CLINICAL CASE

# OCULAR SURFACE DISEASE

## Meibomian Gland Dysfunction (MGD) and refractive surgery

**Dr Anne Sophie MARTY**
Thiers Ophthalmology Practice, Thiers Ophthalmology Clinic, Bordeaux, France

## Key words

**Dry Eye Syndrome (DES) - Dry Eye - Ocular Surface Disease (OSD) - Meibomian Gland Dysfunction (MGD) - Tear film- Refractive surgery - eTAO – C.DIAG ® - Meibography - C.STIM® - Intense Pulsed Light (IPL)**

## Summary

**Diagnosis** and **treatment** of a female patient with mixed **Dry Eye Syndrome (DES) aggravated** by **refractive surgery.**

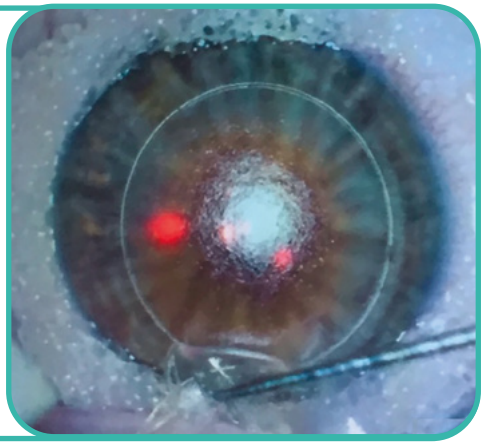
A full diagnosis was made via clinical examination and examinations using the **C.Diag®** imaging platform.

Symptomatic treatment combined with **Intense Pulsed Light** treatment using the **C.Stim®** IPL system was started for the patient. **After 3 C.Stim® IPL sessions, the patient's quality of life was restored** due to a clear improvement in symptoms and an improvement in MGD, with better meibum expression and quality.

1. Clinical examination
2. Para-clinical examination
3. C.Stim® IPL treatment
4. Results at 2 months

## Anamnesis

- 30-year-old female patient
- Deputy director in the medico-social sector
- Laser eye surgery (LASIK) in 2018
- Symptoms since 2019
- Dry eye sensation, stinging, watering, burning, redness, nighttime pain (OD>OS).
  - **Symptoms frequency: 5/10**
  - **Symptoms intensity: 8/10**
  - **DEQ-5=13**



# 1 Clinical examination

**Existing treatment:**

- Eyelid care, blinking exercises
- Artificial tears as required (Hyloconfort®, Hylovis lipo®, Liposic® or Vitamin A® ointment, Naabak®)
- Intolerance to Azyter®, Ikervis®, Doxycycline®
- Lacrimal plug in left lower punctum

**DES Risk factors:**

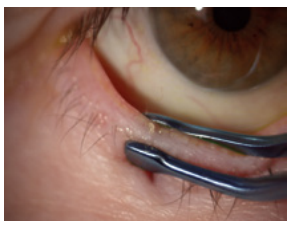
- LASIK surgery
- Screen use
- Cutaneous rosacea
- History of chalazions
- Previous contact lens use
- Dust mite and pollen allergy and long-term antihistamine use.

**Ophthalmologic exams:**

| OD | | OS |
|---|---|---|
| 10/10 P2 | AV | 10/10 P2 |
| +0,25 (-0,25 110°) | Refraction | plan |
| 12 | IOP | 15 |

**Slit lamp exams:**

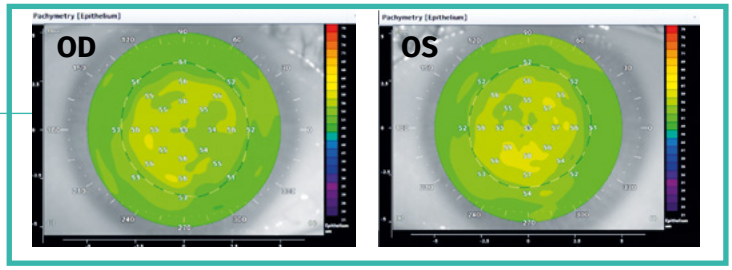
- No reveal superficial punctate keratitis
- Fluorescein-filling defect (presence of spots)
- BUT average of 7 sec//8 sec
- Lid margin telangiectasias
- Thick meibum
- Conjunctival hyperemia
- Conjunctival papillae
- LIPCOF



# 2 Para-clinical examination

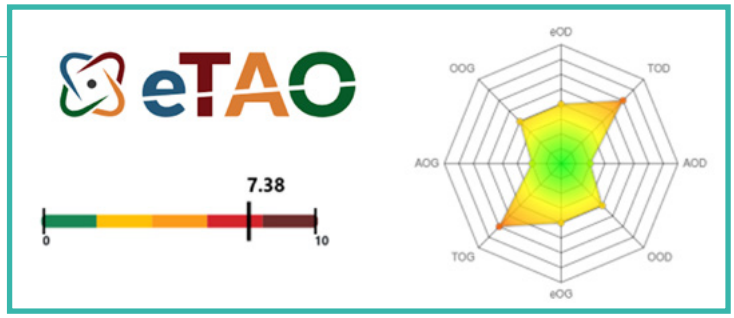
**1. Epithelial mapping:**

- Onset of concentric epithelial atrophy



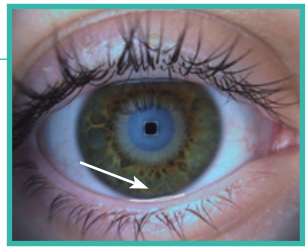

**2. eTAO score**

- eTAO exam report ables to measure the DES severity score



### 3. Ocular surface analysis with C.DIAG®

**Tear meniscus height:**
lower OD= 0.17 mm // OS = 0.23 mm

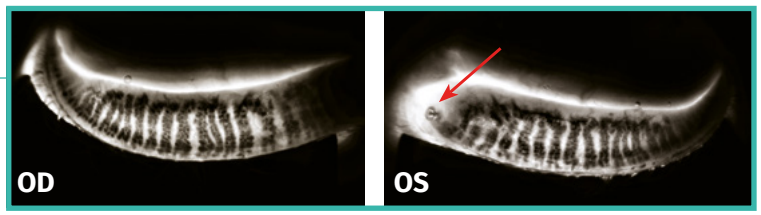


→ **Aqueous deficiency**

**Interferometry:** correct ODS

**NIBUT:** reduced to 8 sec OD / 10.4 sec OS
→ **Slight tear instability**

**Transillumination meibography:**
stage 1 MG atrophy (MG loss < 25%),
stage 2 telangiectasias, note the presence of the OS lacrimal plug (arrow)




**Blink analysis:** pathological OD>OS
→ **Insufficient blink rate in the right eye**
→ **More than 50% incomplete blinks**


## Focus on contact lens intolerance

=> A patient who used to wear contact lenses but became intolerant to them over time should raise concerns of developing MGD.

=> Contact lens intolerance is a frequent cause for consultation with a view to refractive surgery.

=> Wearing contact lenses: - can lead to abnormal blinking,
- splits the tear film in two (pre- and post-lens),
- makes the lipid layer thinner and more uneven (lipid layer),
- causes corneal hypoesthesia leading to a lower tear turnover rate (aqueous layer)
- reduces the number of mucus cells (mucin layer).

=> Screen work is the main cause of incomplete blinking.
**Wearing contact lenses while working on a screen is often uncomfortable due to the resulting MGD.**

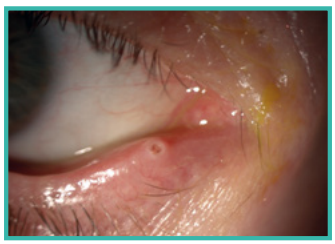
## Diagnosis

Mixed dry eye due to moderate Meibomian gland dysfunction (MGD), along with post-refractive surgery aqueous deficiency

→ **An ophthalmological assessment was carried out to identify systemic dry eye syndrome prior to refractive surgery.**

## Initial treatment

- Lacrimal plugs - OD
- Eyelid care and blinking exercises
- Systane Ultra® mucous membrane protector
- Suggestion of an allergen immunotherapy by an allergy specialist



## 3 month check-up

Symptoms are reduced but are still present despite the patient complying with the treatment.

- **C.STIM® IPL treatment is initiated**
- **Continuation of symptomatic treatment**

## 3 C.STIM® IPL treatment

- Treatment protocol: 3 sessions on D0, D15 and D30
- 4 shots per side per session at a fluence of 8 J/cm²
- Protective goggles for both the patient and the doctor
- Meibum expression using forceps done after each session


## 4 Results at 2 months

- **Clear improvement in symptoms experienced:**
  - **Feedback from the last session:** « eyes are more comfortable ».
  - **Artificial tears:** she keeps putting them on the right only during the day and uses Liposic® before bed.
  - **Warming mask and massaging:** she performs eyelid hygiene 3 times a week.
  - **Blinking exercise:** she performs them during screen breaks at work.
  - **Environment:** she avoids heating the bedroom.
- **Clinical examination:**
  - No SPK
  - BUT 10 sec//10 sec
  - Decrease of lid margin telangiectasias
  - More fluid meibum OS>OD during meibum expression

→ **Symptomatic treatment must be continued over the long term**
→ **IPL treatment repetition if necessary**

## Conclusions

- C.STIM® IPL treatment is **rapid, effective and safe.**
- **Dry eye** following **refractive corneal (or crystalline lens) surgery** is a **major cause of post-surgical dissatisfaction.**
- **IPL treatment** can easily be offered to patients already suffering from **pre-operative and/or post-operative MGD** when local symptomatic treatment is not effective enough.

La JANVIER 2025- XS_CC_AN_Marty_N°2_25_02_06