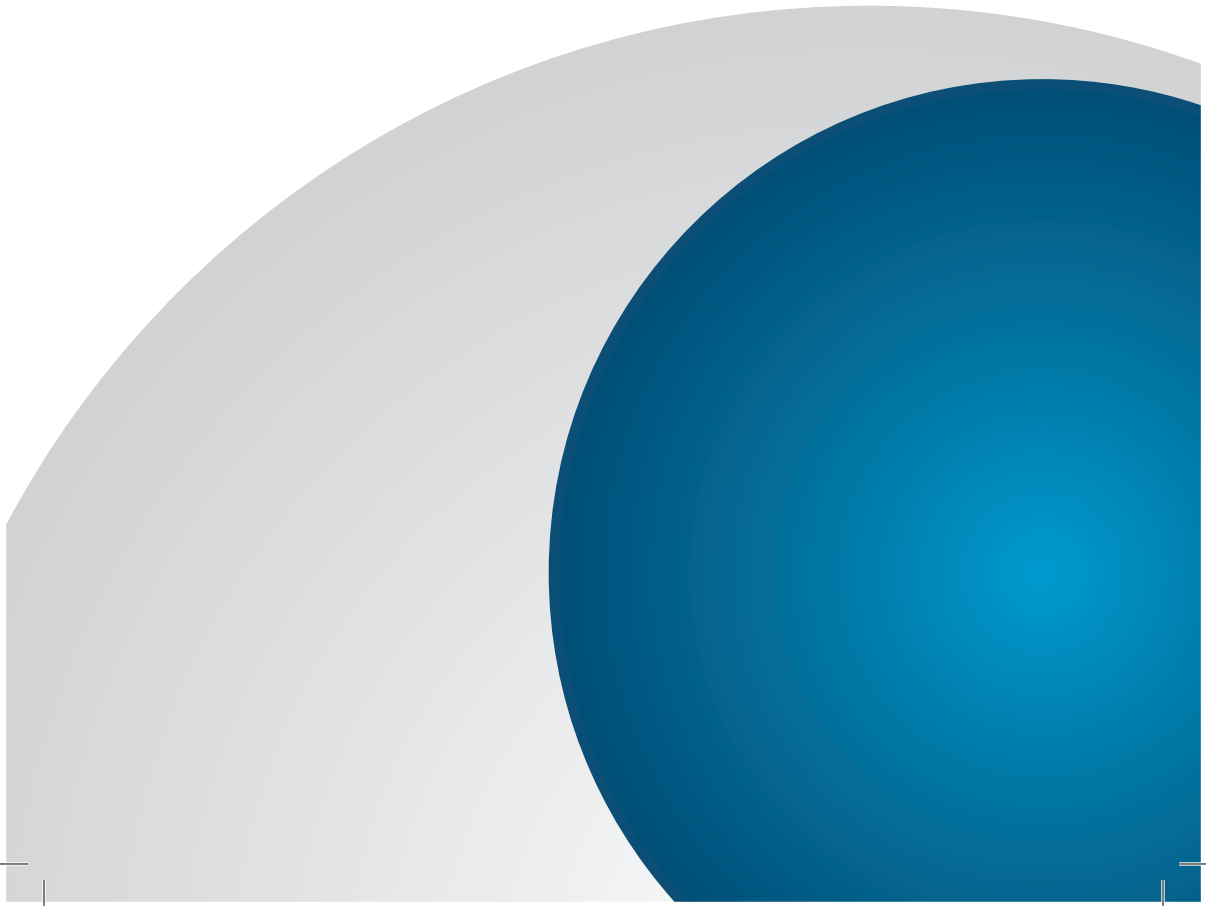
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EDUCATIONAL CLUB
OF OCULAR SURFACE
& GLAUCOMA

5 Tips for the Diagnosis of OCULAR SURFACE DISEASE

in clinical practice



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

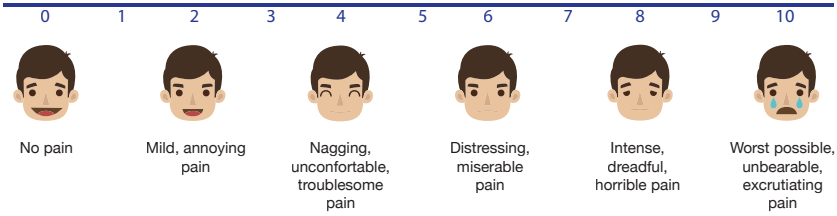
STEP 1 PATIENT HISTORY

• 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

Fast Assessment of ocular Surface Trouble

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		
Use of artificial tears or anti-allergic agents		
History of glaucoma treatment stopped due to intolerance		
Surgery possibly planned at midterm (next months or years)		
Number of preserved glaucoma drops 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								
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

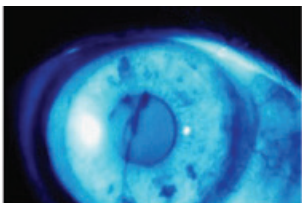


Figure provided by E. M. Messmer

> 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)

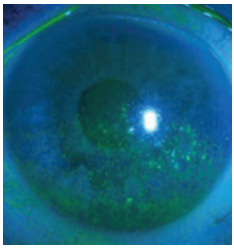
• How to perform corneal fluorescein staining? [2]

> Instillation of fluorescein dye (compare TFBUT)

> Slit lamp at 16 x magnification / Cobalt Blue Light

> **Cornea:** the upper eyelid is lifted to grade the whole corneal surface surface

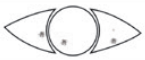
> **Conjunctiva:**
- to grade the temporal zone, the subject looks nasally
- to grade the nasal zone, the subject looks temporally



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 inte palpebral 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 TFBUT

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]

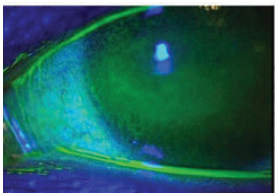
> Simple technique to indirectly judge tear volume

> 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]
    0 = minimal
    1 = light
    2 = moderate
    3 = heavy
    } **abnormal**

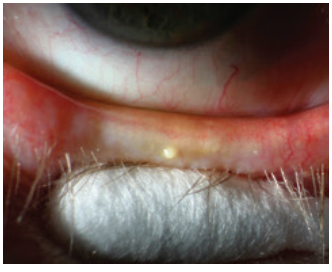


Figure provided by E. M. Messmer

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

Notes

Notes

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