

Watery eyes

P D Gupta

Founder Director, Iladevi Cataract and IOL Research Centre, Ahmadabad, India.

Corresponding Author: P D Gupta, Founder Director, Iladevi Cataract and IOL Research Centre, Ahmadabad, India.

Received date: May 26, 2021; **Accepted date:** July 23, 2021; **Published date:** July 28, 2021.

Citation: P D Gupta. (2021) Watery eyes. International Journal of Clinical Case Reports and Reviews. 7(5); DOI:10.31579/2690-4861/141

Copyright: © 2021 P D Gupta, This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

For clear vision, the cornea, which is not supplied with blood, has to be continually kept wet and it is done by basal tears. Tears are the maintenance fluid of the eye; the watery eyes or epiphora is the most common symptoms of many ocular pathologies; this is due to either overproduction or under drainage of tears. The watery eyes may also be due to hyperlacrimation. Tears play an important role in producing and controlling these ocular pathologies.

Keywords: watery eyes; epiphora

Introduction

Life cannot exist without water; every organ in human body is kept moist by blood. The blood plasma contains 90 percent water. However, eye is not supplied with blood in order to keep the photographic apparatus transparent so the light can pass through without any hindrance. The eyes are always in direct contact with external environment, which is most of the times “dry” and polluted [1]. It is essential for many reasons to keep

mammalian eyes wet; the outermost layer, the cornea, which is not supplied with blood, has to be continually kept wet for clear vision and it is done by basal tears. In addition to the tears eye lashes also play pivotal role to keep the cornea wet [2, 3]. Further the both anterior and posterior chambers are filled with a clear, watery fluid called aqueous humor or vitreous gel. Instead of blood this fluid tak the most common cause of watering eyes among adults and older children is the blocked tear ducts or ducts that are too narrow (Fig. 1).

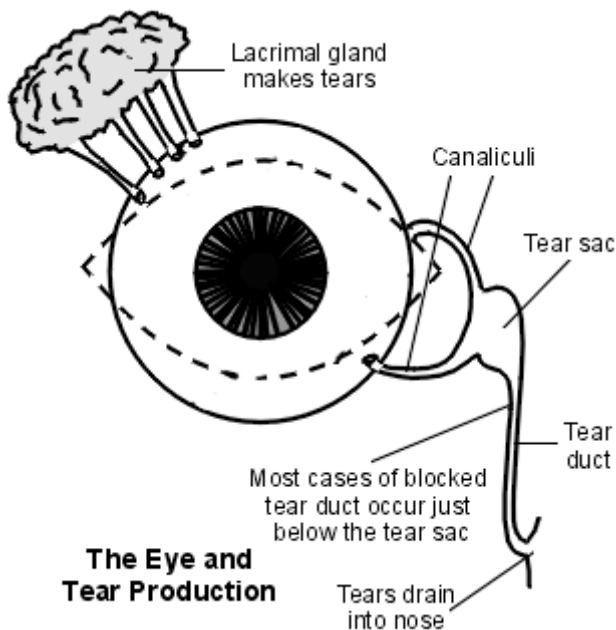


Figure 1: Tear gland, tear duct and narrowing of tear duct

The causes of narrowed tear ducts usually are swelling, and/or inflammation. If the tear ducts are narrowed or blocked, the tears will not be able to drain away and will build up in the tear sac. It can also cause excessive tearing, recurrent conjunctivitis (eye inflammation) or dacryocystitis (eye infection), painful swelling, mucus discharge and blurred vision [4-6].

Tears are the maintenance fluid of the eye; however, when the tears won't stop flowing can cause eyes to water without any apparent reason. This condition is known as watery eyes or epiphora, the problem is either overproduction or under drainage of tears. Epiphora is one of the most common symptoms of much ocular pathology. Oddly, but true, a dry eye problem can sometimes cause watery eyes [7], because the eye produces excess tears to combat the irritation and dryness. It may not make sense, but dry-eye syndrome often leads to watery eyes. In addition to excessive tearing, symptoms of dry eye syndrome may include blurred vision, itchy or burning eyes.

Watery eyes may due to mainly for 2 reasons

1. **Epiphora:** The causes of epiphora are often multifactorial. Though most cases of epiphora are due to non-patency in the lacrimal outflow pathway, others, such as eyelid and adnexal disorders, and corneal and ocular surface pathologies, can also cause watering [4].
2. **Hyperlacrimation:** Refers to excessive watering due to irritation of the corneal surface, as in cases of dry eye, corneal abrasion or corneal foreign body [8, 9].

Obstructions of the excretory lacrimal system can be either anatomical (referring to any structural pathology in the lacrimal outflow pathway that obstructs tear passage) or functional (where the lacrimal outflow pathway is anatomically normal with a patent syringing, but there's a failure of the lacrimal pump mechanism. Environmental factors and allergies can also result in watery eyes. More seriously, infection can be the reason why the eyes won't stop tearing up.

Tears

Tears are extremely useful, they wash debris from the eyes. They communicate all kinds of feelings all tears contain water, lipids, lysozyme, lipocalin, glucose, and sodium. This protein-rich, antibacterial liquid [10] goes from the outer edge of the eyeball toward the cornea and lubricates the entire eye surface keep the area infection free. Tears lubricate the eye and help keep it clear of dust, prevent from infection, provide nourishment and keep the cornea healthy. Tears contain water, mucin, lipids, lysozyme, lactoferrin, lipocalin, lactritin, immunoglobulins, glucose, urea, sodium, and potassium. Quality of vision is affected by the stability of the tear film [11]. Oxygen and nutrients are also transported to the surface cells of the eyes by tears, since there are no blood vessels on the eyes. They help you see clearly Tear over-secretion is usually caused by irritation or inflammation of the surface of the eye. This can occur for a number of reasons, including eyelash and eyelid problems or allergies.

Chemistry of tears: Tears are produced in the lacrimal glands (tear ducts) that are in the outer corners of eyelids (Fig. 1). These glands produce tears blood plasma, selecting some components but not others. Although they may appear to be nothing more than water, our tears are actually quite complex. Tears are made of mucus, water, and oil, and each component plays a role in the eye [10].

Mucus coats the surface of the eye and helps bind the tear layer to the eye. Without a healthy mucus layer, dry spots may form on the cornea, the clear, dome-like structure on the front of the eye.

The water is really more of a saline (salt) solution that contains various vitamins and minerals vital to normal cell function. These nutrients are important for keeping the top layer of cells on the surface of the eye, the epithelium, healthy and functioning normally.

The oil of the tear film prevents evaporation of the tears. Some people don't make enough oil (or sometimes too much oil), resulting in dry eyes. If the oil component is not normal, the tears evaporate too quickly.

The human tears also contain natural antibiotics called lysozymes. Lysozymes help to keep the surface of the eye healthy by fighting off bacteria and viruses [10].

Role of Tears

Tears play an important role in keeping eyes healthy. Tears keep the surface of eyeballs clean and moist and help protect our eyes from damage. Because the cornea has no blood vessels, the tears also provide a means of bringing nutrients to its cells. Although they may appear to be nothing more than water, our tears are actually quite complex in composition.

Mucus coats the surface of the eye and helps bind the tear layer to the eye. Without a healthy mucus layer, dry spots may form on the cornea, the clear, dome-like structure on the front of the eye.

The water is really more of a saline that contains various vitamins and minerals vital to normal cell function. These nutrients are important for keeping the top layer of cells on the surface of the eye, the epithelium, healthy and functioning normally.

The oil of the tear film [11] prevents evaporation of the tears. Some people don't make enough oil (or sometimes too much oil), resulting in dry eyes. If the oil component is not normal, the tears evaporate too quickly.

Tears make eyes watery

Crying is the shedding of tears (or welling of tears in the eyes) in response to an emotional state, pain or a physical irritation of the eye. Emotions that can lead to crying include anger, happiness, or sadness. Lacrimation is also refers to non-emotional shedding of tears. Reflex tears clear debris, like smoke and dust, from your eyes. Continuous tears lubricate the eyes and help protect them from infection. Emotional tears may have many health benefits. Whereas continuous tears contain 98 percent water, emotional tears contain stress hormones and other toxins

Basal tears clear liquid secreted by the glands (known as tear ducts). Their major function to keep the cornea lubricated. Quality of vision is affected by the stability of the tear film [12].

Reflex Tears: Reflex tears come out in response to something else and are formed when the eyes need to wash away harmful irritants, such as smoke, foreign materials, onions, tear gas irritates the eyes. The eyes shed a few tears when chopping onions or when get dust in eyes during sand storm in deserts.

Emotional Tears: Emotional or Psychic tears, are produced during strong emotional responses both (positive, happiness and negative, sadness), and contain more of certain hormones, such as prolactin, adrenocorticotrophic hormone, and leucine enkephalin. The emotional tears when shed overcome with emotions have a higher protein content than the tears shed from irritants.

Tears during Sleep: During sleep, tear ducts add less water and protein to the tears, but they increase the number of antibodies present, while infection-fighting cells also migrate to the conjunctival sac.

Tears due to Age: On aging usually produce fewer tears by volume, and this can lead to developing dry eyes. The lacrimal ducts normally add less proteins to tears.

In older adults, persistent watery eyes may occur as the aging skin of the eyelids sags away from the eyeball, allowing tears to accumulate and flow out. Allergies or viral infections (conjunctivitis), as well as any kind of inflammation, may cause watery eyes for a few days or so

One reason eyes water in the morning is the very reason it's tough to open your eyes in the first place - the light. After being closed for hours, your pupils react to the sudden brightness of morning by producing tears. While the bright light of day could be a cause of watery eyes, so could dry eye syndrome.

Remedies for watery eyes

Some of the measures mentioned below are very effective for the treatment of watery eyes. [13, 14]:

- Eye drops.
- Treatment for allergies, infection.
- Blocked tear ducts open with hot wet towel
- Surgical procedure may also help.

Air conditioners reduce humidity in the air which can lead to dryness in the eyes. Further, AC ducts contain moulds, bacteria and virus which cause inflammation in the eye, thereby becoming a multi factorial source which cause to the eyes. In order to prevent this, water can be kept in containers in the corners of the room; the water will evaporate and spread in the room and thereby increase the overall humidity.

References

1. Gupta P D and Muthukumar Anbazhagi. (2018) Minor to chronic eye disorders due to environmental pollution. A review. *J Ocul Infect Inflamm.*
2. Eyelash length explained. *Nature* 519; (2015).
3. Amador GJ, DeMercurio Mao W, et al. (2015) Eyelashes divert airflow to protect the eye. *J R Soc Interface.* 12(105):20141294.
4. Shams PN, Chen PG, Wormald PJ, et al. (2014) Management of functional epiphora in patients with an anatomically patent dacryocystorhinostomy. *JAMA Ophthalmol.* 1132(9):1127-1132.
5. Cannon PS, Chan W, Selva D. (2013) Incidence of canalicular closure with endonasal dacryocystorhinostomy without intubation in primary nasolacrimal duct obstruction. *Ophthalmology.* 120(8):1688-1692.
6. Ullrich K, Malhotra R, Patel BC. (2020) *Dacryocystorhinostomy* In: StatPearls. Treasure Island (FL): StatPearls Publishing.
7. Hurwitz JJ. (1996) *The lacrimal system.* Philadelphia Lippincott-Raven Publishers.
8. Mainville N, Jordan DR. (2011) Etiology of tearing: A retrospective analysis of referrals to a tertiary care ophthalmology practice. *Ophthalm Plast Reconstr Surg.* 27: 155-157.
9. Baguet J, Claudon-Eyl V, Sommer F, Chevallier P. (1995) Normal protein and glycoprotein profiles of reflex tears and trace element composition of basal tears from heavy and slight deposits on soft contact lenses. *CLAO J.* 21(2):114-121.
10. DA Dartt and MDP Willcox. (2013) Complexity of the tear film: Importance in homeostasis and dysfunction during disease *Exp Eye Res.* 117: 1-3.
11. Baguet J, Claudon-Eyl V, Sommer F, Chevallier P. (1995) Normal protein and glycoprotein profiles of reflex tears and trace element composition of basal tears from heavy and slight deposits on soft contact lenses. *CLAO J.* 21(2):114-121.
12. Becker BB. (1992) Tricompartment model of the lacrimal pump mechanism. *Ophthalmology.* 99(7):1139-1145.
13. Montoya, F., Riddell, C., Caesar, R. et al. (2002) Treatment of gustatory hyper lacrimation (crocodile tears) with injection of botulinum toxin into the lacrimal gland. *Eye* 16, 705-709.



This work is licensed under Creative Commons Attribution 4.0 License

To Submit Your Article Click Here: [Submit Manuscript](#)

DOI: [10.31579/2690-4861/141](https://doi.org/10.31579/2690-4861/141)

Ready to submit your research? Choose Auctores and benefit from:

- ❖ fast, convenient online submission
- ❖ rigorous peer review by experienced research in your field
- ❖ rapid publication on acceptance
- ❖ authors retain copyrights
- ❖ unique DOI for all articles
- ❖ immediate, unrestricted online access

At Auctores, research is always in progress.

Learn more www.auctoresonline.org/journals/international-journal-of-clinical-case-reports-and-reviews-