Tear Duct Surgery

Aaron Fay, M.D.
Massachusetts Eye and Ear Infirmary, Harvard Medical School, Boston, MA

Introduction

Blocked tear ducts can occur in infants and in adults, and sometimes occur after facial trauma. In most patients, this causes excessive tearing. Infection of the tear duct can occur as well, a condition known as dacryocystitis.

Signs and Symptoms

The two main types of symptoms are 1) excessive tearing, and 2) tear sac infection. Pooling of tears in the eye can cause blurred vision and irritation. In severe cases, the tears may run down the cheeks, requiring constant blotting with a tissue. Tear sac infections, called dacryocystitis, can also be severe or limited. Chronic infections can cause mild discomfort, tenderness in the inner corner of the eye, and discharge similar to the more familiar conjunctivitis. Acute tear sac or tear duct infection can be extremely painful, red, and swollen with formation of an abscess between the eye and nose.

Anatomy

A simple drawing can be used to explain the tear duct anatomy. Tears are created by the lacrimal gland, located beneath the outer portion of the eyebrow. The tears wash across the surface of the eye and run into the tear duct openings in the upper and lower eyelids very close to the inner corner of the eye. These little passages run under the skin into the tear sac located in a crevice in between the eye and the nose. The tear sac is then connected to the nose through a narrow passage within the bone. Finally, the tears wash from the nose down into the throat.

Clinical Evaluation

A complete eye exam is usually required to make the proper diagnosis. However, the most important parts of the exam involve measuring the production of tears, the position and function of the eyelids and eyelid muscles, and an irrigation test to determine whether the tear ducts are indeed blocked. Pressing on the area over the tear sac often produces a mucous or pus-like material to reflux onto the surface of the eye. Your particular symptoms will help direct the examination. Some doctors recommend CT scans prior to surgery, while others do not routinely require them.
Differential Diagnosis

Excessive tearing can be caused by many different conditions. As a result, the cause can be difficult to identify in some cases. A step-wise approach may be required to find the most effective method of treatment in your case. Once it becomes clear to your doctor that your tear duct is indeed blocked, surgery is the only solution.

*Dacryoscystitis* can sometimes be confused with other infections around the eye. Eyelid cellulites caused by minor trauma or sinus infection can mimic dacyrocystitis. Usually, tearing is not a significant finding in these cases. *Conjunctivitis*, the common “pink eye,” can also mimic dacyrocystitis. Its watery discharge can appear to be excessive tearing, but there is no evidence of a tense or swollen tear sac. A less common infection called *canaliculitis* can also cause tearing, but its characteristic white solid discharge and swelling of the tear duct entrance should provide adequate clues to the diagnosis.

Natural History of the Disease

Patients can live many years with blocked tear ducts in the absence of infection, provided they are not bothered by tearing. However, there is an ongoing risk of acute tear sac infection and abscess formation as long as the tear duct remains blocked. The body does not typically cure this blockage without surgery.

Treatment

Acute tear sac infection is treated with oral antibiotics for about one week. Surgery is then scheduled to open a new passage between the tear sac and nose. The standard surgical approach was developed over 100 years ago, and has proved 95% effective in thousands of cases. It is called *External Dacryocystorhinostomy* (DCR), and involves an incision on the side of the nose less than one inch long, mechanical removal of bone in that area the size of a nickel, and sewing the lining of the nose to the tear sac itself. The scar is usually very well concealed after it heals. This surgery can be done under either general or local anesthesia. Some surgeons use silicone tubes to prevent the passage from closing in the first 3 months after surgery.

In the past 10 years, alternative surgical approaches have been developed. Each has its benefits as well as disadvantages, but none has been able to produce the 95% success rate of external, incisional surgery. One such method is the *Endocanalicular Laser DCR*. It uses a fine laser probe and nasal endoscope to open a bloodless passage without making an incision in the skin. The surgery is quick, painless, and performed under local anesthesia. Silicone tubes are required since the new opening is smaller than in the traditional approach. This approach provides successful relief of symptoms in 85% of cases.