUSCLE SURGERY IN CHILDREN BE DONE WITH LOCAL ANESTHESIA OR NUMBING EYE DROPS?**

In general, no. Unlike adult [cataract](#) surgery, using numbing eye drops on the eye is not enough anesthesia for eye muscle surgery. Only rarely, in very tough/brave teenagers and adults, [strabismus surgery](#) (eye muscle surgery) can be done with a local anesthesia injection numbing around the eye.



Strabismus surgery can take 30 minutes to an hour or more and the patient must stay perfectly still so that there are no problems with surgery. Since most children can't stay still for that long, especially with the stress of surgery, they usually need general anesthesia to stay safe and comfortable in eye muscle surgery.

## **SUMMARY**

Anesthesia for children is generally safe. To limit problems from anesthesia, it is important to follow instructions about not eating or drinking before surgery. If the child is sick, surgery should wait until they are well, if possible. Talking with the anesthesiologist about the child's medical and family history, as well as any other concerns will make sure anesthesia can be given safely.

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