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DROPS, PILLS, BLADES

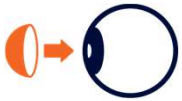
COMPREHENSIVE MANAGEMENT OF COMMON ANTERIOR EYE CONDITIONS

Dr Andrew APEL, Dr John HOGDEN, Mr Jason HOLLAND


Advanced Glaucoma Surgery


Aviation Vision Care


Cataract Surgery


Corneal Transplants


Dry Eye Clinic


Keratoconus Care Clinic


Laser & Refractive Surgery


Pterygium


Vitreo Retinal Surgery

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AGENDA

To understand the topical, oral and surgical management of common anterior eye diseases :

1) Condition One - Very common 20%
2) Condition Two - Uncommon 1%
3) Condition Three – Uncommon 1%
4) Condition Four – Rare 0.5%

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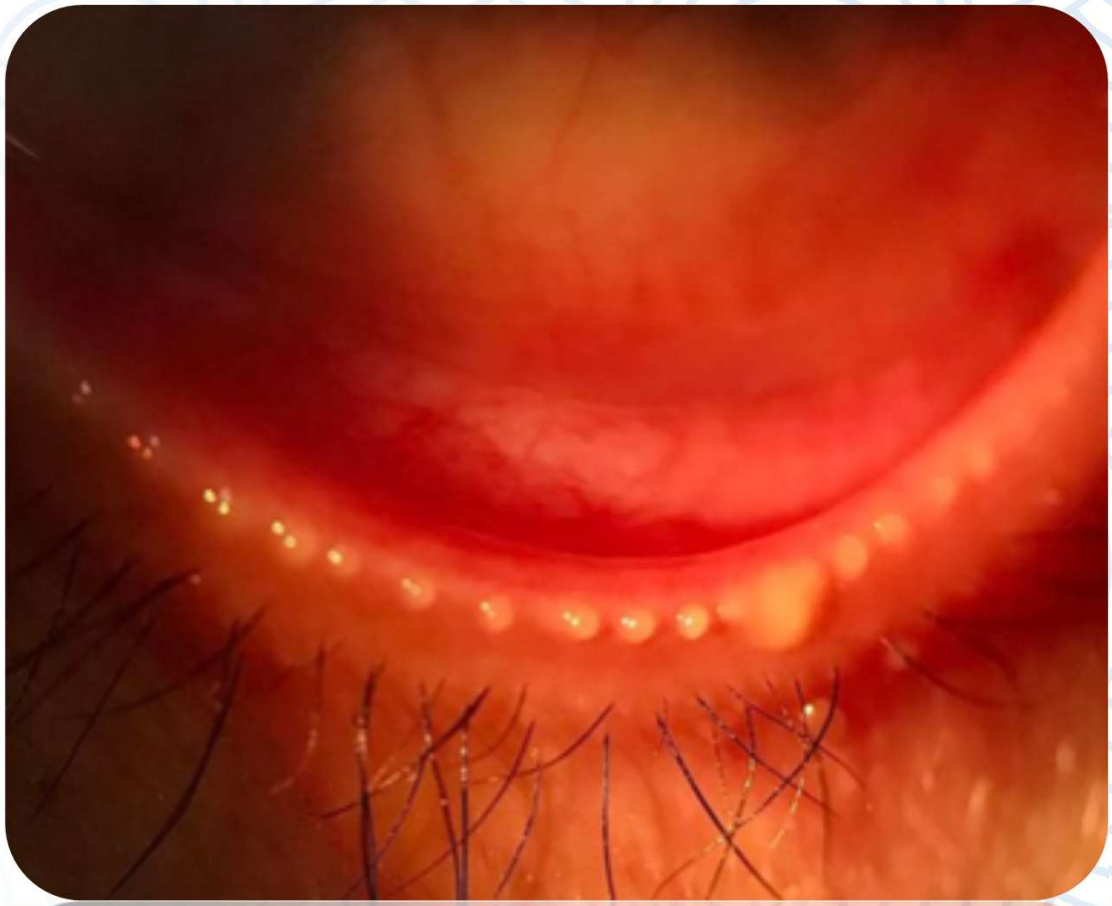

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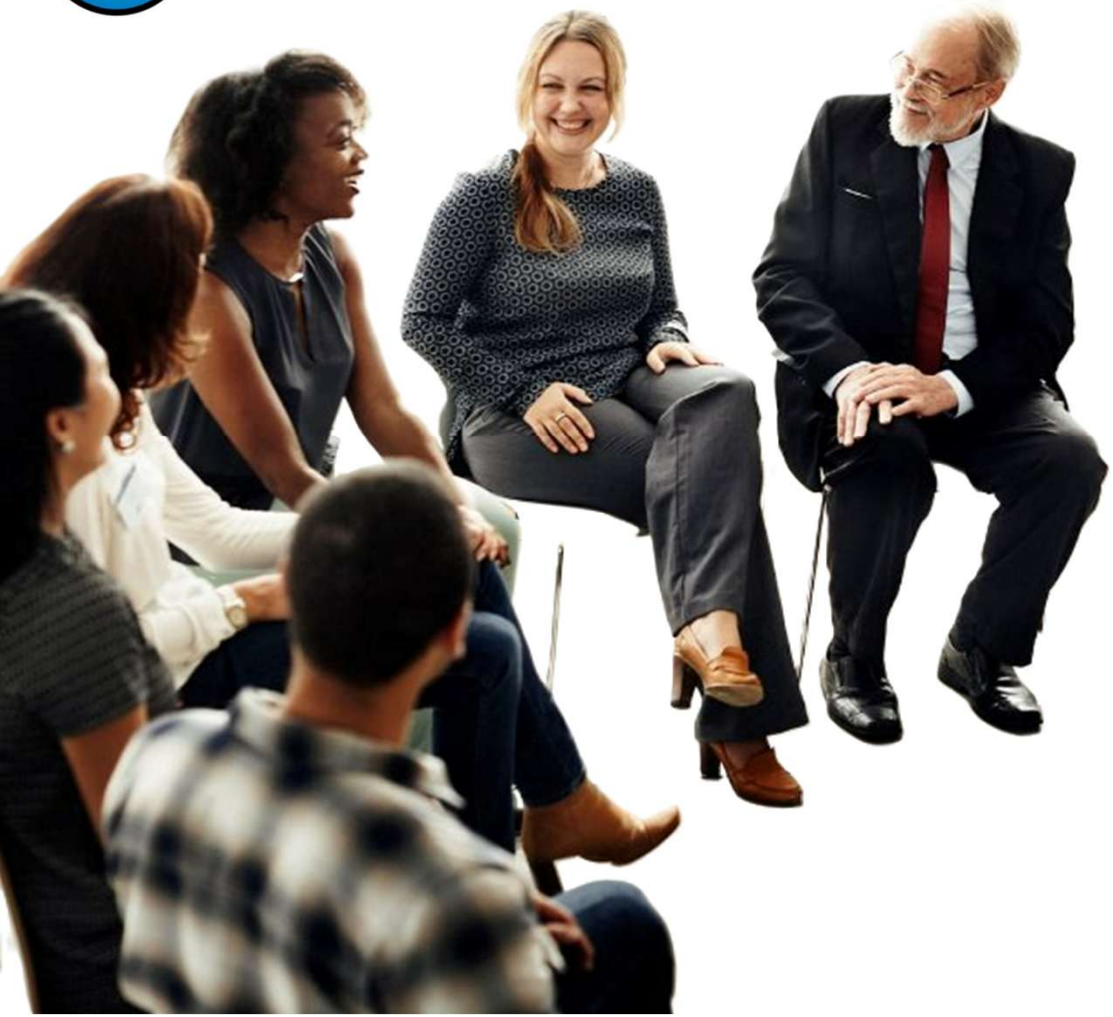


Interactive session time

In group of 5-8 people, please work through the following questions.

TIME FOR GROUP DISCUSSION

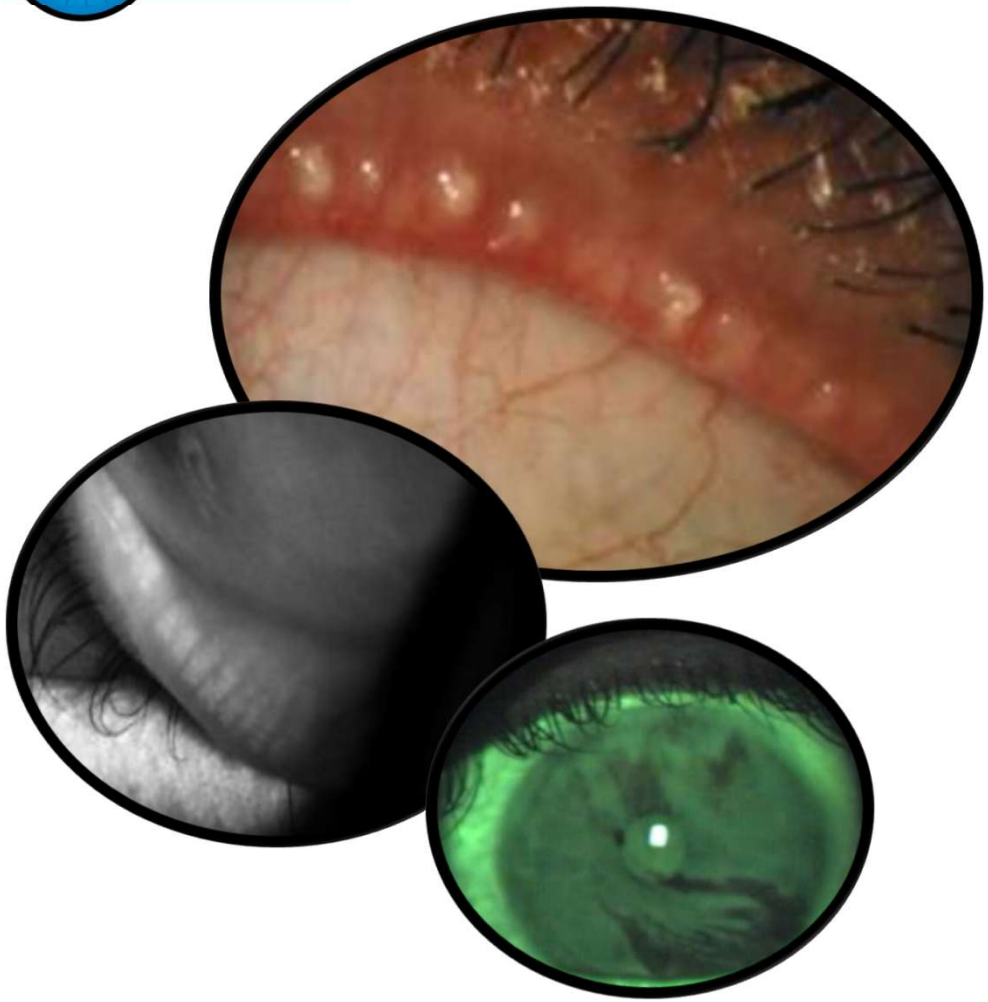
1) What symptoms might you expect with this condition?

2) Name some potential risk factors?

3) What battery of tests might you perform to confirm your diagnosis?

4) What Potential complications can arise if this condition is left untreated?

DIAGNOSIS CONDITION ONE:



Meibomian Gland Dysfunction

- Aberrant meibum production
- Caused by
  - MG obstruction
  - MG dropout
  - Changes in gland secretion

Symptoms: Red/sore eyes – worse in the afternoon
Burning/stinging sensation
Intermittent blurred vision
Light sensitive

Diagnostics: SLE + Diagnostic MGX
Meibography
NaFl /Lissamine Green staining

Q1 How do you currently treat MGD in practice?

A) Warm compresses/lid massage/eyelid hygiene/Artificial tears/Omega 3

0%

B) A. + Pulse topical steroids/ciclosporine

0%

C) A.+B. PLUS In rooms treatments like Blephasteam/ IPL/ LLLT/ RexonEye

0%

D) Refer

0%

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TOPICAL TREATMENTS FOR MGD

TOPICAL TREATMENT

Lubricants

- Lipid containing (Systane Balance, Systane Complete, Optive Advanced, Cationorm, Nova tears)
  - Aim to compliment natural lipid, improve TBUT
  - Stabilise TF to improve vision

Pulse topical steroids

- Ointment/drop/minim
- To manage acute lid margin/OS inflammation
- Can be used as a bridging course for 1 month prior to cyclosporine

Cyclosporine

- Long term inflammation control without steroid side effects
- Additionally inhibit T cells proliferation + activation

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ORAL FISH OIL/NUTRITION FOR MGD

ORAL MEDICATION

Fish Oil (Omega 3 fatty acids)

- Recommended for mild-severe MGD (2400mg/day)
- Omega 3 fatty acids => anti-inflammatory for MG/lid margins
  = > ↓ waxy build up within MG
- To be used as a supplement to improved diet

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CASE REPORT

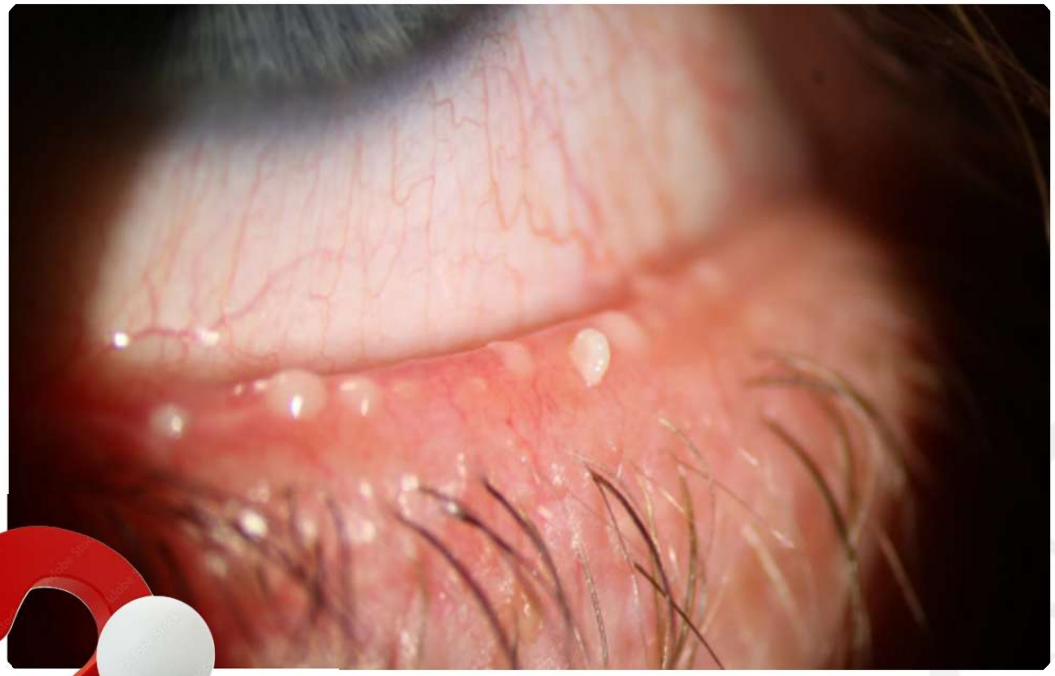
58F (SM)

- Ongoing gritty, stinging & red sore eyes over the last few months
- No better with Refresh prn

GH: DM2, Mild Hypertension

Med: Metformin, HRT

SLE: MGD G3 + lid telangectasia OU
Inflamed LL OU R>L
SPK diffuse g3 OU
TBUT RE 3s / LE 4s
Bulbar conj hyperaemia g2 diffuse OU
Toothpaste meibum on MGX OU



How would you manage this patient?

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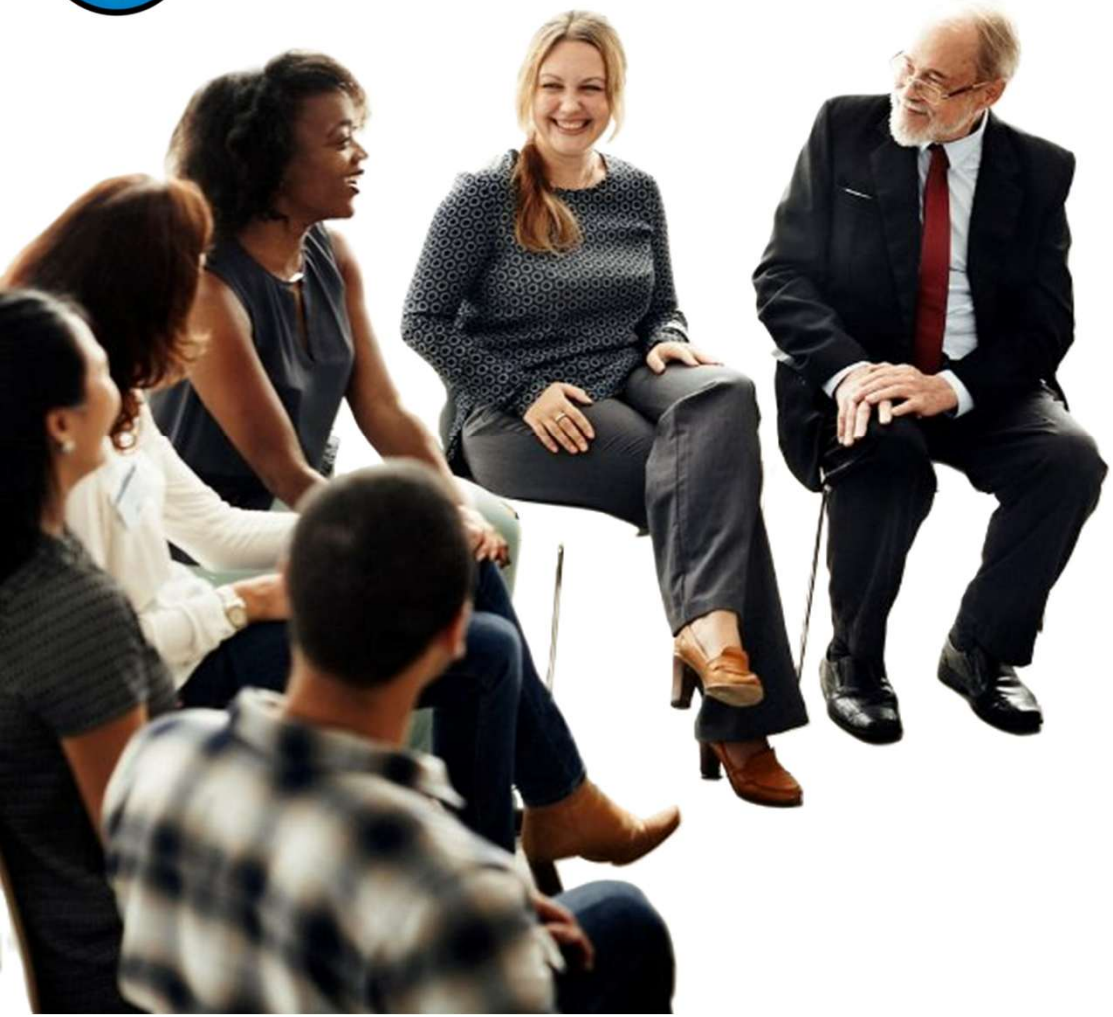

Interactive session time

In group of 5-8 people, please work through the following questions.

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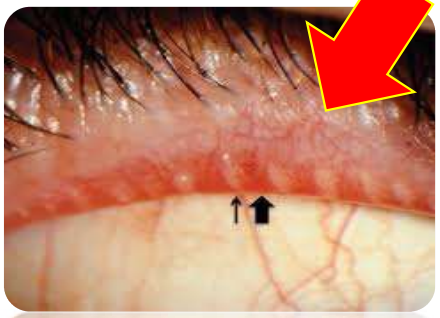
What if your plan doesn't work?

ORAL TREATMENT FOR MGD

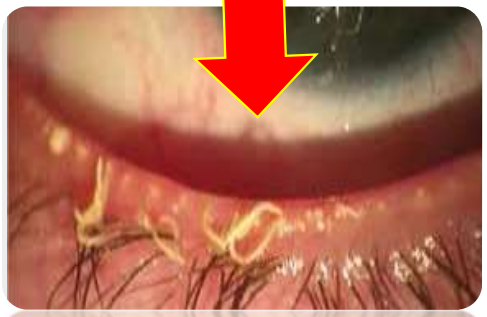
ORAL MEDICATION

MGD

Bacterial colonisation of S.aureus , S.epidermis , P.acnes & Cornyebacterium.



↑ inflammation of posterior eye lid margins



Impaired meibum consistency

↑ lipolytic enzymes (lipid to toxic fatty acids)
=> OS inflammation & TF instability

Low dose tetracycline (Doxycyline) / macrolide (Azithromycin) antibiotic

- **Dual effects** ❶ Anti-bacterial cover
  ❷ Anti inflammatory
- Also effective against posterior blepharitis & ocular rosacea (commonly seen in MGD)

AZITHROMYCIN VS DOXYCYCLINE

De Benedetti et al 2019

- RCT (115px of recalcitrant MGD failed to conservative /topical MGD tx)

	PO Azithromycin (500mg on first day then 250mg for 4 days)	VS	**PO Doxycycline** (100mg bid for 7 days then 100mg for 21 days)
Effectivity on MGD	▪ **83.25% stable after 1 tx** ▪ 16.5% needs further 1 or 2 tx ▪ 5.77% did not improved		▪ 33.79% stable after 1 tx ▪ 66.21% needs further 1 or 2 tx ▪ 29.41% did not improved
Adverse effects	▪ **6%** GI side effects		▪ 24% GI side effects

Conclusions:

1. Both are effective tx in persistent MGD
2. PO Azithromycin superior to PO Doxycycline
   - **Shorter therapy (5days vs 1 month)**
   - **Lesser GI adverse effects**
   - **Superior improvements in VA+ conj redness + corneal staining**

De Benedetti G, Vaiano AS. Oral azithromycin and oral doxycycline for the treatment of Meibomian gland dysfunction: A 9-month comparative case series. Indian J Ophthalmol. 2019 Apr;67(4):464-471. doi: 10.4103/ijo.IJO_1244_17. PMID: 30900575; PMCID: PMC6446637.

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Panel discussion

Q2 What are the contra-indications of PO Azithromycin?

A) Asthma

0%

B) Heart diseases (tachycardia/rhythm irregularities)

0%

C) Liver diseases

0%

D) A + C

0%

E) B + C

0%

Q3 Is Azithromycin safe for pregnant and breast-feeding patients?

A) Yes

0%

B) No

0%

Q4 What is an alternative Antibiotic that is considered safe for pregnant patients with MGD?

A) Pencillin

0%

B) Erythromycin

0%

C) Keflex

0%

D) Amoxicillin

0%

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Summary of MGD treatment

TOPICAL

- Warm compresses bid + lid massage+ lid hygiene + lipid containing AT
- Heating devices (Blephasteam/Lipiflow) +MGX in office:
- Advanced technologies: IPL /LLLT /Rexon
- Short course FML/prednisolone minims qid 1/12 with taper
- Bridging FML qid 1/12 course then ciclosporine (Ikervis /Cequa) for 12/12
- Serum tears

ORAL

- 5-day course PO Azithromycin (500mg on day 1 , then 250mg for 4 days)
- Supplementary nutrition: Fish Oil 2400mg/day or Flaxseed Oil 1000mg/day

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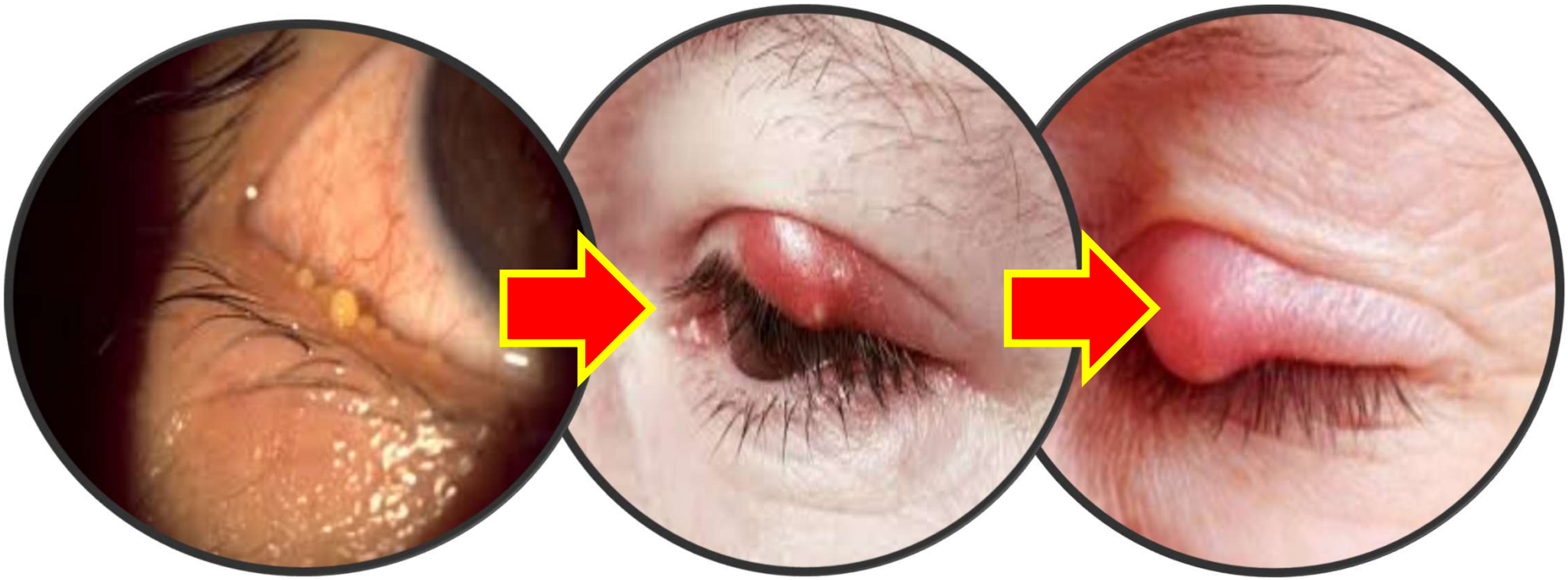
COMPLICATIONS OF MGD



MGD STYE(Hordeolum) CHALAZION

Q5 How do you manage chalazion?

A) Hot compresses/Lid hygiene/Chlorsig Ung

0%

B) A.+ send to GP for oral AB

0%

C) A.+ IPL/LLLT

0%

D) Refer

0%

WHAT DOES THE LITERATURE SAY?

Alsoudi et al 2023

- Cross sectional study 2012- 2018 (n=2712)
- **No significant difference** in resolution rate with addition of AB (topical & oral) compared to conservative management in BOTH chalazion & hordeolum

Chalazion

	Resolution rate
Conservative (warm compresses tid-qid ± eye lid hygiene)	76.7%
Conservative + Abx	73.2%
Abx alone	75.0%
Intralesional steroid	88.2%
Incision& Drainage (I&D)	92.0%
Combo intralesional steroid + I&D	97.5%
Full thickness eyelid resection	100%

Hordeolum

	Resolution rate
Conservative (warm compresses tid-qid ± eye lid hygiene)	93.5%
Conservative + Abx	93.0%
Abx alone	92.9%
Intralesional steroid	100%
Incision& Drainage (I&D)	93.9%
Combo intralesional steroid + I&D	100%
Full thickness eyelid resection	100%

Alsoudi AF, Ton L, Ashraf DC, Idowu OO, Kong AW, Wang L, Kersten RC, Winn BJ, Grob SR, Vagefi MR. Efficacy of Care and Antibiotic Use for Chalazia and Hordeola. Eye Contact Lens. 2022 Apr 1;48(4):162-168. doi: 10.1097/ICL.0000000000000859. PMID: 35296627; PMCID: PMC8931268.

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Other Findings:

- Oral Abx (low dose for anti-inflammatory effect Doxy & Azithromycin)
  - ↓ rate chalazion recurrence (P=0.005)
  - ↑ rate hordeolum recurrence (P=0.004)

- Subgroup analysis found tetracycline & macrolide Oral Antibiotic no better in resolution rate or lower recurrence rate compared to other oral Antibiotics

- **Procedural management is highly effective in BOTH chalazion & hordeolum**
  - **94.8% chalazion**
  - **97.1 % hordeolum**

Alsoudi AF, Ton L, Ashraf DC, Idowu OO, Kong AW, Wang L, Kersten RC, Winn BJ, Grob SR, Vagefi MR. Efficacy of Care and Antibiotic Use for Chalazia and Hordeola. Eye Contact Lens. 2022 Apr 1;48(4):162-168. doi: 10.1097/ICL.0000000000000859. PMID: 35296627; PMCID: PMC8931268.

WHICH PROCEDURE IS BETTER IN CHALAZION?

Goawalla et al 2007

- The only RCT that looked at surgical vs conservative management
- n = 136
- Resolution & patient satisfaction higher in surgical group
- No sig difference in intralesional steroid and Incision & Drainage for Chalazion treatment (P<0.001)

Resolution rate	**46%**	**84%**	**87%**

Goawalla A, Lee V. A prospective randomized treatment study comparing three treatment options for chalazia: triamcinolone acetonide injections, incision and curettage and treatment with hot compresses. Clin Exp Ophthalmol. 2007 Nov;35(8):706-12. doi: 10.1111/j.1442-9071.2007.01617.x. PMID: 17997772.

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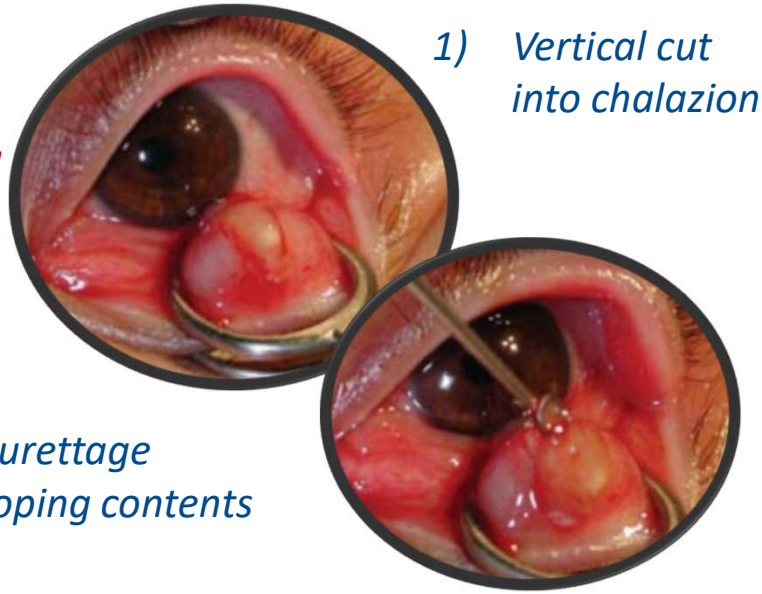
SURGICAL MANAGEMENT OF CHALAZION

SURGICAL TREATEMENT

A10 triamcinolone steroid intralesional injection

(success rate 75-84%)

If not successful



1) Vertical cut into chalazion

2) Curettage (scooping contents out)

Incision + curettage

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Panel discussion

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Summary of chalazion treatment

TOPICAL

ORAL

SURGERY

- Warm compresses , lid massage bid, lid hygiene
- IPL + MGX sessions in clinic
- ~~PO Cephalexin/Augmentin Duo Forte (acute infections)~~
- ~~PO Azithromycin 500mg/day for 5days~~
- ~~PO Doxycycline 100mg/day for 3months~~
- A10 injection
- Incision + curettage

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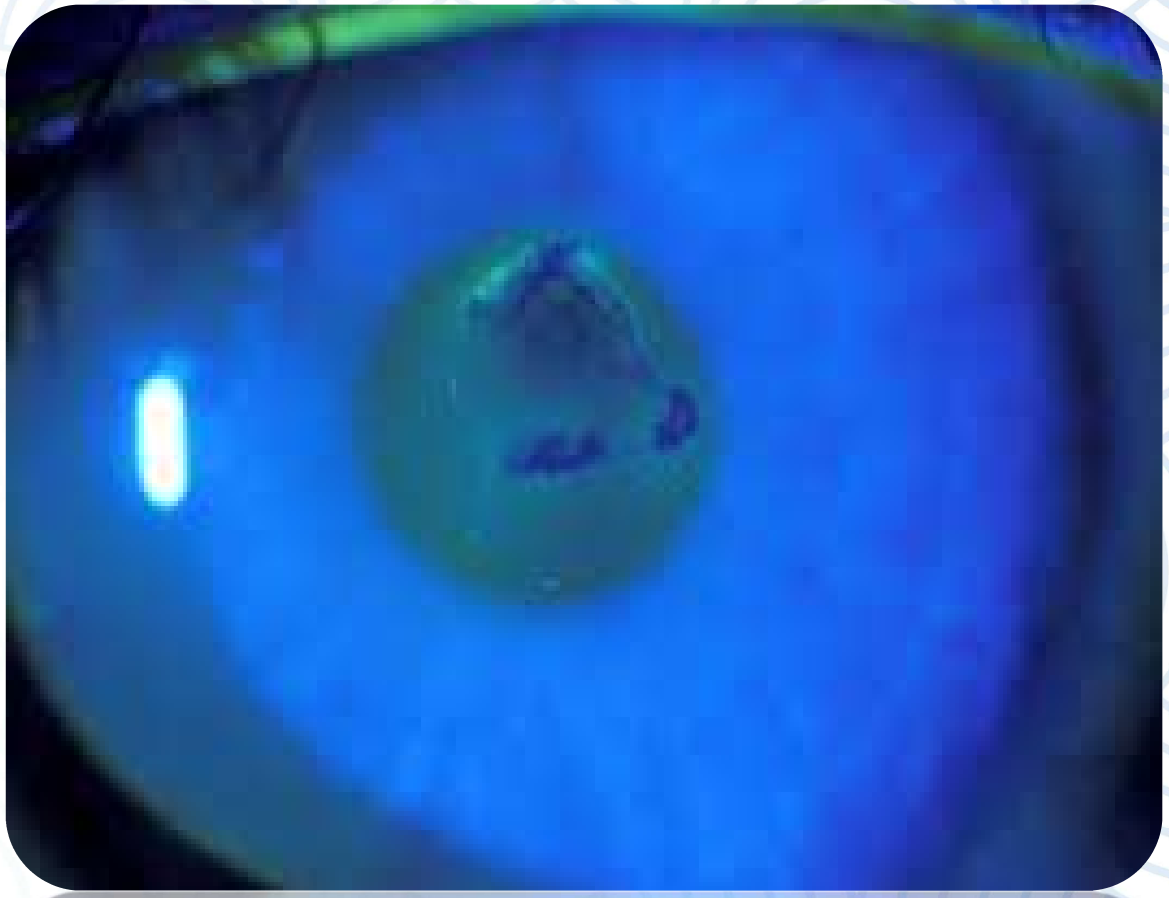

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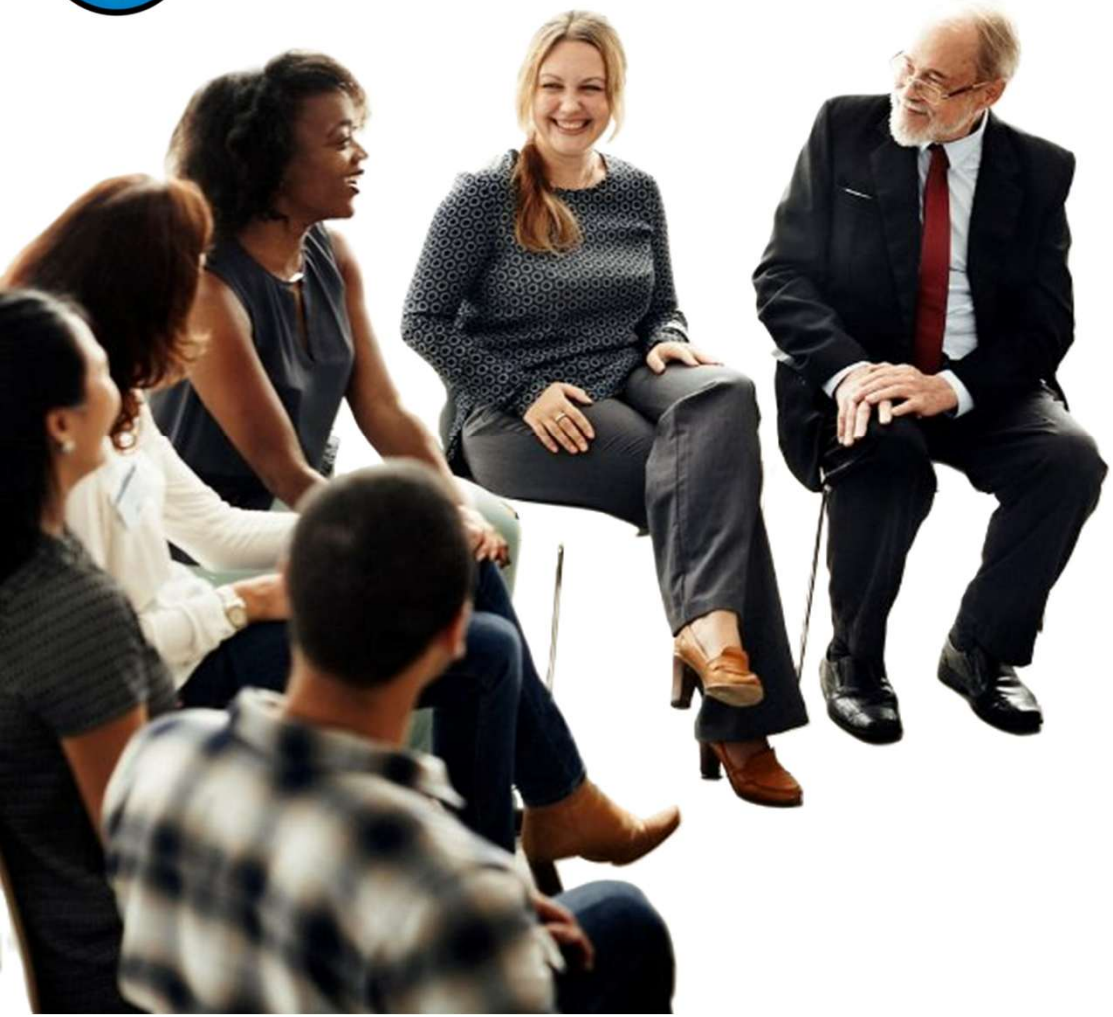


Interactive session time

In group of 5-8 people, please work through the following questions.

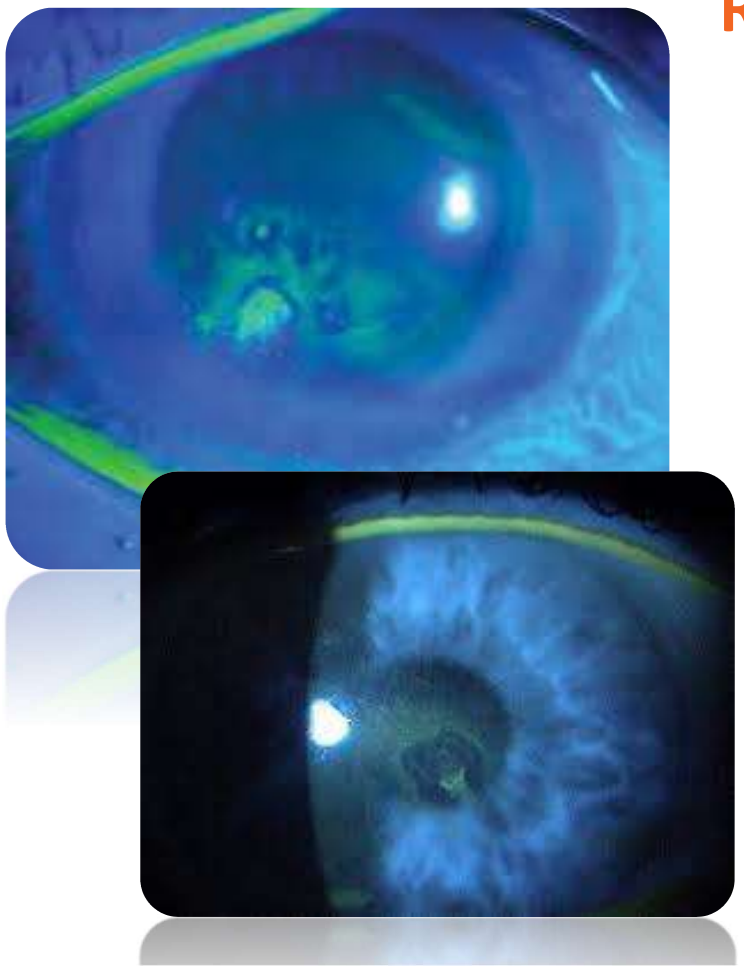
TIME FOR GROUP DISCUSSION

1) What is your diagnosis based on the slit lamp image?

2) Risk factors for this condition?

3) What are the common symptoms?

DIAGNOSIS CONDITION TWO :



Recurrent corneal erosion

- Abnormal adhesion of corneal epithelium to underlying basement membrane
- Occurs in areas across the cornea
- Demographics: 30-40yo and F>M

Risk factors:

- **Prev ocular trauma** (scratch/chemical burn/FB)
- EBMD
- Other corneal dystrophies (FED, Reis Buckler , Granular, Lattice and Macular dystrophy)
- Dry eyes/rosacea/MGD/ previous corneal infection

Symptoms:

- Blurred vision (irregular astigmatism)
- Eye pain especially on waking / FBS
- Light sensitive
- Watery eyes

Q6 How do you manage RCE?

A) Night ointment and AT for 3/12

0%

B) A.+ BCL for 1/52

0%

C) A.+ B. + FML/Doxy

0%

D) Refer

0%

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TOPICAL TREATMENTS FOR RCE

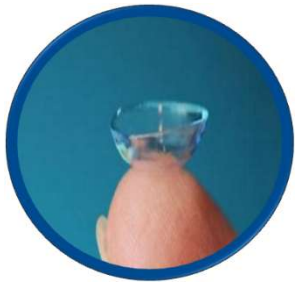
TOPICAL TREATMENT

Acute attacks

PF AT qid

BCL (Ocuflox bid + FML qid) 1-2mths

- Provides buffer between epithelium and lids: aids re-epithelisation
- ↓ pain



Punctal plugs

- Increases tear volume

Chronic episodes

Night-time ointment

- To limit friction between epithelium & lids during sleep
- Enables epithelial adhesion complex to develop

Hypertonic saline drops qid + ung qid

- Limits nocturnal epithelial edema that can be linked to reduced epithelial

Amniotic membrane

- Reduces inflammatory mediators
- Provides artificial basement membrane for re-epithelization

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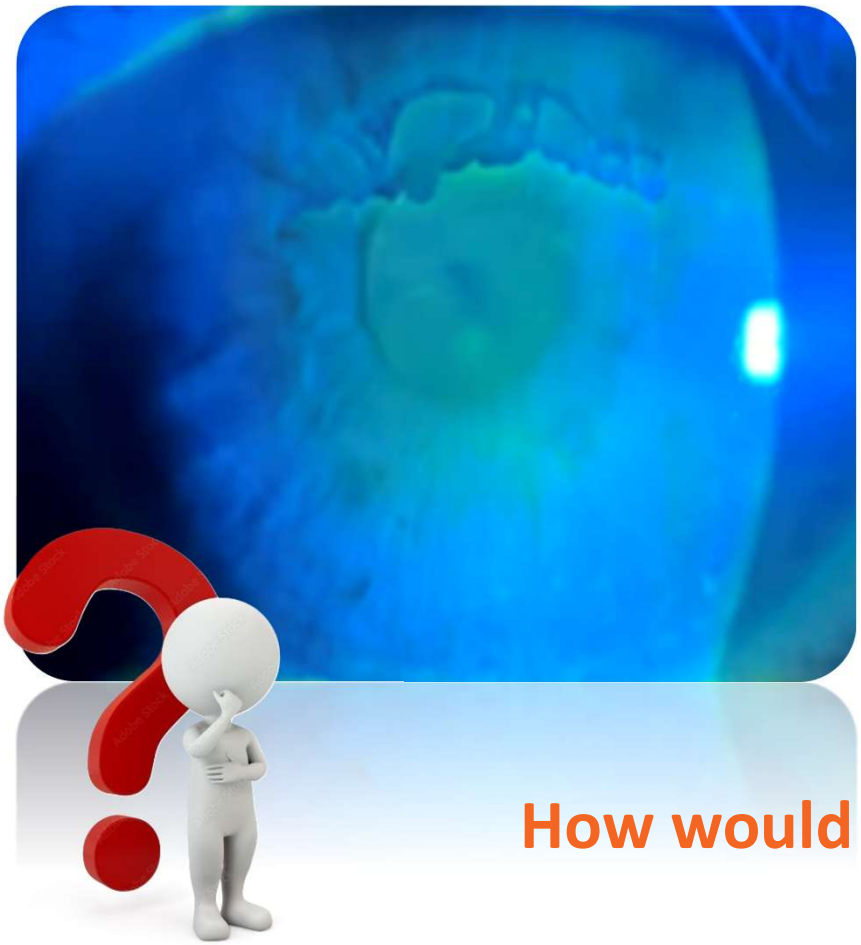
CASE REPORT



65 yo Male (MC)

- LE Scratched with a fingernail from his grandson 3/12 ago
- 4 episodes of LE pain mane recently in Dec and Jan
- No relief with Genteal nocte + Hyloforte qid
- No improvement with BCL for one week (inserted by Optometrist)

VA cgl R 6/12 L 6/7.5

How would you manage this patient?

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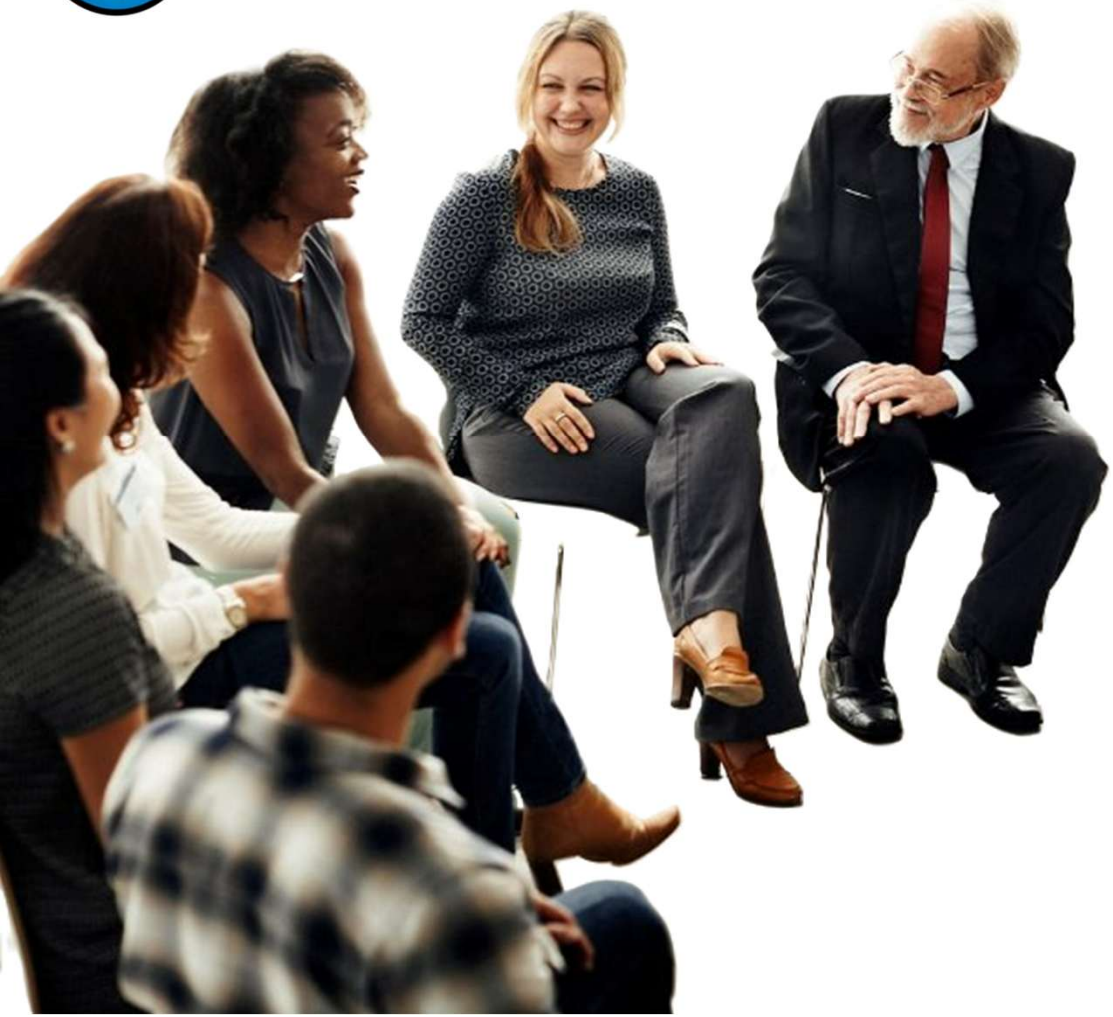

Interactive session time

In group of 5-8 people, please work through the following questions.

ORAL TREATMENT FOR RCE

ORAL MEDICATION

Oral Doxycyline

- Inhibits enzymes MMP-9 & MMP-2
  - Enzymes linked to
    - Breaking down of collagen & hemi-desomosomes
    - Disrupts epithelial adhesion complex
    - Increases RCE risk
- **Dosage: 50mg bid for 2-3/12**
- Works best when **combined with FML tid 2-3/52**

(NOTE: Topical corticosteroid can be used to reduce MMP activity & expression also)

WHAT DOES THE LITERATURE SAY?

Dursun et al 2001

- Retrospective case series (n=7)
- All RCE px (failed with conventional mx) received PO Doxycycline 50mg 2/12 + g.Pred forte/FML tid 2-3wk
- Conclusions:
  - **100% symptoms improved, no pain, ED healed within 2-10 days after starting tx**
  - **No recurrence seen on average 21.9 months**

Wang et al 2007

- Retrospective case series (n=21)
- All RCE patients treated with PO Doxycyline 50mg bid min 4/52 + g.FML tid min 4/52.
- Conclusions:
  - **71% symptoms free at 8/52 post ceasing tx**
  - **83% had nil symptoms and relapse at 6 months post ceasing tx**

Dursun D, Kim MC, Solomon A, Pflugfelder SC. Treatment of recalcitrant recurrent corneal erosions with inhibitors of matrix metalloproteinase-9, doxycycline and corticosteroids. Am J Ophthalmol. 2001 Jul;132(1):8-13. doi: 10.1016/s0002-9394(01)00913-8. PMID: 11438047.

Wang L, Tsang H, Coroneo M. Treatment of recurrent corneal erosion syndrome using the combination of oral doxycycline and topical corticosteroid. Clin Exp Ophthalmol. 2008 Jan-Feb;36(1):8-12. doi: 10.1111/j.1442-9071.2007.01648.x. PMID: 18290949.

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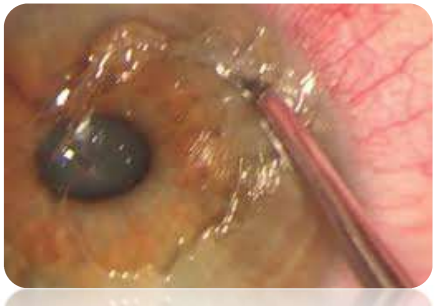
SURGICAL MANAGEMENT FOR RCE

SURGICAL TREATEMENT

Epithelial debridement



Anterior stromal puncture

Diamond burr polishing

PTK

Aims of any RCE surgical technique:

1. To remove the defective epithelium
2. To allow the epithelium to re-generate & form improved adhesion to the stroma

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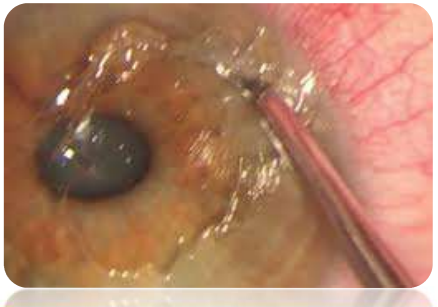
SURGICAL MANAGEMENT FOR RCE

SURGICAL TREATEMENT

	Epithelial debridement	Anterior stromal puncture	Diamond burr polishing	PTK
				
What is it?	Epithelium removed with 25g needle followed by BCL	Piercing into affected cornea with 25g needle.	Epi off with 25g needle followed by polishing Bowman layer with burr. Then BCL is inserted	Excimer laser ablation of central cornea through to Bowman's layer and stroma
Cornea tx	Central cornea	Peripheral cornea only	Central cornea	Central 8mm
Success rate	65-85%	Approx 80%	Up to 95% (when combined with epithelial debridement)	60-100%

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Panel discussion

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Summary of RCE treatments

TOPICAL

- PF AT qid + ointment nocte
- BCL 1/52 (Ocuflox qid cover + FML qid)
- Punctal plugs
- g. NaCl 5% qid + NaCl 5% ung nocte
- Amniotic membrane (AmnioTek-C)

ORAL

- PO Doxycycline 50mg bid 2/12 + FML tid 3/52

SURGERY

- Anterior stromal puncture *(for peripheral RCE)*
- Epithelial debridement ± diamond burr polishing *(central)*
- PTK *(only 8mm central)*

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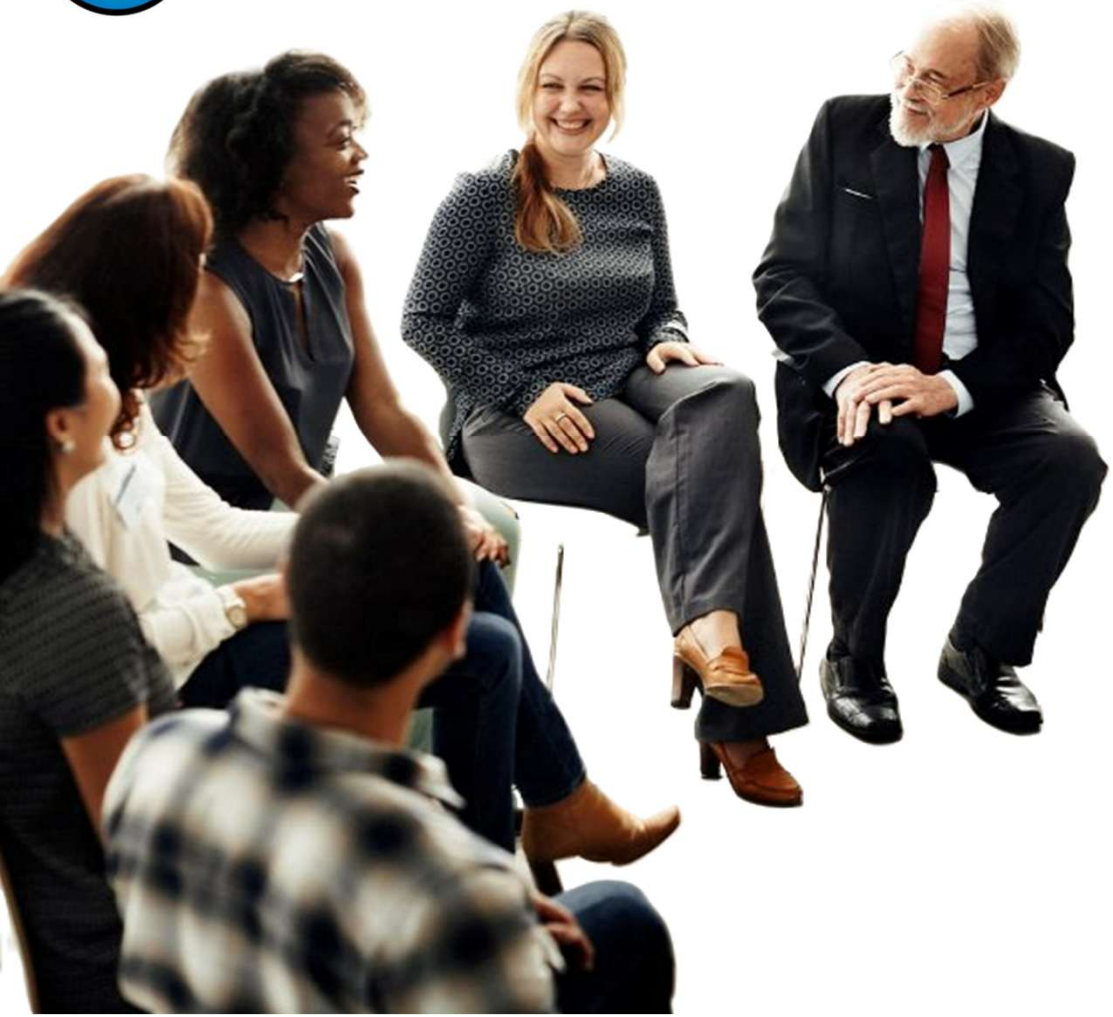
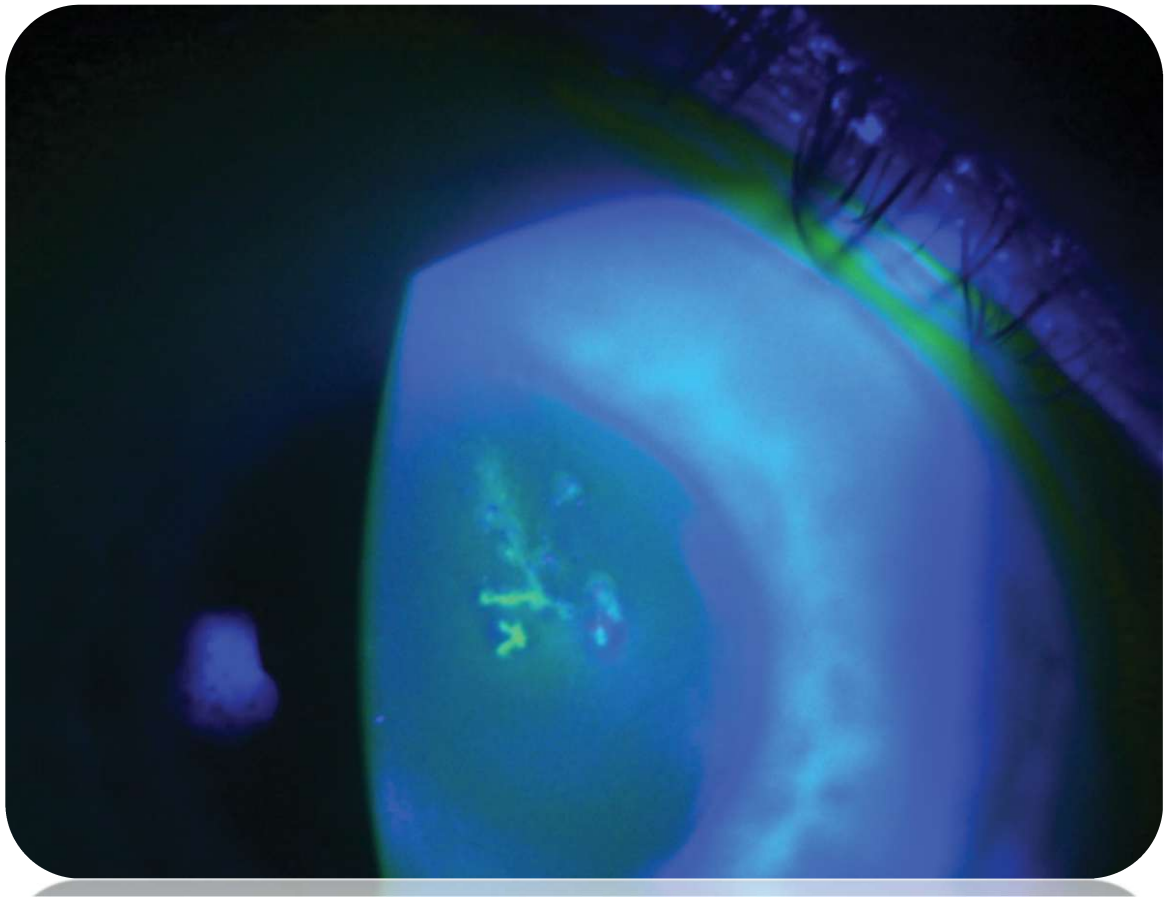


Interactive session time

In group of 5-8 people, please work through the following questions.

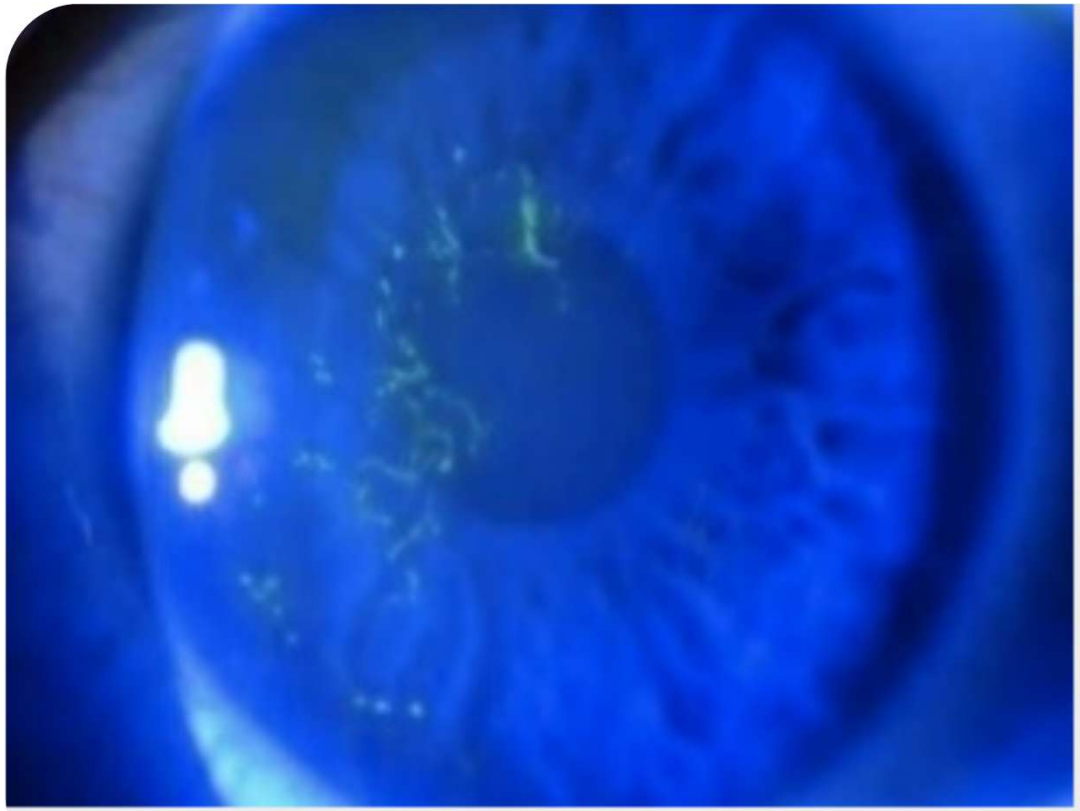
TIME FOR GROUP DISCUSSION

1) Herpes simplex or zoster?



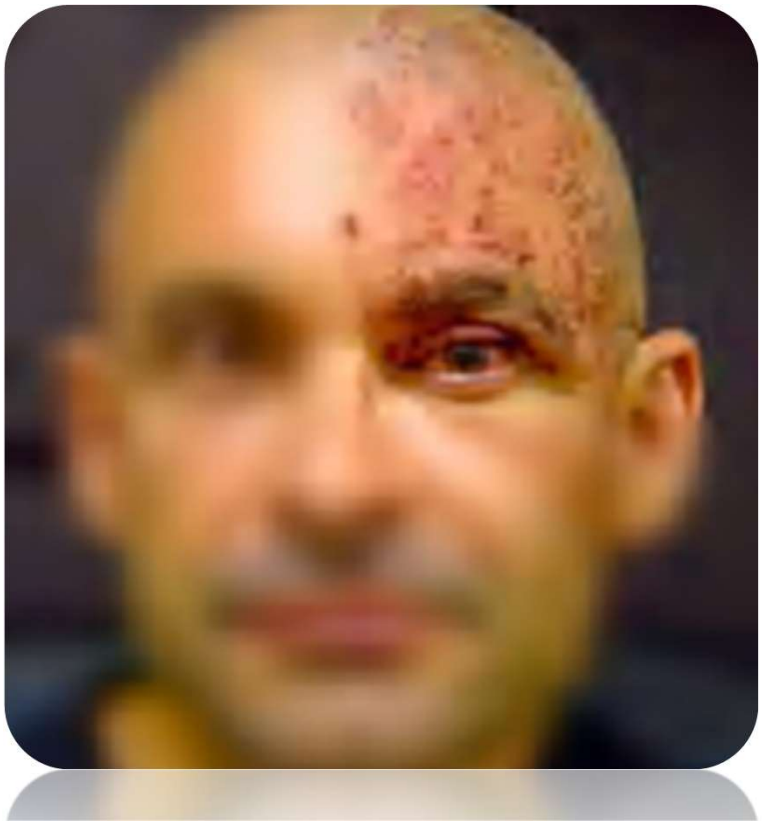
TIME FOR GROUP DISCUSSION

2) Herpes simplex or zoster?



TIME FOR GROUP DISCUSSION

3) What do you call this sign?



TIME FOR GROUP DISCUSSION

4) How do you differentiate between HSK vs HZK?

5) What are the risk factors of recurrent HSK/HZK?

6) How might you prevent recurrence?

7) What is a differential diagnosis of herpetic keratitis?

DIAGNOSIS CONDITION THREE :

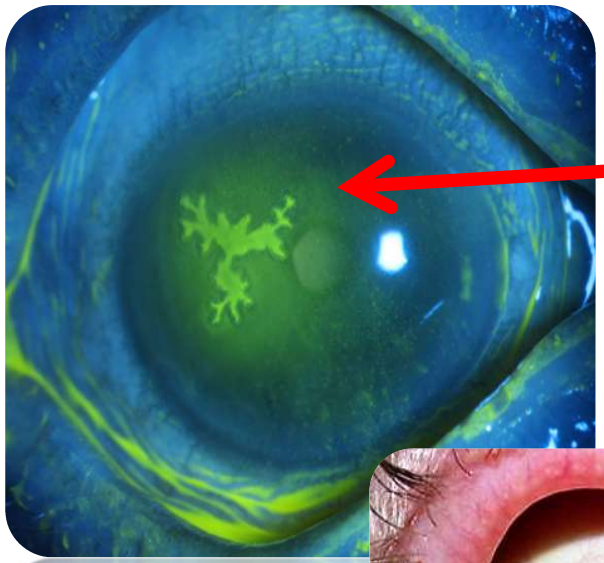
Herpes Simplex Keratitis

Reactivation via many factors:

- Stress
- Heat
- Sunlight
- Trauma
- Steroid use
- Immunocompromise

Clinical presentation:

- Dendritic ulcer/geographic ulcer
- Uveitis
- ↓ Corneal sensation
- Pain is rare

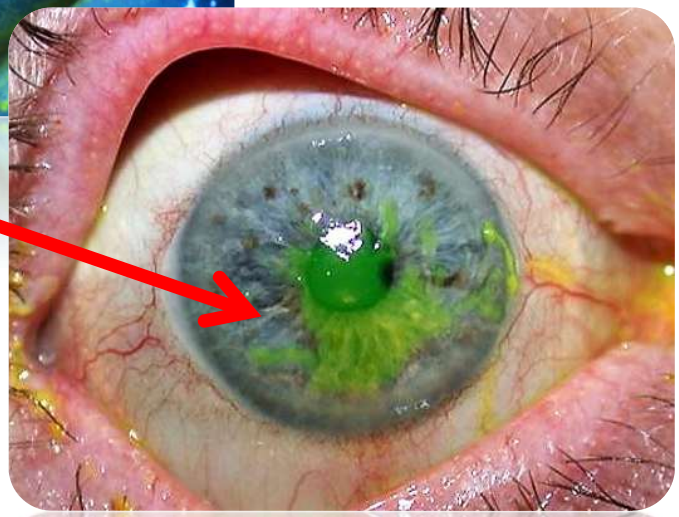


Classic dendritic HSV ulcer

Live virus @ terminal buds

Geographic HSV ulcer

Live virus @ scalloped edges

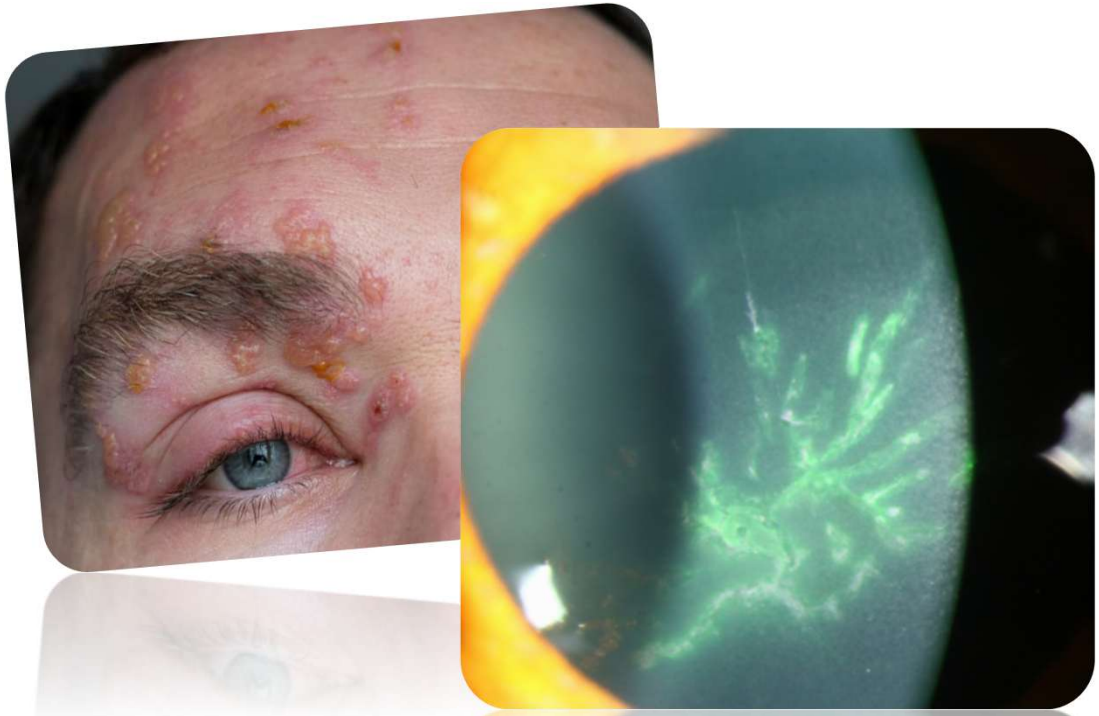


REVISION OF WHAT IS HZV

Herpes Zoster (Shingles) Keratitis

Clinical presentation:

- Skin blisters → rash (Hutchinson's sign)
- Punctate epithelial keratitis
- **Pseudo-dendritic ulcer**
- Anterior uveitis
- Retinitis/optic neuritis
- Partial/complete paralysis of EOM
- Neuralgia pain

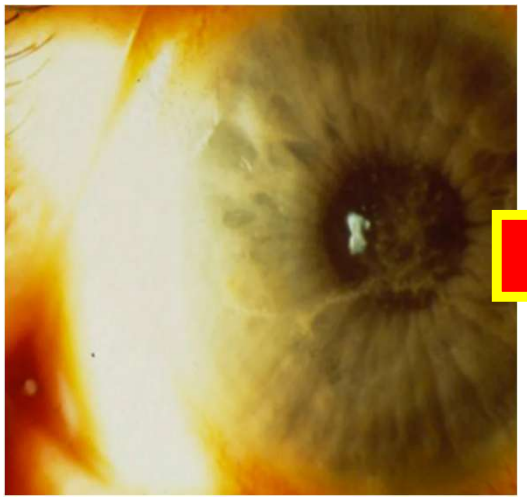


Pseudo-dendrites: x central ulceration
x terminal bulbs (tapered ends)
lack central NaFl staining

DIFFERENTIAL DIAGNOSIS OF HERPETIC KERATITIS

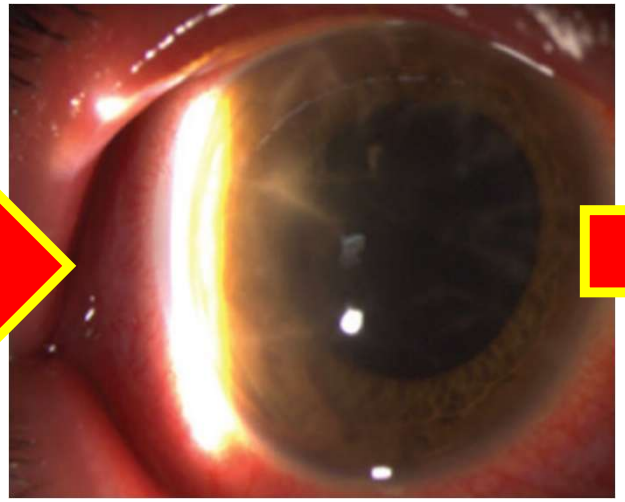
Acanthamoeba keratitis

1)



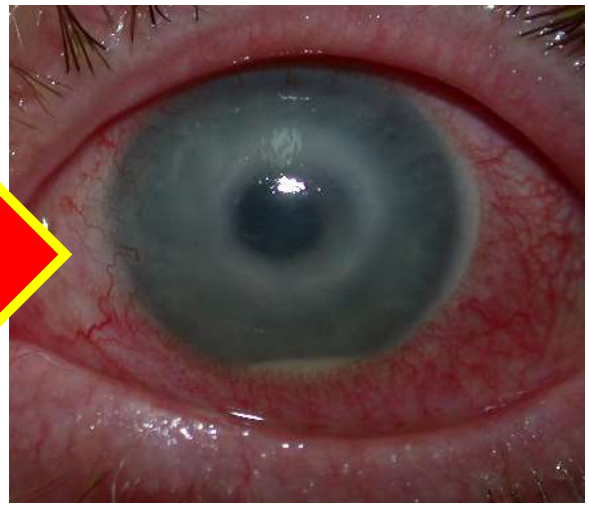
Epithelial/subepithelial infiltrate appearing as **pseudo-dendrites** **(70% misdiagnosed as herpetic initially!)**

2)



Radial kerato-neuritis (inflamed corneal nerves in a web-like pattern)

3)



Stromal ring infiltrate

Beware early acanthamoeba keratitis if dendrites not resolving with anti-viral*

Q7 How do you currently manage HSV Keratitis?

A) Chilled PF lubricants

0%

B) A.+ Aciclovir Ung 5x/day for 2/52

0%

C) A.+ B. + Topical Steroid

0%

D) Refer

0%

TOPICAL TREATMENTS FOR HERPETIC KERATITIS

TOPICAL TREATMENT

Aciclovir 3% ointment

- 5x/day for 2/52
- For efficiency, start asap ideally within 72h of rash/blisters
  - Beware corneal toxicity **
  - Concurrent PF AT at least qid

Add Maxidex /Prednefrin Forte qid

- If stromal involvement /uveitis
- Must have Oral anti-viral cover!
- Long slow taper of steroid
- ± Timolol XE 0.5%mane/ Alphagan bid if IOP spike

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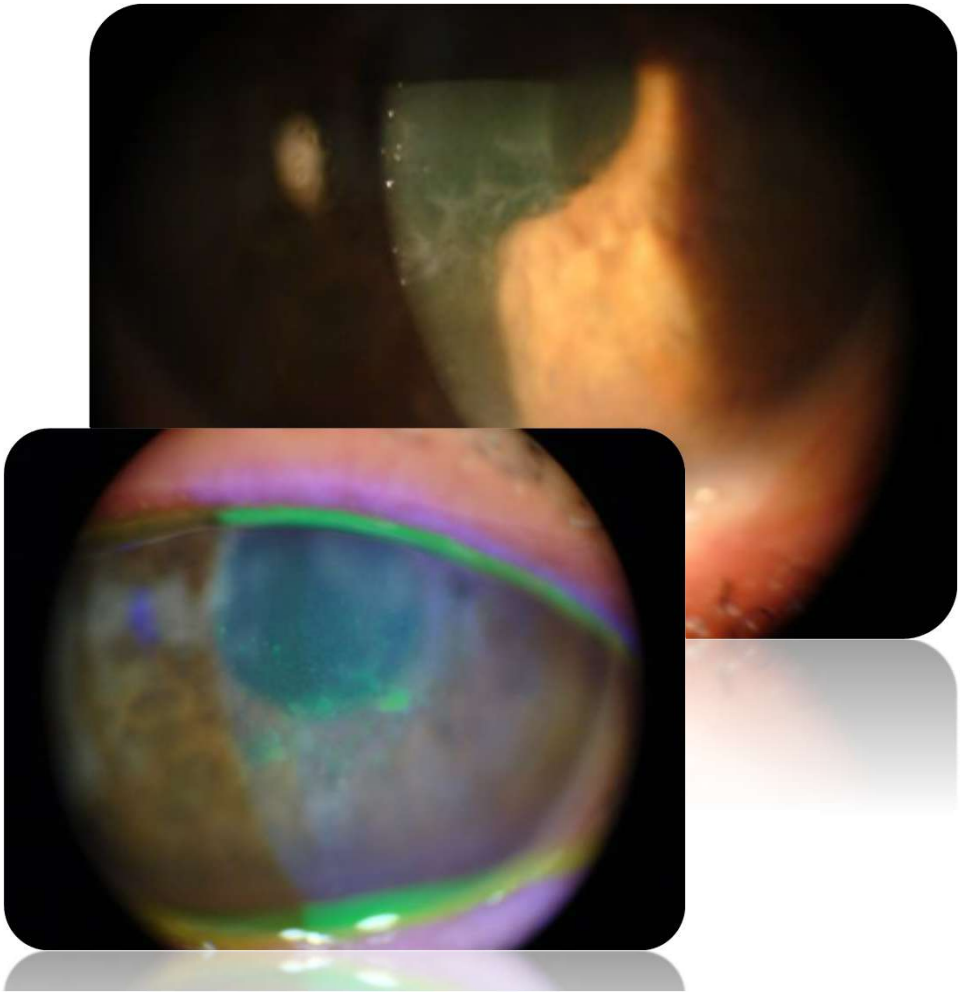
CASE REPORT

MP F (67yo)

- RE red and sore for the last 2 days
- Has Advanced Glaucoma and currently on Xalacom nocte OU
- Has Dry AMD + Cataract OU + Optic Atrophy LE
- VA R 6/10 L LP
- IOP R14mmHg L 13mmHg

How would you manage this patient?



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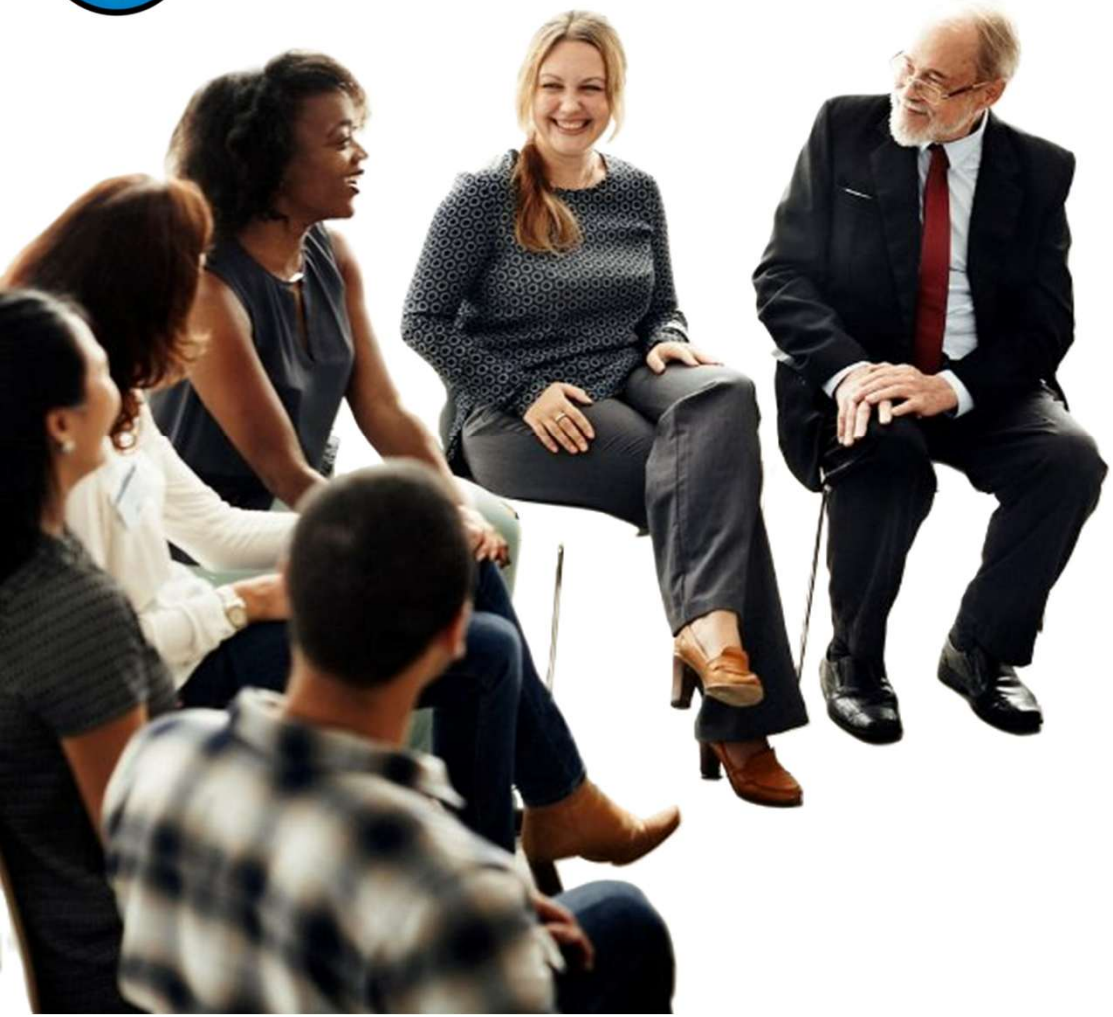

Interactive session time

In group of 5-8 people, please work through the following questions.

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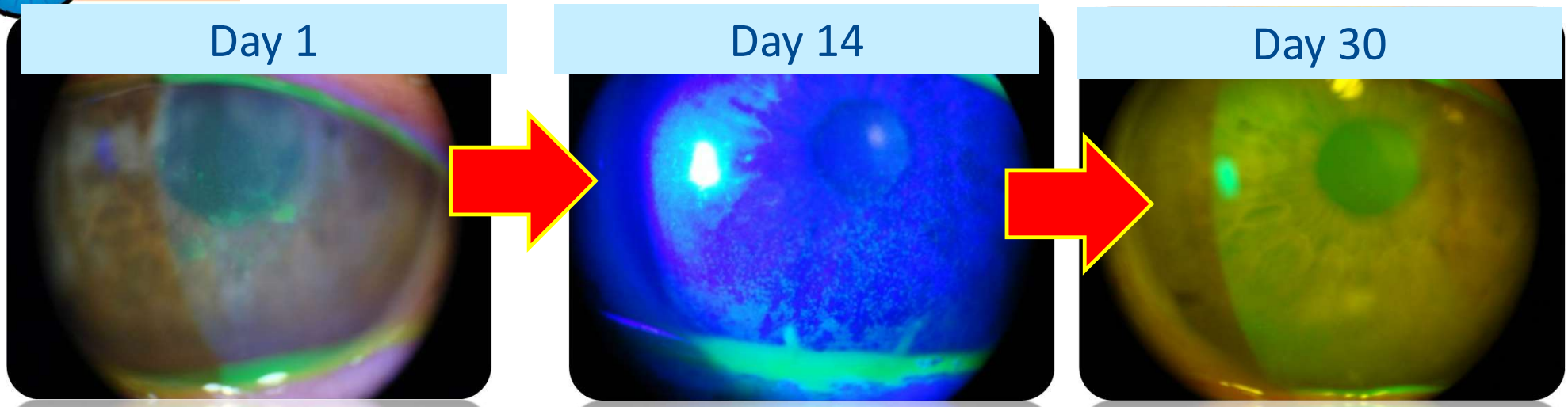

Dx: HSK

A+M

1. g.Aciclovir 5x/day for 2/52
2. Cease Xalacom OU

(NOTE Prostaglandin is pro inflammatory & can reactive herpetic keratitis)

3. Change to Timolol XE mane OU
4. Lube regularly PF Hyloforte qid + Cellufresh q2h-qid after 2/52

Topical Aciclovir= corneal toxicity!

- Cellufresh q2h after cease Aciclovir ung.

ORAL TREATMENT FOR HERPETIC KERATITIS

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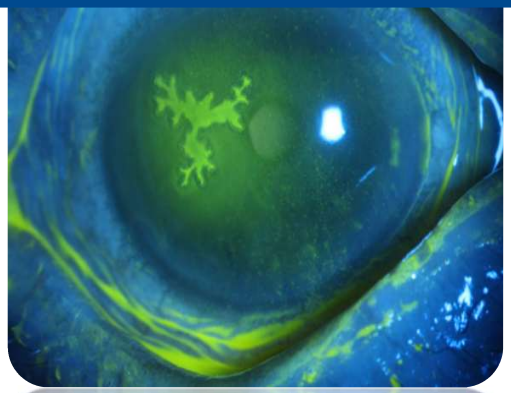
ORAL MEDICATION

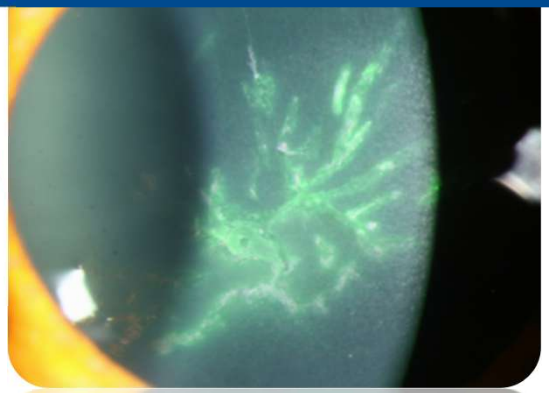
Herpes simplex



Valtrex 500mg tid for 2/52
Or
Famciclovir 250mg tid for 2/52
Or
Aciclovir 400mg 5x/day for 2/52

VS

Herpes zoster



Valtrex 1000mg tid for 2/52
Or
Famciclovir 500mg tid for 2/52
Or
Aciclovir 800mg 5x/day for 2/52

Double dose for HZO*

ORAL TREATMENT FOR HERPETIC KERATITIS

ORAL MEDICATION

To avoid recurrent episodes:

- PO Valtrex 500mg once daily for 1 year

- Zostvax/Shingrix vaccine for patients >65yo

WHAT DOES THE LITERATURE SAY?

Herpetic Eye Disease Study:
PO Aciclovir on prevention of recurrent Herpetic Simplex eye disease

- RCT (n= 703 immunocompromised px with POH HSK)
- **PO Aciclovir 400mg bid 1yr vs Placebo**

- **Conclusions:**
  - **PO Aciclovir group had 45% lower risk of recurrence of any type of ocular HSV disease**
  - **No evidence of rebound post treatment cessation**

Acyclovir for the prevention of recurrent herpes simplex virus eye disease. Herpetic Eye Disease Study Group. N Engl J Med. 1998 Jul 30;339(5):300-6. doi: 10.1056/NEJM199807303390503. PMID: 9696640.

WHAT DOES THE LITERATURE SAY?

Herpetic Eye Disease Study: PO Aciclovir on stromal HSK

- Double masked , placebo controlled RCT (n= 104)
- **2 groups : PO Aciclovir 400mg 5x/d for 10wk vs Placebo**
- **Both groups received g. Prednisolone phosphate + g.Trifluridine**

	Tx group (n=51) PO Aciclovir 400mg 5x/d	**Placebo group (n=53)**
Av time to treatment failure	84 days	62 days
Failure rate at 16 weeks	75%	74%

Conclusion: No statistically or clinically significant benefit with adding PO Aciclovir to stromal HSK patients receiving topical corticosteroid + trifluridine

Barron BA, Gee L, Hauck WW, Kurinij N, Dawson CR, Jones DB, Wilhelmus KR, Kaufman HE, Sugar J, Hyndiuk RA, et al. Herpetic Eye Disease Study. A controlled trial of oral acyclovir for herpes simplex stromal keratitis. Ophthalmology. 1994 Dec;101(12):1871-82. doi: 10.1016/s0161-6420(13)31155-5. PMID: 7997323.

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VALTREX PRECAUTIONS

ORAL MEDICATION

Valtrex

Contraindications

- Allergic to Aciclovir
- Renal impairment
  - Acute renal failure if overdose

Pregnancy/breast feeding/children

- Safe at
  - All stages of pregnancy
  - While breast feeding
  - Children >2yo (for < 2yo, IV Aciclovir is preferred)

SURGICAL MX FOR HERPETIC KERATITIS

SURGICAL TREATEMENT

For severe cases:

Therapeutic PK (last resort)

- Replaced infected cornea with donor cornea
- Also to remove corneal scarring for vision rehabilitation
- Beware graft rejection* (higher risk cf to normal PK for non-infectious cases like KCN)

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Panel discussion

Q8 What are the contraindications for Valtrex?

A) Renal impairment

0%

B) A.+ Allergy to Aciclovir

0%

C) A.+ B. + Pregnant

0%

D) A.+ B. + Pregnant+ > 2 years old

0%

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Summary of HZO/HSV treatment

TOPICAL

g. Aciclovir 5x/day for 2/52

Maxidex/Pred forte qid *(if stromal involvement/uveitis)?*

ORAL

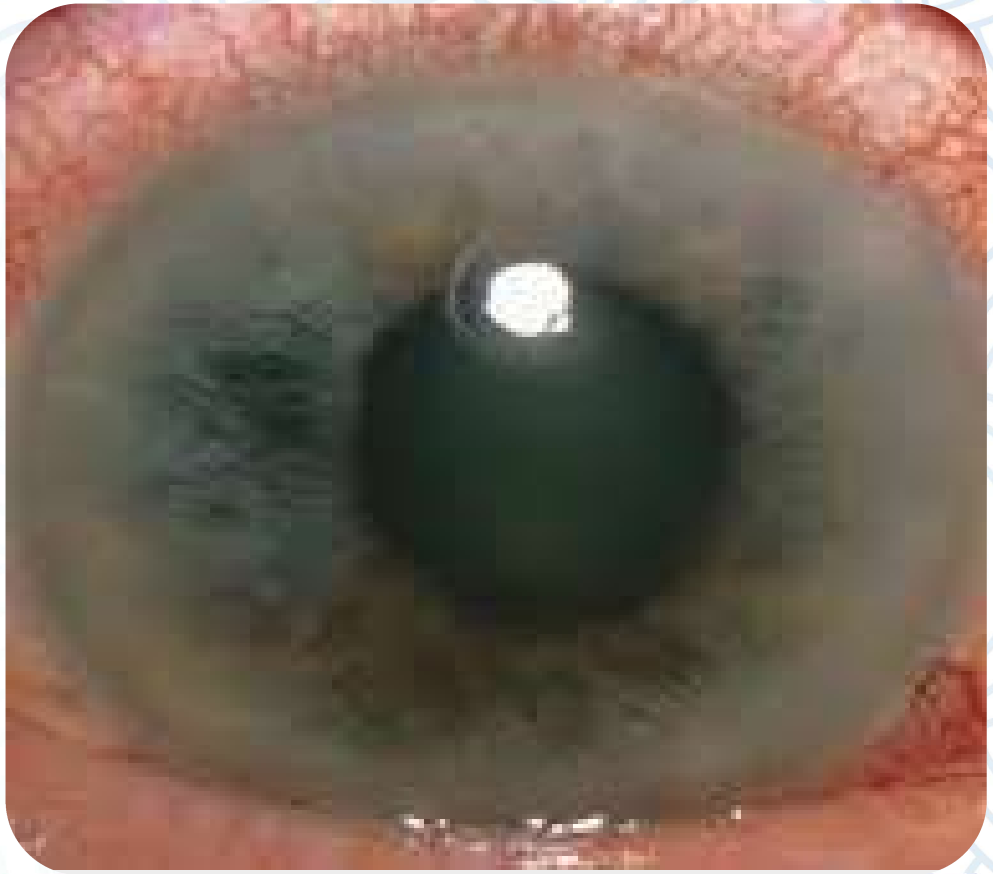
HSK	PO Valtrex 500mg tid PO Famcilovir 250mg tid PO Aciclovir 400mg 5x/d
HZO	PO Valtrex 1000mg tid PO Famcilovir 500mg tid PO Aciclovir 800mg 5x/d

TIP:
Double the dosage for HZO!

SURGERY

Therapeutic penetrating keratoplasty (PKP)

4



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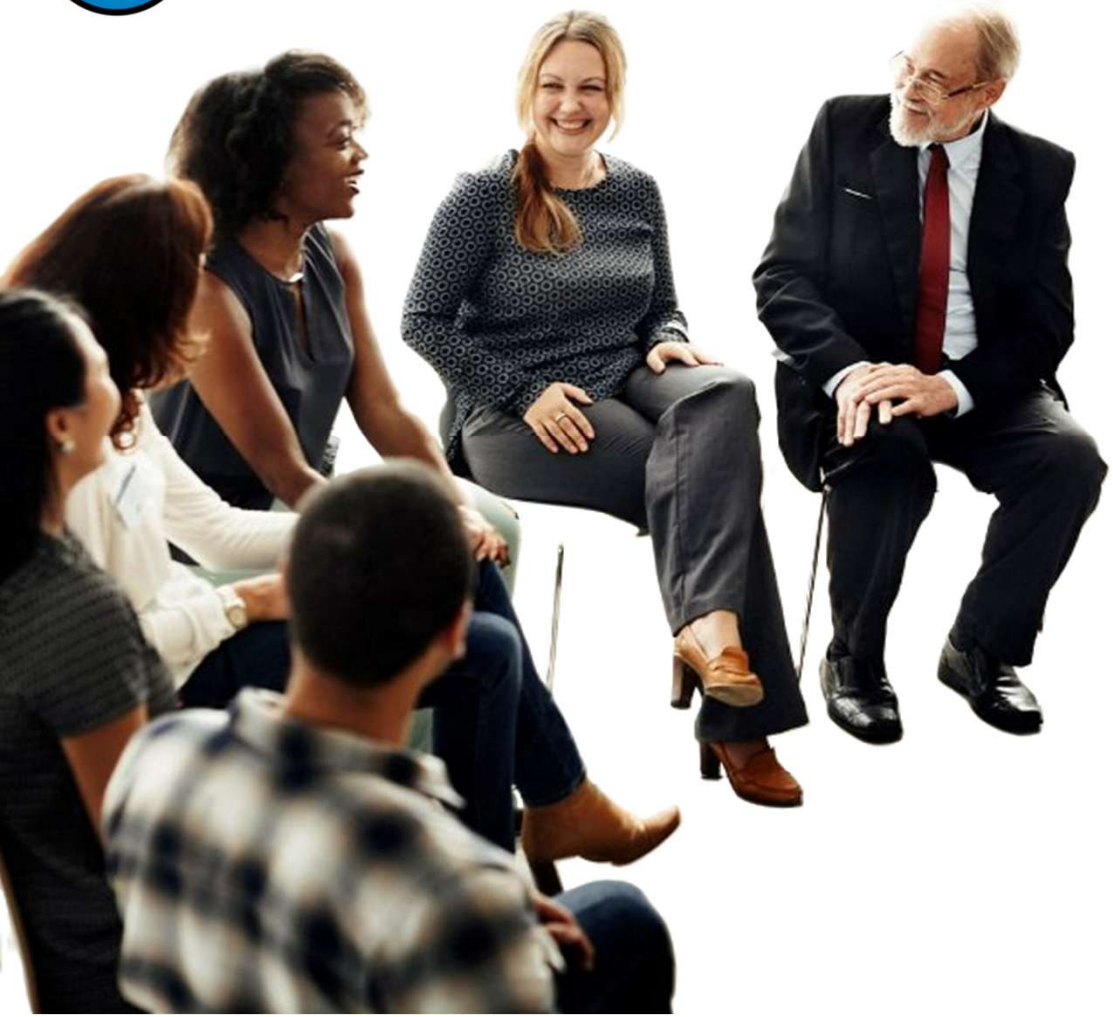


Interactive session time

In group of 5-8 people, please work through the following questions.

TIME FOR GROUP DISCUSSION

1) What symptoms might you expect with this condition?

2) What are some of the clinical signs of this condition?

3) What are the risk factors?

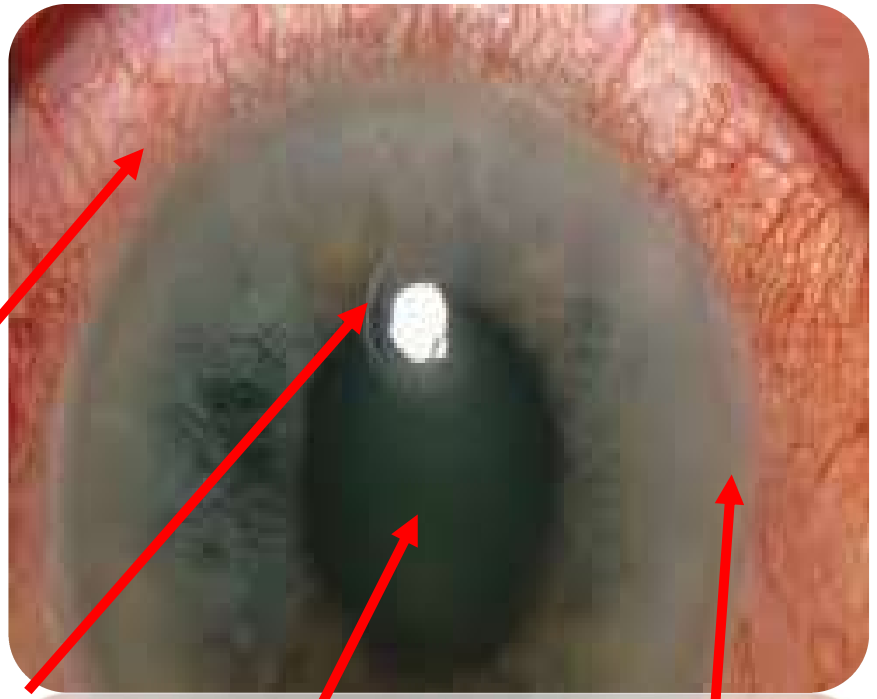
DIAGNOSIS CONDITION FOUR :

Acute Angle Closure (AAC)

- Ocular emergency
- Sudden rapid ↑ IOP from angle closing
- Can reach as high as 60-80mmHg

Symptoms:

- Blurred vision
- Eye pain
- Headaches
- Halos around lights
- Nausea/vomiting



REVISION OF WHAT IS AAC

Acute angle closure (AAC)

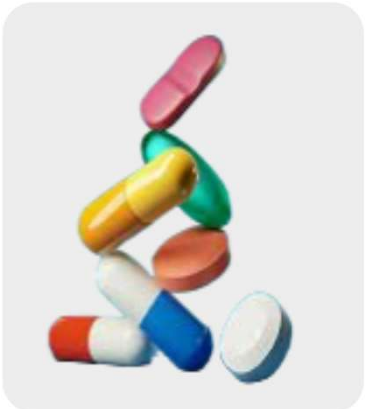
Risk factors:

Middle Age
55-65yo

Female gender
Females 2-4x higher risk vs males

Hyperopia

South-East Asians/Chinese /Inuit race



Certain meds

- Tropicamide
- Atropine/cyclopentolate
- Topiramate
- Sulfonamide
- Duloxetine
- Phenothiazines

Q9 How do you manage Acute Angle Closure in your practice?

A) Refer same day to Ophthalmologist/ED 0%

B) Start Timolol stat. 0%

C) Start Alphagan stat. 0%

D) Start Xalatan stat. 0%

E) Start Pilocarpine 0%

F) Start B. +C. +E.? 0%

Q10 How do you manage a 60 yo PACS patient in your clinic?

A) Review 6/12 — 0%

B) Review 12/12 — 0%

C) Refer for Laser PI — 0%

D) Refer for Cataract Surgery — 0%

E) Start on Simbrinza bid — 0%

TOPICAL TREATMENTS FOR AAC

TOPICAL TREATMENT

Prostaglandin not ideal (slow acting)

Combination of different glaucoma drops to rapidly ↓ IOP:

1. **B blocker (1 drop Timolol 0.5%)**
   ↓ aqueous production

2. **Alpha-agonist (Alphagan 0.2%/Iopidine 1 drop)**
   ↓ aqueous production + ↑ outflow of aqueous thru TM

3. **CAI (Azopt 1% 1 drop)**
   ↓ aqueous production

4. **Pilocarpine 1% 1 drop every 15min (total 2 dose) once IOP <40**
   ↑ outflow of aqueous
   To also prep for laser PI

CONTRAINDICATIONS OF TOPICAL ANTI-GLAUCOMA DROPS

TOPICAL TREATMENT

B blocker (Timolol 0.5%)

- Respiratory: Asthma /COPD
- Cardio: Bradycardia, heart failure/ block
- Pregnant/lactation

Alpha-agonist (Alphagan/Iopidine)

- Taking MAO inhibitors/ systematic sympathomimetics/ tricyclic anti-depressants

CAI

- Sulphur allergy
- Severe renal failure
- Hyperchloraemic acidosis
- Pregnant/lactation

Pilocarpine 1%

- Liver diseases
- Uncontrolled asthma
- Pregnant/lactation

ORAL TREATMENT FOR AAC

ORAL MEDICATION

PO Diamox 500mg stat. then 250mg qid

- CAI : Powerful ↓ aqueous production
- Additive therapy if topical drops failed
- More rapid decrease in IOP than topical agents

- **Contraindications :**
  - Sulphur allergy
  - Liver diseases
  - Renal diseases
  - Severe lung diseases (COPD, Asthma)
  - Pregnant/lactation

PROTOCOL IN-ROOM FOR ACUTE ANGLE CLOSURE EPISODE

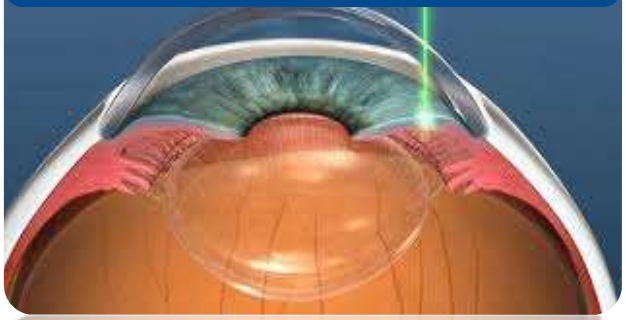
1. PO Diamox 500mg stat. then 250mg qid until LPI
2. g. Maxidex /Pred forte q2hr
3. g. Combigan bid
4. g. Pilocarpine tid

SAME DAY EMERGENCY REFERRAL TO HOSPITAL

SURGICAL MANAGEMENT FOR AAC

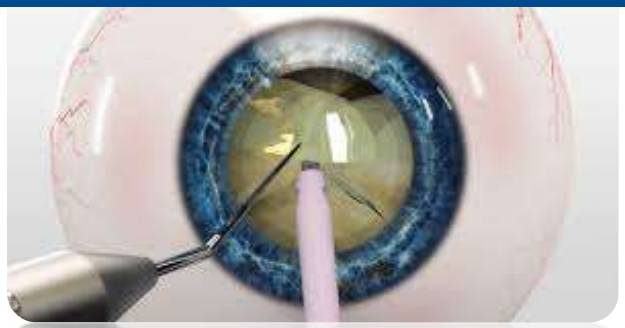
SURGICAL TREATEMENT

Same day laser PI



- To break pupil block
  - Aqueous to bypass pupil and outflow to TM
- Reducing bowing of iris
  - Opening the angle

Cataract sx



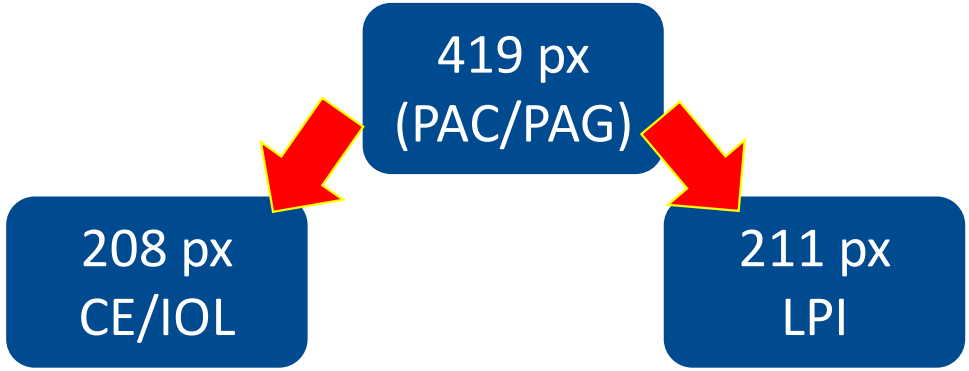
- Once acute episode resolves
- Remove maturing cataract reduces bowing of the iris into the angle
  - Effectively opening the angle and prevent further attacks

Best to have early cataract surgery /LPI to prevent attacks

WHAT DOES THE EAGLE STUDY SAY?

SURGICAL TREATEMENT

Cataract surgery vs LPI for PAG/PAC (RCT)



- 21% need further topical tx to control IOP
- 1 px needed further glaucoma sx

- 61% need further topical tx to control IOP
- 24 px needed further glaucoma sx
- 12 px proceeded CE/IOL re vision issues

Conclusion: CE/IOL should be considered as first line tx for PAG/PAC px (better in the long term in IOP control &VA)

Azuara-Blanco A, Burr J, Ramsay C, Cooper D, Foster PJ, Friedman DS, Scotland G, Javanbakht M, Cochrane C, Norrie J; EAGLE study group. Effectiveness of early lens extraction for the treatment of primary angle-closure glaucoma (EAGLE): a randomised controlled trial. Lancet. 2016 Oct 1;388(10052):1389-1397. doi: 10.1016/S0140-6736(16)30956-4. PMID: 27707497.

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Panel discussion

Q11 What is your referral criteria of when to refer for narrow angles?

A) Narrow Van Herick Angle

0%

B) Narrow Angle on Gonioscopy

0%

C) Narrow Angle on Anterior OCT

0%

D) Symptoms of transient blurred vision and headaches

0%

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Summary of AAC treatment

TOPICAL

If possible, combination drops (eg. Combigan bid).

B Blockers (Timolol) *(avoid in respiratory /heart diseases)*

Alpha agonist (Alphagan/Iopidine)

CAI (Azopt) *(make sure no sulfur allergy)*

Pilocarpine tid (when IOP <40)

ORAL

PO Diamox 500mg stat then 250mg qid *(make sure no sulphur allergy)*

SURGERY

LPI emergency

Cataract surgery (once episode resolves)

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DROPS, PILLS, BLADES

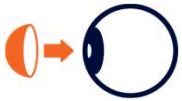
COMPREHENSIVE MANAGEMENT OF COMMON ANTERIOR EYE CONDITIONS

Dr Andrew APEL, Dr John HOGDEN, Mr Jason HOLLAND


Advanced Glaucoma Surgery


Aviation Vision Care


Cataract Surgery


Corneal Transplants


Dry Eye Clinic


Keratoconus Care Clinic


Laser & Refractive Surgery


Pterygium


Vitreo Retinal Surgery