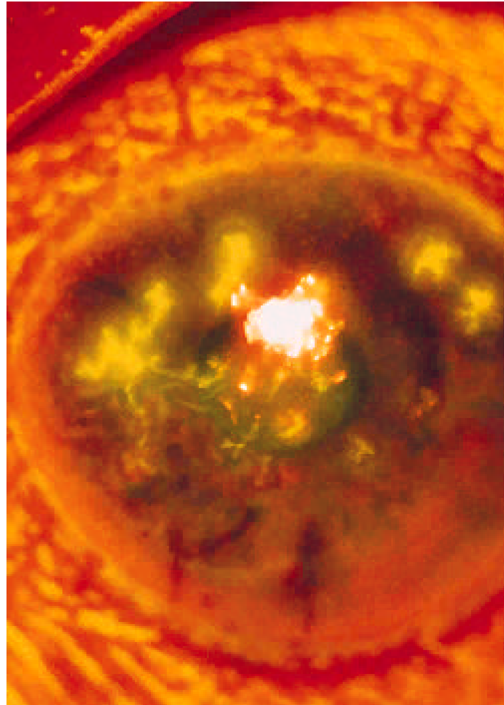

Q: (picture of typical dendrite) What is the differential diagnosis and describe this entity? How would you treat and why?

Etiology/Risks:

HSV is transmitted by direct contact of epidermis or mucous membranes with infectious secretions.
HSV1☞50 to 90% adults have Ab's against. Generally waist up.
HSV2☞80%pros, 25%adults. Waist down.

Critical symptoms:

<u>Primary infection:</u> unilateral blepharokeratoconjunctivitis
Follicular conjunctivitis + LN
+/- membrane
Eyelid vesicles
2/3 keratitis
1/10 stromal keratitis & uveitis

<u>Recurrent infection:</u> (latent from nerve & cornea??)

1) <u>Blepharoconjunctivitis.</u> No keratitis at times.
2) <u>Dendritic & geographic keratitis.</u>
PEE☞dendrite☞geographic. "Central, bulbs, edge rose Bengal, pool fluor, subepi infiltrates, ghost dendrite, corneal hypesthesia". Lasts three weeks. Treat to prevent immunologic response!!!
3) <u>Stromal keratitis and uveitis</u> (occurs in 15% of pts with recurrent disease, correlation with number of recurrence &

stromal disease).

A. Nonnecrotizing stromal keratitis

✌"Homogeneous translucent cellular infiltrate with stromal edema and ring infiltrate"

☺Generally no stromal vascularization

✹One type known as disciform keratitis, "disc shaped zone of corneal edema often without stromal inflammation"

✹Often KP's with iridocyclitis

B. Necrotizing stromal keratitis

✌"Single cheesy, white, necrotic infiltrates"

☹Often stromal vascularization

C. Anterior chamber rxn may be granulomatous or non granulomatous. Diffuse KP's.

4) Elevated IOP caused by trabeculitis.

5) Iris atrophy

Histopathology: Pathogenesis: Primary infection (pi) on area innervated by trigeminal nerve. Primary infection usually nonspecific URTI☞virus spreads to sensory nerve endings☞transport to cell bodies and resides there☞genome of virus into nucleus of neuron☞pi of any of three branches of V can result in si in any of branches (backdoor spread)!!!

Ddx: Dendritic lesions: VZV, EBV, healing epi defect, tyrosinemia, soft CL.

DISTINGUISHING FEATURES OF DENDRITES ASSOCIATED WITH HERPES SIMPLEX VIRUS VERSUS VARICELLA-ZOSTER VIRUS DISEASE

Feature	Herpes simplex virus	Varicella-zoster virus
Overall appearance	Fine, lacy	Thick, ropy
Epithelium	Linear defect with bared stroma, surrounded by edematous epithelial cells	Elevated, painted on appearance
Staining	Base stains with fluorescein, diseased border epithelial cells stain with rose bengal	Minimal fluorescein staining
Terminal bulbs	Frequent	None

Diagnosis: In cases where diagnosis in question then you may either culture or antigen detection test (same sensitivity. You may also take a corneal biopsy which may show characteristic intranuclear bodies (Lipshultz).

Treatment:

1) **Blepharoconjunctivitis:** viropitic x5/day or vira ung x5/day or oral acyclovir

2) **Dendrite Keratitis**:
   1. Self limited disease will resolve on own.
   2. Epithelial debridement or impression cytology
   3. Trifluridine (viroptic) 1% x8/day, 8-10 days, shown better for geographic ulcers then vidarabine
   4. Vidarabine 3% ung x5/day, 8-10 days
   5, Oral acyclovir 400mg x5/day

3) **Stromal keratitis non necrotizing**
   1. If no epithelial disease then prophylaxis with either trifluridine or oral acyclovir.
   2. Plus start high with PF 1% q 1-4 hours and taper with response. May need maintenance, lowest possible dose.

4) **Stromal keratitits necrotizing**
   1. First in this case you have to work up like all corneal ulcer to secure the diagnosis
   2. Difficult form to treat
   3. Once dx secured then treat with topical trifluridine and oral acyclovir (numbers too small in HEDS but seems prudent)
   4. Judicious use of seroids

4) **Complications**

   Vortex epitheliopathy, recurrent erosions, trophic ulcers, corneal perforation, stromal scar, astigmatism, lipid keratopathy.
   1. Trophic ulcers>patch>bandage CL>tarrsoraphy
   2. Glue Decemetoceles or perfs in inflammed eye to buy time for graft. High graft failure with inflammed eye.
   3. High steroids prior to surgery? To decrease vasc proir to graft.
   4. 80% success if eye quiet 6 months prior to graft.
   5. ??role of viroptic or acyclovir post graft

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Pearls: Differ from Adeno by keratitis, vesicles, unilateral (usually). Geographic risks are: strain of virus, immunosuppression

HEDS: Steroids help resolutiona and limit severity of non necriting stromal disease.
Oral acyclovir may help with uveitis.
Oral acyclovir does not help prevent non necrotizing after

epithelial disease.
Oral acyclovir not effective for stromal keratitis.
Oral acyclovir does help prevent epithelial recurrence.

Meds used for HSV

Antivirals

A) Systemic

1) Acyclovir

- oral 200-800mg: 5x/day
- activated by herpes thymidine kinase
- Acyclovir triphosphate then competes for dGTP, and is incorporated onto growing viral DNA
- indication: HSV, ARN, PORN, BARN
- side effects: renal toxicity, dehydration, gastrointestinal distress and headache; rare: CNS toxicity

2) Famcyclovir (oral penciclovir)

- 250-750mg TID
- indication: HZV treatment (zoster)
- activity: HSV-1, HSV-2, HZV, and EBV
- side effects: none reported

B) Topical

1) Trifluridine (Viroptic)

- 1% drops: 9x/day
- pyrimidine
- viral thymidylate synthetase
- HSV treatment
- HSV-1, HSV-2, ±adenovirus
- side effects: toxicity, follicular conjunctivitis, pseudopemphigoid

2) Idoxyuridine (Herplex)

- 0.5% ointment: 5x/day
- pyrimidine
- viral DNA polymerases
- HSV treatment
- HSV-1, HSV-2
- side effects: toxicity, follicular conjunctivitis, pseudopemphigoid

3**) vidarabine (Ara A)**

- 3% ointment: 5x/day
- purine nucleoside
- viral DNA polymerase
- HSV treatment
- HSV-1, HSV-2, VZV CMV
- side effects: toxicity, follicular conjunctivitis, pseudopemphigoid

4) acyclovir (Zovirax)

- ointment 3%
- pyrimidine
- viral DNA polymerase
- HSV treatment
- HSV-1, HSV-2, VZV, EBV, ±CMV
- side effects: toxicity, follicular conjunctivitis, pseudopemphigoid

ANTIVIRAL AGENTS FOR TREATMENT OF HSV OCULAR DISEASE

Antiviral	Route	Form	Frequency	Action
Idoxuridine	Topical	0.1% solution	Hourly while awake	Inhibits viral thymidine kinase, thymidylate synthase, and DNA polymerase
Vidarabine(Ara-A)	Topical	3% ointment	Five times daily	Inhibits viral DNA polymerase
Trifluridine	Topical	1% solution	Every 2h while awake	Inhibits viral thymidylate synthas
Acyclovir	Topical Oral	3% ointment 400mg tablet	Five times daily Five times daily	Activated by viral thymidine kinas to inhibit DNA polymerase

Variations and little tricks for questions:

1. Decreased corneal sensation; occurs in 80%
2. Use oral if topical can’t be given
3. Catarct surgery planned. Wait for 6month disease free period and start acyclovir 24 pre-op and conitnue for 14 days post