The first thought you should have when encountering a pt you suspect has glaucoma is…
The first thought you should have when encountering a pt you suspect has glaucoma is...

What is the status of the angle?
The first thought you should have when encountering a pt you suspect has glaucoma is…

*What is the status of the angle?*

*What does it mean to say the angle is closed?*
The first thought you should have when encountering a pt you suspect has glaucoma is…

What is the status of the angle?

What does it mean to say the angle is closed?
It means the peripheral iris is in contact with the trabecular meshwork (TM)
The first thought you should have when encountering a pt you suspect has glaucoma is…

*What is the status of the angle?*

*What does it mean to say the angle is closed?*
It means the peripheral iris is in contact with the trabecular meshwork (TM)

*This contact comes in two basic flavors—what are they?*

---

---
The first thought you should have when encountering a pt you suspect has glaucoma is...

What is the status of the angle?

*Glaucoma*

- **Open-angle**
- **Closed- or narrow-angle**

What does it mean to say the angle is closed?
It means the peripheral iris is in contact with the trabecular meshwork (TM)

*This contact comes in two basic flavors—what are they?*
--- The iris can *appose* the TM, ie, touch it without adhering to it
--- The iris can be *syneched* to the TM, ie, adhered to it
The first thought you should have when encountering a pt you suspect has glaucoma is…

What is the status of the angle?

Glaucoma

- Open-angle
- Closed- or narrow-angle

What does it mean to say the angle is closed?
It means the peripheral iris is in contact with the trabecular meshwork (TM)

This contact comes in two basic flavors—what are they?
--The iris can appose the TM, ie, touch it without adhering to it
--The iris can be syneched* to the TM, ie, adhered to it

*I don't know if syneched is actually a word, but you catch my drift
Primary Angle Closure Glaucoma

Glaucoma

Open-angle

Closed- or narrow-angle

The first thought you should have when encountering a pt you suspect has angle-closure glaucoma is...
The first thought you should have when encountering a pt you suspect has angle-closure glaucoma is…

*Is it primary or secondary?*
Primary Angle Closure Glaucoma

Glaucoma

Closed- or narrow-angle

Primary
Secondary

What differentiates primary from secondary angle-closure glaucoma?
Glaucoma

Open-angle

Closed- or narrow-angle

Primary
Secondary

What differentiates primary from secondary angle-closure glaucoma?
In secondary, a specific pathological cause of angle closure can be identified, whereas no such cause is present in primary dz.
Glaucoma

Primary Angle Closure Glaucoma

Open-angle

Closed- or narrow-angle

Primary

Secondary

Secondary angle-closure glaucoma is discussed in detail in its own slide-set; see the Table of Contents
Glaucoma

Open-angle

Closed- or narrow-angle

Primary

Secondary

What are the four subtypes of PACG?
Primary Angle Closure Glaucoma

Glaucoma

Open-angle

Closed- or narrow-angle

Primary

Secondary

What are the four subtypes of PACG?

Primary

Secondary

Acute

Subacute

Chronic

Plateau iris
Glaucoma

Open-angle

Closed- or narrow-angle

Primary

Secondary

Primary Angle Closure Glaucoma

In what fundamental way do these three...
Primary Angle Closure Glaucoma

Glaucoma

Closed- or narrow-angle

Open-angle

Primary

Secondary

Acute

Subacute

Chronic

Plateau iris

In what fundamental way do these three…

…differ from this one?
Primary Angle Closure Glaucoma

Glaucoma

Open-angle

Closed- or narrow-angle

Primary

Secondary

In what fundamental way do these three…

They share a common mechanism:

two words
Glaucoma

Closed- or narrow-angle

Primary

Secondary

Open-angle

Primary Angle Closure Glaucoma

In what fundamental way do these three…

They share a common mechanism: Pupillary block
Primary Angle Closure Glaucoma

Glaucoma

*What does *pupillary block* refer to, exactly?*

They share a common mechanism:

Pupillary block

- Pupillary block leads to the development of a pressure gradient across the iris, which causes the iris to bow forward.
- If the iris bows far enough, the peripheral iris will come into apposition with and occlude the drainage angle, precipitating acute closure of the angle and a prodigious rise in IOP.

The posterior chamber? I didn't know the vitreous was involved.

It isn't. The posterior chamber is the space immediately behind the iris and anterior to the lens/zonules. Vitreous resides in the vitreous cavity.
What does pupillary block refer to, exactly?
It refers to contact between the pupil margin and the lens that impedes the normal flow of aqueous from the posterior chamber (PC) to the anterior chamber (AC) through the pupillary aperture.
Primary Angle Closure Glaucoma

Glaucoma

*What does pupillary block refer to, exactly?*
It refers to contact between the pupil margin and the lens that impedes the normal flow of aqueous from the posterior chamber (PC) to the anterior chamber (AC) through the pupillary aperture.

They share a common mechanism:

Pupillary block
Primary Angle Closure Glaucoma

1. Resistance to aqueous flow from the PC to the AC

‘Pupillary block’
Primary Angle Closure Glaucoma

Glaucoma

What does pupillary block refer to, exactly?
It refers to contact between the pupil margin and the lens that impedes the normal flow of aqueous from the posterior chamber (PC) to the anterior chamber (AC) through the pupillary aperture.

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What does pupillary block refer to, exactly?

It refers to contact between the pupil margin and the lens that impedes the normal flow of aqueous from the posterior chamber (PC) to the anterior chamber (AC) through the pupillary aperture.

Pupillary block leads to the development of a pressure gradient across the iris, which causes the iris to bow forward.
Primary Angle Closure Glaucoma

2. The PC>AC pressure gradient causes the iris to bow forward, like a sail in the wind

1. Resistance to aqueous flow from the PC to the AC

‘Pupillary block’
Primary Angle Closure Glaucoma

Glaucoma

What does pupillary block refer to, exactly?
It refers to contact between the pupil margin and the lens that impedes the normal flow of aqueous from the posterior chamber (PC) to the anterior chamber (AC) through the pupillary aperture.

Pupillary block leads to the development of a pressure gradient across the iris, which causes the iris to bow forward. If the iris bows far enough, the peripheral iris will come into apposition with and occlude the drainage angle, precipitating acute closure of the angle and a prodigious rise in IOP.
Primary Angle Closure Glaucoma

3. Forward movement of the iris leads to apposition of the peripheral iris against the drainage angle, occluding it.

2. The PC>AC pressure gradient causes the iris to bow forward, like a sail in the wind.

1. Resistance to aqueous flow from the PC to the AC.

‘Pupillary block’
Primary Angle Closure Glaucoma
Primary Angle Closure Glaucoma

Normal angle

Trabecular meshwork

Angle closure

Iris

Blockage

Lens
What does pupillary block refer to, exactly? It refers to contact between the pupil margin and the lens that impedes the normal flow of aqueous from the posterior chamber (PC) to the anterior chamber (AC) through the pupillary aperture.

Pupillary block leads to the development of a pressure gradient across the iris, which causes the iris to bow forward. If the iris bows far enough, the peripheral iris will come into apposition with and occlude the drainage angle, precipitating acute closure of the angle and a prodigious rise in IOP.

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The posterior chamber? I didn’t know the vitreous was involved.
It isn’t. The posterior chamber is the space immediately behind the iris and anterior to the lens. Vitreous resides in the vitreous cavity.

They share a common mechanism: Pupillary block.
What does pupillary block refer to, exactly?
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The posterior chamber? I didn’t know the vitreous was involved. It isn’t. The posterior chamber is the space immediately behind the iris and anterior to the lens/zonules. Vitreous resides in the vitreous cavity.

They share a common mechanism: Pupillary block.
Primary Angle Closure Glaucoma
Glaucoma

Open-angle

Closed- or narrow-angle

Primary

Primary Angle Closure Glaucoma

Secondary

What's the dealio with plateau iris syndrome?
What's the dealio with plateau iris syndrome?
In plateau iris, angle closure is due to ‘bad anatomy.’ Specifically, the ciliary processes are more anterior than normal, which in turn displace the peripheral iris perilously close to the drainage angle. (Some plateau-iris cases have a pupillary block component as well.)
Primary Angle Closure Glaucoma

Glaucoma

Open-angle

Closed- or narrow-angle

Primary

Secondary

Acute

Subacute

Chronic

Plateau iris

In what fundamental way do these three... differ from this one?

What's the dealio with plateau iris syndrome? In plateau iris, angle closure is due to 'bad anatomy.' Specifically, the ciliary processes are more anterior than normal, which in turn displace the peripheral iris perilously close to the drainage angle. (Some plateau-iris cases have a pupillary block component as well.)
Acute Primary Angle Closure Glaucoma

Note the too-anterior ciliary processes…

Plateau iris
Acute Primary Angle Closure Glaucoma

Note the too-anterior ciliary processes...

...displacing the peripheral iris into the angle

Plateau iris
Next let’s look at primary angle closure glaucoma in more detail.
Is there a racial predilection regarding the risk of PACG?
Is there a racial predilection regarding the risk of PACG?
Yes, individuals of Inuit heritage have the highest known risk of PACG--their relative risk has been estimated to be as high as 40x that of whites.
Is there a racial predilection regarding the risk of PACG?
Yes, individuals of Inuit heritage have the highest known risk of PACG--their relative risk has been estimated to be as high as 40x that of whites.
Is there a racial predilection regarding the risk of PACG?
Yes, individuals of Inuit heritage have the highest known risk of PACG--their relative risk has been estimated to be as high as 40x that of whites.

What about people of Asian descent?
Is there a racial predilection regarding the risk of PACG?
Yes, individuals of Inuit heritage have the highest known risk of PACG--their relative risk has been estimated to be as high as 40x that of whites.

What about people of Asian descent?
Their relative risk is somewhere between that of the Inuit and whites.
Is there a racial predilection regarding the risk of PACG?
Yes, individuals of Inuit heritage have the highest known risk of PACG--their relative risk has been estimated to be as high as 40x that of whites.

What about people of Asian descent?
Their relative risk is somewhere between that of the Inuit and whites

Is age a risk factor?
Is there a racial predilection regarding the risk of PACG?
Yes, individuals of Inuit heritage have the highest known risk of PACG--their relative risk has been estimated to be as high as 40x that of whites.

What about people of Asian descent?
Their relative risk is somewhere between that of the Inuit and whites

Is age a risk factor?
Yes, the incidence ↑ vs ↓ with age
Is there a racial predilection regarding the risk of PACG?
Yes, individuals of Inuit heritage have the highest known risk of PACG--their relative risk has been estimated to be as high as 40x that of whites.

What about people of Asian descent?
Their relative risk is somewhere between that of the Inuit and whites

Is age a risk factor?
Yes, the incidence increases with age
Is there a racial predilection regarding the risk of PACG?
Yes, individuals of Inuit heritage have the highest known risk of PACG--their relative risk has been estimated to be as high as 40x that of whites.

What about people of Asian descent?
Their relative risk is somewhere between that of the Inuit and whites

Is age a risk factor?
Yes, the incidence increases with age

Is gender a risk factor?
Is there a racial predilection regarding the risk of PACG?
Yes, individuals of Inuit heritage have the highest known risk of PACG--their relative risk has been estimated to be as high as 40x that of whites.

What about people of Asian descent?
Their relative risk is somewhere between that of the Inuit and whites

Is age a risk factor?
Yes, the incidence increases with age

Is gender a risk factor?
Yes, are at higher risk
Is there a racial predilection regarding the risk of PACG?
Yes, individuals of Inuit heritage have the highest known risk of PACG--their relative risk has been estimated to be as high as 40x that of whites.

What about people of Asian descent?
Their relative risk is somewhere between that of the Inuit and whites.

Is age a risk factor?
Yes, the incidence increases with age.

Is gender a risk factor?
Yes, women are at higher risk.
Is there a racial predilection regarding the risk of PACG?
Yes, individuals of Inuit heritage have the highest known risk of PACG--their relative risk has been estimated to be as high as 40x that of whites.

What about people of Asian descent?
Their relative risk is somewhere between that of the Inuit and whites

Is age a risk factor?
Yes, the incidence increases with age

Is gender a risk factor?
Yes, women are at higher risk

Is refraction a risk factor?
Is there a racial predilection regarding the risk of PACG?
Yes, individuals of Inuit heritage have the highest known risk of PACG--their relative risk has been estimated to be as high as 40x that of whites.

What about people of Asian descent?
Their relative risk is somewhere between that of the Inuit and whites

Is age a risk factor?
Yes, the incidence increases with age

Is gender a risk factor?
Yes, women are at higher risk

Is refraction a risk factor?
Yes; PACG is more likely to occur in
Is there a racial predilection regarding the risk of PACG?
Yes, individuals of Inuit heritage have the highest known risk of PACG--their relative risk has been estimated to be as high as 40x that of whites.

What about people of Asian descent?
Their relative risk is somewhere between that of the Inuit and whites

Is age a risk factor?
Yes, the incidence increases with age

Is gender a risk factor?
Yes, women are at higher risk

Is refraction a risk factor?
Yes; PACG is more likely to occur in hyperopes
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe:
  - Acute angle closure
  - Sub-acute angle closure
  - Chronic angle closure
  - Plateau iris
Pain is severe: **Acute**
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe: Acute
- Laser iridoplasty may be beneficial:
  - Acute angle closure
  - Sub-acute angle closure
  - Chronic angle closure
  - Plateau iris

# of answers: 56
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated:

- Pain is severe: **Acute**
- Laser iridoplasty may be beneficial: **Plateau iris; chronic**
Pain is severe: Acute Laser iridoplasty may be beneficial: Plateau iris; chronic

By what other name is iridoplasty called?
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe: Acute
- Laser iridoplasty may be beneficial: Plateau iris; chronic

By what other name is iridoplasty called?
Gonioplasty
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated:

- Pain is severe: Acute
- Laser iridoplasty may be beneficial: Plateau iris; chronic

By what other name is iridoplasty called?
Gonioplasty

What is its purpose, ie, its therapeutic goal?
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated:

- Pain is severe: Acute
- Laser iridoplasty may be beneficial: Plateau iris; chronic

By what other name is iridoplasty called?
Gonioplasty

What is its purpose, ie, its therapeutic goal?
To deepen the angle
By what other name is iridoplasty called?
Gonioplasty

What is its purpose, ie, its therapeutic goal?
To deepen the angle

In a nutshell, how is it performed, and how does it deepen the angle?
A

For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe: Acute
- Laser iridoplasty may be beneficial: Plateau iris; chronic

# of answers
(>1)

iridoplasty

By what other name is iridoplasty called?
Gonioplasty

What is its purpose, ie, its therapeutic goal?
To deepen the angle

In a nutshell, how is it performed, and how does it deepen the angle?
Laser burns are placed in the peripheral iris stroma, and the resulting contraction causes the iris to flatten and pull away from the angle
Primary Angle Closure Glaucoma

Left: A flat iris plane but shallow angle recess (arrow). Note that the midperipheral angle appears deeper (double arrow) than the narrow angles associated with pupillary block. Right: A much deeper angle recess (arrow) following laser peripheral iridoplasty.

Plateau iris pre- and post-iridoplasty
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated:

- Pain is severe: **Acute**
- Laser iridoplasty may be beneficial: **Plateau iris; chronic**
- IOP **low** after events:

<table>
<thead>
<tr>
<th>Acute angle closure</th>
<th>Sub-acute angle closure</th>
<th>Chronic angle closure</th>
<th>Plateau iris</th>
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</table>
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe: **Acute**
- Laser iridoplasty may be beneficial: **Plateau iris; chronic**
- IOP **low** after events: **Acute**

Acute angle closure
Sub-acute angle closure
Chronic angle closure
Plateau iris
Why is IOP low after an acute angle-closure event?
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe: Acute
- Laser iridoplasty may be beneficial: Plateau iris; chronic
- IOP low after events: **Acute**

**Acute angle closure**
**Sub-acute angle closure**
**Chronic angle closure**
**Plateau iris**

**Why is IOP low after an acute angle-closure event?**

Very high IOP $\rightarrow$ [ ] $\rightarrow$ low IOP
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe: Acute
- Laser iridoplasty may be beneficial: Plateau iris; chronic
- IOP low after events: **Acute**

Why is IOP low after an acute angle-closure event?
Very high IOP → CB ischemia → ↓ aqueous production → low IOP
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe: Acute
- Laser iridoplasty may be beneficial: Plateau iris; chronic
- IOP low after events: **Acute**

**Why is IOP low after an acute angle-closure event?**
Very high IOP → CB ischemia → ↓ aqueous production → low IOP

**What is the implication for management?**
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe: Acute
- Laser iridoplasty may be beneficial: Plateau iris; chronic
- IOP low after events: **Acute**

**Acute angle closure**
- Sub-acute angle closure
- Chronic angle closure
- Plateau iris

**Why is IOP low after an acute angle-closure event?**
Very high IOP $\rightarrow$ CB ischemia $\rightarrow$ ↓ aqueous production $\rightarrow$ low IOP

**What is the implication for management?**
Low IOP post-event should not be interpreted as evidence of an adequately functioning angle—follow-up with serial gonio must be performed!
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated with:

- Pain is severe: **Acute**
- Laser iridoplasty may be beneficial: **Plateau iris; chronic**
- IOP *low* after events: **Acute**
- LPI does not help:
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated:

- Pain is severe: **Acute**
- Laser iridoplasty may be beneficial: **Plateau iris; chronic**
- IOP *low* after events: **Acute**
- LPI does not help: **Plateau iris**

For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated:

- Acute angle closure
- Sub-acute angle closure
- Chronic angle closure
- Plateau iris
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe: Acute
- Laser iridoplasty may be beneficial: Plateau iris; chronic
- IOP low after events: Acute
- LPI does not help: Plateau iris

What does LPI stand for?
Pain is severe: Acute
Laser iridoplasty may be beneficial: Plateau iris; chronic
IOP low after events: Acute
LPI does not help: Plateau iris

A

For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

Acute angle closure
Sub-acute angle closure
Chronic angle closure
Plateau iris

What does LPI stand for?
Laser peripheral iridotomy
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated:

- Pain is severe: Acute
- Laser iridoplasty may be beneficial: Plateau iris; chronic
- IOP low after events: Acute
- LPI does not help: Plateau iris

What does LPI stand for?
Laser peripheral iridotomy

What is the rationale for performing LPI in PACG?
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe: Acute
- Laser iridoplasty may be beneficial: Plateau iris; chronic
- IOP low after events: Acute
- LPI does not help: Plateau iris

What does LPI stand for?
Laser peripheral iridotomy

What is the rationale for performing LPI in PACG?
Recall the pathophysiology of pupillary block—it produces a pressure gradient across the iris, which causes it to bow forward and possibly obstruct the angle.
Primary Angle Closure Glaucoma

Angle Closure due to Relative Pupillary Block

Iris against TM

Sclera

Convex iris

Lens capsule

Ciliary body

Before laser iridectomy

NYEEI, Ocular Imaging Center
A

For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe: Acute
- Laser iridoplasty may be beneficial: Plateau iris; chronic
- IOP low after events: Acute
- LPI does not help: Plateau iris

What does LPI stand for?
Laser peripheral iridotomy

What is the rationale for performing LPI in PACG?
Recall the pathophysiology of pupillary block—it produces a pressure gradient across the iris, which causes it to bow forward and possibly obstruct the angle. The LPI provides an alternative route for aqueous to get from the PC to the AC. Re-establishment of aqueous flow dissipates the pressure gradient, causing the iris to fall back and away from the angle.
Primary Angle Closure Glaucoma
What does LPI stand for?
Laser peripheral iridotomy

What is the rationale for performing LPI in PACG?
Recall the pathophysiology of pupillary block—it produces a pressure gradient across the iris, which causes it to bow forward and possibly obstruct the angle. *The LPI provides an alternative route for aqueous to get from the PC to the AC.* Re-establishment of aqueous flow dissipates the pressure gradient, causing the iris to fall back and away from the angle.

Why doesn't LPI help plateau iris?
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe: Acute
- Laser iridoplasty may be beneficial: Plateau iris; chronic
- IOP low after events: Acute
- LPI does not help: Plateau iris

**What does LPI stand for?**
Laser peripheral iridotomy

**What is the rationale for performing LPI in PACG?**
Recall the pathophysiology of pupillary block—it produces a pressure gradient across the iris, which causes it to bow forward and possibly obstruct the angle. The LPI provides an alternative route for aqueous to get from the PC to the AC. Re-establishment of aqueous flow dissipates the pressure gradient, causing the iris to fall back and away from the angle.

**Why doesn't LPI help plateau iris?**
We'll get to that shortly
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe: Acute
- Laser iridoplasty may be beneficial: Plateau iris; chronic
- IOP low after events: Acute
- LPI does not help: Plateau iris
- LPI important:
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe: Acute
- Laser iridoplasty may be beneficial: Plateau iris; chronic
- IOP low after events: Acute
- LPI does not help: Plateau iris
- LPI important: All *(including* plateau iris)
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated.

- Pain is severe: Acute
- Laser iridoplasty may be beneficial: Plateau iris; chronic
- IOP *low* after events: Acute
- LPI does not help: Plateau iris
- LPI important: All (*including* plateau iris)

If LPI doesn't help in plateau iris syndrome, why is it still important to do one?
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe: Acute
- Laser iridoplasty may be beneficial: Plateau iris; chronic
- IOP low after events: Acute
- LPI does not help: Plateau iris
- LPI important: All (including plateau iris)

PC = Posterior chamber; AC = Anterior chamber

If LPI doesn't help in plateau iris syndrome, why is it still important to do one?
The fundamental problem in plateau iris is **not** pupillary block, with its resulting PC>AC pressure gradient. Rather, the problem is with the native configuration of the angle—the ciliary processes and peripheral iris are too anterior, resulting in an angle that is narrowed and prone to occlusion.
Primary Angle Closure Glaucoma

Note the too-anterior ciliary processes resulting in displacement of the peripheral iris

Plateau iris
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe: Acute
- Laser iridoplasty may be beneficial: Plateau iris; chronic
- IOP low after events: Acute
- LPI does not help: Plateau iris
- LPI important: All (including plateau iris)

PC = Posterior chamber; AC = Anterior chamber

If LPI doesn’t help in plateau iris syndrome, why is it still important to do one? The fundamental problem in plateau iris is **not** pupillary block, with its resulting PC>AC pressure gradient. Rather, the problem is with the native configuration of the angle—the ciliary processes and peripheral iris are too anterior, resulting in an angle that is narrowed and prone to occlusion. However, this is often a difficult call to make at the slit lamp—is it plateau iris or pupillary block? An LPI is very helpful in making this distinction. In a pupillary block situation, LPI will dissipate the PC>AC pressure gradient, thereby allowing the iris to fall back into a normal anatomic position.
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe: Acute
- Laser iridoplasty may be beneficial: Plateau iris; chronic
- IOP low after events: Acute
- LPI does not help: Plateau iris
- LPI important: All (including plateau iris)

If LPI doesn’t help in plateau iris syndrome, why is it still important to do one?
The fundamental problem in plateau iris is not pupillary block, with its resulting PC>AC pressure gradient. Rather, the problem is with the native configuration of the angle—the ciliary processes and peripheral iris are too anterior, resulting in an angle that is narrowed and prone to occlusion. However, this is often a difficult call to make at the slit lamp—is it plateau iris or pupillary block? An LPI is very helpful in making this distinction. In a pupillary block situation, LPI will dissipate the PC>AC pressure gradient, thereby allowing the iris to fall back into a normal anatomic position. But an LPI will have no effect on the fundamentally abnormal configuration of the angle in plateau iris. Some authorities maintain that a diagnosis of plateau iris should not be rendered unless a patent PI has been placed and proven ineffective.
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe: Acute
- Laser iridoplasty may be beneficial: Plateau iris; chronic
- IOP low after events: Acute
- LPI does not help: Plateau iris
- LPI important: All (including plateau iris)

If LPI doesn't help in plateau iris syndrome, why is it still important to do one?
The fundamental problem in plateau iris is not pupillary block, with its resulting PC>AC pressure gradient. Rather, the problem is with the native configuration of the angle—the ciliary processes and peripheral iris are too anterior, resulting in an angle that is narrowed and prone to occlusion. However, this is often a difficult call to make at the slit lamp—is it plateau iris or pupillary block? An LPI is very helpful in making this distinction. In a pupillary block situation, LPI will dissipate the PC>AC pressure gradient. However, an LPI will have no effect on the fundamentally abnormal configuration of the angle in plateau iris.

Some authorities maintain that a diagnosis of plateau iris should not be rendered unless a patent PI has been placed and proven ineffective.

What is the classic gonioscopic description of the angle in plateau iris?
--Without indentation/compression:
--With indentation/compression:
**For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated**

- Pain is severe: Acute
- Laser iridoplasty may be beneficial: Plateau iris; chronic
- IOP *low* after events: Acute
- LPI does not help: Plateau iris
- LPI important: All (*including* plateau iris)

If LPI doesn’t help in plateau iris syndrome, why is it still important to do one?

The fundamental problem in plateau iris is **not** pupillary block, with its resulting PC>AC pressure gradient. Rather, the problem is with the native configuration of the angle—**the ciliary processes and peripheral iris are too anterior, resulting in an angle that is narrowed and prone to occlusion**. However, this is often a difficult call to make at the slit lamp—is it plateau iris or pupillary block? An LPI is very helpful in making this distinction. In a pupillary block situation, LPI will dissipate the PC>AC pressure gradient. But an LPI will have no effect on the fundamentally abnormal configuration of the angle in plateau iris. Some authorities maintain that a diagnosis of plateau iris should not be rendered unless a patent PI has been placed and proven ineffective.

What is the classic gonioscopic description of the angle in plateau iris?

---Without indentation/compression: A flat iris approach that plunges steeply at the angle
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What is the classic gonioscopic description of the angle in plateau iris?
--Without indentation/compression: A flat iris approach that plunges steeply at the angle
--With indentation/compression: (In other words, it looks like a plateau)
Primary Angle Closure Glaucoma

Plateau iris looking all plateau-like
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe: Acute
- Laser iridoplasty may be beneficial: Plateau iris; chronic
- IOP low after events: Acute
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What is the classic gonioscopic description of the angle in plateau iris?
--Without indentation/compression: A flat iris approach that plunges steeply at the angle
--With indentation/compression: A sine-wave-like appearance, AKA the double-hump sign

Some authorities maintain that a diagnosis of plateau iris should not be rendered unless a patent PI has been placed and proven ineffective.
Primary Angle Closure Glaucoma

Plateau iris: ‘Sine wave/double-hump sign’
Primary Angle Closure Glaucoma

Plateau iris: ‘Sine wave/double-hump sign’
Pain is severe: Acute
Laser iridoplasty may be beneficial: Plateau iris; chronic
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What accounts for the humps in the double-hump sign?
--Without indentation/compression:
--With indentation/compression: A sine-wave-like appearance, AKA the double-hump sign.
Q/A

For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe: Acute
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What accounts for the humps in the double-hump sign?
- The peripheral hump: The iris draped over the...
- The central hump:

With indentation/compression: A sine-wave-like appearance, AKA the double-hump sign
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe: Acute
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Acute angle closure
Sub-acute angle closure
Chronic angle closure
Plateau iris

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What accounts for the humps in the double-hump sign?

--The peripheral hump: The iris draped over the…anteriorty-located ciliary processes
--The central hump: The iris draped over the…anterior lens surface

double-hump sign
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated.

- Pain is severe: **Acute**
- Laser iridoplasty may be beneficial: **Plateau iris; chronic**
- IOP **low** after events: **Acute**
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- LPI important: **All (including plateau iris)**
- Often improves with sleep:
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated:

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For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

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- Laser iridoplasty may be beneficial: Plateau iris; chronic
- IOP *low* after events: Acute
- LPI does not help: Plateau iris
- LPI important: All (*including* plateau iris)
- Often *improves with sleep*: **Sub-acute**

What happens during sleep that leads to improvement?
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe: Acute
- Laser iridoplasty may be beneficial: Plateau iris; chronic
- IOP low after events: Acute
- LPI does not help: Plateau iris
- LPI important: All (including plateau iris)
- Often improves with sleep: Sub-acute

What happens during sleep that leads to improvement?
Sleep-induced miosis breaks the pupillary block
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated with:

- Pain is severe: **Acute**
- Laser iridoplasty may be beneficial: **Plateau iris; chronic**
- IOP *low* after events: **Acute**
- LPI does not help: **Plateau iris**
- LPI important: **All (including plateau iris)**
- Often improves with sleep: **Sub-acute**
- Pain usually absent:
A

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- Cornea cloudy during event: **Acute angle closure**
- **Sub-acute angle closure**
- **Chronic angle closure**
- **Plateau iris**

Q >1

(109)
### For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

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- **Cornea cloudy during event**: Acute; subacute

*Why is the cornea cloudy?*
A

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- \textbf{Cornea cloudy during event}: Acute; subacute

Why is the cornea cloudy?
It is edematous
Primary Angle Closure Glaucoma

Cloudy cornea in acute ACG
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated:

- Pain is severe: Acute
- Laser iridoplasty may be beneficial: Plateau iris; chronic
- IOP low after events: Acute
- LPI does not help: Plateau iris
- LPI important: All (including plateau iris)
- Often improves with sleep: Sub-acute
- Pain usually absent: Chronic
- Cornea cloudy during event: Acute; subacute

Why is the cornea cloudy?
It is edematous

What causes the edema?
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated:

- Pain is severe: Acute
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- IOP _low_ after events: Acute
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- Pain usually absent: Chronic
- **Cornea cloudy during event**: Acute; subacute

**Why is the cornea cloudy?**
It is edematous

**What causes the edema?**
Elevated IOP → endothelial-cell dysfunction
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated:

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- IOP low after events: Acute
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- Often improves with sleep: Sub-acute
- Pain usually absent: Chronic

**Cornea cloudy during event**: Acute; subacute

*Why is the cornea cloudy?*
It is edematous

*What causes the edema?*
Elevated IOP → endothelial-cell dysfunction

*What is the classic one-word descriptor for the appearance of the cornea in ACG?*
Pain is severe: Acute
Laser iridoplasty may be beneficial: Plateau iris; chronic
IOP low after events: Acute
LPI does not help: Plateau iris
LPI important: All (including plateau iris)
Often improves with sleep: Sub-acute
Pain usually absent: Chronic
Cornea cloudy during event: Acute; subacute

Why is the cornea cloudy?
It is edematous

What causes the edema?
Elevated IOP→endothelial-cell dysfunction

What is the classic one-word descriptor for the appearance of the cornea in ACG?
‘Steamy’
<table>
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- LPI important: **All (including plateau iris)**
- Often improves with sleep: **Sub-acute**
- Pain usually absent: **Chronic**
- Cornea cloudy during event: **Acute; subacute**
- IOP *normal* between events:
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

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- Cornea cloudy during event: Acute; subacute
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- Cornea always clear: Chronic

Why don’t CACG pts get corneal edema?
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe: Acute
  - Laser iridoplasty may be beneficial: Plateau iris; chronic
  - IOP *low* after events: Acute
  - LPI does not help: Plateau iris
  - LPI important: All (*including* plateau iris)
  - Often improves with sleep: Sub-acute
  - Pain usually absent: Chronic
  - Cornea cloudy during event: Acute; subacute
  - IOP *normal* between events: Subacute
  - Cornea always clear: **Chronic**

Why don’t CACG pts get corneal edema?
Because their IOP doesn’t get high enough
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe: **Acute**
- Laser iridoplasty may be beneficial: **Plateau iris; chronic**
- IOP *low* after events: **Acute**
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- Pain usually absent: **Chronic**
- Cornea cloudy during event: **Acute; subacute**
- IOP *normal* between events: **Subacute**
- Cornea always clear: **Chronic**
- Often misdiagnosed as migraines:
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

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- Laser iridoplasty may be beneficial: Plateau iris; chronic
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- Cornea cloudy during event: Acute; subacute
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- **Often misdiagnosed as migraines:** Sub-acute

*Why would sub-acute ACG be confused with migraines?*
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe: Acute
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Why would sub-acute ACG be confused with migraines?
Think about it—these pts c/o intermittent terrible headaches that improve with sleep. Sounds like migraines to me…
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

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- Often misdiagnosed as migraines: **Sub-acute**
- Presents like POAG:
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- Presents like POAG: Chronic

In what sense(s) does CACG present like POAG?
Pain is severe: Acute
Laser iridoplasty may be beneficial: Plateau iris; chronic
IOP low after events: Acute
LPI does not help: Plateau iris
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Often misdiagnosed as migraines: Sub-acute

**Presents like POAG:** Chronic

*In what sense(s) does CACG present like POAG?*
In that, like POAG, CNAG:

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**Presents like POAG: Chronic**

*In what sense(s) does CACG present like POAG?*

In that, like POAG, CNAG:
- is painless
- is associated with modestly elevated IOP (at least initially)
- results in typical-for-glaucoma progressive VF loss and ONH changes
Pain is severe: Acute
Laser iridoplasty may be beneficial: Plateau iris; chronic
IOP low after events: Acute
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Pain usually absent: Chronic
Cornea cloudy during event: Acute; subacute
Cornea always clear: Chronic
Often misdiagnosed as migraines: Sub-acute

**Presents like POAG: Chronic**

*What does this mean, ‘at least initially’?*

In what sense(s) does CACG present like POAG:
In that, like POAG, CNAG:
--is painless
--is associated with modestly elevated IOP *(at least initially)*
--results in typical-for-glaucoma progressive VF loss and ONH changes
A

For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

- Pain is severe: Acute
- Laser iridoplasty may be beneficial: Plateau iris; chronic
- IOP low after events: Acute
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  What does this mean, ‘at least initially’?
  - If unchecked, CACG can progress, and IOP can climb very high
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*What does this mean, “at least initially”?*

If unchecked, CACG can progress, and IOP can climb very high.

*How (ie, by what mechanism) does CACG progress?*

PAS are present in CACG. Early in the disease process, enough of the angle is open to keep the IOP from getting too high. However, PAS progression is a common occurrence, and if the angle closes sufficiently the IOP can rise precipitously.
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated

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**modestly elevated IOP** (at least initially)
Q

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What does PAS stand for in this context?
PAS = Peripheral anterior synechiae

What does this mean, "at least initially"?
If unchecked, CACG can progress, and IOP can climb very high.

modestly elevated IOP (at least initially)
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- Complain of haloes, blurred VA:
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The haloes are said to have a particular appearance—what is it?
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The haloes are said to have a particular appearance—what is it? They are ‘rainbow-colored’
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What causes the haloes and blurry vision?
Cornea cloudy: Plateau iris
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*What causes the haloes and blurry vision?*

The corneal edema associated with these conditions
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Edema of which layer of the cornea is responsible for the visual symptoms?

Corneal epithelium
For each statement, identify which form(s) of primary angle-closure glaucoma is/are associated:

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Primary Angle Closure Glaucoma

Let’s summarize what we know about PACG:
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In acute ACG, the entire angle becomes occluded over a short period of time, producing a precipitous rise in IOP. The extremely high IOP causes severe eye pain and HA, N/V, and blurry vision. The event will not resolve without intervention.
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In **chronic** ACG, some portion of the angle is *always* occluded via PAS, resulting in consistently modest IOP elevation. This IOP is not high enough to cause eye pain, HA or blurry vision. The consistently elevated IOP produces typical glaucomatous VF loss and ONH changes.

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In **plateau iris syndrome**, anteriorly-positioned ciliary processes displace the peripheral iris into the angle, predisposing the eye to either chronic or acute ACG without the need for pupillary block (although it is often present). The diagnosis can only be made via gonio (or imaging).