What is the #1 bacterium in CL-related K ulcer?
Infectious keratitis: Short answers

- What is the #1 bacterium in CL-related K ulcer? *Pseudomonas*
Pseudomonas corneal ulcer associated with CL wear
What is the #1 bacterium in CL-related K ulcer? Pseudomonas
What is the #1 risk factor for Acanthamoeba keratitis?
Infectious keratitis: Short answers

- What is the #1 bacterium in CL-related K ulcer? *Pseudomonas*
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Acanthamoeba keratitis associated with CL wear
What is the #1 bacterium in CL-related K ulcer? *Pseudomonas*

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What are the three main culprits in fungal keratitis?
- fungus 1
- fungus 2
- fungus 3

and
What is the #1 bacterium in CL-related K ulcer? *Pseudomonas*

What is the #1 risk factor for *Acanthamoeba* keratitis? CL wear

What are the three main culprits in fungal keratitis?
- *Fusarium*
- *Aspergillus* and *Candida*
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What are the three main culprits in fungal keratitis? **What is the topical antifungal of choice for each?**

- *Fusarium*: Topical…
- *Aspergillus* and *Candida*: Topical…
Infectious keratitis: Short answers

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If you want to add a PO antifungal for:
--\textit{Fusarium and Aspergillus:} Ketoconazole
--\textit{Candida:} Fluconazole
Acanthamoeba: (Pseudo)dendrites

Infectious keratitis: Short answers
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What is the most common misdiagnosis of early *Acanthamoeba* keratitis? HSV keratitis. Early *Acanthamoeba* keratitis is limited to the epithelium and is very often dendritic in appearance; only late does a ring infiltrate appear

*In what key way might the presenting complaint of an Acanthamoeba keratitis patient differ from that of an HSV keratitis patient?*
Infectious keratitis: Short answers

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The patient with Acanthamoeba keratitis will complain of pain that seems out of proportion to the clinical picture, while the HSV keratitis patient will have less pain than would be expected given the appearance of the cornea.
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**In what key way might the presenting complaint of an Acanthamoeba keratitis patient differ from that of an HSV keratitis patient?**

The patient with *Acanthamoeba keratitis will complain of pain* that seems out of proportion to the clinical picture, while the HSV keratitis patient will have less pain than would be expected given the appearance of the cornea

Why is *Acanthamoeba keratitis exceptionally painful?*
Q/A

Infectious keratitis: Short answers

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The patient with **Acanthamoeba keratitis will complain of pain** that seems out of proportion to the clinical picture, while the HSV keratitis patient will have **less pain** than would be expected given the appearance of the cornea

**Why is Acanthamoeba keratitis exceptionally painful?**
Because the bug has a propensity for perineural invasion, resulting in a condition known as **radial keratoneuritis**
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What simple maneuver can increase topical antifungal corneal penetrance? **Scrape off the epithelium**

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What is the most common misdiagnosis of early *Acanthamoeba* keratitis? **HSV keratitis. Early Acanthamoeba keratitis is limited to the epithelium and is very often dendritic in appearance; only late does a ring infiltrate appear**

In what key way do the dendrites of Acanthamoeba keratitis differ from those of HSV keratitis?
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What simple maneuver can increase topical antifungal corneal penetrance? **Scrape off the epithelium**

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What is the most common misdiagnosis of early *Acanthamoeba* keratitis? **HSV keratitis. Early *Acanthamoeba* keratitis is limited to the epithelium and is very often dendritic in appearance; only late does a ring infiltrate appear**

In what key way do the dendrites of *Acanthamoeba* keratitis differ from those of *HSV* keratitis? HSV dendrites usually have terminal bulbs, whereas *Acanthamoeba* dendrites don’t. Be sure to evaluate any dendritic keratitis carefully for the presence/absence of terminal bulbs!
HSV dendrites: Terminal bulbs (look carefully)
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What are the three main culprits in fungal keratitis? What is the topical antifungal of choice for each?
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What keratitis bug is the classic association with AIDS?
Infectious keratitis: Short answers

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If you want to add a PO antifungal for:
--*Fusarium* and *Aspergillus*: Ketoconazole
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What keratitis bug is the classic association with AIDS? How is it treated? **Microsporidia. Topical fumagillin**

What is the treatment for *Acanthamoeba* keratitis? What is the time course? **There are multiple options; a good choice is topical chlorhexidine + propamidine. Epithelial disease can be cured in a mere 3-4 months; stromal disease requires 8-12 months.**
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What is the treatment for *Acanthamoeba* keratitis? What is the time course? There are multiple options; a good choice is topical chlorhexidine + propamidine. Epithelial disease can be cured in a mere 3-4 months; **stromal disease requires 8-12 months.**

In fact, topical therapy is often **ineffective** in deep stromal *Acanthamoeba* infections, which may require **PK** (coupled with antiamoebic meds) to rid the host of infection.
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Which form of infectious keratitis can be diagnosed definitively without stains, culture or biopsy, and how?

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**If you want to add a PO antifungal for:**

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**Fusarium and Aspergillus: Ketoconazole**

**Candida: Fluconazole**
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What is the treatment for Acanthamoeba keratitis? What is the time course? There are multiple options; a good choice is topical chlorhexidine + propamidine. Epithelial disease can be cured in a mere 3-4 months; stromal disease requires 8-12 months.
Which form of infectious keratitis can be diagnosed definitively without stains, culture or biopsy, and how? Acanthamoeba can be diagnosed via confocal in vivo microscopy (cysts will be seen in the stroma)

If you want to add a PO antifungal for:
--Fusarium and Aspergillus: Ketoconazole
--Candida: Fluconazole
Confocal microscopy demonstrating high-contrast round objects consistent with *Acanthamoeba* cysts (and irregular forms suggestive of *Acanthamoeba* trophozoites)
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What is the #1 risk factor for *Acanthamoeba* keratitis? **CL wear**

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What medium is used when culturing for *Acanthamoeba*?

Non-nutrient agar with *E. coli* overlay

What constitutes a positive 'culture'? When placed on such a culture plate, the mobile trophozoite form of the ameoba will respond by grazing its way around the plate in the process leaving observable trails.

What is the treatment for *Acanthamoeba* keratitis? What is the time course?

There are multiple options; a good choice is topical chlorhexidine + propamidine. Epithelial disease can be cured in a mere 3-4 months; stromal disease requires 8-12 months.

Which form of infectious keratitis can be diagnosed definitively without stains, culture or biopsy, and how? *Acanthamoeba* can be diagnosed via confocal in vivo microscopy (cysts will be seen in the stroma)
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- What is the most common misdiagnosis of early *Acanthamoeba* keratitis? HSV keratitis. Early *Acanthamoeba* keratitis is limited to the epithelium and is very often dendritic in appearance; only late does a ring infiltrate appear
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- What is the treatment for *Acanthamoeba* keratitis? What is the time course?
  - There are multiple options; a good choice is topical chlorhexidine + propamidine. Epithelial disease can be cured in a mere 3-4 months; stromal disease requires 8-12 months.
- Which form of infectious keratitis can be diagnosed definitively without stains, culture or biopsy, and how? *Acanthamoeba* can be diagnosed via confocal in vivo microscopy (cysts will be seen in the stroma)

If you want to add a PO antifungal for:
-- *Fusarium* and *Aspergillus*: Ketoconazole
-- *Candida*: Fluconazole
Infectious keratitis: Short answers

- What is the #1 bacterium in CL-related K ulcer? **Pseudomonas**
- What is the #1 risk factor for **Acanthamoeba** keratitis? **CL wear**
- What are the three main culprits in fungal keratitis? What is the topical antifungal of choice for each?
  - **Fusarium**: Topical...natamycin
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- **What medium is used when culturing for Acanthamoeba?**
  - Non-nutrient agar with E. coli overlay
- **What constitutes a positive ‘culture’?**
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  - Non-nutrient agar with *E. coli* overlay
- **What constitutes a positive ‘culture’?**
  - When placed on such a culture plate, the motile trophozoite form of the amoeba will respond by grazing its way around the plate, in the process leaving **observable trails** in the agar

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Infectious keratitis: Short answers

*Acanthamoeba*: Feeding tracks on non-nutrient agar *E coli* plate
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**You are treating a corneal ulcer with topical antibiotic X. The ulcer seems to be improving, but when the culture & sensitivities report arrives, it indicates that the bug is not susceptible to X. Should you change antibiotics?**

- **Probably not.** Most C&S determinations are based on antibiotic concentrations achievable in serum via systemic administration, not antibiotic concentrations in the cornea achievable via drops—which may be vastly higher. Clinical response, not C&S results, is the standard against which corneal ulcer management should be judged.
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