

On behalf of Vision Expo, we sincerely thank you for being with us this year.

Vision Expo Has Gone Green!

We have eliminated all paper session evaluation forms. Please be sure to complete your electronic session evaluations online when you login to request your CE Letter for each course you attended! Your feedback is important to us as our Conference Advisory Board considers content and speakers for future meetings to provide you with the best education possible.



1

Financial Disclosure

Scott Keating has no financial interests to disclose.

2

Ocular Complications Associated with Contact Lens Wear

Presenter: Dr. Scott Keating, O.D.

3

Course Description

- In this course, attendees will learn how to differentiate three common ocular health problems caused by contact lens wear. These three include; Giant Papillary Conjunctivitis (GPC), contact lens induced acute red eye (CLARE), and contact lens induced peripheral ulcer (CLPU). Case Studies will be given to help teach critical signs and symptoms of each contact lens induced ocular adnexia. Best treatment options will be given to eliminate the ocular condition and the best contact option for each condition.

4

Upon completion of the course, the attendee should be able to:

Differentiate	Know	Understand
Differentiate the signs and symptoms of GPC, CLARE, and CLPU.	Know treatment options for each condition <ul style="list-style-type: none"> • Medicine options • Type of contact lens modality options 	Understand similar diseases that might confuse the proper diagnosis of the true ocular condition

5

Case Report #1

- 18 year old female reports itching, mucus strands, and her contact lens “move around” a lot.
- She wears daily soft contact lenses and tends to “stretch” the wear time before inserting a new one.
- Vision is blurry with contact lens in (20/30)

6

Slit Lamp Evaluation

- ▶ Upper lids 2 + papillae, lower lids clear
- ▶ Conjunctiva clear
- ▶ Cornea shows no Fluorescein stain



7

Diagnosis?

- ▶ What is your Diagnosis?
- ▶ What is proper treatment?

8

(GPC) Giant Papillary Conjunctivitis

- ▶ Hypersensitivity - related inflammation of the ocular tarsal Palpebral conjunctiva
- ▶ Common Causes;
 - ▶ Debris on surface of contact lenses increase inflammation
 - ▶ Mechanical irritation of tarsal, from contact lens edge
 - ▶ Poor contact lens cleaning
 - ▶ Wearing extended wear contact lenses



9

Symptoms

- ▶ Itchy
- ▶ Burning
- ▶ Redness
- ▶ Mucus discharge
- ▶ Tearing
- ▶ "Contact seems to move a lot"
- ▶ Blurred vision with contacts in

10

Treatment

- ▶ Discontinue contact lens wear or Dailies contact lenses
- ▶ Switch materials, smaller diameter (RGP)-less surface area to hold deposits
- ▶ Allergy drops
- ▶ Steroids
 - ▶ Lotemax Gel
 - ▶ FML
 - ▶ 1% Prednisolone

11

Pearls:

- ▶ More common in soft wear than GPC
- ▶ More common in monthly wear verse daily or two week
- ▶ More common in ocular prosthesis

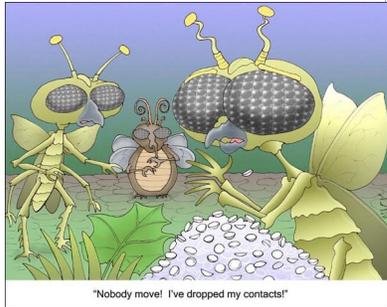
12

Differential Diagnosis

- ▶ VKC Vernal Keratoconjunctivitis
 - ▶ Most common in hot environments
 - ▶ Males 1-22 years old
 - ▶ Usually resolves after puberty
 - ▶ Symptoms same as GPC, increased photophobia.
 - ▶ However, Papillae were very large.
 - ▶ Cornea can become involved with ulcer (shield) superior



13



14

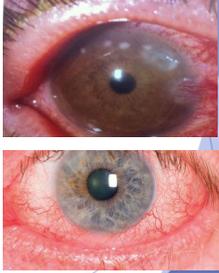
Case Report #2

- ▶ 32 year old male with recent "cold" wears soft hydrogel contact lenses
- ▶ Likes to sleep in them
- ▶ Presents to office with Photophobia, pain in right eye, and tearing vision acuity OD 20/25

15

Slit Lamp Evaluation

- ▶ Peripheral conjunctival 2-3+ hyperemia
- ▶ Peripheral corneal infiltrates
- ▶ No staining of cornea



16

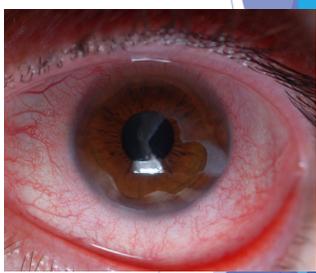
Diagnosis?

- ▶ What is your Diagnosis?
- ▶ What is proper treatment?

17

(CLARE) Contact Lens induced Acute Red Eye

- ▶ CLARE is an endotoxin response, not an infection.
- ▶ It is an inflammatory reaction of the cornea and conjunctiva subsequent to a period of eye closure with soft lens wear.
- ▶ Endotoxins are released from gram (-) bacteria on the lenses or in the contact lens case and solution.



18

Signs

- ▶ Small focal and diffuse peripheral corneal infiltrates with minimal or no epithelial involvement, can be central infiltrates
 - ▶ Circumlimbal hyperemia of conjunctiva
 - ▶ Occasional corneal staining (superficial and scattered)
 - ▶ Anterior uveitis in severe cases and corneal edema
 - ▶ History of contact lens over wear or extended wear in soft lens
 - ▶ Rare in RGP lens
 - ▶ Unilateral eye pain

19

Symptoms

- ▶ Acute onset of symptoms
 - ▶ Patient often awakes from sleep with severe pain
 - ▶ Continuous tearing
 - ▶ Extreme photophobia
 - ▶ Intense injection

20

Treatment

- ▶ Removal of contact lens till full Resolution
- ▶ Lubricant and anti-inflammatory agents (steroid) can use combo such as Tobradex
- ▶ Avoid extended wear for a while
- ▶ Cycloplegic agent for severe photophobia or anterior uveitis

21

Pearls

- ▶ More common in the first 3 months of extended wear
 - ▶ Though can occur any time
- ▶ Tight contact lenses increase the risk of CLARE
- ▶ Go to dailies

22

Pearls

- ▶ If patient insists on EW
 - ▶ B&L Purevision DK/L=110 or Alcon Night and Day DK/L=175
 - ▶ High O₂ and less conducive to bacterial adhesion compared to standard hydrogel lenses
 - ▶ Ask patient with CLARE symptoms if any recent illness including symptoms of common cold, upper respiratory tract infections.
 - ▶ These are associated with gram 9(-) organisms like Haemophilus Influenza. 100 times more likely to have CLARE with Haemophilus Influenza
 - ▶ Warn patients who wear extended wear to not sleep in contact lens with colds. Up to 50% chance of recurrence if continues extended wear

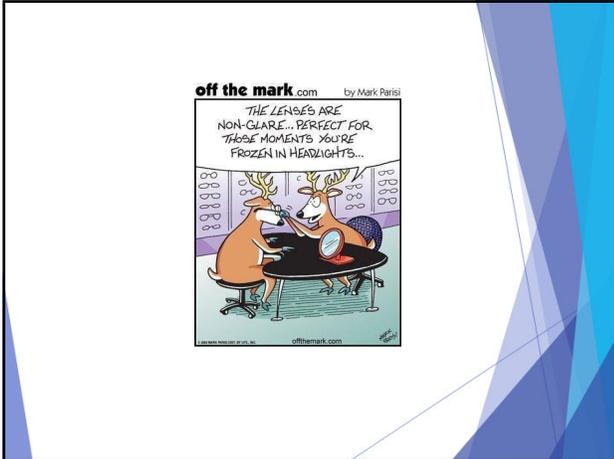
23

Differential Diagnosis:

- ▶ Microbial Keratitis (MK)
- ▶ Look for area of Fluorescein staining, typically greater than 1mm diameter and often located in the central cornea
- ▶ More common to have anterior cells than CLARE
- ▶ Mucopurulent discharge more common
- ▶ Contacts lens induced peripheral ulcer (CLPU)
- ▶ CLARE
- ▶ No stain typically, CLPU stain as single circular focal infiltrates up to 2mm in diameter



24



25

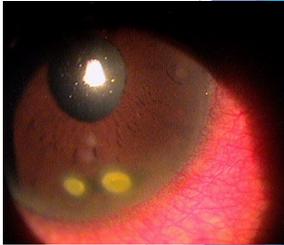
Case Report #3

- ▶ Painful right Eye
- ▶ Upper Lid swollen
- ▶ Photophobic
- ▶ Feels like foreign body trapped in her right eye
- ▶ Patient slept in contact lens last night
- ▶ Mucopurulent discharge

26

Slit Lamp Evaluation

- ▶ Diffuse conjunctival injection
- ▶ Small circular corneal epithelial defect with underlying stromal infiltration



27

Diagnosis?

- ▶ What is your Diagnosis?
- ▶ What is proper treatment?

28

Contact Lens Induced Peripheral Ulcer (CLPU)

- ▶ Defined by corneal infiltrate associated with an overlying epithelial defect
- ▶ A corneal ulcer is caused by a break in the corneal epithelium, and leads to the entrance of microorganism through the break causing a bacterial keratitis
- ▶ Corneal Hypoxia (decrease O²) contributes to corneal ulcers thus extended wear increase ulcers
- ▶ It is usually caused by colonization of the contact lens surface by pathogenic Gram positive bacteria - usually Staph Aureus or Staph Epidermidis

29

Treatment

- ▶ Combo Antibiotic / Steroid
 - ▶ Ciloxan resistance of some bacteria
 - ▶ Ocuflox
 - ▶ Vigamox, Zymar

30

Differential Diagnosis:

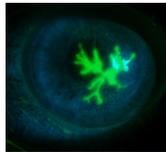
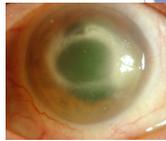
- ▶ Bacterial Keratitis
 - ▶ Most common contact lens related microbial keratitis usually associated with extended wear
- ▶ Fungal Keratitis
 - ▶ Associated with traumatic corneal injury especially from
 - ▶ Vegetable matter (tree limb)
 - ▶ Lesion generally has feathery borders and may have satellite infiltrates



31

Differential Diagnosis:

- ▶ Acanthamoeba Keratitis
 - ▶ Extremely painful ring shaped infiltrate possible associated with swimming / hot tubs while wearing contact lenses or use of tap water or saline instead of disinfection
- ▶ Herpes Simplex Keratitis
 - ▶ Dendrites with terminal bulbs in cornea “tree branch look”



32

Differential Diagnosis:

- ▶ Factors that play a role in contact lens related keratitis
 - ▶ Bacterial adherence to the lens and contact case
 - ▶ Stagnation of tear film behind contact lens
 - ▶ Hypoxia increase bacterial binding

33

Pearls

- ▶ 50% of cases probably related to noncompliant contact lens wear
 - ▶ Wearing schedule
 - ▶ Lack of hand washing
 - ▶ Old contact lens cases
- ▶ Use hydrogen peroxide solution
- ▶ Daily wear verses Extended Wear contacts

34

Question and Answer
Dr. Scott Keating, O.D.

35
