

Q

Corneal Iron Lines



- *There are four **corneal iron lines**. Name them.*

1) ?

2) ?

3) ?

4) ?

A

Corneal Iron Lines



- *There are four **corneal iron lines**. Name them.*
 - 1) Stocker line
 - 2) Fleischer line (ring)
 - 3) Ferry line
 - 4) Hudson-Stähli line

Q

Corneal Iron Lines



- *There are four **corneal iron lines**. Name them.*

1) Stocker line

2) Fleischer line (ring)

3) Ferry line

4) Hudson-Stähli line

In which corneal layer are these lines located?

A

Corneal Iron Lines



- *There are four **corneal iron lines**. Name them.*

1) Stocker line

2) Fleischer line (ring)

3) Ferry line

4) Hudson-Stähli line

In which corneal layer are these lines located?
The epithelium

Q

Corneal Iron Lines



- *There are four **corneal iron lines**. Name them.*

1) Stocker line

2) Fleischer line (ring)

3) Ferry line

4) Hudson-Stähli line

Which slit-lamp illumination settings render iron lines most readily visible?



- *There are four **corneal iron lines**. Name them.*

1) Stocker line

2) Fleischer line (ring)

3) Ferry line

4) Hudson-Stähli line

Which slit-lamp illumination settings render iron lines most readily visible?

Either

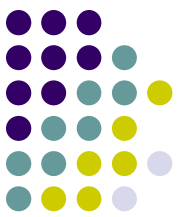
two words

or

two other words

A

Corneal Iron Lines



- *There are four **corneal iron lines**. Name them.*

1) Stocker line

2) Fleischer line (ring)

3) Ferry line

4) Hudson-Stähli line

Which slit-lamp illumination settings render iron lines most readily visible?

Either **cobalt blue** or **red-free**

Q

Corneal Iron Lines



- *There are four **corneal iron lines**. Name them.*

1) Stocker line

2) Fleischer line (ring)

3) Ferry line

4) Hudson-Stähli line

Does fluorescein dye improve iron-line visibility?

A

Corneal Iron Lines



- *There are four **corneal iron lines**. Name them.*

1) Stocker line

2) Fleischer line (ring)

3) Ferry line

4) Hudson-Stähli line

*Does fluorescein dye improve iron-line visibility?
No--just the opposite. If you're looking for an iron line, it's best to look **before** instilling fluorescein.*



Q

Corneal Iron Lines

- *There are four **corneal iron lines**. Name them. With what condition are they associated?*
 - 1) *Stocker line is associated with...*
 - ?
 - 2) Fleischer line (ring)
 - 3) Ferry line
 - 4) Hudson-Stähli line

A

Corneal Iron Lines



- *There are four **corneal iron lines**. Name them. With what condition are they associated?*
 - 1) *Stocker line is associated with...*
 - **Pterygium**
 - 2) Fleischer line (ring)
 - 3) Ferry line
 - 4) Hudson-Stähli line



Q

Corneal Iron Lines

- *There are four corneal iron lines. Name them. With what condition are they associated?*

1) **Stocker line** *is associated with...*

- **Pterygium**

With respect to its associated pterygium, where is the Stocker line found?

4) Hudson-Stähli line

A

Corneal Iron Lines



- *There are four corneal iron lines. Name them. With what condition are they associated?*

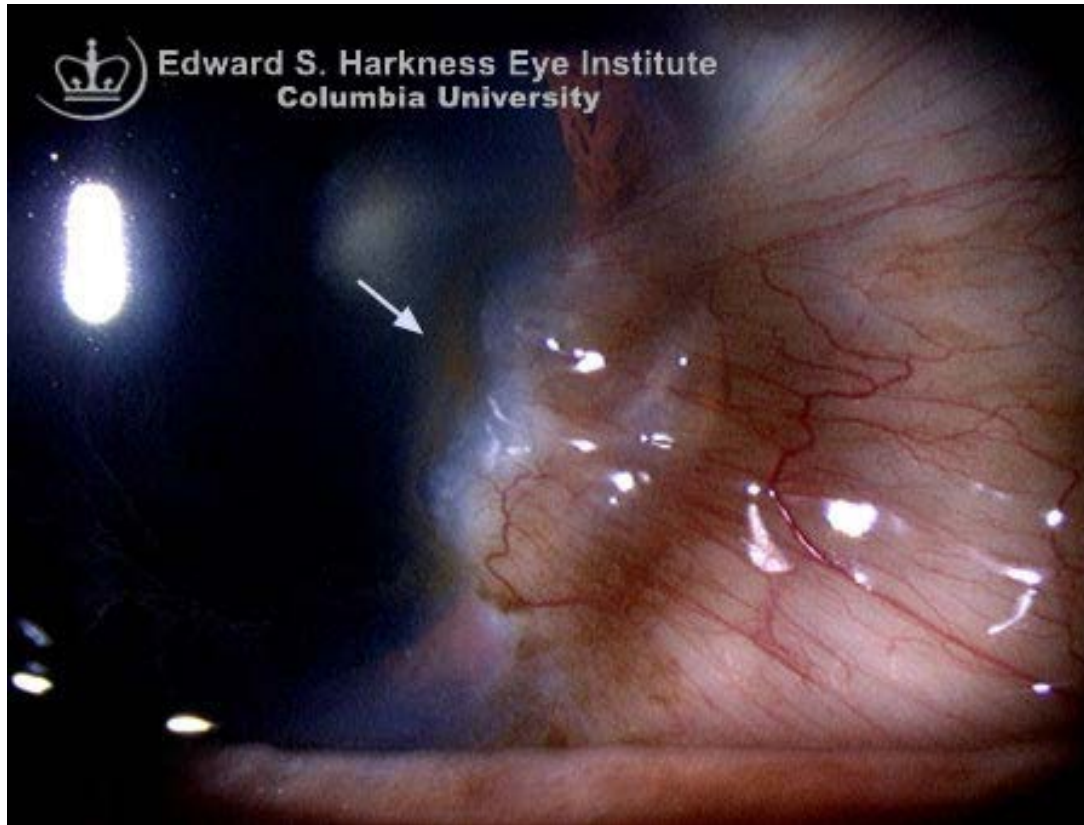
1) **Stocker line** *is associated with...*

- **Pterygium**

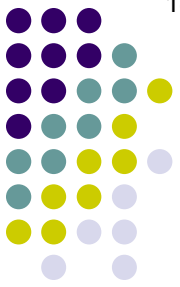
With respect to its associated pterygium, where is the Stocker line found?
Just anterior to the leading edge of the pterygium

4) Hudson-Stähli line

Corneal Iron Lines



Stocker line





Q

Corneal Iron Lines

- *There are four corneal iron lines. Name them. With what condition are they associated?*

1) **Stocker line** *is associated with...*

- **Pterygium**

*With respect to its associated pterygium, where is the Stocker line found?
Just anterior to the leading edge of the pterygium*

Is the presence of a Stocker line an indication for pterygium removal?

4) Hudson-Stähli line

A

Corneal Iron Lines



- *There are four corneal iron lines. Name them. With what condition are they associated?*

1) **Stocker line** *is associated with...*

- **Pterygium**

With respect to its associated pterygium, where is the Stocker line found?
Just anterior to the leading edge of the pterygium

Is the presence of a Stocker line an indication for pterygium removal?
No—just the opposite. A Stocker line forms when the pterygium is stable; i.e., it indicates a *lack* of growth.

4) Hudson-Stähli line



Q

Corneal Iron Lines

- *There are four corneal iron lines. Name them. With what condition are they associated?*

1) *Stocker line is associated with...*

- **Pterygium**

In one word, what sort of condition is pterygium?

A



A

Corneal Iron Lines

- *There are four corneal iron lines. Name them. With what condition are they associated?*

1) *Stocker line is associated with...*

- **Pterygium**

In one word, what sort of condition is pterygium?

A degeneration



Q

Corneal Iron Lines

- *There are four corneal iron lines. Name them. With what condition are they associated?*

1) *Stocker line is associated with...*

- **Pterygium**

In one word, what sort of condition is pterygium?

A degeneration

In one word, what sort of degeneration is it?

A degeneration



A

Corneal Iron Lines

- *There are four corneal iron lines. Name them. With what condition are they associated?*

1) *Stocker line is associated with...*

- **Pterygium**

In one word, what sort of condition is pterygium?

A degeneration

In one word, what sort of degeneration is it?

A fibrovascular degeneration



Q

Corneal Iron Lines

- *There are four corneal iron lines. Name them. With what condition are they associated?*

1) *Stocker line is associated with...*

- **Pterygium**

In one word, what sort of condition is pterygium?

A degeneration

In one word, what sort of degeneration is it?

A fibrovascular degeneration

In one word, what sort of fibrovascular degeneration is it?

An (or) fibrovascular degeneration



A

Corneal Iron Lines

- *There are four corneal iron lines. Name them. With what condition are they associated?*

1) *Stocker line is associated with...*

- **Pterygium**

In one word, what sort of condition is pterygium?

A degeneration

In one word, what sort of degeneration is it?

A fibrovascular degeneration

In one word, what sort of fibrovascular degeneration is it?

An elastoid (or elastoic) fibrovascular degeneration



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Corneal Iron Lines

- *There are four corneal iron lines. Name them. With what condition are they associated?*

1) *Stocker line is associated with...*

- **Pterygium**

In one word, what sort of condition is pterygium?

A degeneration

In one word, what sort of degeneration is it?

A fibrovascular degeneration

In one word, what sort of fibrovascular degeneration is it?

An **elastoid (or elastotic)** fibrovascular degeneration

What does it mean to say a degeneration is 'elastoid/elastotic'?



- *There are four corneal iron lines. Name them. With what condition are they associated?*

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In one word, what sort of condition is pterygium?

A degeneration

In one word, what sort of degeneration is it?

A fibrovascular degeneration

In one word, what sort of fibrovascular degeneration is it?

An **elastoid (or elastoid)** fibrovascular degeneration

What does it mean to say a degeneration is 'elastoid/elastotic'?

The collagen fibers in pterygia stain with elastin, just like true elastic tissue.

However, the fibers are insensitive to the enzyme . Thus the fibers are not truly elastic tissue—hence the terms *elastoid/elastotic*.



A

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- *There are four corneal iron lines. Name them. With what condition are they associated?*

1) *Stocker line is associated with...*

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In one word, what sort of condition is pterygium?

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In one word, what sort of degeneration is it?

A fibrovascular degeneration

In one word, what sort of fibrovascular degeneration is it?

An **elastoid (or elastotic)** fibrovascular degeneration

What does it mean to say a degeneration is 'elastoid/elastotic'?

The collagen fibers in pterygia stain with elastin, just like true elastic tissue.

However, the fibers are insensitive to the enzyme elastase. Thus the fibers are not truly elastic tissue—hence the terms *elastoid/elastotic*.



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Corneal Iron Lines

- *There are four corneal iron lines. Name them. With what condition are they associated?*

- 1) Stocker line is associated with
 - **Pterygium**
- 2) Fleischer line (ring) is associated with
 - Keratoconus
- 3) Ferry line is associated with
 - Keratoconus
- 4) Hudson-Stähli line is associated with
 - Keratoconus

What are the four main risk factors for pterygia?

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--
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A

Corneal Iron Lines

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- **Pterygium**

2) Fleischer line (ring) is associated with

3) Ferry line is associated with

4) Hudson-Stähli line is associated with

What are the four main risk factors for pterygia?

- Age
- UV exposure
- Geographic location
- Gender



Q

Corneal Iron Lines

- *There are four corneal iron lines. Name them. With what condition are they associated?*

1) Stocker line is associated with

- **Pterygium**

2) Fleischer line (ring) is associated with

3) Ferry line

4) Hudson-Stähli line

What are the risk factors for pterygia?

--Age

What age group is at risk?

--UV exposure

--Geographic location

--Gender



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- *There are four corneal iron lines. Name them. With what condition are they associated?*

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- **Pterygium**

2) Fleischer line (ring) is associated with

3) Ferry line is associated with

4) Hudson-Stähli line is associated with

What are the risk factors for pterygia?

--Age

What age group is at risk?

Young adults, 20-30 years old

--UV exposure

--Geographic location

--Gender



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2) Fleischer line (ring) is associated with

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What are the four main risk factors for pterygia?

- Age
- UV exposure**
- Geographic location
- Gender

What does this imply about vocation as a risk factor?

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3) Ferry line is associated with

4) Hudson-Stähli line is associated with

What are the four main risk factors for pterygia?

- Age
- UV exposure**
- Geographic location
- Gender

What does this imply about vocation as a risk factor?

It implies (correctly) that individuals who work outdoors are at greater risk



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Corneal Iron Lines

- *There are four corneal iron lines. Name them. With what condition are they associated?*

1) Stocker line is associated with

- **Pterygium**

What are the four main risk factors for pterygia?

- Age
- UV exposure
- Geographic location**
- Gender

2) Fleischer line is associated with

What is the rule-of-thumb regarding geographic location and pterygium risk?

3) Ferry line is associated with

4) Hudson-Stähli line is associated with



- *There are four corneal iron lines. Name them. With what condition are they associated?*

1) Stocker line is associated with

- **Pterygium**

What are the four main risk factors for pterygia?

- Age
- UV exposure
- Geographic location**
- Gender

2) Fleischer line is associated with

What is the rule-of-thumb regarding geographic location and pterygium risk?

The closer one lives to the **one word**, the greater the risk

3) Ferry line is associated with

4) Hudson-Stähli line is associated with



A

Corneal Iron Lines

- *There are four corneal iron lines. Name them. With what condition are they associated?*

1) Stocker line is associated with

- **Pterygium**

What are the four main risk factors for pterygia?

- Age
- UV exposure
- Geographic location**
- Gender

2) Fleischer line is associated with

What is the rule-of-thumb regarding geographic location and pterygium risk?

The closer one lives to the equator, the greater the risk

3) Ferry line is associated with

4) Hudson-Stähli line is associated with



Q

Corneal Iron Lines

- *There are four corneal iron lines. Name them. With what condition are they associated?*

1) Stocker line is associated with

- **Pterygium**

2) Fleischer line (ring) is associated with

What are the four main risk factors for pterygia?

- Age
- UV exposure
- Geographic location
- Gender**

Which gender is at greater risk?

3) Ferry line

4) Hudson-Stähli line



A

Corneal Iron Lines

- *There are four corneal iron lines. Name them. With what condition are they associated?*

1) Stocker line is associated with

• **Pterygium**

2) Fleischer line (rings) is associated with

What are the four main risk factors for pterygia?

- Age
- UV exposure
- Geographic location
- Gender**

Which gender is at greater risk?
Male

3) Ferry line

4) Hudson-Stähli line



Q

Corneal Iron Lines

- *There are four **corneal iron lines**. Name them. With what condition are they associated?*
 - 1) **Stocker line**
 - Pterygium
 - 2) **Fleischer line (ring) is associated with...**
 - ?
 - 3) Ferry line
 - 4) Hudson-Stähli line

A

Corneal Iron Lines



- *There are four **corneal iron lines**. Name them. With what condition are they associated?*
 - 1) **Stocker line**
 - Pterygium
 - 2) **Fleischer line (ring) is associated with...**
 - Keratoconus
 - 3) Ferry line
 - 4) Hudson-Stähli line

Q

Corneal Iron Lines



- *There are four corneal iron lines. Name them. With respect to the cone, where is the Fleischer line located? associated?*

2) **Fleischer line (ring)** *is associated with...*

- **Keratoconus**

3) Ferry line

4) Hudson-Stähli line

A

Corneal Iron Lines



- *There are four corneal iron lines. Name them.*

With respect to the cone, where is the Fleischer line located?
At its base

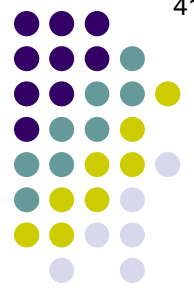
associated?

2) **Fleischer line (ring)** *is associated with...*

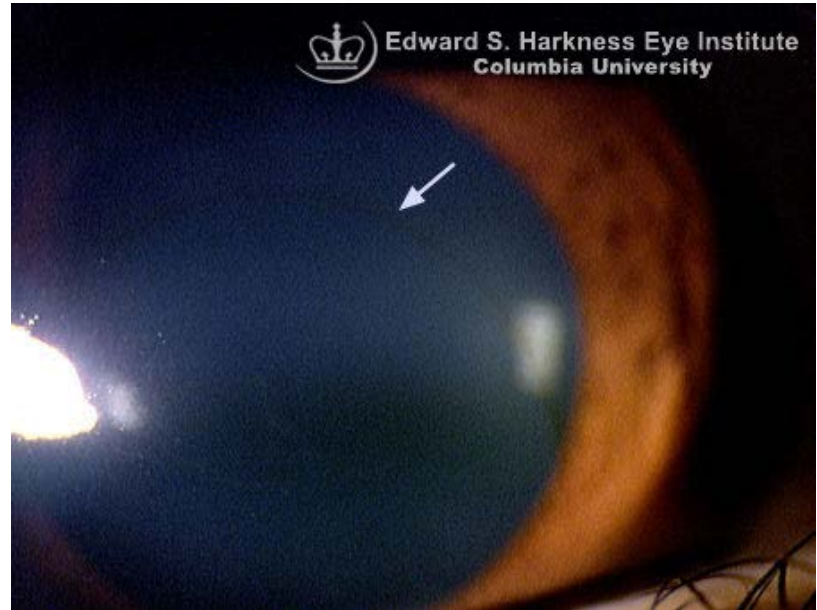
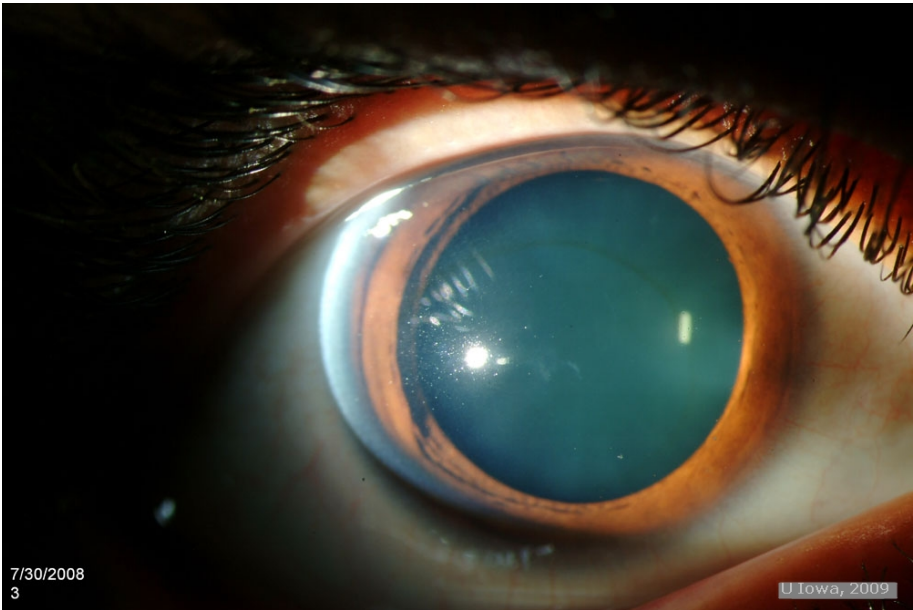
- **Keratoconus**

3) Ferry line

4) Hudson-Stähli line



Corneal Iron Lines



Fleischer ring/line



Q

Corneal Iron Lines

- *There are four corneal iron lines. Name them.*

With respect to the cone, where is the Fleischer line located?
At its base

The Fleischer line can be difficult to spot. What simple slit-lamp adjustment can help reveal it?

2) **Fleischer line (ring)** *is associated with...*

- **Keratoconus**

3) Ferry line

4) Hudson-Stähli line



A

Corneal Iron Lines

- *There are four corneal iron lines. Name them.*

With respect to the cone, where is the Fleischer line located?

At its base

The Fleischer line can be difficult to spot. What simple slit-lamp adjustment can help reveal it?

Switching to the **cobalt-blue light**

2) **Fleischer line (ring)** *is associated with...*

- **Keratoconus**

3) Ferry line

4) Hudson-Stähli line



Q

Corneal Iron Lines

In one word, what sort of condition is keratoconus (KCN)?

With
At it
The
adu
Swi

2) **Fleischer line (ring)** is associated with...

● **Keratoconus**

3) Ferry line

4) Hudson-Stähli line



A

Corneal Iron Lines

In one word, what sort of condition is keratoconus (KCN)?

An **ectasia**



With

At it

The

adu

Swi

2) **Fleischer line (ring)** *is associated with...*

- **Keratoconus**

3) Ferry line

4) Hudson-Stähli line



Q

Corneal Iron Lines

In one word, what sort of condition is keratoconus (KCN)?

An **ectasia**

It is inflammatory, or noninflammatory?

With
At it

The
adu
Swi

2) **Fleischer line (ring)** *is associated with...*

- **Keratoconus**

3) Ferry line

4) Hudson-Stähli line



A

Corneal Iron Lines

In one word, what sort of condition is keratoconus (KCN)?

An **ectasia**

It is inflammatory, or noninflammatory?

Noninflammatory

With

At it

The

adu

Swi

2) **Fleischer line (ring)** is associated with...

- **Keratoconus**

3) Ferry line

4) Hudson-Stähli line



Q

Corneal Iron Lines

In one word, what sort of condition is keratoconus (KCN)?

An **ectasia**

It is inflammatory, or noninflammatory?

Noninflammatory

With

At it

What does corneal topography reveal about the typical dz course in KCN?

The

adu

Swi

2) **Fleischer line (ring)** *is associated with...*

- **Keratoconus**

3) Ferry line

4) Hudson-Stähli line



A

Corneal Iron Lines

In one word, what sort of condition is keratoconus (KCN)?

An **ectasia**

It is inflammatory, or noninflammatory?

Noninflammatory

With

At it

What does corneal topography reveal about the typical dz course in KCN?

The central and/or paracentral cornea thins progressively, producing a cone-like bulge. Extreme irregular astigmatism eventually results.

The

adu

Swi

2) **Fleischer line (ring)** is associated with...

- **Keratoconus**

3) Ferry line

4) Hudson-Stähli line



Q

Corneal Iron Lines

In one word, what sort of condition is keratoconus (KCN)?

An **ectasia**

It is inflammatory, or noninflammatory?

Noninflammatory

What does corneal topography reveal about the typical dz course in KCN?

The central and/or paracentral cornea thins progressively, producing a cone-like bulge. Extreme irregular astigmatism eventually results.

During what period of life does the dz tend to progress most rapidly?

2) **Fleischer line (ring)** is associated with...

- **Keratoconus**

3) Ferry line

4) Hudson-Stähli line



A

Corneal Iron Lines

In one word, what sort of condition is keratoconus (KCN)?

An **ectasia**

It is inflammatory, or noninflammatory?

Noninflammatory

What does corneal topography reveal about the typical dz course in KCN?

The central and/or paracentral cornea thins progressively, producing a cone-like bulge. Extreme irregular astigmatism eventually results.

During what period of life does the dz tend to progress most rapidly?

Adolescence

2) **Fleischer line (ring)** is associated with...

- **Keratoconus**

3) Ferry line

4) Hudson-Stähli line



Q

Corneal Iron Lines

- *There are four **corneal iron lines**. Name them. With what condition are they associated?*
 - 1) **Stocker line**
 - Pterygium
 - 2) **Fleischer line (ring)**
 - Keratoconus
 - 3) **Ferry line is associated with...**
 - ?
 - 4) Hudson-Stähli line



A

Corneal Iron Lines

- *There are four **corneal iron lines**. Name them. With what condition are they associated?*
 - 1) **Stocker line**
 - Pterygium
 - 2) **Fleischer line (ring)**
 - Keratoconus
 - 3) **Ferry line is associated with...**
 - Filtering bleb
 - 4) Hudson-Stähli line



Q

Corneal Iron Lines

- *There are four corneal iron lines. Name them. With what condition are they associated?*

1) Stocker line

- Pterygium

2) Fleischer line (ring)

- Keratoconus

3) **Ferry line** *is associated with...*

- Filtering bleb

4) Hudson-Johnston line

With respect to the bleb, where is the Ferry line located?



A

Corneal Iron Lines

- *There are four corneal iron lines. Name them. With what condition are they associated?*

1) Stocker line

- Pterygium

2) Fleischer line (ring)

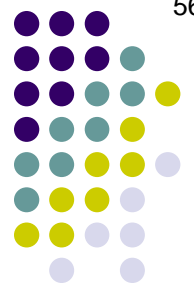
- Keratoconus

3) **Ferry line** *is associated with...*

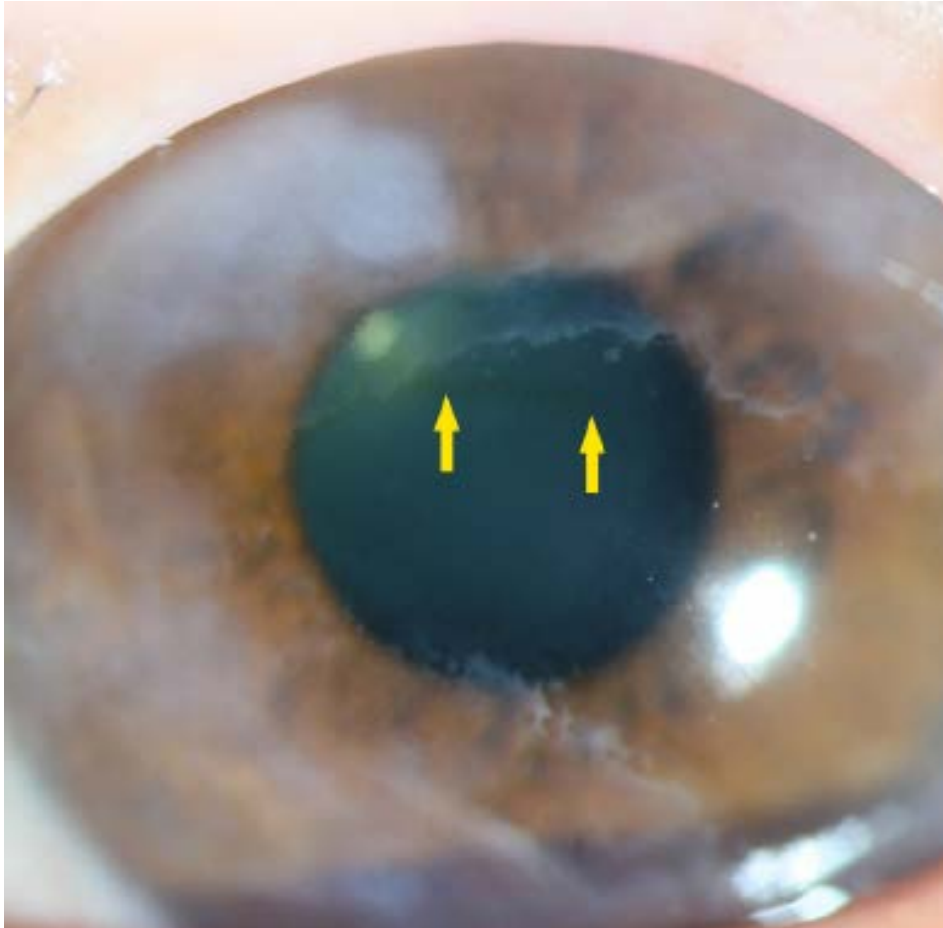
- Filtering bleb

4) Hudson

With respect to the bleb, where is the Ferry line located?
Anterior to it



Corneal Iron Lines



Ferry line



Q

Corneal Iron Lines

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 - 1) **Stocker line**
 - Pterygium
 - 2) **Fleischer line (ring)**
 - Keratoconus
 - 3) **Ferry line**
 - Filtering bleb
 - 4) **Hudson-Stähli line** *is associated with...*
 - ?



A

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- *There are four **corneal iron lines**. Name them. With what condition are they associated?*
 - 1) **Stocker line**
 - Pterygium
 - 2) **Fleischer line (ring)**
 - Keratoconus
 - 3) **Ferry line**
 - Filtering bleb
 - 4) **Hudson-Stähli line** *is associated with...*
 - Normal and common finding in the elderly



Q

Corneal Iron Lines

- *There are four corneal iron lines. Name them. With what condition are they associated?*

1) Stocker line

- Pterygium

2) Fleischer line (ring)

- Keratoconus

3) Ferry line

- Filtering bleb

4) **Hudson-Stähli line** *is associated with...*

- Normal and common finding in the elderly

Where is the Hudson-Stähli line located?



A

Corneal Iron Lines

- *There are four corneal iron lines. Name them. With what condition are they associated?*

1) Stocker line

- Pterygium

2) Fleischer line (ring)

- Keratoconus

3) Ferry line

- Filtering bleb

4) **Hudson-Stähli line** *is associated with...*

- Normal and common finding in the elderly

Where is the Hudson-Stähli line located?

At the junction of the lower- and middle-thirds of the cornea

Corneal Iron Lines



Hudson-Stähli line

