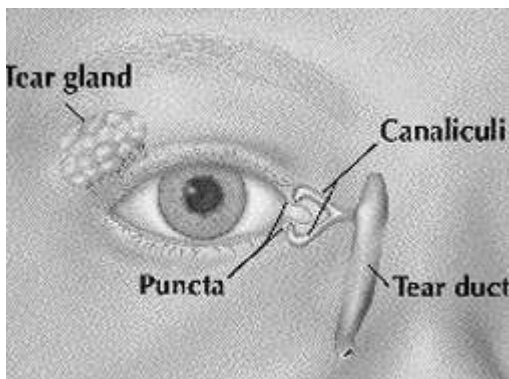


# Nasolacrimal Duct Obstruction

## WHAT IS A TEAR DUCT OBSTRUCTION?

Tears are made in the lacrimal gland on the upper outer corner outside the eye. Tears normally drain from the eye down to the nose through the tear duct or nasolacrimal duct. If one looks in the mirror the openings of the tear duct system can be seen in the corners of the upper and lower eyelids closest to the nose. These openings look like 2 small dots, one in the upper lid and one in the lower lid, and are called puncta. The tears wash over the surface of the eye, drain into the puncta, then travel through the canaliculi and into the main nasolacrimal duct in the nose [See figure 1]. A tear duct obstruction keeps tears from draining through this system normally. If the tear duct is blocked, there will be backflow of tears and they will build up around the eye. Sometimes discharge may also come from the eye.



**Fig. 1:** Tears normally drain through small openings in the corners of the upper and lower eyelids called puncta.

## WHAT CAUSES NASOLACRIMAL DUCT OBSTRUCTION IN CHILDREN?

The most common cause is a membrane at the end of the tear duct (valve of Hasner). It is present in about 50% of newborns but it normally disappears soon after birth. Other causes of blocked tear ducts in children include:

- Absent puncta (upper and/or lower eyelids)
- Narrow tear duct system
- Infection
- Incomplete development of the tear duct that does not connect with the nose



## HOW COMMON IS NASOLACRIMAL DUCT OBSTRUCTION?

Over 5% of infants have symptoms of nasolacrimal duct obstruction affecting one or both eyes. Most (approximately 90%) clear on their own during the first year of life.

## WHAT ARE THE SIGNS/SYMPTOMS OF TEAR DUCT OBSTRUCTION?

Blockage of the drainage system causes tears to well up on the surface of the eye and overflow onto the eyelashes, eyelids, and down the cheek. This usually shows up within the first month of life.

The eyelids can become red and swollen (sometimes stuck together) with yellowish-green discharge. This is because the normal eyelid bacteria are not properly "flushed" down the tear duct system because it is blocked. Severe cases lead to a serious infection of the tear duct system (dacryocystitis).

## CAN A TEAR DUCT OBSTRUCT INTERMITTENTLY?

Yes! Different conditions can cause more watering and discharge from the eye. The most common things that cause this are upper respiratory illnesses ("colds" or nasal congestion) and outdoor exposure to wind or cold. If a child has a cold or allergies he or she may also have increased tearing or discharge because the inside of the nose is swollen and blocks the tear duct.

## HOW IS TEAR DUCT OBSTRUCTION DIAGNOSED?

A history of tearing and discharge at a very early age is strongly suggestive of a blocked tear duct. An ophthalmologist is able to perform certain tests in the office to confirm the diagnosis. It is important that the eyes be examined for other uncommon but important causes of tearing in infants including [childhood glaucoma](#).

## WHAT IS THE TREATMENT OF A BLOCKED TEAR DUCT?

Fortunately, tear duct obstruction goes away on its own in most cases before the age of 8 to 10 months. At an early age, tear duct massage or topical antibiotics may be helpful in releasing the blockage and improving the symptoms. However, when the blockage does not improve, one or more of the following surgical treatments may be recommended: tear duct probing, tear duct irrigation, balloon tear duct dilation, and tear duct tube placement.

## HOW DOES TEAR DUCT MASSAGE WORK?

Tear duct massage can be performed at home to help the tear duct open. The caregiver uses firm pressure with the index or pointer finger in a downward movement over the tear

duct, located medially to the eye (see Figure 2). The pressure push the mucus and tears out through the puncta to prevent infection in the tear duct. It may also help open the membrane that blocks the tear duct at the opening in the nose. This is called the Crigler massage.



**Fig. 2:** Tear duct massage is performed by applying firm pressure in a downward motion.

When should topical antibiotics be used?

Antibiotic eye drops or ointment may be used to treat severe discharge or crusting around the eye. The medication does NOT open the blocked tear duct and symptoms will come when the eye drops are discontinued if the tear duct blockage is still present. It is encouraged to AVOID long term use of antibiotics.

#### WHEN SHOULD TEAR DUCT PROBING BE PERFORMED?

If the tear duct remains blocked after 8 to 10 months of age, there is much less of a chance for the obstruction to resolve on its own and a procedure such as nasolacrimal duct probing may be recommended.

#### HOW DOES TEAR DUCT PROBING WORK?

A smooth probe (which looks like a thin straight wire) is gently passed through the tear duct system and into the nose. Using probes of larger thickness, a specialized tear duct balloon, or irrigation can widen a tear duct system and open the membrane that is blocking it. Adding a tear duct tube or stent may increase the success of tear duct probing by preventing the tear duct blockage from coming back.

#### WHAT TYPE OF ANESTHESIA IS USED FOR TEAR DUCT PROBING?

Some pediatric ophthalmologists offer a tear duct probe in the office using numbing eye drops under a year of age. Older children will need general anesthesia in an operating room in order to do the surgery safely.

#### HOW SUCCESSFUL IS TEAR DUCT PROBING?

Tear duct probing is generally very successful. If it is not successful, it can be repeated but sometimes a more involved operation may be needed to open the tear duct system by surgically creating a connection between the tear duct and the inside of the nose (this is called a dacryocystorhinostomy, DCR).

#### COMPLICATIONS: DACRYOCYSTITIS

Dacryocystitis is a rare complication that can occur in a blocked tear duct. Some signs of dacryocystitis are a painful, red swollen nodule over the tear duct with yellow/green discharge. Sometimes there are other signs like fever, fatigue and weakness. Dacryocystitis is a medical emergency needing antibiotics by mouth or an IV (intravenous) and admission to the hospital.

#### COMPLICATIONS IN A NEWBORN: DACRYOCELE/ DACRYOCYSTOCELE/ AMNIOCELE

If the tear duct is blocked both in the upper and lower part, amniotic fluid can get trapped in it. This usually shows up in the first 6 months of life as a bluish bump over the tear duct and is known as a Dacryocele or Dacryocystocele or Amniocele (see Figure 3). It is almost always associated seen with cysts inside the nose. These cysts in the nose can put the child at risk for breathing problems especially if the problem is on both eyes. Because this is an urgent/emergent situation surgery may need to be performed earlier than a typical blocked tear duct.. Cyst removal from the nose may be needed. If a dacryocystocele gets infected (dacryocystitis) it may need to be treated in the hospital with intravenous antibiotics.

Fig. 3: Dacryocele/ Dacryocystocele/ Amniocele in an infant with development of dacryocystitis.



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