ECOS-G

EDUCATIONAL CLUB
OF OCULAR SURFACE
& GLAUCOMA

5 TIPS FOR THE DIAGNOSIS OF OCULAR SURFACE DISEASE IN CLINICAL PRACTICE

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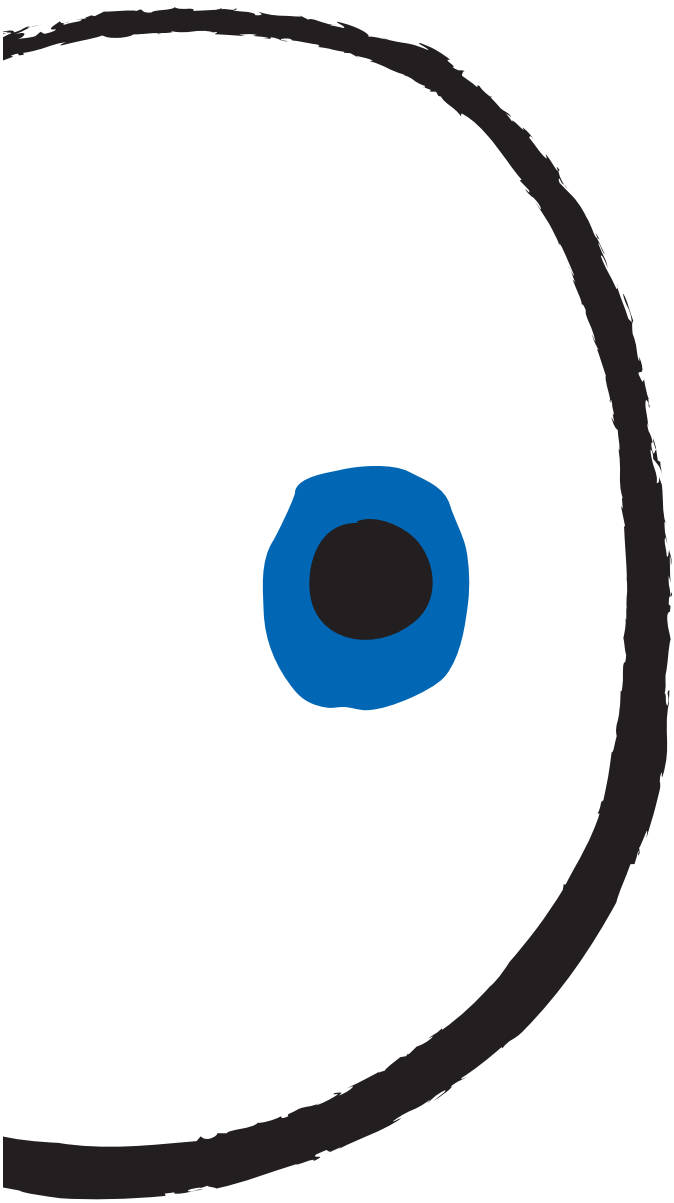
5 tips for the diagnosis of Ocular Surface Disease in clinical practice

Evaluation of:

1. **Symptoms**
2. **Tear film break up time (TF-BUT)**
3. **Ocular surface staining**
4. **Tear secretion**
5. **Lid margin / Meibomian glands**



DRY EYE & THE GLAUCOMA PATIENT: CLOSELY RELATED

Incidence of clinically significant dry eye and glaucoma in 20,506 patients from 900 centers across Germany:[1]

- Women 56.9%
- Men 45.7%

It has been shown that the prevalence of dry eye is:[1]

- Related to glaucoma types: PEX > POAG > PDG
- More frequent when ≥ 3 antiglaucoma drugs are used
- Increased with the duration of glaucoma disease

OSD impacts patients' compliance and choice of treatment(s)

MANAGEMENT OF OCULAR SURFACE DISEASE(S) IN GLAUCOMA PATIENTS

Difficulties:

- Physicians have time contraints
- Examination and treatment of ocular surface disease is not or only partially reimbursed
- Patients are focused on glaucoma and forget to report changes in systemic treatment and other ocular symptoms
- Intraocular pressure and signs of glaucoma progression are the primary focus in glaucoma clinics. Ocular surface disease may be overlooked

PEX: pseudoexfoliation glaucoma; POAG: primary open-angle glaucoma; PDG: pigmentary glaucoma

1. Erb C et al, Graefes Arch Clin Exp Ophthalmol 2008; 246:1593

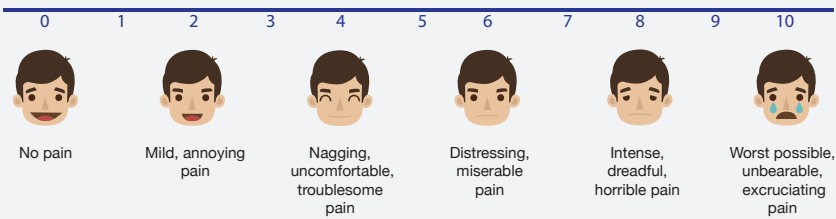
STEP 1 PATIENT HISTORY

Questions on symptoms:

Ask the patient if he/she suffers from any of the following symptoms.
Ask for the WORST symptom.
You may want to use the Visual Analog Scale (VAS) to evaluate intensity

- Stinging ❍ Yes ❍ No
- Foreign body sensation ❍ Yes ❍ No
- Burning ❍ Yes ❍ No
- Light sensitivity ❍ Yes ❍ No
- Itching ❍ Yes ❍ No
- Blurred vision ❍ Yes ❍ No
- Dryness feeling ❍ Yes ❍ No
- Pain ❍ Yes ❍ No

Visual Analog Scale (VAS):



Ask for possible exposure to aggravating factors

- Digital device use ❍ Yes ❍ No
- Air conditioning ❍ Yes ❍ No
- Concomitant topical and/or systemic treatment ❍ Yes ❍ No
- Systemic disease ❍ Yes ❍ No

When YES is highlighted, perform diagnostic tests for ocular surface disease

Or use a validated questionnaire such as FAST:

Fast Assessment of ocular Surface Trouble

This form is a PDF interactive form. Hover over the blue areas to type in the information

Demography and history

Date of the visit	..... / ..... / 20..... (mm/dd/yyyy)
Year of the glaucoma/OHT diagnosis	
Current glaucoma treatment	Name ❑ Preserved ❑ Preservative-free

Risk factors

	No	Yes
Existing OSD unrelated to glaucoma (dry or allergic eye disease)		
Use of artificial tears or anti-allergic eyedrops		
History of glaucoma treatment stopped or changed due to eyedrop intolerance		
Surgery possibly planned in the future		

Number of preserved glaucoma medications used per day: ❑ 0 ❑ 1 ❑ 2 ❑ 3 or more

Symptoms between instillations

	RIGHT EYE				LEFT EYE			
	No	Mild	Moderate	Severe	No	Mild	Moderate	Severe
Itching/Irritation								
Dry eye								
Burning								
Eyelid crusts or secretions								

Ocular signs

	RIGHT EYE				LEFT EYE			
	No	Mild	Moderate	Severe	No	Mild	Moderate	Severe
Conjunctival hyperaemia (red eyes)								
Eyelid redness								

If FAST questionnaire highlights abnormal risk factors, symptoms or ocular signs (at least 1 pink cell must be checked), perform diagnostic tests for ocular surface disease.

Poster at World Glaucoma Congress 2017 - WGCSUB-1608
FAST questionnaire: A new simple and effective tool for fast assessment of ocular surface disease in all glaucoma patients. Christophe Baudouin (CHNO des 15-20, Paris, France), Alfonso Anton (Institut Català de Retina, Barcelona, Spain).

STEP 2 TF-BUT

How to do TF-BUT?

Measurement of the interval between the last complete blink and the first appearance of a dry spot or disruption in the tear film[2]

1. Instill one drop of non-preserved sodium fluorescein or a drop from a saline wetted fluorescein strip onto the bulbar conjunctiva
2. Ask the patient to blink naturally to distribute the fluorescein
3. Within 1-3 minutes of the fluorescein instillation, ask the patient to stare straight without blinking
4. Set slit-lamp magnification at 10x, keep the background illumination intensity constant (cobalt blue light) and observe the tear film over the entire cornea
5. A stopwatch can be used to record the time between last complete blink and first appearance of growing micelle. Counting slowly until the tear film breaks up is acceptable for daily clinical practice
6. Once TF-BUT is observed, instruct patient to blink freely

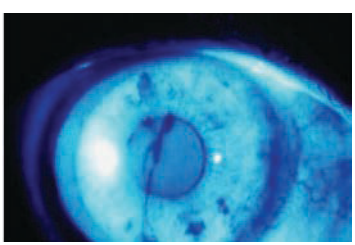


Figure provided by E. M. Messmer

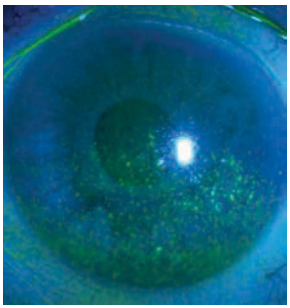
> 10 sec = normal
< 10 sec = dry eye[2]

2. 2017 Report of the International Dry Eye Workshop (DEWS-Report), The Ocular Surface 2017;15:539-74

STEP 3 OCULAR SURFACE - STAINING (CFS)

How to perform corneal fluorescein staining? [2]

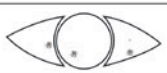
- Instillation of fluorescein dye (compare TF-BUT)
- Slit lamp at 16 x magnification / Cobalt Blue Light
- Cornea: the upper eyelid is lifted to grade the whole corneal surface
- Conjunctiva:
  - to grade the temporal zone, the subject looks nasally
  - to grade the nasal zone, the subject looks temporally



Oxford grading scale [2]

Staining is represented by punctate dots on a series of panels (A-E)
Staining ranges from 0-5 for each panel and 0-15 for the total exposed interpalpebral conjunctival and cornea.
Dots are ordered on a log scale

Pathological result > 5 spots [2]

PANEL	Grade	Criteria
A 	0	Equal to or less than panel A
B 	I	Equal to or less than panel B, greater than A
C 	II	Equal to or less than panel C, greater than B
D 	III	Equal to or less than panel D, greater than C
E 	IV	Equal to or less than panel E, greater than D
>E	V	Greater than panel E

Assess staining:

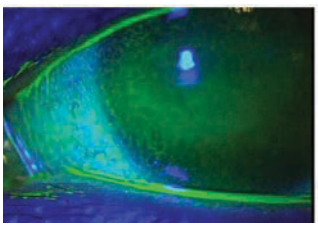
- 1-3 min after the instillation of fluorescein [2]
- After TF-BUT

2. 2017 Report of the International Dry Eye Workshop (DEWS-Report), The Ocular Surface 2017;15:539-74

STEP 4 TEAR SECRETION EVALUATION

Tear meniscus height [2]

- Simple technique to indirectly judge tear volume
- Fluorescein instillation
- Observe lower tear meniscus height with the slit lamp in the center of the eyelid
- Compare to slit beam height
- 10x magnification/Cobalt blue light



Lower meniscus
< 0.2 mm = dry eye

Schirmer Test [2]

- Schirmer paper strip 5 x 35 mm
- Temporal one-third of lower lid margin
- Without anesthesia: stimulated reflex tear flow
- With anesthesia: may be more objective and reliable
  - test duration = 5 minutes
- Eyes closed

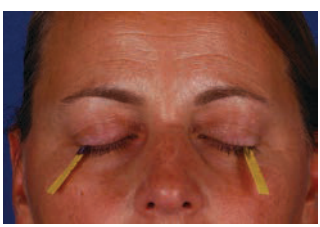


Figure provided by E. M. Messmer

< 10 mm = dry eye
< 5 mm = severe dry eye

2. 2017 Report of the International Dry Eye Workshop (DEWS-Report), The Ocular Surface 2017;15:539-74

STEP 5 LID MARGINS MEIBOMIAN GLAND EVALUATION

Lid margin evaluation: [3]

- Thickness
- Irregularity or notching
- Telangiectasia

Meibomian gland evaluation [3]

- **Orifices:** how many orifices are present in the central 1 cm of lid, and what percentage is blocked?

- **Quality of Meibomian secretion** (should have consistency of olive oil):

  Volume: (score the diameter of the largest pool expressed)

  Expressed secretion: [3]
  0 = clear,
  1 = cloudy
  2 = granular
  3 = solid
  } abnormal

  Expressibility: [3] **(Pressure necessary)**
  0 = minimal,
  1 = light
  2 = moderate
  3 = heavy
  } abnormal

Figure provided by E. M. Messmer

3 : Meibomian Gland Dysfunction: A Clinical Scheme for Description, Diagnosis, Classification, and Grading. Gary N. Foulks, et al. The Ocular Surface, July 2003, vol.1, N.3

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ECO003 JAN2024