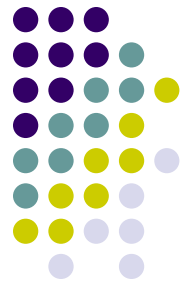


Q

Cataracts Associated with Trauma or Radiation



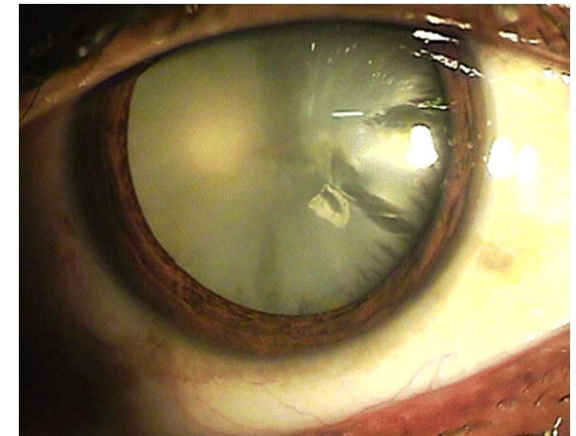
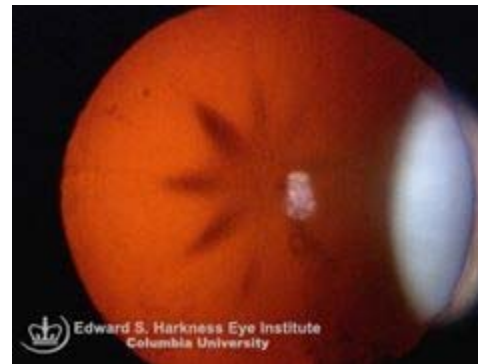
- Cataracts associated with blunt trauma are often or initially, but may progress to

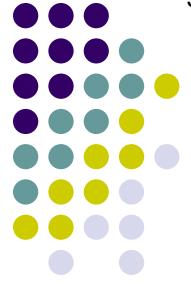


A

Cataracts Associated with Trauma or Radiation

- Cataracts associated with blunt trauma are often **stellate** or **rosette** initially, but may progress to **total opacification**



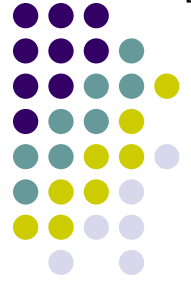


Q

Cataracts Associated with Trauma or Radiation

- **Cataracts associated with blunt trauma** are often **stellate** or **rosette** initially, but may progress to **total opacification**

Can blunt-trauma-induced cataract resolve spontaneously?

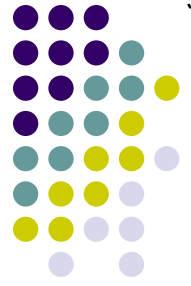


A

Cataracts Associated with Trauma or Radiation

- **Cataracts associated with blunt trauma** are often **stellate** or **rosette** initially, but may progress to **total opacification**

Can blunt-trauma-induced cataract resolve spontaneously?
It can—albeit only rarely, and only if the trauma was mild

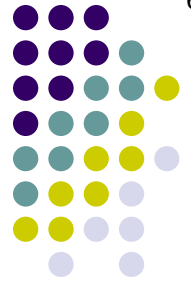


Q

Cataracts Associated with Trauma or Radiation

- Cataracts associated with blunt trauma are often **stellate** or **rosette** initially, but may progress to **total opacification**
- What is the eponym for the ring of pupillary-ruff pigment on the anterior capsule seen in conjunction with blunt-trauma cataracts?

A **eponym** *ring*

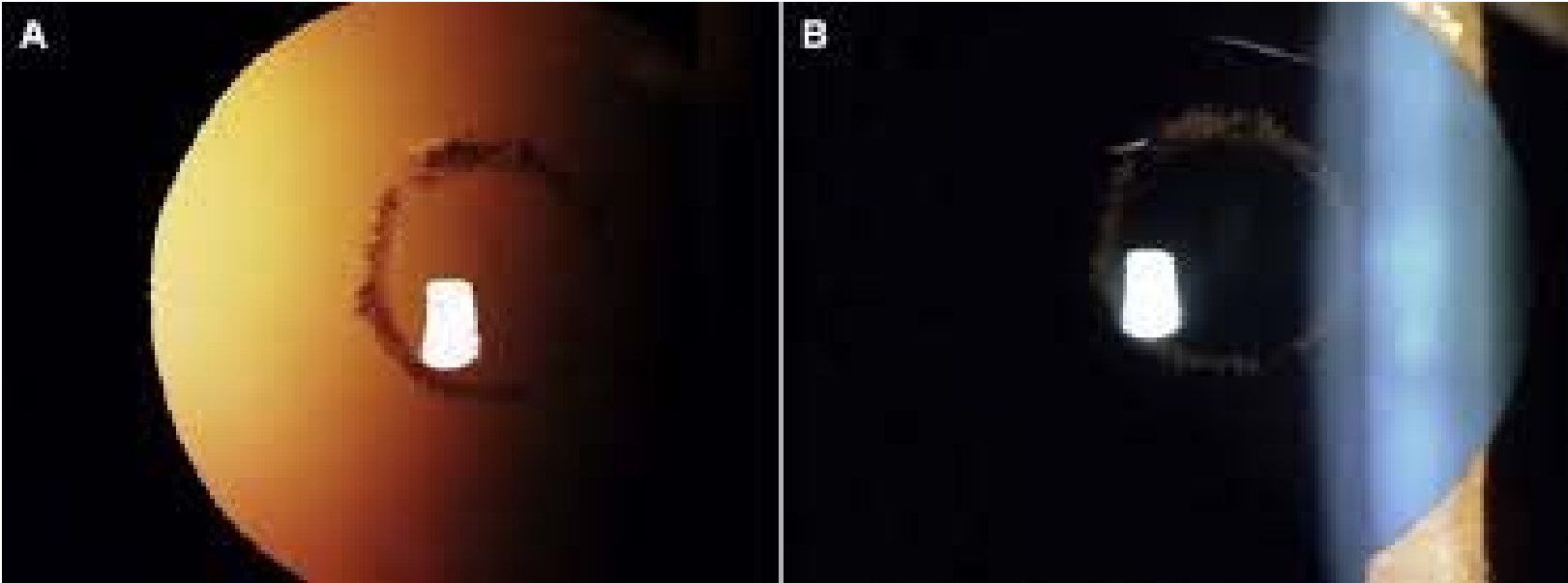
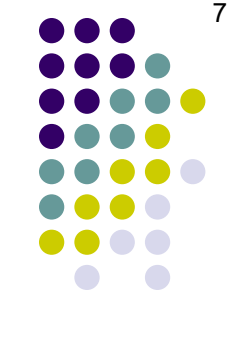


A

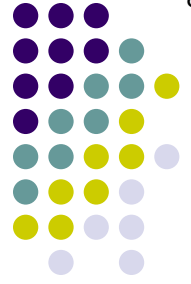
Cataracts Associated with Trauma or Radiation

- Cataracts associated with blunt trauma are often **stellate** or **rosette** initially, but may progress to **total opacification**
- What is the eponym for the ring of pupillary-ruff pigment on the anterior capsule seen in conjunction with blunt-trauma cataracts?
A **Vossius** ring

Cataracts Associated with Trauma or Radiation



Vossius ring: Tennis ball vs eye



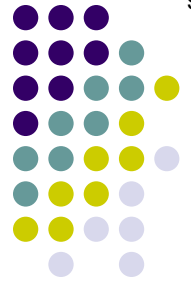
Q

Cataracts Associated with Trauma or Radiation

- Cataracts associated with blunt trauma are often **stellate** or **rosette** initially, but may progress to **total opacification**
- What is the eponym for the ring of pupillary-ruff pigment on the anterior capsule seen in conjunction with blunt-trauma cataracts?

A **Vossius ring**

Is a Vossius ring visually significant in and of itself?



A

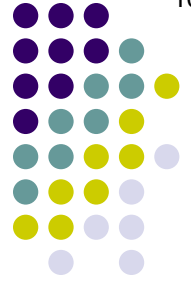
Cataracts Associated with Trauma or Radiation

- Cataracts associated with blunt trauma are often **stellate** or **rosette** initially, but may progress to **total opacification**
- What is the eponym for the ring of pupillary-ruff pigment on the anterior capsule seen in conjunction with blunt-trauma cataracts?

A **Vossius ring**

Is a Vossius ring visually significant in and of itself?

No. But while not visually significant, it is most assuredly **clinically** significant.



Q

Cataracts Associated with Trauma or Radiation

- Cataracts associated with blunt trauma are often **stellate** or **rosette** initially, but may progress to **total opacification**
- What is the eponym for the ring of pupillary-ruff pigment on the anterior capsule seen in conjunction with blunt-trauma cataracts?

A **Vossius ring**

Is a Vossius ring visually significant in and of itself?

No. But while not visually significant, it is most assuredly **clinically** significant.

Why is that?



A

Cataracts Associated with Trauma or Radiation

- Cataracts associated with blunt trauma are often **stellate** or **rosette** initially, but may progress to **total opacification**
- What is the eponym for the ring of pupillary-ruff pigment on the anterior capsule seen in conjunction with blunt-trauma cataracts?

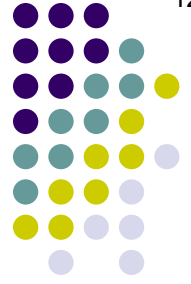
A **Vossius ring**

Is a Vossius ring visually significant in and of itself?

No. But while not visually significant, it is most assuredly **clinically** significant.

Why is that?

Because it signifies that the eye in question has experienced significant trauma, and thus is at much greater risk for intra- and post-operative complications



Q

Cataracts Associated with Trauma or Radiation

- **Cataracts associated with blunt trauma are**

In addition to cataract formation, what other serious lens-related sequelae often follows blunt trauma to the eye?



A

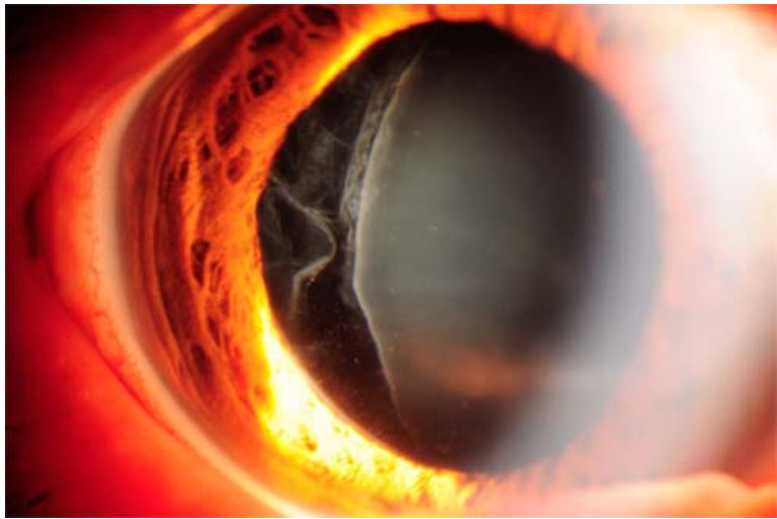
Cataracts Associated with Trauma or Radiation

- **Cataracts associated with blunt trauma are**

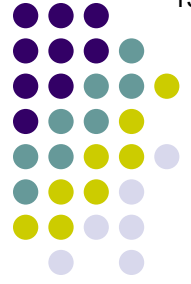
In addition to cataract formation, what other serious lens-related sequelae often follows blunt trauma to the eye?

Lens subluxation or dislocation

Cataracts Associated with Trauma or Radiation



Traumatic cataract with subluxation



Q

Cataracts Associated with Trauma or Radiation

- **Cataracts associated with blunt trauma are**

In addition to cataract formation, what other serious lens-related sequelae often follows blunt trauma to the eye?

Lens subluxation or dislocation

Other than visible displacement from its proper location, what lens-related sign is very worrisome for zonular disruption secondary to trauma?



A

Cataracts Associated with Trauma or Radiation

- **Cataracts associated with blunt trauma are**

In addition to cataract formation, what other serious lens-related sequelae often follows blunt trauma to the eye?

Lens subluxation or dislocation

Other than visible displacement from its proper location, what lens-related sign is very worrisome for zonular disruption secondary to trauma?

Phacodonesis



Q

Cataracts Associated with Trauma or Radiation

- **Cataracts associated with blunt trauma are**

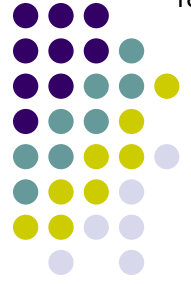
In addition to cataract formation, what other serious lens-related sequelae often follows blunt trauma to the eye?

Lens subluxation or dislocation

Other than visible displacement from its proper location, what lens-related sign is very worrisome for zonular disruption secondary to trauma?

Phacodonesis

To what does the term phacodonesis refer?



A

Cataracts Associated with Trauma or Radiation

- **Cataracts associated with blunt trauma are**

In addition to cataract formation, what other serious lens-related sequelae often follows blunt trauma to the eye?

Lens subluxation or dislocation

Other than visible displacement from its proper location, what lens-related sign is very worrisome for zonular disruption secondary to trauma?

Phacodonesis

To what does the term phacodonesis refer?

A visible tremulousness of the lens in response to eye movements

**Q**

Cataracts Associated with Trauma or Radiation

- **Cataracts associated with blunt trauma are**

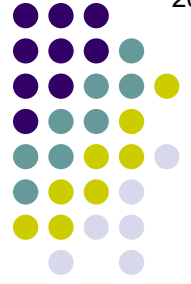
In addition to cataract formation, what other serious lens-related sequelae often follows blunt trauma to the eye?

Lens subluxation or dislocation

Other than visible displacement from its proper location, what lens-related sign is very worrisome for zonular disruption secondary to trauma?

Phacodonesis

A similar trauma-induced tremulousness may be observed in the iris. What is it called?



A

Cataracts Associated with Trauma or Radiation

- **Cataracts associated with blunt trauma are**

In addition to cataract formation, what other serious lens-related sequelae often follows blunt trauma to the eye?

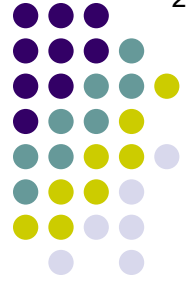
Lens subluxation or dislocation

Other than visible displacement from its proper location, what lens-related sign is very worrisome for zonular disruption secondary to trauma?

Phacodonesis

A similar trauma-induced tremulousness may be observed in the iris. What is it called?

Iridodonesis



Q

Cataracts Associated with Trauma or Radiation

- **Cataracts associated with blunt trauma are**

In addition to cataract formation, what other serious lens-related sequelae often follows blunt trauma to the eye?

Lens subluxation or dislocation

Other than visible displacement from its proper location, what lens-related sign is very worrisome for zonular disruption secondary to trauma?

Phacodonesis

A similar trauma-induced tremulousness may be observed in the iris. What is it called?

Iridodonesis

Is it also associated with lens subluxation secondary to blunt ocular trauma?



A

Cataracts Associated with Trauma or Radiation

- **Cataracts associated with blunt trauma are**

In addition to cataract formation, what other serious lens-related sequelae often follows blunt trauma to the eye?

Lens subluxation or dislocation

Other than visible displacement from its proper location, what lens-related sign is very worrisome for zonular disruption secondary to trauma?

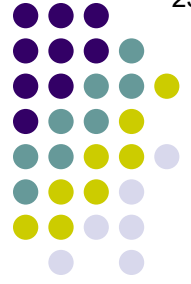
Phacodonesis

A similar trauma-induced tremulousness may be observed in the iris. What is it called?

Iridodonesis

Is it also associated with lens subluxation secondary to blunt ocular trauma?

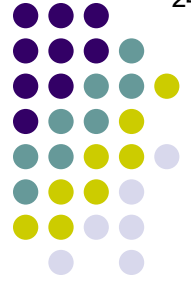
Yes



Q

Cataracts Associated with Trauma or Radiation

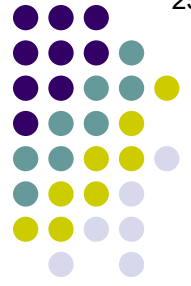
- Is exposure to radiation associated with cataract formation?



A

Cataracts Associated with Trauma or Radiation

- Is exposure to radiation associated with cataract formation? **Yes**



Q

Cataracts Associated with Trauma or Radiation

- Is exposure to radiation associated with cataract formation? **Yes**
- Which of the following forms of radiation cause cataracts?

Ionizing:

Charged particle:

Infrared:

UV:

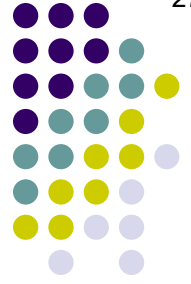
Microwave:



Q/A

Cataracts Associated with Trauma or Radiation

- Is exposure to radiation associated with cataract formation? **Yes**
- Which of the following forms of radiation cause cataracts?
 - Ionizing: **Most definitely**
 - Charged particle:
 - Infrared:
 - UV:
 - Microwave:



Q/A

Cataracts Associated with Trauma or Radiation

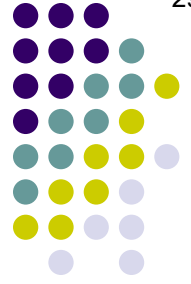
- Is exposure to radiation associated with cataract formation? **Yes**
- Which of the following forms of radiation cause cataracts?
 - Ionizing: **Most definitely**
 - Charged particle: **Yes**
 - Infrared:
 - UV:
 - Microwave:



Q/A

Cataracts Associated with Trauma or Radiation

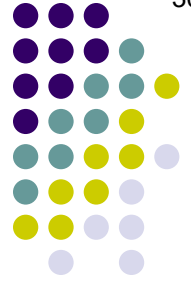
- Is exposure to radiation associated with cataract formation? **Yes**
- Which of the following forms of radiation cause cataracts?
 - Ionizing: **Most definitely**
 - Charged particle: **Yes**
 - Infrared: **Yeah, but...**
 - UV:
 - Microwave:



Q/A

Cataracts Associated with Trauma or Radiation

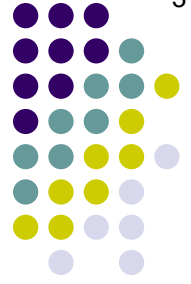
- Is exposure to radiation associated with cataract formation? **Yes**
- Which of the following forms of radiation cause cataracts?
 - Ionizing: **Most definitely**
 - Charged particle: **Yes**
 - Infrared: **Yeah, but...**
 - UV: **Maybe**
 - Microwave:



A

Cataracts Associated with Trauma or Radiation

- Is exposure to radiation associated with cataract formation? **Yes**
- Which of the following forms of radiation cause cataracts?
 - Ionizing: **Most definitely**
 - Charged particle: **Yes**
 - Infrared: **Yeah, but...**
 - UV: **Maybe**
 - Microwave: **Eh**



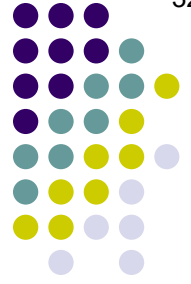
Q

Cataracts Associated with Trauma or Radiation

- Is exposure to radiation associated with cataract formation? Yes
- Which of the following forms of radiation cause cataracts?

Ionizing: Most definitely

In what situation is one most likely to be exposed to ionizing radiation?



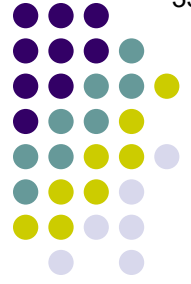
A

Cataracts Associated with Trauma or Radiation

- Is exposure to radiation associated with cataract formation? Yes
- Which of the following forms of radiation cause cataracts?

Ionizing: Most definitely

*In what situation is one most likely to be exposed to ionizing radiation?
During an X-ray*

**Q**

Cataracts Associated with Trauma or Radiation

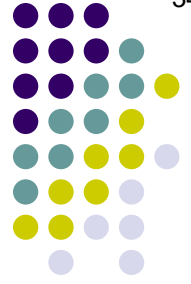
- Is exposure to radiation associated with cataract formation? Yes
- Which of the following forms of radiation cause cataracts?

Ionizing: Most definitely

In what situation is

During an X-ray

You mean one XR can cause a cataract?!



A

Cataracts Associated with Trauma or Radiation

- Is exposure to radiation associated with cataract formation? Yes
- Which of the following forms of radiation cause cataracts?

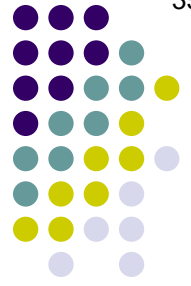
Ionizing: Most definitely

In what situation is

During an X-ray

You mean one XR can cause a cataract?!

Not hardly, no

**Q**

Cataracts Associated with Trauma or Radiation

- Is exposure to radiation associated with cataract formation? Yes
- Which of the following forms of radiation cause cataracts?

Ionizing: Most definitely

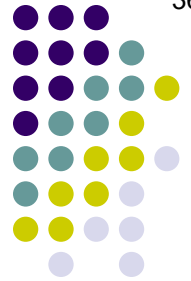
In what situation is

During an X-ray

You mean one XR can cause a cataract?!

Not hardly, no

OK then, give me some perspective—how many CXR's worth of ionizing radiation would it take to cause a cataract?



A

Cataracts Associated with Trauma or Radiation

- Is exposure to radiation associated with cataract formation? Yes
- Which of the following forms of radiation cause cataracts?

Ionizing: Most definitely

In what situation is

During an X-ray

You mean one XR can cause a cataract?!

Not hardly, no

OK then, give me some perspective—how many CXR's worth of ionizing radiation would it take to cause a cataract?

About 200 (at least)



Q

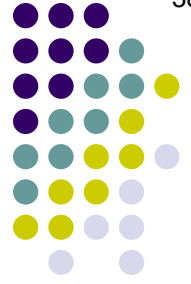
Cataracts Associated with Trauma or Radiation

- Is exposure to radiation associated with cataract formation? Yes
- Which of the following forms of radiation cause cataracts?

Ionizing: Most definitely

*In what situation is one most likely to be exposed to ionizing radiation?
During an X-ray*

How sensitive is the lens to ionizing radiation?



A

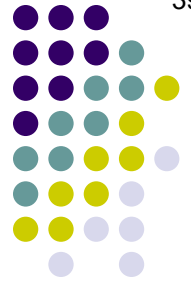
Cataracts Associated with Trauma or Radiation

- Is exposure to radiation associated with cataract formation? Yes
- Which of the following forms of radiation cause cataracts?

Ionizing: Most definitely

In what situation is one most likely to be exposed to ionizing radiation?
During an X-ray

How sensitive is the lens to ionizing radiation?
Extremely so, probably more so than the other forms of radiation



Q

Cataracts Associated with Trauma or Radiation

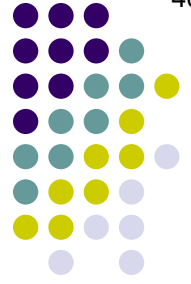
- Is exposure to radiation associated with cataract formation? Yes
- Which of the following forms of radiation cause cataracts?

Ionizing: Most definitely

*In what situation is one most likely to be exposed to ionizing radiation?
During an X-ray*

*How sensitive is the lens to ionizing radiation?
Extremely so, probably more so than the other forms of radiation*

What is the temporal relationship between exposure to ionizing radiation and subsequent cataract development?



Q/A

Cataracts Associated with Trauma or Radiation

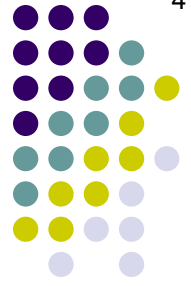
- Is exposure to radiation associated with cataract formation? Yes
- Which of the following forms of radiation cause cataracts?

Ionizing: Most definitely

In what situation is one most likely to be exposed to ionizing radiation?
During an X-ray

How sensitive is the lens to ionizing radiation?
Extremely so, probably more so than the other forms of radiation

What is the temporal relationship between exposure to ionizing radiation and subsequent cataract development?
Delays of up to 20 d/w/m/yr would not be unusual



A

Cataracts Associated with Trauma or Radiation

- Is exposure to radiation associated with cataract formation? Yes
- Which of the following forms of radiation cause cataracts?

Ionizing: Most definitely

In what situation is one most likely to be exposed to ionizing radiation?
During an X-ray

How sensitive is the lens to ionizing radiation?
Extremely so, probably more so than the other forms of radiation

What is the temporal relationship between exposure to ionizing radiation and subsequent cataract development?
Delays of up to 20 years would not be unusual



Q

Cataracts Associated with Trauma or Radiation

- Is exposure to radiation associated with cataract formation? Yes
- Which of the following forms of radiation cause cataracts?

Ionizing: Most definitely

Charged particle: Yes

In what situation is the lens most likely to be exposed to charged-particle radiation?

UV: Maybe

Microwave: Eh



Q/A

Cataracts Associated with Trauma or Radiation

- Is exposure to radiation associated with cataract formation? Yes
- Which of the following forms of radiation cause cataracts?

Ionizing: Most definitely

Charged particle: Yes

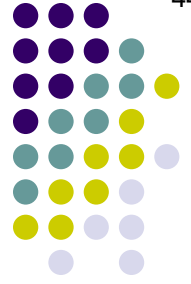
In what situation is the lens most likely to be exposed to charged-particle radiation?

During treatment for a

two words

UV: maybe

Microwave: Eh



A

Cataracts Associated with Trauma or Radiation

- Is exposure to radiation associated with cataract formation? Yes
- Which of the following forms of radiation cause cataracts?

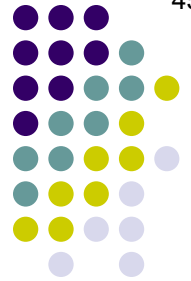
Ionizing: Most definitely

Charged particle: Yes

In what situation is the lens most likely to be exposed to charged-particle radiation?
During treatment for a choroidal melanoma

UV: Maybe

Microwave: Eh



Q

Cataracts Associated with Trauma or Radiation

In what situation is one most likely to be exposed to infrared radiation?

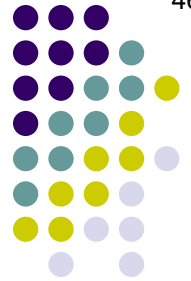
Ionizing: Most definitely

Charged particle: Yes

Infrared: Yeah, but...

UV: Maybe

Microwave: Eh



A

Cataracts Associated with Trauma or Radiation

*In what situation is one most likely to be exposed to infrared radiation?
If one works in a foundry*

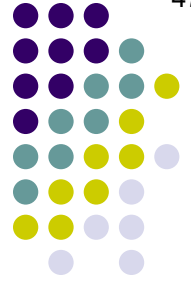
Ionizing: Most definitely

Charged particle: Yes

Infrared: Yeah, but...

UV: Maybe

Microwave: Eh



Q

Cataracts Associated with Trauma or Radiation

*In what situation is one most likely to be exposed to infrared radiation?
If one works in a foundry*

By what occupation-related name is this sort of cataract known?

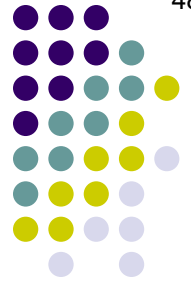
Ionizing: Most definitely

Charged particle: Yes

Infrared: Yeah, but...

UV: Maybe

Microwave: Eh



A

Cataracts Associated with Trauma or Radiation

In what situation is one most likely to be exposed to infrared radiation?

If one works in a foundry

By what occupation-related name is this sort of cataract known?

'Glassblower's cataract'

Ionizing: Most definitely

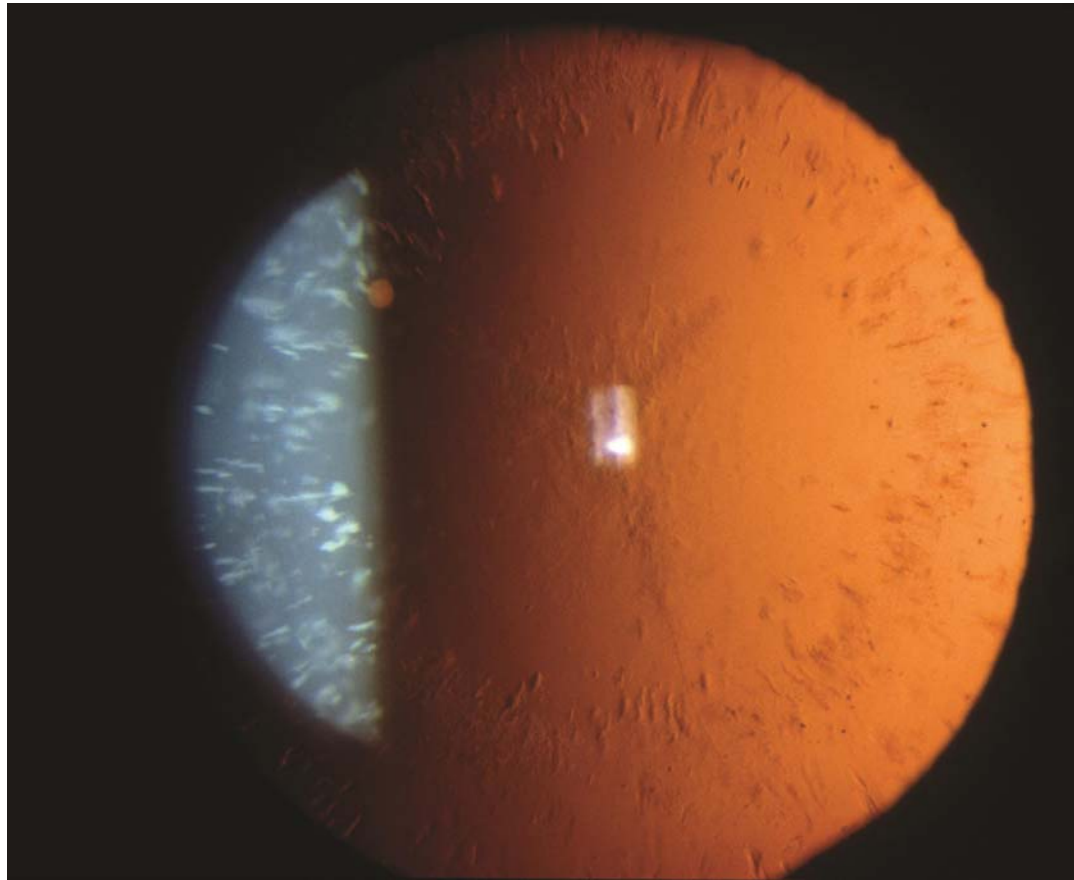
Charged particle: Yes

Infrared: Yeah, but...

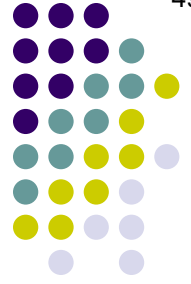
UV: Maybe

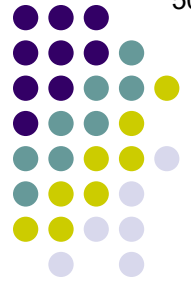
Microwave: Eh

Cataracts Associated with Trauma or Radiation



Glassblower's cataract





Q

Cataracts Associated with Trauma or Radiation

In what situation is one most likely to be exposed to infrared radiation?

If one works in a foundry

By what occupation-related name is this sort of cataract known?

'Glassblower's cataract'

Prior to the development of a cataract, chronic exposure to intense infrared radiation can cause what striking change to the lens?

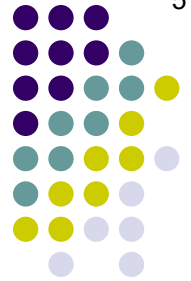
Ionizing: Most definitely

Charged particle: Yes

Infrared: Yeah, but...

UV: Maybe

Microwave: Eh



A

Cataracts Associated with Trauma or Radiation

In what situation is one most likely to be exposed to infrared radiation?

If one works in a foundry

By what occupation-related name is this sort of cataract known?

'Glassblower's cataract'

Prior to the development of a cataract, chronic exposure to intense infrared radiation can cause what striking change to the lens?

It can cause the outer layer of the anterior capsule to peel off in a scroll-like manner

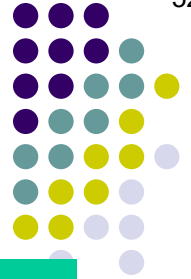
Ionizing: Most definitely

Charged particle: Yes

Infrared: Yeah, but...

UV: Maybe

Microwave: Eh



Q

Cataracts Associated with Trauma or Radiation

*In what situation is one most likely to be exposed to infrared radiation?
If one works in a foundry*

*By what occupation-related name is this sort of cataract known?
'Glassblower's cataract'*

Prior to the development of a cataract, chronic exposure to intense infrared radiation can cause what striking change to the lens?

It can cause **the outer layer of the anterior capsule to peel off in a scroll-like manner**

Ionizing: Most definitely

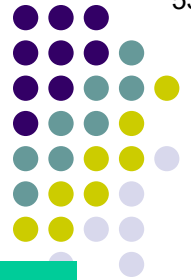
Charged particle

What is the name for this process?

Infrared: Yeah, but...

UV: Maybe

Microwave: Eh



A

Cataracts Associated with Trauma or Radiation

In what situation is one most likely to be exposed to infrared radiation?

If one works in a foundry

By what occupation-related name is this sort of cataract known?

'Glassblower's cataract'

Prior to the development of a cataract, chronic exposure to intense infrared radiation can cause what striking change to the lens?

It can cause **the outer layer of the anterior capsule to peel off in a scroll-like manner**

Ionizing: Most definitely

Charged particle

What is the name for this process?

'Exfoliation'

Infrared: Yeah, but...

UV: Maybe

Microwave: Eh



Q

Cataracts Associated with Trauma or Radiation

*In what situation is one most likely to be exposed to infrared radiation?
If one works in a foundry*

*By what occupation-related name is this sort of cataract known?
'Glassblower's cataract'*

Prior to the development of a cataract, chronic exposure to intense infrared radiation can cause what striking change to the lens?

It can cause **the outer layer of the anterior capsule to peel off in a scroll-like manner**

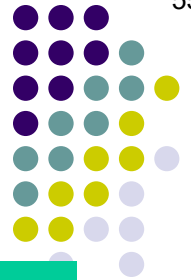
Ionizing: Most definitely

What is the name for this process?

Charged particle **'Exfoliation'**

Ah—so this is the same process that occurs in pseudoexfoliation syndrome (PXS)?

Microwave: Eh



A

Cataracts Associated with Trauma or Radiation

In what situation is one most likely to be exposed to infrared radiation?

If one works in a foundry

By what occupation-related name is this sort of cataract known?

'Glassblower's cataract'

Prior to the development of a cataract, chronic exposure to intense infrared radiation can cause what striking change to the lens?

It can cause **the outer layer of the anterior capsule to peel off in a scroll-like manner**

Ionizing: Most definitely

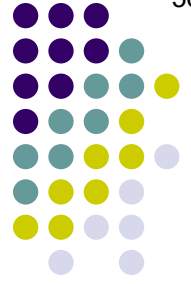
What is the name for this process?

Charged particle **'Exfoliation'**

Ah—so this is the same process that occurs in pseudoexfoliation syndrome (PXS)?

Not really. The fibrillar material in PXS is not actually exfoliated—hence the name, **pseudoexfoliation**. In contrast, infrared radiation exposure causes *true* exfoliation.

Microwave: Eh



Q

Cataracts Associated with Trauma or Radiation

- Is exposure to radiation associated with cataract formation? Yes
- Which of the following forms of radiation cause cataracts?

Ionizing: Most definitely

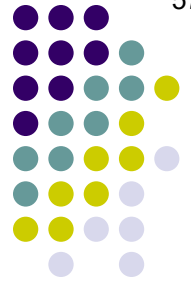
Charged particle: Yes

Infrared: Yeah, but...

UV: Maybe

Microwave: Eh

What's with the 'Yeah, but...'?



A

Cataracts Associated with Trauma or Radiation

- Is exposure to radiation associated with cataract formation? Yes
- Which of the following forms of radiation cause cataracts?

Ionizing: Most definitely

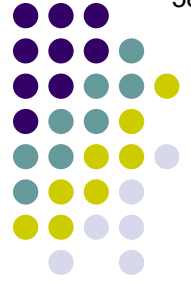
Charged particle: Yes

Infrared: Yeah, but...

UV: Maybe

Microwave: Eh

*What's with the 'Yeah, but...'?
This sort of cataract has become quite rare (to put it mildly)*



Q

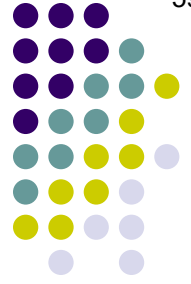
Cataracts Associated with Trauma or Radiation

- Is exposure to radiation associated with cataract formation? Yes
- Which of the following forms of radiation cause cataracts?

In what situation is one most likely to be exposed to UV radiation?

UV: Maybe

Microwave: Eh



A

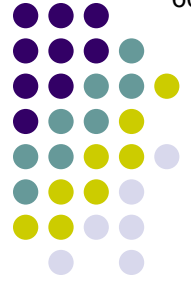
Cataracts Associated with Trauma or Radiation

- Is exposure to radiation associated with cataract formation? Yes
- Which of the following forms of radiation cause cataracts?

*In what situation is one most likely to be exposed to UV radiation?
Being outside, during the daytime*

UV: Maybe

Microwave: Eh



Q

Cataracts Associated with Trauma or Radiation

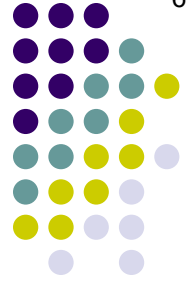
- Is exposure to radiation associated with cataract formation? Yes
- Which of the following forms of radiation cause cataracts?

*In what situation is one most likely to be exposed to UV radiation?
Being outside, during the daytime*

Other than becoming a vampire, what can be done to avoid exposing the lens to UV radiation?

UV: Maybe

Microwave: Eh



A

Cataracts Associated with Trauma or Radiation

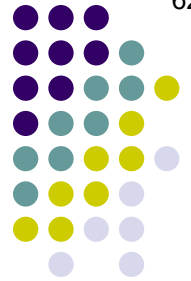
- Is exposure to radiation associated with cataract formation? Yes
- Which of the following forms of radiation cause cataracts?

*In what situation is one most likely to be exposed to UV radiation?
Being outside, during the daytime*

*Other than becoming a vampire, what can be done to avoid exposing the lens to UV radiation?
Wear UV-blocking sunglasses, and/or a hat with a visor*

UV: Maybe

Microwave: Eh

**Q**

Cataracts Associated with Trauma or Radiation

- Is exposure to radiation associated with cataract formation? Yes
- Which of the following forms of radiation cause cataracts?

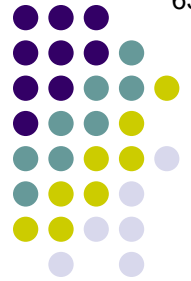
In what situation is one most likely to be exposed to UV radiation?
Being outside, during the daytime

Other than becoming a vampire, what can be done to avoid exposing the lens to UV radiation?
Wear UV-blocking sunglasses, and/or a hat with a visor

UV: Maybe

What's with the 'Maybe'?

Microwave: En



A

Cataracts Associated with Trauma or Radiation

- Is exposure to radiation associated with cataract formation? Yes
- Which of the following forms of radiation cause cataracts?

In what situation is one most likely to be exposed to UV radiation?
Being outside, during the daytime

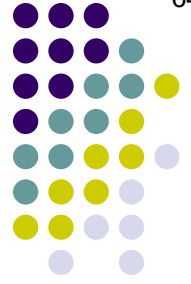
Other than becoming a vampire, what can be done to avoid exposing the lens to UV radiation?
Wear UV-blocking sunglasses, and/or a hat with a visor

UV: Maybe

Microwave: En

What's with the 'Maybe'?

It's estimated that UV radiation only accounts for about 10% of the risk for developing a cataract



Q

Cataracts Associated with Trauma or Radiation

- Is exposure to radiation associated with cataract formation? Yes
- Which of the following forms of radiation cause cataracts?

Ionizing: Most definitely

Charged particle: Yes

Infrared: Yeah, but...

UV: Maybe

Microwave: Eh

What's with the 'Eh'?



A

Cataracts Associated with Trauma or Radiation

- Is exposure to radiation associated with cataract formation? Yes
- Which of the following forms of radiation cause cataracts?

Ionizing: Most definitely

Charged particle: Yes

Infrared: Yeah, but...

UV: Maybe

Microwave: Eh

What's with the 'Eh'?

While microwaves have been demonstrated to cause cataracts in animal models, the evidence of an effect on humans is far from conclusive