




Closing The Brief Case: A “Fresh” Pair of Contact Lenses

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ANSWERS TO SELF-ASSESSMENT QUESTIONS

1. Which of the following are included in the life cycle of *Acanthamoeba*?

- A. Cyst and schizont
- B. Bradyzoite and tachyzoite
- C. Trophozoite and cyst
- D. Trophozoite and flagellate

Answer: C. *Acanthamoeba* exists as a trophozoite (active growth stage) and as a cyst (dormant stage). The schizont is a component of the life cycle of *Plasmodium* species. The flagellate is a component of the life cycle of *Naegleria* species. Bradyzoites and tachyzoites form the life cycle of *Toxoplasma gondii*.

2. Which of the following is the gold standard for laboratory diagnosis of *Acanthamoeba* keratitis?

- A. Confocal microscopy
- B. Plate culture
- C. Indirect immunofluorescence
- D. Matrix-assisted laser desorption–ionization time of flight (MALDI-TOF) mass spectrometry

Answer: B. Plate culture is the gold standard for diagnosis. This technique involves culturing corneal scrapings on agar at 30°C and screening the plates daily for signs of *Acanthamoeba* by inverted phase-contrast microscopy. Confocal microscopy can allow visualization of cysts *in vivo* as part of the ophthalmologic exam. Indirect immunofluorescence is not part of the standard diagnosis of *Acanthamoeba*, as this is an antibody-based technique that requires specific stains. Though MALDI-TOF mass spectrometry can be used to type *Acanthamoeba* species and many other microbes, it is not the gold standard for diagnostic evaluation.

3. The leading risk factor for *Acanthamoeba* keratitis is which of the following?

- A. Contact lens use
- B. Corneal trauma
- C. Immunocompromised state
- D. Swimming in contaminated water

Answer: A. The leading risk factor for *Acanthamoeba* keratitis is soft contact lens use. The risk is higher with soft contact lens use, as cysts can attach more easily to this type of material. The other answer choices are also risk factors.

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TAKE-HOME POINTS

- *Acanthamoeba* is a genus of free-living amoebae that is ubiquitous in nature.
- *Acanthamoeba* keratitis is a severe ocular infection characterized by pain, photophobia, and lacrimation, often out of proportion to exam findings initially. Exam findings include annular infiltrates and radial keratoneuritis. Advanced signs include stromal keratitis and corneal perforation.
- The leading risk factor for *Acanthamoeba* keratitis is contact lens use.
- Plate culture is the gold standard for diagnosis.
- The preferred therapy for *Acanthamoeba* keratitis is a topical biguanide, such as chlorhexidine.