



Treatment options for ocular anterior surface disease

spectera[®] | MARCH[®]
Vision Care

United
Healthcare

1

Agenda

1. Anatomy of the tear film
2. Ocular anterior surface disease
3. The dry eye work-up
4. Traditional treatment options
5. Meibomian gland treatments
6. The pilot



© 2022 United HealthCare Services, Inc. All Rights Reserved.

2

2

Anatomy of the tear film

- 1 Mucin layer
- 2 Aqueous layer
- 3 Lipid layer

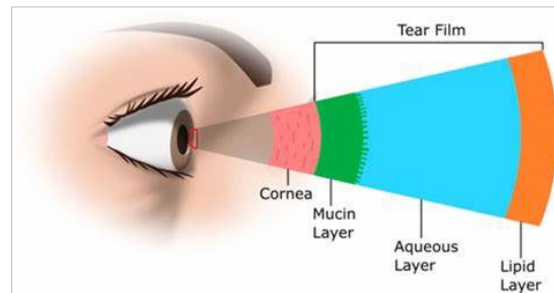


Fig. 1. Layers of the tear film from: "Thoughts concerning the application of thermogram images for automated diagnosis of dry eye – A review" March 2020, www.researchgate.net/figure/Layers-of-the-tear-film_fig1_330784412. Accessed June 2022.



© 2022 United HealthCare Services, Inc. All Rights Reserved.

3

3

Ocular anterior surface disease

Aqueous insufficient dry eye

Lipid insufficient dry eye

- Evaporative dry eye

Excessive drainage dry eye

Blepharitis

- Staph
- Demodex

Allergic conjunctivitis



Fig. 1. SPK Fluorescein Stain in Dry Eyes from: Wills Eye Hospital, June 2017, www.willseye.org/disease_condition/dry-eye-syndrome/spk-fluorescein-stain-in-dry-eyes/. Accessed June 2022.



© 2022 United HealthCare Services, Inc. All Rights Reserved.

4

4

Lacrimal gland

Primarily located in the anterior, superotemporal orbit within the lacrimal fossa of the frontal bone

- Responsible for the aqueous formation of the tear film
- Performs the following functions:
 - provides a protective barrier for the ocular surface
 - provides a smooth optical surface
 - serves to removal of debris
- Sensory innervation via the ophthalmic branch of the fifth nerve and the sympathetic system
- Prone to loss of function from chronic inflammation

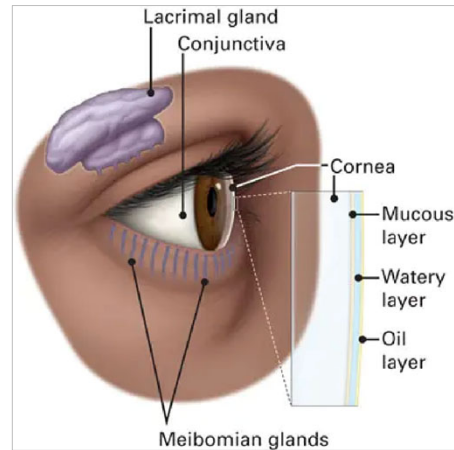


Fig. 1. Lacrimal gland from: "Eye Anatomy: Parts of the Eye and How We See" March 2021, www.aao.org/eye-health/anatomy/parts-of-eye. Accessed June 2022.



© 2022 United HealthCare Services, Inc. All Rights Reserved.

5

5

Meibomian glands

Sebaceous glands along the rims of the eyelid inside the tarsal plate

- Produce meibum, the lipid layer of the tear film
- 25 glands on the upper eyelid, and 20 on the lower eyelid
- Dysfunction leads to evaporative dry eye
- Often overlooked, but the more common cause of dry eye
- Often root cause of Blepharitis and may be termed meibomitis, meibomian gland dysfunction, or posterior blepharitis

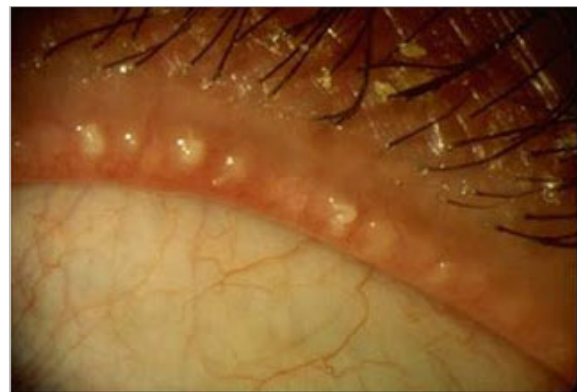


Fig. 1. Clogged Meibomian Glands from: "The Patient's Guide to Dry Eye Syndrome: Meibomian Gland Dysfunction" www.eyedoatryblog.com/2011/12/patients-guide-to-dry-eye-syndrome_15.html?m=0. Accessed June 2022.



© 2022 United HealthCare Services, Inc. All Rights Reserved.

6

6

Tear drainage system

Upper System

- Lacrimal punctum
- Canicular system
 - 2 mm canaliculus
 - Ampulla- 90 degree turn
 - 8 mm canaliculus
 - Common canaliculus

Lower System

- Lacrimal sac
- Nasolacrimal Duct

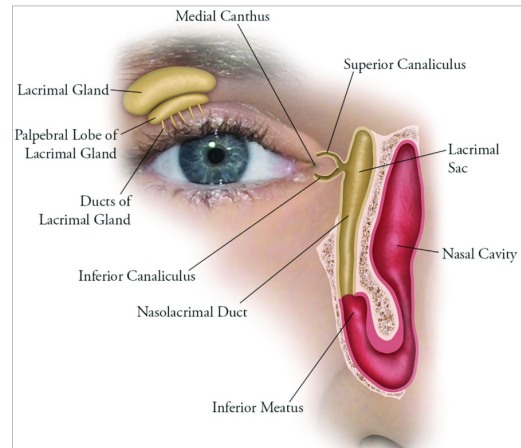


Fig.1. Anatomy of the lacrimal drainage system apparatus from: "Imaging Features of Malignant Lacrimal Sac and Nasolacrimal Duct Tumors" November 2016, www.ajnr.org/content/37/11/2134. Accessed June 2022.

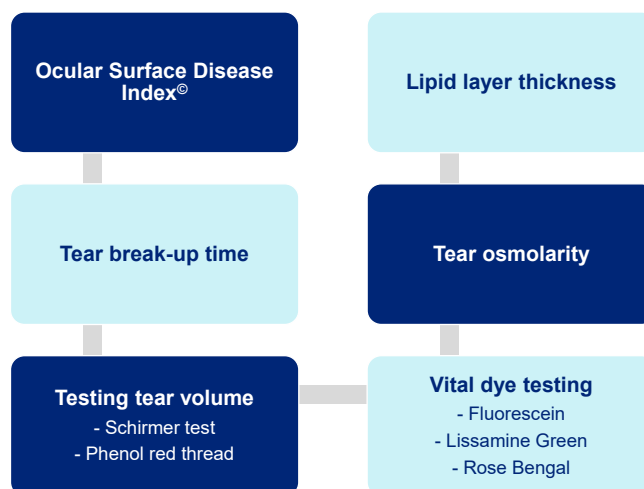


© 2022 United HealthCare Services, Inc. All Rights Reserved.

7

7

The dry eye work-up



© 2022 United HealthCare Services, Inc. All Rights Reserved.

8

8

Ocular Surface Disease Index[®] (OSDI[®])

Developed by Outcomes Research Group at Allergan Inc.

- Gold standard for dry eye symptoms
- Three section, 12 question survey
 - Vision related function
 - Ocular symptoms
 - Environmental triggers

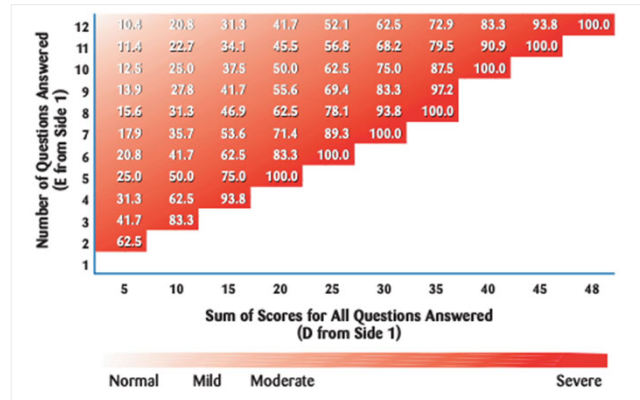


Fig. 1. Assessing your patient's dry eye disease from: "Ocular Surface Disease Index"™ www.supereyecare.com/resources/OSDI.pdf. Accessed June 2022.



© 2022 United HealthCare Services, Inc. All Rights Reserved.

9

9

Tear break-up time

Often referred to as the T-BUT test

- Quick and easy screening for effectiveness of the tear film
- Most common in-office test
- Instill fluorescein dye in cul-de-sac
 - With anesthetic drops is the basal test and most common
- Break in tear film:
 - < 5 seconds is severe
 - 5-10 seconds is mild to moderate
 - >10 seconds is normal

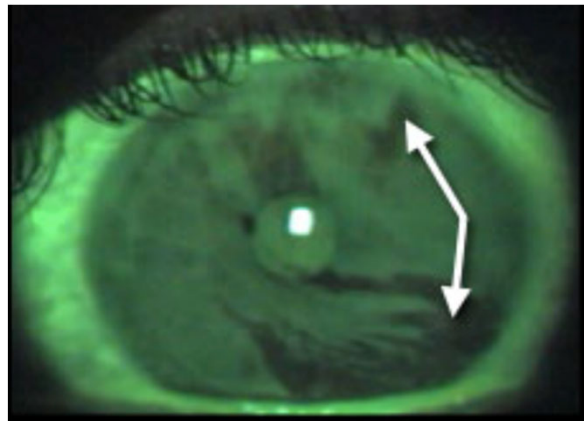


Fig. 1. Tear film break up viewed with fluorescein stain on a patient with dry eye from: "Tear Film Break-Up Time", www.systeme.injprofessional/tear-film-break-up-time.aspx. Accessed June 2022.



© 2022 United HealthCare Services, Inc. All Rights Reserved.

10

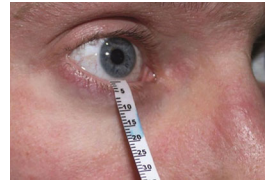
10

Tear volume testing

Both tests have shown a weak correlation to each other or to dry eye symptoms.

Schirmer test

- Paper strips are inserted in the lower cul-de-sac of both eyes
- 5 min test
- Baseline with proparacaine or other topical anesthetic eye drops
- Reflex tearing tested without drops
- For baseline testing:
 - < 5 mm is significant dry eye
 - < 10 mm is mild-moderate dry eye



Phenol red thread test

- No anesthesia
- 15 seconds
- >10 mm is significant dry eye
- >20 mm is mid to moderate

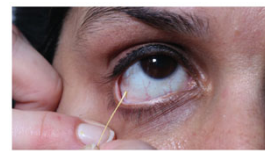


Fig.1. Schirmer test strip inserted in patient's eye from: "Schirmer's Test: A Test for Dry Eyes", www.theynews.com/schirmers-test/. Accessed June 2022.

Fig.2. Phenol red thread testing in patient's eye from: "Diagnostic Tools for Dry Eye Disease", December 2016, www.touchophthalmology.com/anterior-segment/journal-articles/diagnostic-tools-for-dry-eye-disease/. Accessed June 2022.



© 2022 United HealthCare Services, Inc. All Rights Reserved.

11

11

Vital dye testing



Fluorescein

- Readily available
- Only stains cornea
- Finds only advanced cases



Lissamine Green

- Comfortable for the patient
- Nasal conjunctiva is earliest sign
- Stain of both nasal and temporal is more advances
- Stain of cornea is more severe



Rose Bengal

- Interchangeable with Lissamine Green
- Stings on installation that can affect results



Fig.1. Lissamine Green Ophthalmic Strips from: "Lissamine Green Ophthalmic Strips", www.amconlabs.com/product/6311/Lissamine-Green-Ophthalmic-Strips/. Accessed June 2022.

Fig.2. Rose Bengal Strips from: "Rose Bengal Strips", www.opthalmicsolution.in/rose-bengal-strips-3091123.html. Accessed June 2022.



© 2022 United HealthCare Services, Inc. All Rights Reserved.

12

12

Tear osmolarity



TearLab® in office testing

- Osmolarity <308 mOsm/L is normal
- 308-320 = mild
- 320-350 = moderate
- > 350 – severe
- CPT code 83861

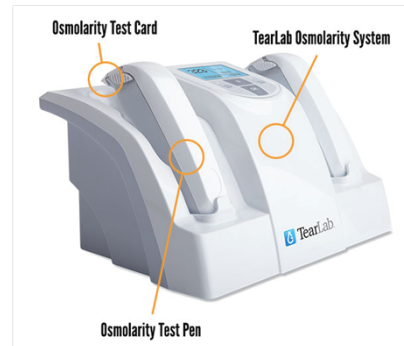


Fig.1. TearLab Osmolarity System and range from: "TearLab Osmolarity System", www.labscience.com/product/tearlab/. Accessed June 2022.



© 2022 United HealthCare Services, Inc. All Rights Reserved.

13

13

Lipid layer thickness

TearScience® LipiView® Ocular Surface Interferometer

- Projects white light over the lower third of the cornea
- Produces a color interference pattern as a result of specular reflection
- Records a video of the tear film interference pattern
- Displays the lipid layer thickness in interferometric color units
- LLT of < 100 ICU is diagnostic for dry eye
- CPT code 0330T

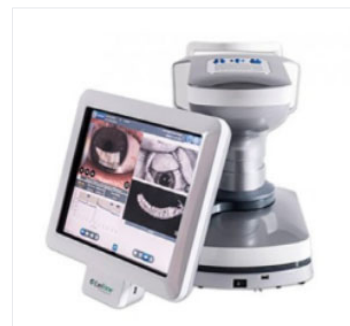


Fig.1. TearScience LipiView II Ocular Surface Interferometer from: www.jrvisionpro.com/products/lipiview-ii-ocular-surface-interferometer. Accessed June 2022.

New device, LipiView® II also provides dynamic meibomian gland imaging and blink dynamics



© 2022 United HealthCare Services, Inc. All Rights Reserved.

14

14

Traditional treatment options



OTC lubrication and re-wetting eye drops

- Refresh Plus®
- Refresh® Digital
- Systane®



Rx eye drops

- Restasis®
- Xiidra®
- Antibiotic drops
- Steroid
- Dextenza® (Ocular Therapeutix)



Fig.1. Refresh Plus eye drops from www.refreshbrand.com/products/refresh-plus. Accessed June 2022.

Fig.2. Xiidra eye drops from www.xiidra.com/what-is-xiidra. Accessed June 2022.



© 2022 United HealthCare Services, Inc. All Rights Reserved.

15

15

Traditional treatment options

BlephEx® (Rysurg)

- In-office procedure to exfoliate debris from the lid margin, usually following application of a topical anesthetic.
- Takes about 6-8 minutes



Avenova® (NovaBay)

- Lid hygiene method to be used at home
- Patient sprays on the surface of the lids with eyes closed, then gently massages it into the lid with finger.

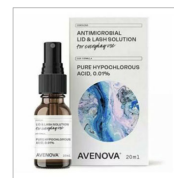


Fig.1. BlephEx, www.professional.mylcon.com/ocular-health/dry-eye/blephex/. Accessed June 2022.

Fig.2. Avenova, from www.avenova.com. Accessed June 2022.



© 2022 United HealthCare Services, Inc. All Rights Reserved.

16

16

Traditional treatment options



Wash cloth



Bruder mask



OCuSOFT® Thermal 1-touch™
– localized heat therapy



Fig.1. Bruder mask from: "Bruder Moist Heat Eye Compress" <https://bruder.com/eye-care/dry-eye/bruder-mask/>. Accessed June 2022.



© 2022 United HealthCare Services, Inc. All Rights Reserved.

17

17

Traditional treatment options

1

Collagen

Short acting for temporary closure

2

Absorbable Synthetic

4-6 month dissolvable

3

Silicone

Long term solution

- Difficult to insert
- More difficult to remove

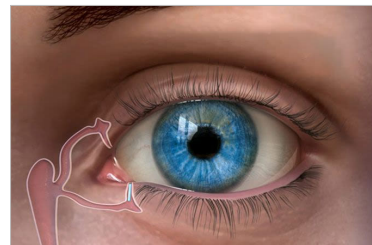


Fig.1. Punctal plug in eye, from "Punctal plugs for dry eyes", www.allaboutvision.com/conditions/punctal-plugs.htm. Accessed June 2022.
Fig.2. Different types of punctal plugs, from: "Imaging After Oculoplastic Surgery, Punctal Plugs", from www.radiologykey.com/imaging-after-oculoplastic-surgery/. Accessed June 2022.



© 2022 United HealthCare Services, Inc. All Rights Reserved.

18

18

Traditional treatment options



Bandage contact lenses

Amniotic membrane



Acetylcholine agonist medications

Tyrvaya™ is a prescription nasal spray used to treat the signs and symptoms of dry eye disease

Fig.1. Amniotic membrane on eye, from "Amniotic Membranes and the Contact Lens Practice", www.fernandez-velazquez.com/amniotic-membranes/. Accessed June 2022.

Fig.2. Tyrvaya nasal spray, from: "Tyrvaya Nasal Spray Now Available for Dry Eye Disease", from www.empr.com/home/news/tyrvaya-nasal-spray-now-available-for-dry-eye-disease/. Accessed June 2022.



© 2022 United HealthCare Services, Inc. All Rights Reserved.

19

19

Meibomian gland treatments



TearCare® system



LipiFlow® (TearScience)



Intense pulsed light therapy (IPL)



Low level light therapy (LLLT)



Fig.1. Tearcare system on patient from: "Treat the Front Before the Cut", May 2020, www.reviewofophthalmology.com/article/treat-the-front-before-the-cut. Accessed June 2022.



© 2022 United HealthCare Services, Inc. All Rights Reserved.

20

20

The pilot

New evidence may support earlier treatments of meibomian gland dysfunction can improve outcomes

Pilot Premise

- The promotion and aggressive use of the TearCare® procedure on members with dry eye symptoms will improve quality and reduce cost
 - Members will be more comfortable
 - Members will not need frequent office visits and ongoing medicine and procedures



© 2022 United HealthCare Services, Inc. All Rights Reserved.

21

21

Recommendations for dry eye quality management programs



Management of members with chronic dry eye symptoms should follow evidence-based treatment protocols



Doctors providing dry eye management should be familiar with community standards and provide support documentation in the medical record



Established committees and involved health care providers should closely follow the evolving science in dry eye treatment and management



Providers may be asked to participate in pilot programs to provide the independent data to substantiate treatment protocols and management algorithms



© 2022 United HealthCare Services, Inc. All Rights Reserved.

22