

Dry eye disorders

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Definitions:

Dry eye occurs when there is inadequate tear volume or function resulting in an unstable tear film and ocular surface disease.

- 1-Keratoconjunctivitis sicca (KCS), an eye with some degree of dryness.
- 2-Xerophthalmia, dry eye associated with vitamin A deficiency.
- 3-Xerosis, extreme ocular dryness and keratinization.
- 4-Sjogren syndrome, autoimmune inflammatory disease of which dry eye is a typical feature.

Spread of the tear film:

The tear film is mechanically spread over the ocular surface through a neuronally-controlled blinking mechanism. Three factors are required

- 1-Normal blink reflex.
- 2-Contact between the external ocular surface and eyelids.
- 3-normal corneal epithelium.

Classification:

Inflammation in the conjunctiva and accessory glands is present in 80% of patients with KCS.

I- Aqueous layer deficiency: (hyposecretive)

- 1-Sjogren KCS
- 2-non-Sjogren (NSJ KCS)
 - a- Age related hyopsecreation.
 - b- Lacrimal tissue destruction: tumour, sarcoidosis, surgical and rarely congenital absence.
 - c- Conjunctival scarring: chemical burn, long standing trachoma and Stevens-Johnson syndrome.
 - d- Vitamin A deficiency.

II- Evaporative KCS:

- 1-meibomian gland disease: posterior blepharitis, rosacea and atopic keratoconjunctivitis.
- 2-exposure (lagophthalmos): proptosis, facial nerve palsy and eyelid scarring.
- 3-defective blinking: watch computer for long duration.
- 4-contact lens-associated.
- 5-environmental factors.

Special investigation:

The aim of investigation is to confirm and quantify the diagnosis of dry eye.

- 1- Stability of the tear film: tear-film break up time (BUT).
- 2-Tear production: schirmer, fluorescein clearance and tear osmolarity.
- 3-Ocular surface disease (corneal stain and impression cytology).

Keratoconjunctivitis sicca

Symptoms: dryness, burning, irritation, F.B sensation (grittiness), stringy discharge, transient blurring, redness and crusting of lids, also lack of emotional tears. Characteristically these increase in dry envir. (e.g. air-conditioning, wind, central heating), during the day and prolonged reading.

Signs: include tear film abnormalities like lipid- contaminated mucin debris, thin marginal tear meniscus, forth in the tear film or along lid margin.

There may be posterior Blepharitis and the conjunctiva is red and keratinized.

Cornea: punctate epithelial erosion, mucus strands and mucus plaques, may lead to neovascularization, melting, ulceration, bacterial keratitis & perforation.

Treatment

Patient education: compliance, work environment, frequent blinking, avoidance of toxic medications and refractive surgery, discuss contact-lens use and prognosis (not curable).

Tear substitutes: either drops or gels like tear naturally, Gel Tears, liquifilm, or ointments containing petrolatum mineral oil at bedtime.

Mucolytic Agents: acetlycysteine 5% drops (qid) and debridement of filaments.

Punctal occlusion: for preservation of natural tears, of three types temporary, reversible or permanent.

Anti-inflammatory agents: such as low dose topical steroid, topical cyclosporine & systemic tetracycline.

Contact lenses: like low water content (HEMA) lenses, or silicone rubber lenses.

Conservation of existing tears:

1-reduction of room temperature to minimize evaporation.

2-room humidifiers, moist chamber goggles and side shields may be cosmetically unacceptable.

Other options

1-tarsorrhaphy to decrease the size of palpebral aperture.

2-botulinum toxin injection to orbicularis muscle to induce ptosis.

3-oral cholinergic agonists.

Sjogren syndrome

Autoimmune inflammatory destruction of the lacrimal & salivary glands, it may be primary or secondary (assoc. with other autoimmune disease such as RA, SLE, SS, MCTD, MG...etc).

C/F: presentation is in adult life with dry eye, dry mouth, dry nasal passages, arthralgia, myalgia, enlargement of salivary glands and Reynaud phenomena...

Diagnostic test: serum auto antibodies, schirmer test, biopsy of salivary G

Treatment: symptomatic and immune suppression with steroid and cytotoxic agents.

Complications: dental caries, reflex esophagitis, gastritis malabsorption, pulmonary disease, renal disease, polyneuropathy and lymphoma.