

14

Blocked Tear Ducts: The Tearing (and Messy) Eye

In very young babies, blocked tear ducts are so common they can almost be considered normal.

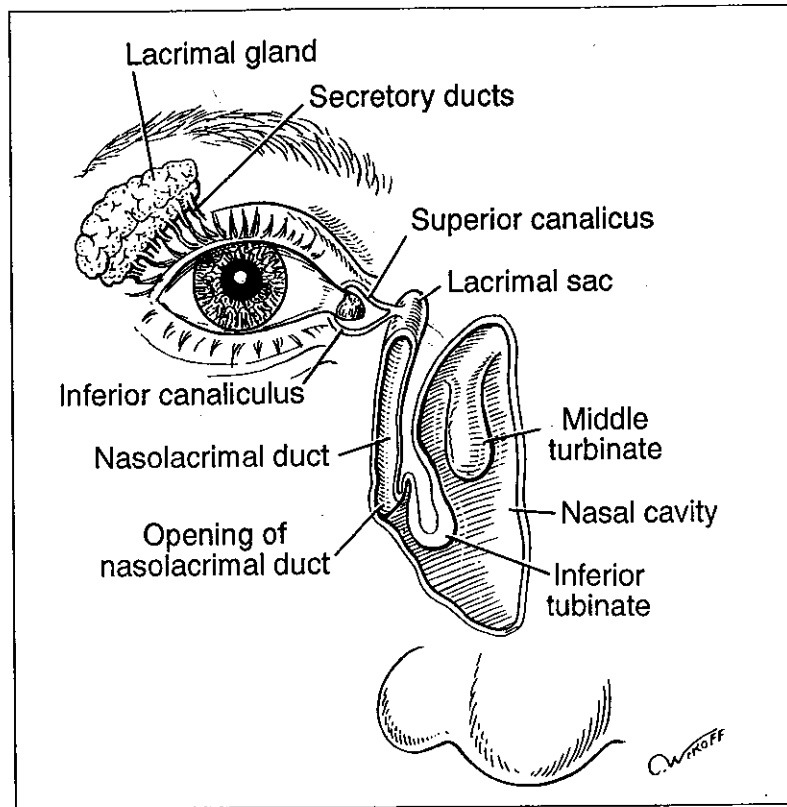
Ben was fourteen months old when his mother took him to the ophthalmologist. Since birth, he had had a gooey yellow-green discharge from his left eye. At first it had come from both eyes, but then the right eye finally cleared when he was six months old. Ben's pediatrician had said he had a blocked tear duct and had prescribed an antibiotic eye-drop. But that hadn't seemed to help. So his parents learned to carry a box of tissues around to mop out his eye every hour or two. The eye also tended to look wet, as if it were always crying. His eyelids were often red and swollen.



Tears are necessary to keep the corneas comfortable, healthy and clear. They are made by glands located under the outer portions of the upper eyelids and along the inner surfaces of both the upper and lower lids. Then they are emptied onto the surface of the eyes, where they spread as a film over the corneas. This tear film is replenished with each blink.

Once they've done their job, the tears drain out of the eyes through a system of ducts that end up in the nose. That's why people have to blow their noses when they cry. These tear ducts are referred to as the lacrimal drainage system. The openings, at the upper end, are called *puncta* (singular, *punctum*), which are located at the eyelid margins near the inner corners of the upper and lower lids. After tears enter the puncta, they pass through the upper and lower *canaliculus* (plural *canaliculi*), literally "little canal," which runs more or less horizontally through the eyelid before emptying into the tear sac, or lacrimal sac, a little reservoir on the side of the nasal bridge. Next they go through the nasolacrimal duct, which passes through the bones beside the nose, and finally drain into in the nasal cavity.

A blockage anywhere in this drainage system will cause the tears to well up in the eyes, much as a blocked drain in the kitchen will cause water to back up in the sink.



NASOLACRIMAL DRAINAGE SYSTEM (TEAR DUCT). Tears are formed in the lacrimal glands and wash over the eye. The lower lid acts like a rain gutter, directing the tears into the tiny canaliculi. After coursing into the lacrimal sac, they drain downward through the bony nasolacrimal duct into the nasal cavity.

What happens when tear drainage is blocked

Very often the tear ducts have not opened completely by the time a baby is born. Ben's problem is so common that it can almost be considered normal in very young babies. The blockage typically is caused by a thin membrane located near the bottom of the nasolacrimal duct, near the area where it empties into the nose. But it could be anywhere along the length of the tear ducts and cause the same symptoms Ben had.

When the tears can't get into the nose, they tend to spill onto the cheek and irritate the skin. It might be annoying for an infant to look through a "veil of tears," but blocked tear ducts don't seem to interfere with visual development.

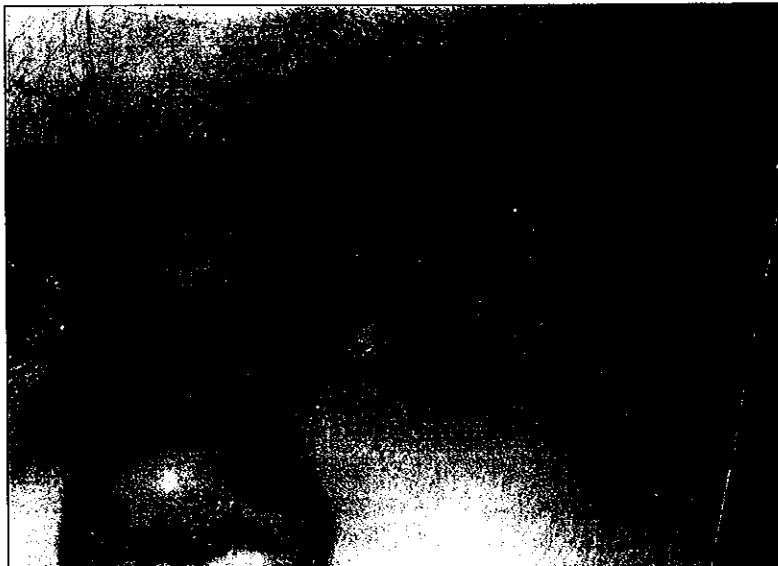
Tears normally contain mucus. If the watery component of the tears evaporates, the mucus remains on the lashes and causes the lids to stick together in the morning. Specks of dried mucus may be seen around the lids and upper face. Because the lining of the lacrimal sac and the nasolacrimal duct is the same as the lining of the nose, it tends to swell and make more mucus when the baby has a cold. Swelling of the mucous membrane inside the nose may block the opening at the bottom of the duct. As a result, the discharge may be much worse until the infection clears.

BLOCKED TEAR DUCT. This child's appearance is typical. The excess mucus may be more prominent than the excess tears.

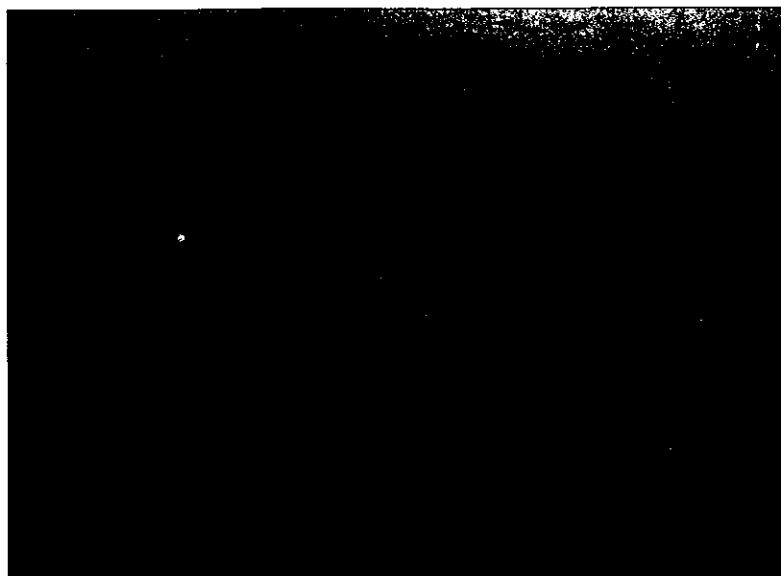


Tear duct problems rarely, if ever, cause infection or other damage to the eyes. On the other hand, the blocked tears and mucus often become infected, and the infection certainly can "spill over" to involve the eyelids. Usually such an infection is not serious; it just causes a little redness and swelling around the lids. But occasionally it causes *cellulitis*, with the lids becoming very red and swollen shut. Infection in the lacrimal sac, called *dacryocystitis*, has similar symptoms, but the inflammation is localized to the area adjacent to the nasal bridge.

DACRYOCYSTITIS. There is an abscess involving the lacrimal sac, seen here as an inflamed mass in the inner portion of the lower lid.



MUCOCELE OF THE LACRIMAL SAC.
This is an out-pouching of the sac, which is filled with mucus. There is typically an associated blockage of the tear duct. Secondary infection is common, presenting as a preseptal cellulitis.



Infants who have a *mucocele*, a swelling of the lacrimal sac filled mostly with mucus, are particularly apt to have a problem with infections. A mucocele is usually noted at birth, but it may appear a week or so later as a round, bluish lump near the bridge of the nose. All children with mucoceles have blocked tear ducts, but only a few children with blocked tear ducts have mucoceles. Some children may even have an intranasal mucocele, which can cause trouble with breathing. Mucoceles may disappear on their own, but often they must be treated surgically.

Treatment for a blocked tear duct

The appropriate treatment for a blocked tear duct in one or both eyes depends on the age of the infant and on the severity of the symptoms. Since many blockages get better during the first months of life, most ophthalmologists tend to delay surgical treatment at first.

Massage Eye doctors often recommend that the parents “massage” the infant's lacrimal sacs. This technique is simple: they press gently with a fingertip between the nasal bridge and the eye. Massage is repeated for several seconds 2 or more times a day. This may force blocked material out of the puncta and it can be wiped away. It is possible that the pressure will actually break open the membrane that is causing the blockage. Massage is especially helpful over a mucocele, which can accumulate immense amounts of mucus and tears.

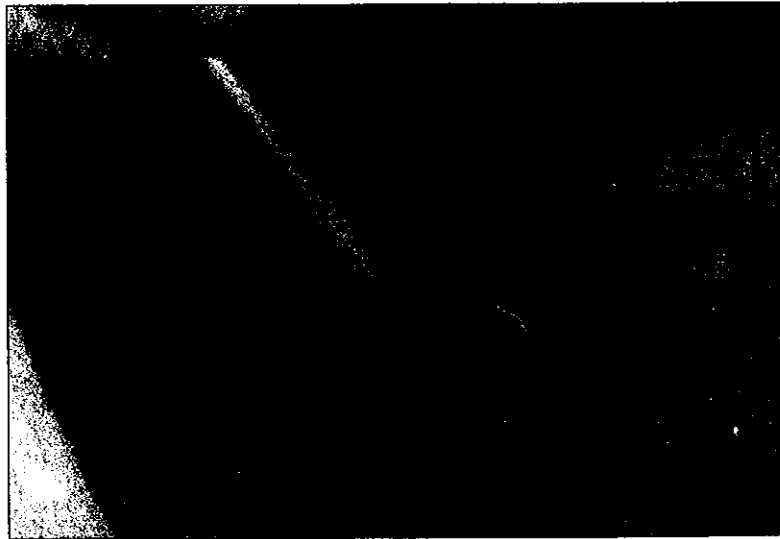
Antibiotics Antibiotic eyedrops and ointments seem to help control infections and reduce the amount of mucus. However, they do not cure the blockage itself. Most ophthalmologists recommend

using the medication intermittently several times a day, but only when the lids are red and swollen or the discharge is particularly heavy. With overuse, some of these medications can themselves cause irritation.

Occasionally, antibiotic treatment may be given orally or even intravenously if swelling and redness of the lids indicate cellulitis or dacryocystitis. Systemic treatment should make the infection quickly resolve.

Lacrimal probing Referral to an ophthalmologist is generally made when the symptoms are sufficient to warrant surgical treatment. Probing is usually easy and effective. In very young infants it may be performed without anesthesia in the doctor's office, but after the first few months it must be performed under anesthesia in an operating room.

NASOLACRIMAL DUCT PROBING. The probe is introduced through the upper punctum, advanced through the upper canaliculus, and passed into the lacrimal sac. It is then directed downward, through the nasolacrimal duct and into the nose.



CONFIRMATION OF A SUCCESSFUL PROBING. A probe introduced through the nostril and beneath the inferior turbinate touches and moves the probe in the nasolacrimal duct.



[Handwritten signature]

A narrow wire called a *lacrimal probe* is pushed into the punctum and then down through the tear duct to break through the obstructing membrane. The probe is blunt and, because it goes through the punctum rather than through the skin, no cutting is required.

After the probing, some colored liquid may be squirted into the punctum and sucked out through the nose to be sure the system is open. Or a second probe, introduced through the nostril, may be used to touch the tip of the first probe before it's removed. The whole procedure takes only a few minutes, and complications are very rare. Typically a child wakes up from the anesthesia and is ready to leave the hospital within an hour after the procedure has been completed.

When should probing be done? Ophthalmologists do not agree as to the best time. Some doctors prefer to probe within a child's first few months of life because at this age the procedure can often take place in the doctor's office without general anesthesia. However, more than 90% of these children will get better without surgery by their first birthday. Therefore, many ophthalmologists prefer to wait until then.

The only disadvantage of waiting is that general anesthesia is required, increasing the expense and also the risk of surgery. We're both "late probers," feeling that children should be probed after they're a year old unless there is a problem due to a mucocele, a recurrent infection, or an unusually heavy discharge. But we can understand both points of view.

Outcome: Sometimes the procedure doesn't work. About 1 out of every 10 probings fails for reasons that are unknown. Some ophthalmologists believe they fail more often in children who are probed much later than age 1. Others fail because there is a problem in the nose. Perhaps the tissues lining the nose are swollen or the turbinate is too close to the lower opening of the tear duct. In these cases, surgically moving the cartilage aside can help. In other cases, repeating the probing later can work.

In some bilateral cases, one eye may clear completely after probing and yet the other may look just as gooey after surgery as before. Some eyes seem to improve after probing but are still not quite normal, and a slight discharge persists, especially when the child gets a cold. Sometimes it seems to take a week or two before the effect of the surgery can be seen. Usually, though, if the probing works, the discharge will not return.

Silicone intubation: If two or three probings (perhaps using a balloon catheter) and manipulations of the nasal cartilage fail, most ophthalmologists would recommend inserting a thin silicone tube to keep the tear duct open. The soft tube may be tied in place in the nose and it remains in the tear duct as long as several months. After it's removed, the tear duct will generally remain open.

Creating an opening: If even the tube fails, the next step is to perform an operation that requires cutting. Called a *dacryocystorhinostomy* (DCR), this procedure creates an internal opening between the lacrimal sac and the nose. Fortunately, children rarely need this type of surgery.

A blocked tear duct may require more than one operation to be cured. But it is truly exceptional for a person of any age to have to live with this kind of problem because it can't be repaired.

Other causes of tearing and messy eyes

Sometimes, a child will have discharge and tearing for reasons other than a blocked tear duct. In fact, anything that irritates the eye can be responsible:

- Misdirected eyelashes (*trichiasis*) rubbing against the cornea.
- Corneal abrasion, a foreign body in the eye, or any of a number of unusual corneal diseases.
- Inflammations of the conjunctiva or of the inside of the eye.
- Glaucoma (the most serious problem that masquerades as an obstructed tear duct).

Fortunately, all these problems have specific characteristics that help in distinguishing them from a blocked tear duct. Many cause the eye to become red and sensitive to light (not symptoms of a blocked tear duct). And because the reflex tears flow unimpeded into the nose, the child's nose may be always running. Children with blocked tear ducts tend to have dry noses, and their eyes are not light sensitive or inflamed.

Lack of tears

Some people are troubled because they have too few tears rather than too many. Their eyes may turn red, itch and burn, and may actually feel dry. In adults, especially women after menopause, it is due to inadequate tear formation. Some doctors treat such patients by intentionally blocking the tear ducts at the puncta. This problem is actually quite rare in children, although some children may not tear when they cry. Yet the eyes of these children suffer no ill effects.
