



CANADIAN ASSOCIATION OF OPTOMETRISTS
ASSOCIATION CANADIENNE DES OPTOMÉTRISTES

Introduction to Slit Lamp Utilization

Presented by:
Dr. Allison Scott



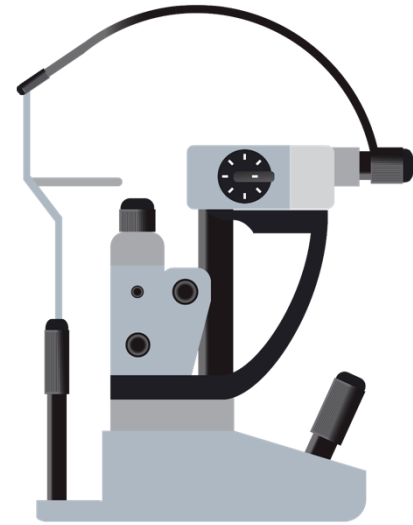
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2

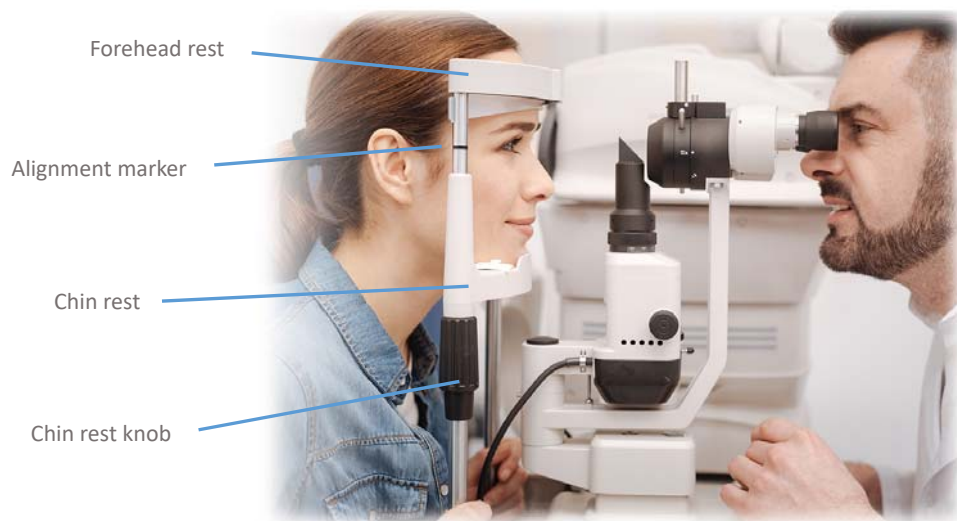
Slit Lamp Examination

The slit lamp is an essential tool used during the comprehensive eye exam. Made up of a microscope and bright light, it allows the optometrist to examine the different structures of the eye.



3

Positioning the Patient



4



Binocular Eye Pieces

- Focus eye pieces for your prescription
- Adjust for your interpupillary distance

5

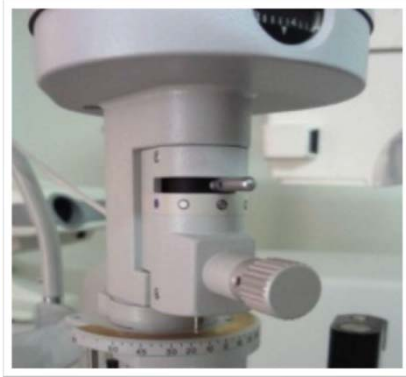
Joystick & Magnification

- Focus with movement forward, backward, laterally and diagonally. Rotate to lower or elevate the light beam.
- Magnification can be changed with between 6-40x



6

Slit Height and Width



Slit height, filter colour and angle



Slit width

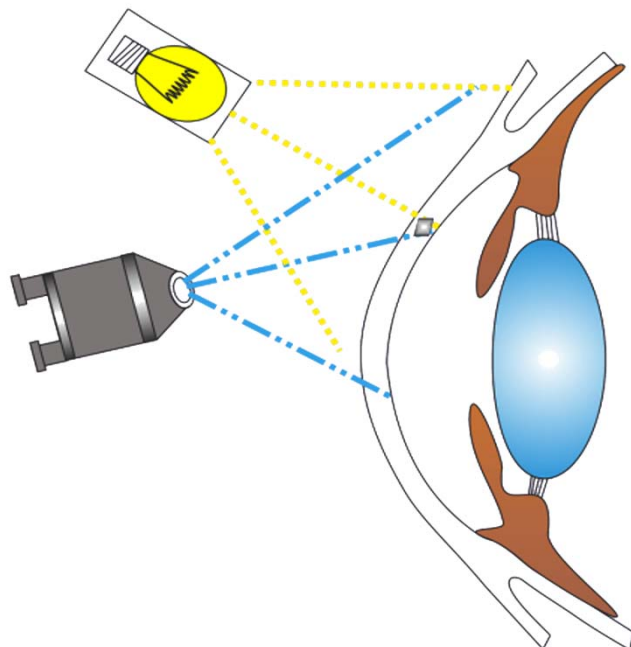
7

Diffuse Illumination

- Beam Angle: 45°
- Beam height: Max
- Beam width: Max
- Mag: 6-10x
- Illumination: Medium

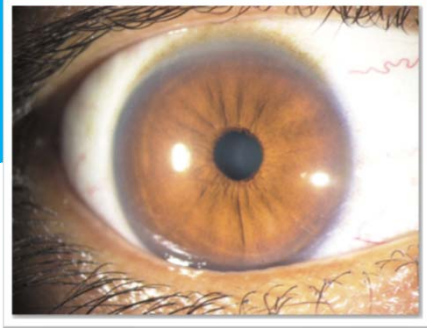
Used to examine:

- Overview of eye and adnexa
- NaFl can be used to look at FB and defects with cobalt blue filter



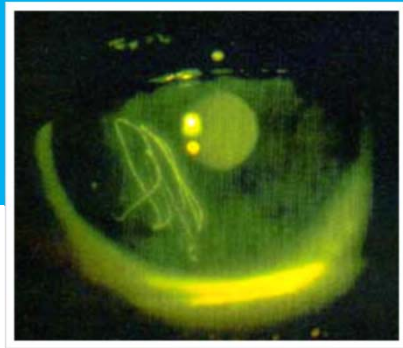
8

Diffuse Illumination

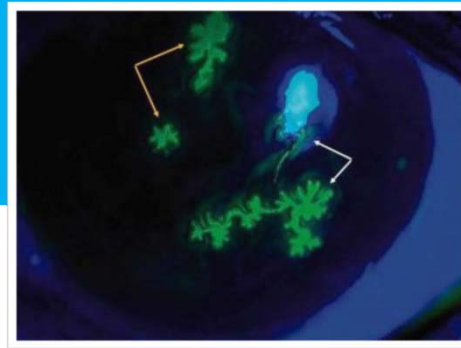


9

Cobalt blue filter



Photos courtesy of www.qjmed.oxfordjournals.org



Photos courtesy of www.wickioptik.ch

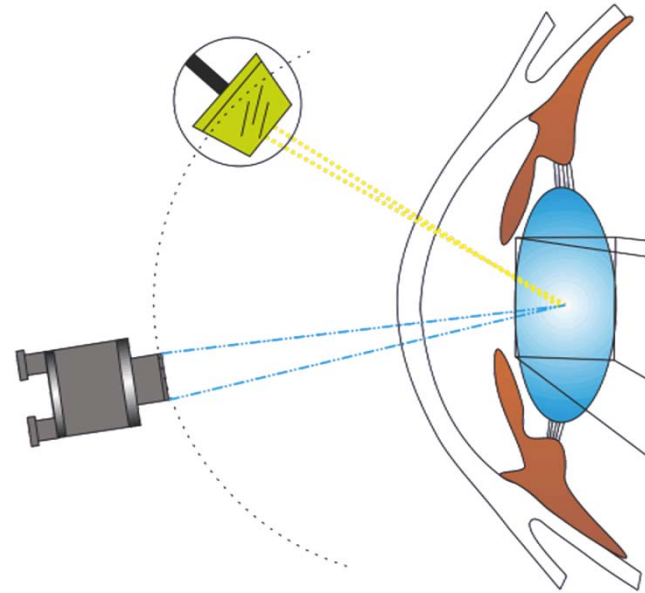
10

Optic Section

- Beam Angle: 45°
- Beam height: Max
- Beam width: Nearly extinguished
- Mag: 10-16x
- Illumination: Med-Max

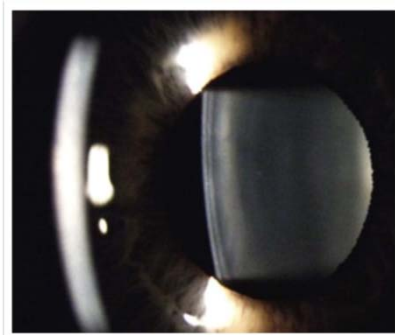
Used to examine:

- Depth of foreign body
- Stromal thinning
- Layers of cornea
- Anterior chamber depth
- Layers of the lens



11

Optic Section – The Lens



Clear Lens

Photo courtesy of
www.clinicalgate.com



Brunescens Cataract

Photo courtesy of
www.classconnection.s3.amazonaws.com

12

Optic Section – The Cornea

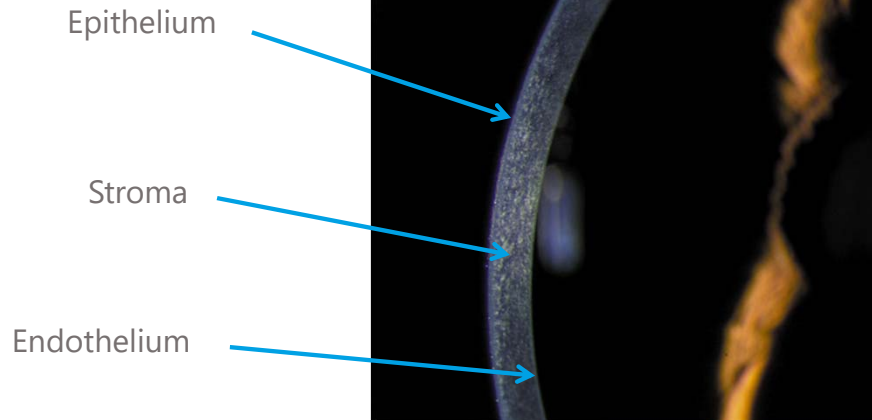


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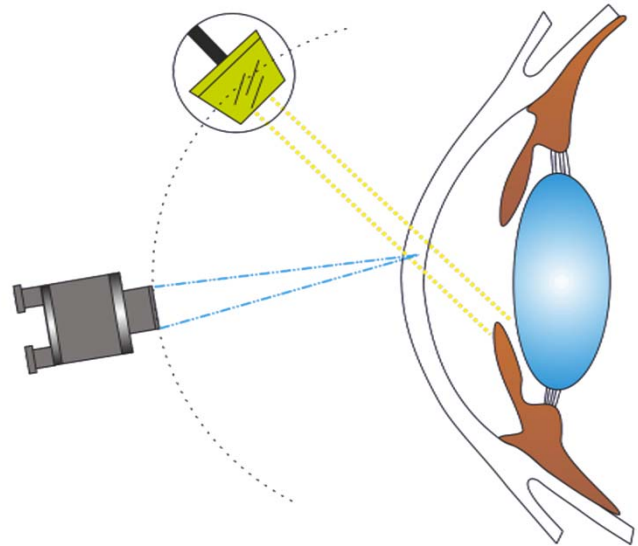
13

Parallelepiped

- Beam Angle: 45°
- Beam height: Max
- Beam width: 1-2mm
- Mag: 10-16x
- Illumination: Medium

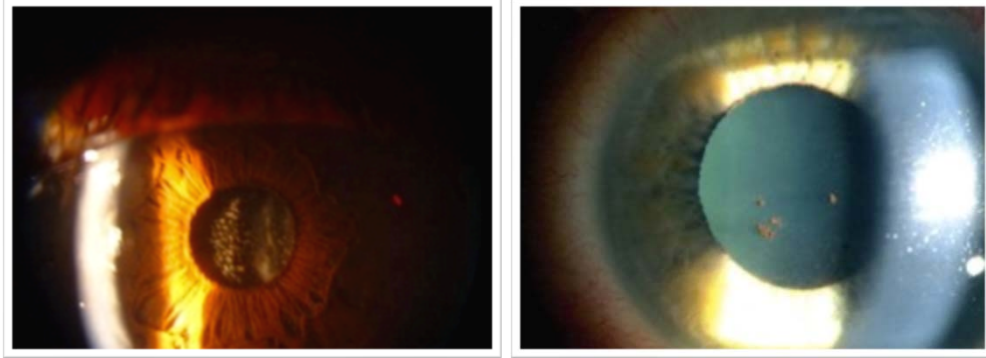
Used to examine:

- Cornea
- Iris
- Lens



14

Parallelepiped – The Iris



Photos courtesy of: www.slideshare.net

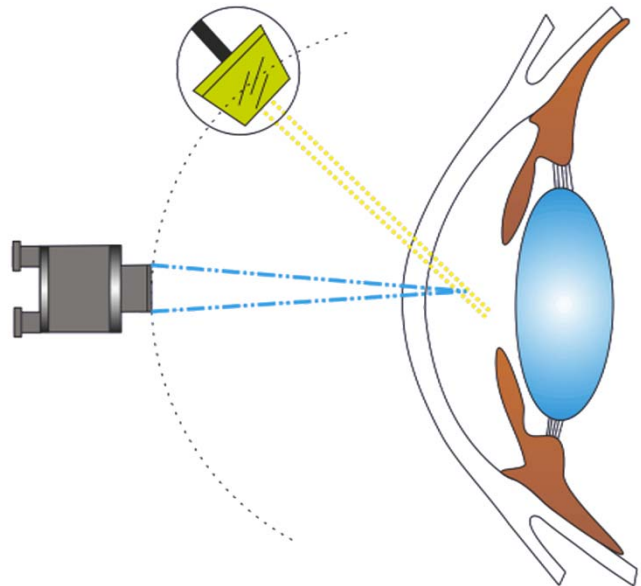
15

Conical Beam

- Beam Angle: 45°
- Beam height: 1-2mm
- Beam width: 1-2mm
- Mag: 10-16x
- Illumination: Max

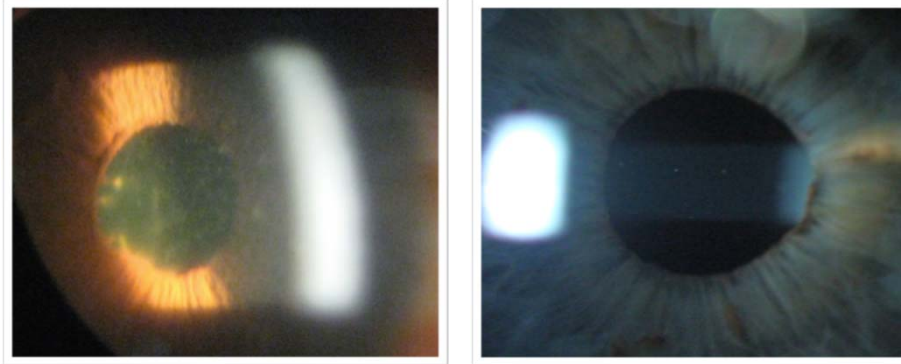
Used to examine:

- Inflammatory cells & protein in AC



16

Conical Beam - Cells & Flare



Photos courtesy of: www.keeler-symphony.com

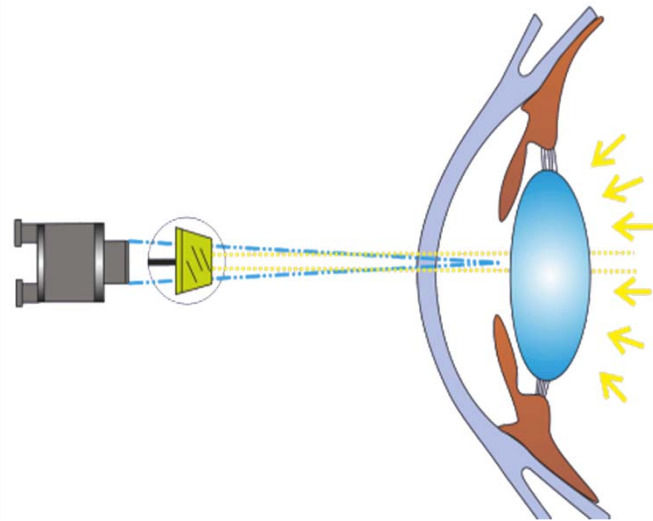
17

Fundus Retro Illumination

- Beam Angle: 0°
- Beam height: 6mm
- Beam width: 1-2mm
- Mag: 6-10x
- Illumination: Med

Used to examine:

- Lens Opacity



18

Retro Illumination – The Lens

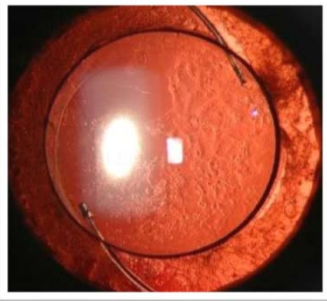


Photo courtesy of
www.eyerounds.org

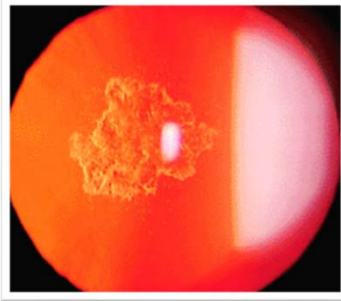


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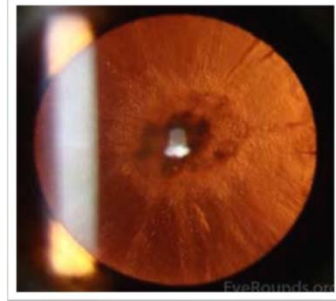


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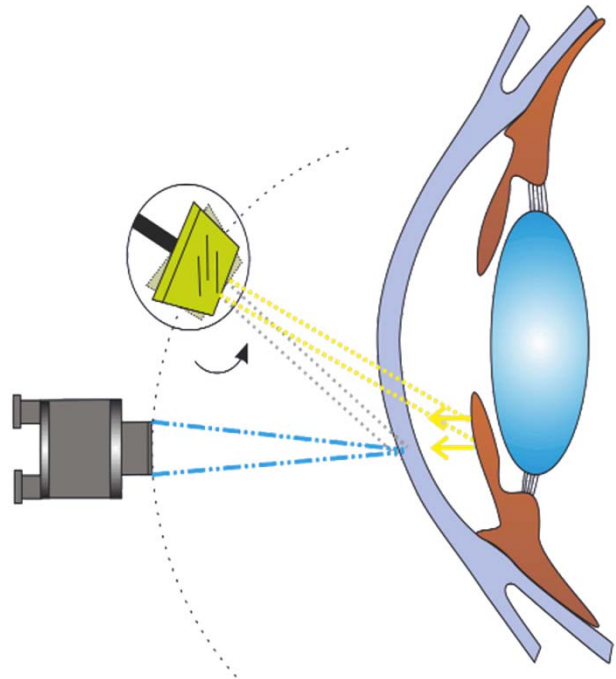
19

Indirect Illumination

- Beam Angle: 45°
- Beam height: 6mm
- Beam width: 1-2mm
- Mag: 6-10x
- Illumination: Med

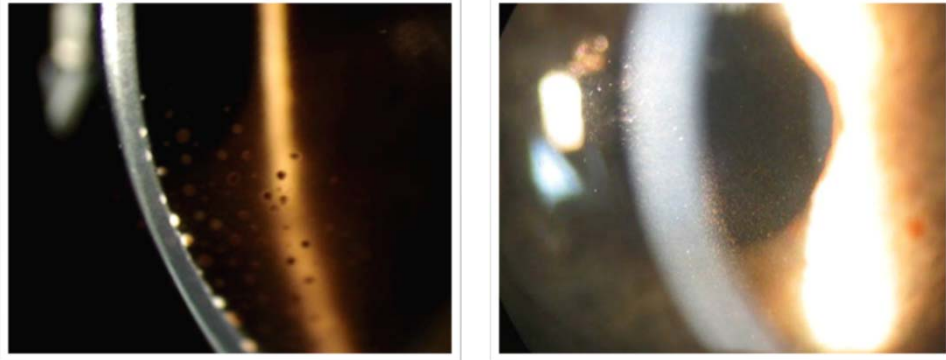
Used to examine:

- Corneal Opacity
- Endothelium



20

Indirect Illumination - Cornea



Photos courtesy of: www.rootatlas.com

21

Removing a Foreign Body

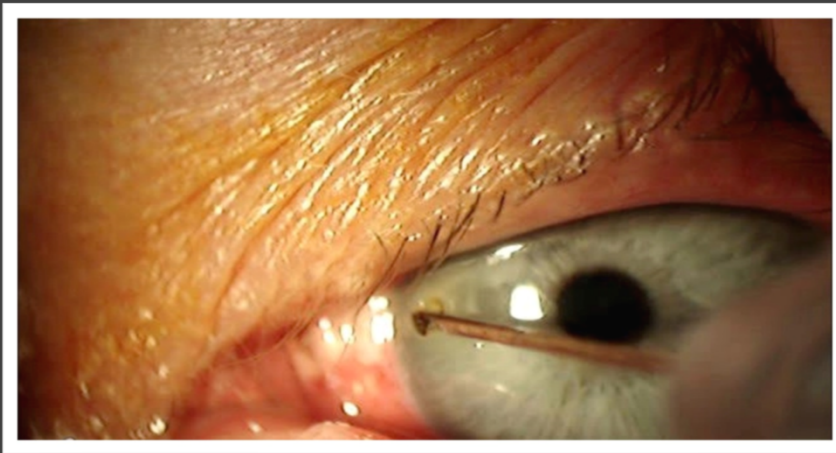


Photo courtesy of: www.rootatlas.com

22

Removing a Foreign Body

Step 1: Take a careful history

What?

- Metal, dust, vegetative matter etc.

When?

- Helps with treatment plan after removal (chances of infection, inflammation and rust increase with time)

Where?

- Work? Home? Safety glasses?

How?

- Helps to determine force of penetration



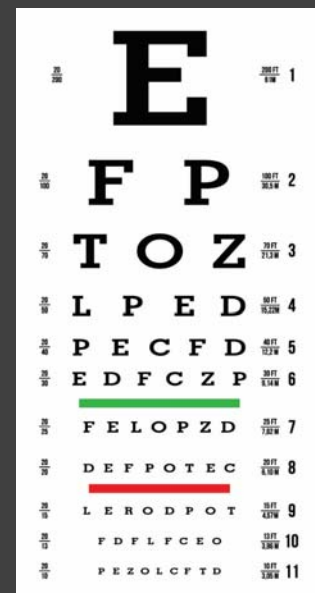
23

Removing a Foreign Body

Step 2: Take entering visual acuities

Step 3: Anesthetize the eye (patient comfort)

- Proparacaine, Tetracaine



24

Removing a Foreign Body

Step 4: Locate the foreign body

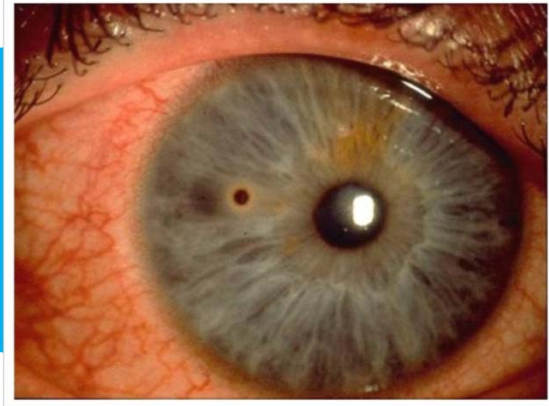
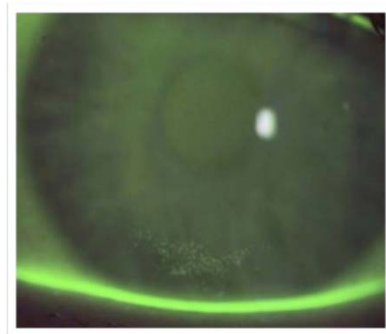


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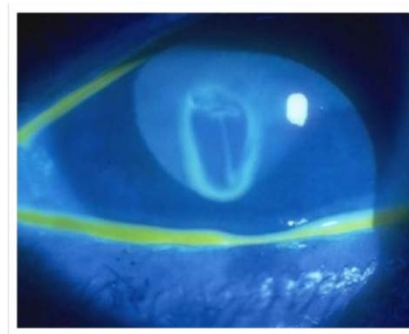
25

Removing a Foreign Body

Step 5: Check for penetration – Seidel Test



Negative



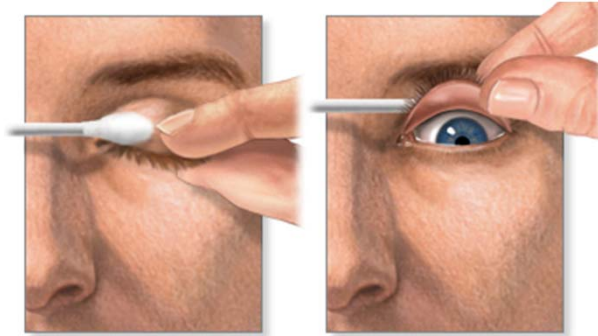
Positive

Photos courtesy of: www.bauschlomb.com

26

Removing a Foreign Body

Step 6: Invert eyelid to look for trapped foreign body



Twist cotton-tipped
swab upward

Look downward

Photos courtesy of: keckmedicine.adam.com

27

Removing a Foreign Body

Step 7: Choose your removal instrument

- Magnetic spud
- 25-gauge 5/8" needle
- Jeweler's forceps



Photo courtesy of: www.alf-img.com

28

Removing a Foreign Body

Step 8: Take a Tangential Approach

- Always approach the foreign body tangentially to avoid corneal perforation



Photo courtesy of: www.iyting.com

29

Removing a Foreign Body

Step 9: Remove Rust Ring

- If metal is lodged in the cornea for more than 4-6 hours

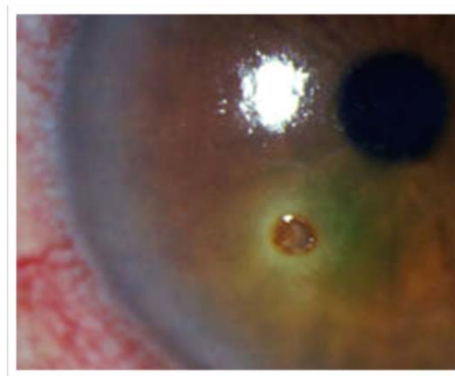


Photo courtesy of: www.fprmed.com

30

Removing a Foreign Body

Step 10: Rx Appropriately

- Broad-spectrum antibiotic for one week



Photos courtesy of: www.vigamox.com

31

Foreign Body

Case Examples



32

Case 1

- 45 year old male
- One month history of foreign body sensation
- Following helping with foam insulation in walls
- Sent from ER



33

Case 2

- 35 year old male
- One day foreign body sensation
- Following removing car muffler
- Sent from ER



34

Case 3

- 50 year old female
- One week foreign body sensation
- Not severe but unrelenting



35



Questions?
Comments?

36

Thank You!

37

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38

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