DRY EYES- A COMMONLY MISSED EYE CONDITION

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Tears are an important component in providing moisture and lubrication for the eyes, thereby maintaining vision and comfort. The tear film itself is made up of three components:

1. The outermost **oily layer** is produced by the meibomian glands which line the edge of the **eyelids** and produce lubrication. These smooth the tear surface and slow evaporation of the middle watery layer. If these glands don't produce enough oil, the watery layer evaporates too quickly, causing dry eyes. Dry eyes are common in people whose meibomian glands are clogged. Meibomian dysfunction is more common in people with inflammation along the edge of their eyelids (blepharitis), rosacea and other skin disorders.
2. The **watery portion** of the tear film is produced by the lacrimal gland. This gland lies just below the eyebrow under the superior outer orbital rim and it produces moisture. This watery layer cleanses the eyes and washes away foreign particles or irritants. If the eye produces inadequate amounts of water, the oil and mucous layers can touch and cause a stringy discharge.
3. The **mucous layer** comes from microscopic goblet cells in the **conjunctiva** and these contribute to the even spreading of the tear film.If the eyes do not produce enough mucus to cover the eyes, dry spots can form on the cornea.

With each blink the tear film is spread evenly across the surface of the cornea. The blinking motion of the eyelids forces the tears through the medial puncta into the upper and lower canaliculus, which empty into the lacrimal sac. The lacrimal sac drains into the nasolacrimal duct which connects to the nasal passage.

Dry eyes (keratoconjunctivitis sicca) result when there is either decreased production of tears or by poor tear quality which in turn lead to more rapid evaporation. The presenting symptoms in evaporative dry eyes are burning and foreign body sensation, sensitivity to light, and eye fatigue. The signs are redness, blurred vision, often worsening at the end of the day or after focusing for a prolonged period of time and excessive tearing. Patients find it difficult to understand how excessive tearing is a result of dry eyes. Tears produced which are of poor quality tend to dry off quickly and there is also an uneven spread of the tears leading to dry patches on the cornea. This leads to a vicious cycle and overproduction of tears.

Factors which make it more likely for a patient to develop dry eyes are:

- Age older than 50 years. It is a known fact that as we grow older the production of tears diminishes.
- Post-menopausal women. This may be due in part to hormonal changes.
- Medical conditions associated with decreased production of tears, like diabetes, rheumatoid arthritis, lupus, scleroderma, Sjogren's syndrome, thyroid disorders and vitamin A deficiency.
- Tear gland damage. Damage to the tear glands from inflammation or radiation can hamper tear production.
- Corrective laser eye surgery. Refractive eye surgery may cause decreased tear production and dry eyes. Symptoms of dry eyes related to these procedures are usually temporary.
- Eyelid problems. If there is an eyelid problem that makes it difficult to blink, tears may not be spread across the eye adequately or tears may evaporate too quickly, causing dry eyes. Eyelid problems can include an out-turning of the lids (ectropion) or an in-turning of the lids (entropion).

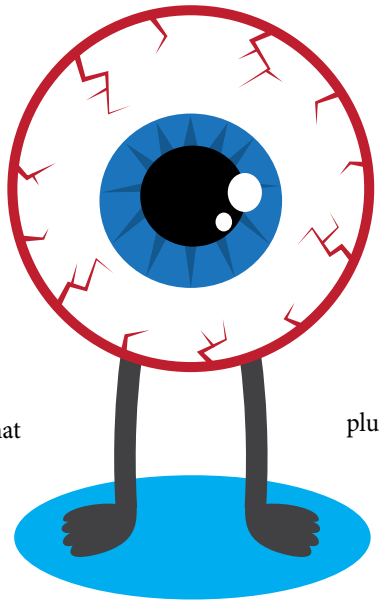
Medications that can cause dry eyes include:

- Some drugs used to treat high blood pressure, example, propranolol, prazosin and atenolol
- Antihistamines and decongestants, example, cetirizine and loratadine

- Hormone replacement therapy
- Certain antidepressants example, amitriptyline, promethazine and thioridazine
- Isotretinoin-type drugs for treatment of acne

Other causes of dry eyes include:

- Wind
- Dry air
- Tasks that require enough concentration that you blink less often, such as working at a computer, driving or reading. In all these actions the blink rate is less, as patients tend to "stare" more concentrating on the task at hand.



The consequences of dry eyes may result in a decreased quality of life as everyday tasks become difficult especially in the severely affected. The tears also protect the surface of the eye and the integrity of the corneal epithelium and any problems with this may lead to an increased risk of eye infection. Dry eyes may lead to chronic inflammation and in severe cases may even lead to corneal surface scarring and problems with vision.

DRY EYES MAY LEAD TO CHRONIC INFLAMMATION AND IN SEVERE CASES MAY EVEN LEAD TO CORNEAL SURFACE SCARRING AND PROBLEMS WITH VISION

Like any other ophthalmic condition, taking a good history including a drug history is important in reaching a diagnosis. The production of tears may be assessed by the Schirmer. In this test, blotting strips of paper are placed under the lower eyelids of each eye. After five minutes the doctor measures the amount of strip which has been moistened with the tears. A much simpler and more widely used test is the tear break-up time (TBUT). Here one needs to instill sodium fluorescein solution in the eye, then the patient is asked not to blink and the doctor counts the seconds until dry patches appear on the cornea meaning that the fluorescein film starts to break up without blinking. Normally this takes about 15 seconds in normal individuals; any result under 10 seconds is a strong indicator of dry eyes.

The main treatment of dry eyes is the administration of lubricating drops, and when started these should be continued for a minimum period of four weeks. Simple lubricating drops are usually recommended; it is advisable to avoid lubricating drops which contain vasoconstrictors as when the latter are stopped there tends to be a rebound phenomenon with recurrence of the red eye. The role of the lubricating drops are to increase the tear film stability; the idea is to restore the natural homeostasis of the ocular surface and tear film and to improve the patient's ocular comfort and quality of life. There is a wide range of products available and it is up to the doctor or the ophthalmologist to choose one that is best for the patient. Lubricating drops are safe to use long-term and can come with or without preservatives. In some cases where the patient is producing normal tears but the quantity is not enough, blocking the lacrimal duct is sometimes used. The lacrimal ducts may be blocked temporarily with collagen plugs which dissolve over a few weeks or more permanently with silicone plugs or cauthery, although the latter is rarely indicated. The puncta of the lower eyelid are blocked first as these drain over 70% of the tears into the nasal cavity.

It is important to remember that dry eyes are a very common problem that can affect anywhere between 5 to 35% of the population. Lubricating drops are still considered to be the main treatment as they provide a safe and effective way of treatment and provide symptomatic relief to patients.

BIOGRAPHY

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