Medical Management of Ocular Surface Disease

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Mucous Fishing Syndrome

- Cascading cyclic characterized by continuous extraction of mucous strands
- Initiated by ocular irritation
- Ocular surface cells produce excess mucus, in response to irritation
- "Snow balling" cycle begins when the pt extracts ("fishes") excess mucus from the ocular surface
  - Causes further irritation and a more discharge

The "Triad"
Dry Eye – Allergy - Blepharitis

- Difficult to separate
- Similar symptoms: tearing, burning, itching, FBS
- Often vague symptoms
- Signs of inflammation are similar regardless of disease cause

Mark Dunbar: Disclosure

- Optometry Advisory Board for:
  - Allergan
  - Carl Zeiss Meditec
  - Regeneron
  - Nicox

Mark Dunbar does not own stock in any of the above companies
Overlap in Ocular Surface Disease
Opitz DL ARVO 2014 et al.

Consecutive Patients Categorized
- Normal
- Aqueous deficient dry eye
- Evaporative dry eye
- Allergic conjunctivitis,
- Mixed (more than one of the three)

Allergic conjunctivitis most prevalent 42%

Most common overlap: Mixed Dry Eye
- 86% of the subjects had one or more of these conditions

Dry Eye - More than an Annoyance

Symptoms impact quality of life
- Blurred vision
- Dry and gritty sensation
- Burning
- Photophobia
- Frequent blinking
- Frequent use of artificial tear

Patient Types with High Incidence of Dry Eye Disease
- Women aged 50 or older
- Women using postmenopausal hormone replacement therapy
- Those with ocular comorbidities
- Contact lens wearers
- Smokers
- Users of artificial tears ≥ 3 times/day

Prevalence of Dry Eye Disease
- 25 million Americans are estimated to be suffering from Dry Eye
- Results from the 2012 Gallup poll project the number of adults who report experiencing Dry Eye on a regular basis.

Projected Growth in Frequent Dry Eye Sufferers (in millions)

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Dry Eye Market Overview:
Prevalent Condition With Practice Opportunity
>25 Million Americans suffer from dry eye disease
$3.8 Billion spent on dry eye symptom relief annually in the U.S. alone
Most frequently encountered disease state by eye care professionals

Opportunity
Better clinical outcomes for patients → Patient Retention & Referrals → Practice Growth
Dry Eye
As defined by the Dry Eye Workshop (DEWS)
- “is a multi-factorial disease of the tears and ocular surface that results in symptoms of discomfort, visual disturbance, and tear film instability, with potential damage to the ocular surface. It is accompanied by increased osmolarity of the tear film and inflammation of the ocular surface.”

Dry eye complaints are the most common reason patients seek help from eye doctors

Patient Types with High Incidence of Dry Eye Disease
- Women aged 50 or older
- Women using postmenopausal hormone replacement therapy
- Those with ocular comorbidities
- Contact lens wearers
- Smokers
- Users of artificial tears ≥ 3 times/day

Traditional Dry Eye
- Age-related dysfunction of the lacrimal gland
- Lead to aqueous tear deficiency or tear film instability
- Treatment aimed at lubricating and hydrating the ocular surface
- Provided palliative, transient symptomatic relief

Healthy Tears
- A complex mixture of proteins, mucin, and electrolytes
- Antimicrobial proteins: Lysozyme, lactoferrin
- Growth factors & suppressors of inflammation: EGF, IL1RA
- Soluble mucin 5 AC secreted by goblet cells provides viscosity
- Membrane-bound mucins 1 & 4 help stabilize tear film
- Electrolytes for proper osmolarity

Tears in Chronic Dry Eye (CDE)
- Lesser concentrations of many proteins in CDE
- e.g. antimicrobial proteins
- Growth factor concentrations decreased
- Cytokine balance shifted, promotes inflammation
- Soluble mucin 5 AC greatly decreased
- Due to loss of goblet cells
- Impacts viscosity of tear film
- Activated proteases
- Degradation extracellular matrix & tight junctions
- Increased electrolytes

Artificial Tears
- Artificial tears contain electrolytes – But they lack the complex mixture of proteins, mucins & other factors found in normal healthy tears
- Provide temporary, palliative relief
The Healthy Eye

- Normal tearing depends on a neuronal feedback loop.
  - Lacrimal Glands
  - Tears Support and Maintain Ocular Surface

It functions as a single integrated unit.

Stern et al. Cornea. 1998;17:584

Neural Feedback Loop

- Controls tear and mucin production
- Incites inflammation when there is an imbalance in the feedback loop
- This leads to a change in quantity and quality of the normal tears

Current Perspective on Dry Eye

- Two primary forms of dry eye
  - Evaporative (lipid deficient caused by MGD)
    - Occurs when the lipid (or aqueous) in tears evaporates at a faster rate than normal
  - Aqueous deficient
    - Occurs when aqueous generation from the lacrimal gland is insufficient to keep the eyes moist

Latest research suggests that 86% of dry eye patients have Evaporative Dry Eye.

Stable Tear Film Essential to Function

- Anatomical
  - Lacrimal Gland
  - Meibomian Gland
  - Goblet Cells
  - Stable Tear Film

- Sensory Motor
  - Lid blinking
  - Lid closure
  - Tear Clearance & Spread

Assessments Currently Used to Diagnose Dry Eye Disease

- Presence of patient symptoms
- Aqueous tear production
  - Schirmer tests
  - Zone Quick
- Ocular surface disease
  - Clinical examination
  - Dye staining

- Tear stability
- Tear breakup time
- Tear film osmolarity
- No test currently evaluate the OS inflammation...yet

Clinical Findings Associated with Dry Eye

- Diffuse injection
- Punctate epithelial erosions (PEE) and punctate epithelial keratitis (PEK)
- NaFl staining
- Rose Bengal/Lissamine green staining
- Reduced Schirmer’s
- Rapid tear break-up time (TBUT)
Tear Film Osmolarity

- A measure of the concentration of solutes in the tear film
- **Elevated** in both evaporative and aqueous deficient dry eye disease
- Tear film osmolarity has been proposed as a biomarker that could be used to diagnose and monitor dry eye disease

A meta-analysis by Tomlinson et al reviewed osmolarity values in patients with and without dry eye disease and suggested a value of \( > 316 \) mOsmol/L as being diagnostic of dry eye disease.

InflammaDry

- Detects elevated levels of MMP-9 in tear fluid
- 10 minute in-office results
- Easy to use—can be performed by technicians or nurses
- Disposable—no additional equipment required

Limit of Detection: the normal level of MMP-9 in human tears ranges from 3-41 ng/ml
- **Positive** test result = MMP-9 \( \geq 40 \) ng/ml
- **Negative** test result = MMP-9 <40 ng/ml

**Results:** InflammaDry showed sensitivity of 85% (in 121 of 143 patients), specificity of 94% (99 of 63), negative predictive value of 73% (59 of 81), and positive predictive value of 97% (121 of 125).

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<tr>
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<td>Sp(%)</td>
<td>98.3 (99/63)</td>
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<tr>
<td>Specificity(b)</td>
<td>94 (35/37)</td>
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<td>Spec(%)</td>
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<td>Positive predictive value</td>
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<td>Negative predictive value</td>
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<td>Spec(%)</td>
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InflammaDry Clinical Trial

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<td>94% (59/63)</td>
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<tr>
<td>Overall Agreement</td>
<td>87% (180/206)</td>
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Treatment Options for Dry Eye

- Control environmental factors
- Lid hygiene
- Artificial tears
- Punctal plugs
- Steroids
- Restasis
- Xiidra
- OMG3

Treatment of Dry Eye

- Anti-inflammatory treatment
  - Restasis (Cyclosporin)
  - Xiidra (Lifitagrast)
    - FDA approved June 2016
  - Topical steroid
  - Doxycycline if MGD
  - Omega 3 fatty acids

Xiidra (Lifitagrast)

- Latest dry eye drug approved by FDA for the treatment of both signs and symptoms
- Approval based on 4 multicenter clinical trial
- Bid dosing
- Xiidra had a statistically significant clinical improvement in signs (corneal staining) and symptoms (eye dryness) compared with placebo (Opus studies)

OPUS-3

Compared Symptoms:
- 355 patients on Xiidra and 356 on placebo
- Xiidra had a highly statistical improvement at day 84 (p=0.0007), day 42 (p<0.0001) and at 14 days after initiating therapy (p<0.0001).
MOA of Lifitegrast

- Small molecule integrin antagonist that blocks binding of ICAM-1 to LFA-1 on the T-cell surface, inhibiting T-cell recruitment and activation associated with DED inflammation.

The Ocular Surface in Dry Eye

- Over-expression of a ligand known as intercellular adhesion molecule-1 (ICAM-1)
  - These are fingerlike projections on the epithelium and endothelium have binding sites for T-lymphocytes
  - The specific binding occurs via the LFA-1 integrin
  - LFA-1 is on the migrating T-lymphocyte and binds to ICAM-1
  - The interaction of LFA-1 and ICAM-1 is not only important for T-cell adhesion, but also migration, proliferation and cytokine release at sites of inflammation.

RESTASIS®
(cyclosporine ophthalmic emulsion)
0.05%

Cyclosporine Ophthalmic Emulsion 0.05%
Restasis®

- Prevents T-cell activation
  - Activated T-cells produce inflammatory cytokines that lead to:
    - Tissue damage
    - Recruitment of T-cells
    - Promotion of proinflammatory substances
    - Decreases apoptosis of lacrimal gland tissue
- Increases conjunctival goblet cell density
- Improves corneal barrier function

Established safety profile35,37,40 | 3.9 million patients treated43

Cyclosporine: Treatment for Dry Eye Disease

- Cyclosporine ophthalmic emulsion contains the immunomodulator cyclosporine
  - Immunomodulator = immunosuppressive
- Cyclosporine is a prescription therapy for patients with dry eye due to decreased tear production
- Cyclosporine is believed to treat and may prevent progression of the disease by treating the underlying cause - inflammation
Cyclosporine Pivotal Trial Results

- Superior Schirmer scores
- Reduced reliance on artificial tears
- Reduced corneal staining
- Symptom relief
- Increased goblet cell density

Summary of Laboratory Efficacy Measures

- Restasis™ decreased inflammatory markers
- Reversal of inflammation
- Underlying immune-mediated pathology of dry eye disease addressed
- 0.05% CsA normalizes the ocular surface
  - Permits return of a stable, healthy tear

Dysfunctional Tear Syndrome (DTS): Pathophysiology

- Most DTS cases have inflammatory basis
  - Triggers or maintains condition
  - Sometimes difficult to clinically observe inflammation
- Presence of clinically apparent inflammation affects treatment choices

Consensus Treatment Algorithm Guidelines

Severity Level 1

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Treatment</th>
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<tbody>
<tr>
<td>Mild to moderate symptoms and no signs</td>
<td>Patient counseling, Preserved tears</td>
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<tr>
<td>Mild to moderate conjunctival signs</td>
<td>Environmental management, Control Allergies, Use of hypoallergenic product, Water intake</td>
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</table>

Severity Level 2

**Symptoms**
- Moderate to severe symptoms
- Tear film signs
- Mild corneal punctate staining
- Corneal staining
- Visual signs

**Treatment**
- Unpreserved tears, gels, ointments
- Cyclosporin A (Restasis®)
- Lifitagrast (Xiidra®)
- Topical steroids
- Nutritional support (flax-seed oil).

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Severity Level 3

**Symptoms**
- Severe symptoms
- Marked corneal staining
- Central corneal staining
- Filamental keratitis

**Treatment**
- Tetracyclines
- Punctal plugs
- If no improvement – add level 4

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Severity Level 4

**Symptoms**
- Severe symptoms
- Severe corneal staining
- Erosions
- Conjunctival scarring

**Treatment**
- Systemic anti-inflammatory therapy
- Oral cyclosporine
- Moisture goggles
- Acetylcysteine
- Punctal cautery
- Surgery

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Treatment – Level 2 & 3

**Level 2 & 3 – Moderate to Moderately Severe**

1. Preservative-free lubricants (gels/ointments)
2. Nutritional support (essential fatty acids, e.g., Omega-3)
3. Topical antibiotic (short term only)
4. Cyclosporine A
5. Topical steroids (low-dose Pred Mзд®/FML®)
6. Systemic tetracyclines (doxycycline/minocycline 100 mg or azithromycin/clarithromycin 250 mg 2x/wk)
7. Lacrisert
8. Punctal plugs (temporary/permanent)
9. Moisture-retaining eye wear

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Ocuvee

[Image of Ocuvee device]

Neurostimulation of the lacrimal nerve
**Diagnosis**

- Anterior/Posterior blepharitis

**Treatment Options:**

- Lid hygiene
- Oral Doxycycline 100 mg/day for 1 wk, 50 mg/day X 6-8 wks
  - Perostat (Doxy 20 mg)
- AzaSite bid X 2 days, qhs X 1 mo

**Diagnostic and Therapeutic Challenges with Blepharitis**

- Several types and subtypes with overlapping signs and symptoms
- Chronic condition with exacerbations and remissions
- No defined end point cure
- Compatibility with dry eye and other OED
- Coexists with various dermatologic conditions

**The Spectrum of Lid Margin Disease**

Although Anterior Blepharitis and Posterior Blepharitis (MGD) are distinct entities, they often coexist.

**Anterior Blepharitis**

- Crusting of lids (am)
- Loss of lashes
- Collarettes
  - Scales that encircle lash
- Lid margin redness
- Conj hyperemia
- Inflammation
**Pathophysiology of Anterior Blepharitis**
- Inflammation is caused by the impact of bacterial exotoxins and/or delayed hypersensitivity to antigens
- Staphylococcal infection can be purulent or ulcerative and often causes angular blepharitis, a focal infection in the skin of the lateral canthus

**Posterior Blepharitis**
- Meibomian Gland Disease (MGD)
- Involves a change in composition of meibomian gland secretions
- Leads to inflammation, irritation and an altered tear film

**MGD Can Lead to a Downstream Cycle of Inflammation**

**Pathophysiology of Posterior Blepharitis and Its Role in Ocular Disease**

**Meibomian Gland Function**
- MG secretions may be modified by lipases produced by ocular bacteria
- Bacteria may degrade the lipids which lead to an unstable tear film and irritating free fatty acids
- Hormonal imbalances may alter lipid profiles to destabilize the tear film and produce evaporative dry eye

**Because Not All MGD Is Obvious, Active Disease Identification Is Crucial**
Meibomian Gland Evaluation

Meibography

“Korb” Meibomian Gland Evaluator

- Standardized method for assessing meibomian gland functionality
- Consistent, gentle pressure ≈ deliberate blink (1g/mm²)

Additional Manual Expression

Jaeger Plate-modified by M. Gutierrez, OD

New Ophthalmic Surgical Instruments

Collins Expressor Forceps (Item 98610)
- For aggressive expression of the Meibomian gland

Livengood Expressor Paddles

- Angled (Item 98620) & Flat (Item 98630)
- For mild or gentle expression of the Meibomian gland

MGD Complications

- Chronic blepharoconjunctivitis
- Keratitis
  - Neovascularization
  - Ulceration
  - Scarring and thinning
- Chronic pain
- Loss of vision
Ocular Rosacea Findings

- Meibomian gland Dz
  - Foamy tears
- Recurrent chalazia
- Chronic blepharitis
  - Staph blepharo-conjunctivitis
  - Lid margin telangiectasia
- Papillae, follicules
- Hyperemia

Rosacea Keratitis

- Represents more significant clinical problem
- Cutaneous rosacea:
  - 5-30% corneal involvement
- Ocular rosacea:
  - 75-85% corneal involvement
- Inferior cornea usual site
- Characteristic “spade-shaped” infiltrates

Involved more than 50 leading clinical and basic research experts from around the world
Completed 2010: based on more than 2 years or work
Participants were assigned to subcommittees, reviewed published data and examined the levels of supporting evidence
The report has also been translated, at least in part, into Chinese, Dutch, French, German, Greek, Italian, Japanese, Polish, Portuguese, Spanish, Russian and Turkish; these translations are available on the TFOS website.
Tests to Diagnosis MGD

MG Expression – most important!
- The application of moderate digital pressure to the central lower lid
- Asymptomatic adults
  - It is appropriate to include gland expression
- A diagnosis of MGD may require that the patient be further assessed for ocular surface damage and dry eye, using appropriate diagnostic techniques

Tests for Diagnosing MGD

- Administration of a symptom questionnaire
- Measurement of the blink rate and calculation of the blink interval
- Measurement of lower tear meniscus height
- Measurement of tear osmolarity (if available)
- TBUT and Ocular Protection Index (OPI)
- Grading of cornea/conjunctival staining
- Schirmer’s or alternate (phenol red thread test)

Diagnosis/Treatment of Stage 1

- No symptoms of ocular discomfort, itching, or photophobia
- Clinical signs of MGD based on gland expression
- Minimally altered secretions: grade 2–4
- Expressibility:
- No ocular surface staining

- Inform patient about MGD,
  - The potential impact of diet, and the effect of work/home environments on tear evaporation, and the possible drying effect of certain systemic medications
- Consider eyelid hygiene including warming/expression

Diagnosis/Treatment of Stage 2

- Minimal to mild symptoms of ocular discomfort, itching, or photophobia
  - Minimal to mild MGD clinical signs
- Scattered lid margin features
  - Mildly altered secretions: grade 4–8
  - Expressibility: 1
  - None to limited ocular surface staining

- Advise patient on improving ambient humidity, optimizing workstations and increasing dietary omega-3 fatty acid intake (+)
- Institute eyelid hygiene with eyelid warming (a minimum of 4 min, 1-2 X/day) followed by moderate to firm massage and expression of MG secretions (+)
- All the above, plus (+)
  - Artificial lubricant (for frequent use, non-preserved preferred)
  - Topical anti-inflammatory
  - Topical emollient lubricant or liposomal spray
  - Consider oral tetracycline derivatives

Diagnosis/Treatment of Stage 3

- Moderate symptoms of ocular discomfort, itching, or photophobia with limitations of activities
  - Moderate MGD clinical signs
  - Lid margin features: plugging, vascularity
  - Moderately altered secretions: grade 8 to < 13
  - Expressibility: 2
  - Mild to moderate conjunctival and peripheral corneal staining, often inferior

  All the above, plus
  - Oral tetracycline derivatives (+)
  - Lubricant ointment at bedtime (+)
  - Anti-inflammatory therapy for dry eye as indicated (+)
  - Signs of inflammation:
    - Moderate conjunctival hyperemia, phlyctenules

Diagnosis/Treatment of Stage 4

- Marked symptoms of ocular discomfort, itching, photophobia with definite limitation of activities
  - Severe MGD clinical signs
  - Lid margin features:
    - Dropout, displacement
    - Severely altered secretions: grade > 13
    - Expressibility: 3
  - Increased conjunctival and corneal staining, including central staining:
  - Signs of inflammation:
    - Moderate conjunctival hyperemia, phlyctenules

- Anti-inflammatory therapy for dry eye (+)

All the above, plus

- Artificial lubricant (for frequent use, non-preserved preferred)
- Topical anti-inflammatory
- Topical emollient lubricant or liposomal spray
- Consider oral tetracycline derivatives
Traditional Treatments

- Lid Hygiene
  - Baby shampoo
  - Hot compresses
- Poor compliance

Blepharitis Treatment: Beyond Lid Hygiene

- Oral Doxycycline
  - 100 mg/day for 1 wk, 50 mg/day X 6-8 wks
  - Low dose doxycycline
    - Perostat (Doxy 20 mg) bid
    - AzaSite: topical azithromycin

The Main Problem with Oral Therapy (Doxycycline) is Side-effects

- Oral Doxycycline (20 mg) therapy in patients with chronic MGD that were refractory to conventional therapy
- Randomized prospective study enrolled 150 patients (300 eyes) w MGD who didn't respond to lid hygiene and topical therapy for more than 2 months
- Patients randomized to:
  - High dose group (doxycycline, 200 mg, twice a day)
  - Low dose group (doxycycline, 20 mg, twice a day)
  - Control group (placebo)

The Effect of Low-Dose Doxy in Chronic MGD

- At 1 Mo: Both the high and low dose group showed statistically significant differences after treatment in TBUT, Schirmer test, the number of symptoms reported and the degree of improvement vs control
- No statistically significant difference between the high and low dose groups
- The high dose group (18 patients, 39.13%) had more side effects than did the low dose group (8 patients, 17.39%)

CONCLUSIONS:

Low dose doxycycline (20 mg twice a day) therapy was effective in patients with chronic MGD that were refractory to conventional therapy.

Low Dose Doxycycline

- Provides anti-inflammatory results
- Lower dose minimizes side effects and eliminates anti-bacterial resistance.

Assess the Tear Film With LipiView®

LipiView uses advanced interferometric technology and captures detailed digital images of the eye’s tear film to capture, archive, manipulate, and store the oily lipid layer of tear.

LipiView® Output

- Produces a measurement called the Ocular Index of Lipid Interferometric Color Unit (ICU)
- Calculated on a frame-by-frame basis and plotted for ~1 billion data points per eye
- The results are then displayed and are available for printout

Cost: ~ $1400 for both eyes
Instrument costs $99,000

LipiFlow®

Can purchase LipiFlow for $25,000 (without the LipiView) Cost now ~$1000
Conclusions

Mean improvement was observed with LipFlow® from baseline to post-treatment in Meibomian gland score, tear film break-up time, and OSDI. Dry Eye symptom questionnaires.

LipFlow group had a statistically significant greater improvement in number of Meibomian glands secreting clear fluid as compared to warm compress control therapy.

Similar improvement in effectiveness trends observed after crossover from warm compress therapy to LipFlow treatment.

Overall safety profile of the LipFlow system reflects a low occurrence of numerous, transient side effects; no serious adverse events related to the device.

“Dunbar” Treatment Recommendations
A Stepwise Approach

- **Step 1** – Lid Hygiene: LS, HC, AT
- **Step 2** – Topical Medications
  - Steroids (FML, Lotemax, PF)
  - Steroid/antibiotic combinations
  - Antibiotic ointment (Erythromycin)
  - AzaSite
- **Step 3** – Systemic antibiotics
  - Tetracycline/Erythromycin
  - Doxycycline
  - Azithromycin

Demodex

- Tiny parasitic mites that live in or near hair follicles of mammals
- Around 65 species of Demodex
  - 2 species live in humans: folliculorum and brevis – commonly seen in the lashes

Demodex has received a lot of attention over the past few years.

- Incidence 84% ages 60, 100% older than 70
- Lifespan is 19-23 days
- Mate and continue to grow
- Tea tree oil is currently the best treatment
High Age-dependent Prevalence of Ocular Demodex Infection

- Blinks from 435 people at ages from 2 to 96 years were examined under a light microscope. Demodex infection was classified on the basis of presence of mature and larval forms or after observing ophthalmic mites (cylindrical dendruff) adhered to the subjects' eyelashes.
- Because of protective bone protrusion, ocular Demodex is hard to eradicate.
- 13% in 3 to 15 year-old
- 34% in 19 to 25 year-old
- 69% in 31 to 50 year-old
- 87% in 51 to 70 year-old
- 95% in 71 to 96 year-old

Demodex Mites

- Demodex blepharitis is the most common but overlooked external disease problem, causing ocular surface inflammation.
- Ocular Demodex infestation is hard to eradicate.
- Demodex can exacerbate many pre-existing ocular surface conditions, like dry eye and pinguecula.
- Numerous publications have shown that Demodex often plays a role in blepharitis.

Resistant to Many Conventional Treatments, but Dose-dependently Killed by TTO

- Cannot be killed by Baby shampoo
- Cannot be killed by 10% Propylene iodine
- Cannot be killed by 75% alcohol
- Cannot be killed by Macrolides such as erythromycin
- Cannot be killed by Metronidazole
- Cannot be killed by 4% Placarpine

- Killed dose-dependently by Tea Tree Oil (TTO)

Demodex Treatment

- Lash debridement?
  - Initial treatment: debride the lashes and eyebrows with a cotton tip applicator soaked in 20% to 50% tea tree oil.
- Tea tree oil: excellent concentration-dependent Demodex-killing properties
  - 100% tea tree oil solution is very irritating and should be diluted
  - One can prepare a mixture of 50% tea tree oil by diluting the tea tree oil in either macadamia or walnut oil.

Cliradex®

- Eye lid/facial cleanser
- Targets demodex
- Contains “Melaleuca Altemifolia”
  - A special variety of tea tree oil with 4-terpineol

Cliradex® Dose

- 1 carton of Cliradex® contains 24 towelettes
- 1 case of Cliradex® contains 20 cartons

Recommended Usage:

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<th>Frequency of Use</th>
<th>Duration</th>
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<td>Mild - Moderate</td>
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<td>2x daily</td>
<td>6-8 weeks</td>
<td>4 cartons</td>
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OcuSoft: Demodex Convenience Kit

Demodex for the Primary Care Eye Care Provider
- Does it warrant the hype?
- How do you diagnose it?
  - Do you need microscopic confirmation
- When do you treat?

Conjunctival Chalasis

 Conjunctivochalasis
- Refers to a chronic degenerative loosening and redundancy of the conjunctiva
- Seen with ageing of the ocular surface
- May also result from prolonged conjunctival edema as occurs with thyroid eye disease, ocular allergic conditions and some orbital tumours.

Conjunctivochalasis
- Almost all cases of conjunctival chalasis occur in the temporal conjunctiva
- Advanced cases of chalasis can result in exposure problems

Symptoms
- Epiphora secondary to redundant conjunctival prevention of tear flow to the punctum
- Often coexistence of dry eye and CCh
  - Dry eye symptoms often exacerbated
  - Making the distinction between the two can be difficult