

Differentiating Keratitis

1 hour

Pamela Theriot, OD, FAAO

Description

Although keratitis refers to an inflammation of the cornea, the etiology always drives the treatment. Proper diagnosis and treatment are essential to prevent potential complications and preserve vision. This course will enhance your diagnostic skills and discuss new treatment strategies for infectious, inflammatory, and even unknown causes keratitis. Explore corneal images and learn the key differences to develop the most effective treatment plans.

Objectives

- Understand the various etiologies of keratitis, including infections, contact lens wear, and underlying medical conditions.
- Familiarize course participants with the key relevant signs which distinguish these similarly appearing defects of the cornea.
- Implement appropriate management strategies for conditions like filamentary keratitis, staph marginal keratitis, and Thygeson's superficial punctate keratitis.

Outline

I. Introduction: Why Keratitis is Difficult to Diagnose

A. Overview of Keratitis

- Definition and classification
- Infectious vs. inflammatory etiologies
- Impact of delayed or incorrect diagnosis

B. Clinical Approach to the Keratitis Patient

- History taking
- Symptom assessment
- Slit lamp examination pearls
- Role of diagnostic testing

II. Thygeson's Superficial Punctate Keratitis (TSPK)

A. Epidemiology and Pathophysiology

- Suspected autoimmune mechanisms
- HLA-DR3 association
- Disease course and recurrence patterns

B. Clinical Presentation

- Signs and symptoms
- Negative fluorescein staining
- Characteristic lesion appearance
- Preservation of corneal sensitivity

C. Differential Diagnosis

- Epidemic keratoconjunctivitis (EKC)
- Superficial punctate keratitis
- Recurrent corneal erosion
- Staphylococcal marginal keratitis
- Herpes simplex keratitis

D. Diagnostic Testing

- Adenoviral testing
- Corneal sensitivity assessment
- Fluorescein staining patterns

E. Management Strategies

- Artificial tears

- Topical corticosteroids
- Cyclosporine therapy
- Therapeutic contact lenses

F. Case Presentation

III. Filamentary Keratitis

A. Pathophysiology

- Tear film instability
- Increased mucus-to-aqueous ratio
- Relationship to severe dry eye disease

B. Clinical Findings

- Corneal filaments
- Vital dye staining
- Symptom profile

C. Diagnostic Testing

- Slit lamp examination
- Schirmer testing
- Ocular surface staining

D. Treatment Options

- Lubrication therapies
- N-acetylcysteine
- Bandage contact lenses
- Immunomodulators

- Biologic therapies
- Scleral lenses

E. Emerging Treatments

- Amniotic membrane therapies
- Intense Pulsed Light (IPL)
- Platelet-rich plasma and serum tears

IV. Neurotrophic Keratitis

A. Disease Mechanism

- Corneal innervation and healing
- Trigeminal nerve dysfunction
- Risk factors and etiologies

B. Clinical Staging – Mackie Classification

- Stage 1
- Stage 2
- Stage 3

C. Diagnostic Considerations

- Corneal sensitivity testing
- Differentiation from infectious keratitis
- Identifying persistent epithelial defects

D. Modern Treatment Strategies

- Artificial tears
- Punctal occlusion

- Scleral lenses
- Amniotic membrane therapy
- Cenegermin (recombinant human nerve growth factor)

E. Case Studies and Clinical Outcomes

V. Staphylococcal Marginal Keratitis

A. Pathophysiology

- Hypersensitivity reaction to Staphylococcal antigens
- Association with blepharitis and meibomian gland dysfunction

B. Clinical Findings

- Peripheral infiltrates
- Clear zone between lesion and limbus
- Conjunctival injection patterns

C. Differential Diagnosis

- Vernal keratoconjunctivitis
- Exposure keratopathy
- Contact lens-related infiltrates
- Microbial ulceration

D. Distinguishing Sterile Infiltrates from Infectious Ulcers

- Lesion size
- Location
- Epithelial defects
- Anterior chamber reaction

- Pain severity

E. Treatment Approaches

- Topical corticosteroids
- Antibiotic therapy
- Blepharitis management
- Oral doxycycline
- Lid hygiene protocols
- Demodex management

VI. Microbial Keratitis and Corneal Ulceration

A. Risk Factors

- Contact lens wear
- Ocular trauma
- Ocular surface disease
- Immunocompromise

B. Clinical Warning Signs

- Central infiltrates
- Significant epithelial defects
- Anterior chamber reaction
- Mucopurulent discharge

C. Corneal Culturing Techniques

- Indications for culture
- Corneal scraping procedures

- Gram stain and Giemsa stain
- Culture media selection

D. Treatment Principles

- Broad-spectrum antibiotics
- Follow-up protocols
- Referral considerations

VII. Clinical Pearls: Comparing Common Keratitis Presentations

A. Key Differentiating Features

- Lesion location
- Corneal sensitivity
- Staining patterns
- Pain severity
- Conjunctival involvement

VIII. Summary

A. Key Take-Home Points

- Importance of accurate differential diagnosis
- Appropriate use of diagnostic testing
- Emerging therapies for ocular surface disease and neurotrophic keratitis