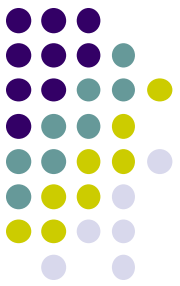


Q

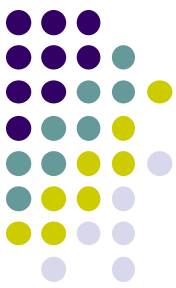
Concerning PUK



- Autoimmune PUK is usually laterality and circumferential extent

A

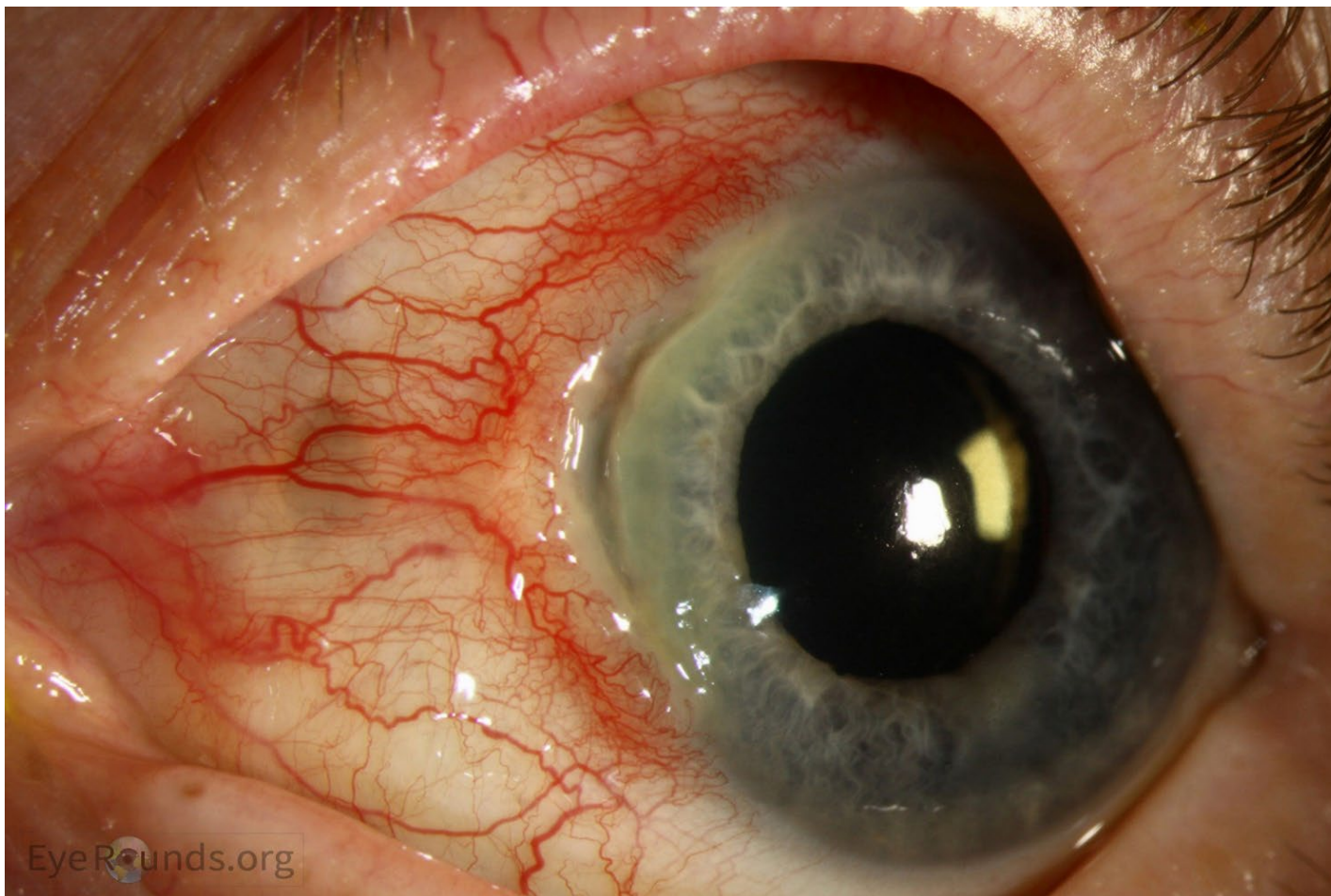
Concerning PUK



- Autoimmune PUK is usually unilateral and sectoral



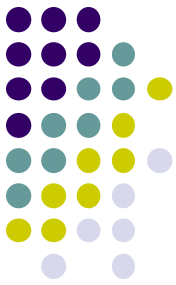
Concerning PUK



Autoimmune PUK

Q

Concerning PUK



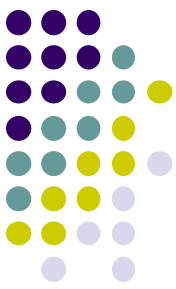
- Autoimmune PUK is usually unilateral and sectoral
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improvement vs
worsening

 of systemic disease

A

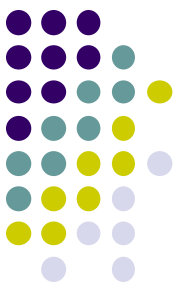
Concerning PUK



- Autoimmune PUK is usually **unilateral** and **sectoral**
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Q

Concerning PUK



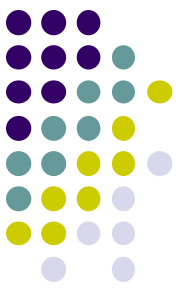
6

With what general category of autoimmune dz is PUK associated?

- Autoimmune
- It often heralds exacerbation of **systemic disease**

A

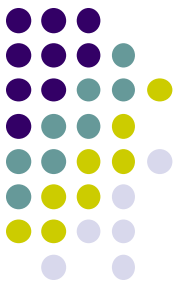
Concerning PUK



- Autoimmune *With what general category of autoimmune dz is PUK associated?*
Connective-tissue dz, especially vasculitides
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Q

Concerning PUK

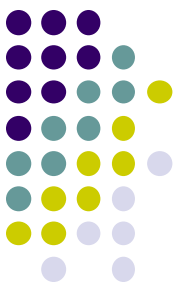


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With which connective-tissue diseases (CTDs) and/or vasculitides has PUK been associated?

A

Concerning PUK



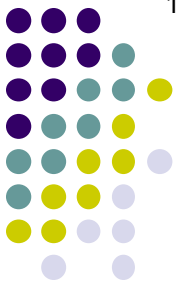
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Pretty much all of them

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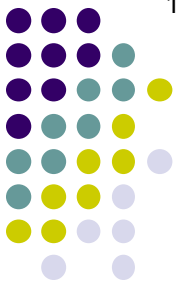
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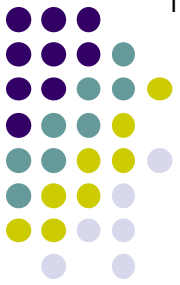
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Which three conditions are most likely to present with PUK?

Rheumatoid arthritis, Wegener's granulomatosis, and polyarteritis nodosa

Q

Concerning PUK



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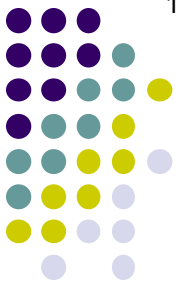
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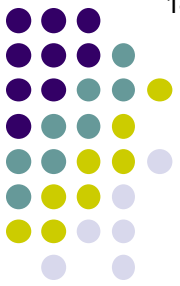
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Of these three, which is most likely to be associated with PUK?
RA, by a substantial margin

Q

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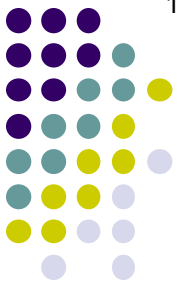
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What percentage of PUK pts have RA as their underlying condition?

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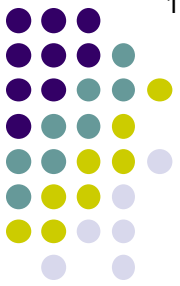
RA, by a substantial margin

What percentage of PUK pts have RA as their underlying condition?

Up to 40

Q

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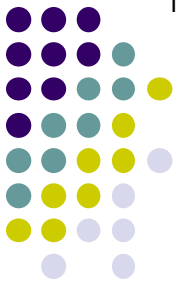
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In addition to the peripheral cornea, what other ocular structure is commonly affected in these pts?

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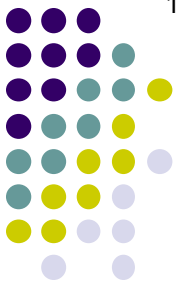
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The sclera

Q

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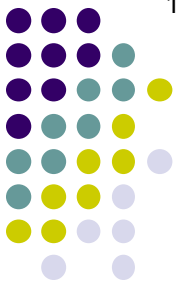
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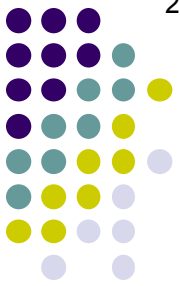
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Q

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What is, then? *their underlying condition?*

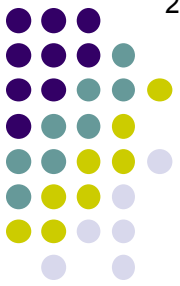
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Concerning PUK

21



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What is, then?

Keratoconjunctivitis sicca

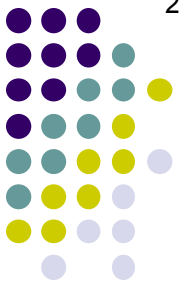
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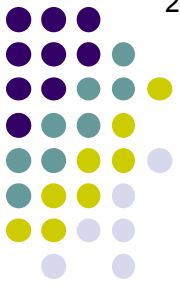


The term 'Wegener's granulomatosis' has fallen out of favor.



Q

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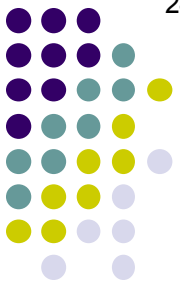


*The term 'Wegener's granulomatosis' has fallen out of favor.
What term is preferred in its place?*



A

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granulomatosis with polyangiitis

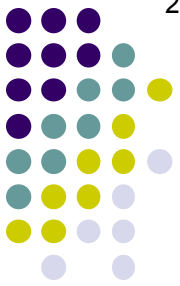


*The term 'Wegener's granulomatosis' has fallen out of favor.
What term is preferred in its place?
'Granulomatosis with polyangiitis'*



Q

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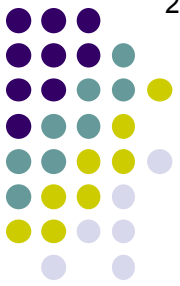


What term is preferred in its place?

'Granulomatosis with polyangiitis' **Why did the name 'Wegener's granulomatosis' fall out of favor?**

A

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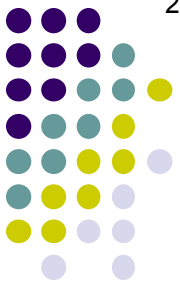
*The term 'Wegener's granulomatosis' has **fallen out of favor**.*

What term is preferred in its place?

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Why did the name 'Wegener's granulomatosis' fall out of favor?
Because Dr. Wegener was a Nazi



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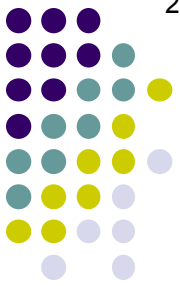
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granulomatosis with polyangiitis (GwP)

If you're having trouble remembering that granulomatosis with polyangiitis (GwP) is the entity formerly known as Wegener's...



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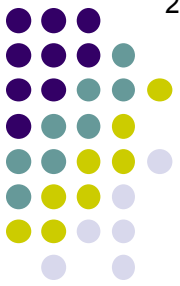
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Think of the little 'w' as standing for 'Wegener's'

Q

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What is the classic triad of granulomatosis with polyangiitis (GwP)?

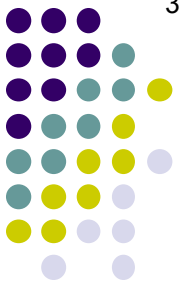
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Q/A

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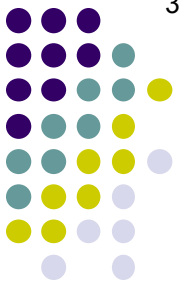
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A

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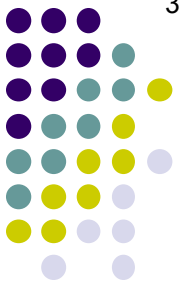
What is the classic triad of granulomatosis with polyangiitis (GwP)?

Necrotizing vasculitis of:

- the upper and lower respiratory tract
- the kidneys
- small and medium-sized arteries and veins

Q

Concerning PUK



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--the kidneys?

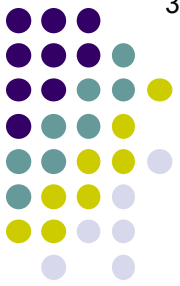
--small and medium-sized arteries and veins?

*What is the classic manifestation of the classic triad? That is, with what specific condition do these pts always present?**

**On the OKAP and Boards, that is*

A

Concerning PUK



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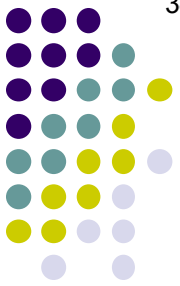
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Sinusitis. Don't diagnose a pt with GwP without it!*

Q

Concerning PUK



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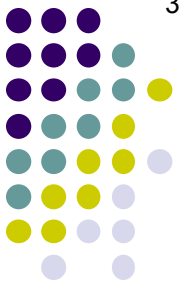
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What proportion of GwP pts have ophthalmic involvement?

A

Concerning PUK



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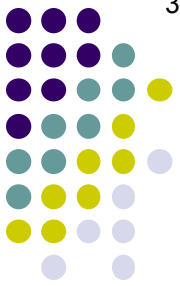
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Q

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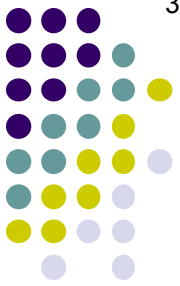
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What is the most common manifestation of that involvement? (It's not PUK.)

A

Concerning PUK



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With which connective-tissue diseases (CTDs) and/or vasculitides has PUK been associated?
Pretty much all of them

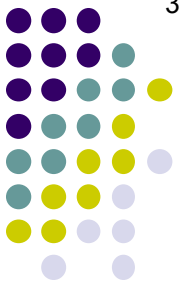
Which three conditions are most likely to present with PUK?
Rheumatoid arthritis, **granulomatosis with polyangiitis**, and polyarteritis nodosa

What proportion of GwP pts have ophthalmic involvement?
About half

What is the most common manifestation of that involvement? (It's not PUK.)
Orbital inflammation

Q

Concerning PUK



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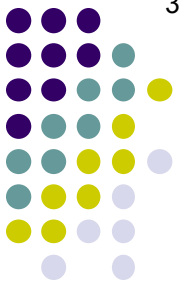
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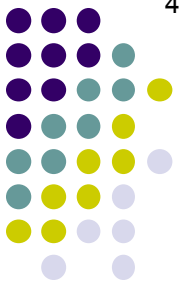
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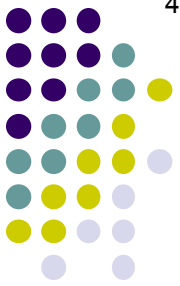
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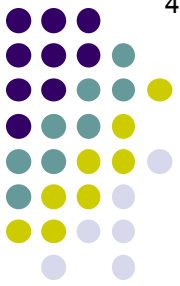
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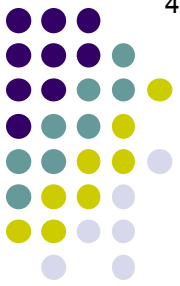
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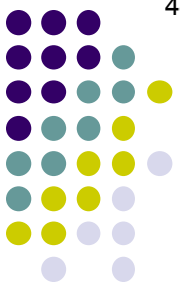
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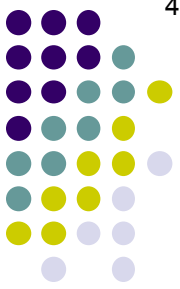
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For more on GwP, see slide-set U1

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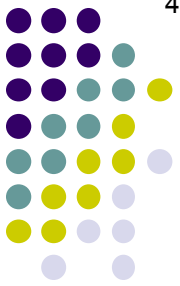
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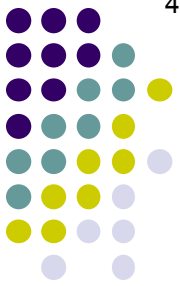
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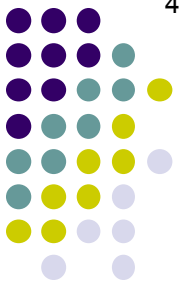
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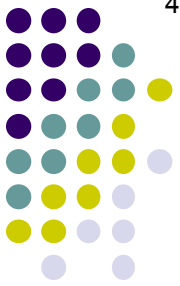
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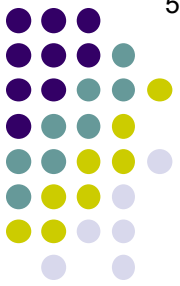
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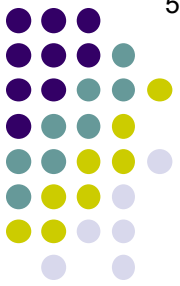
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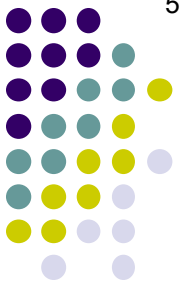
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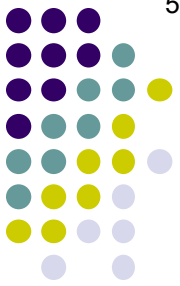
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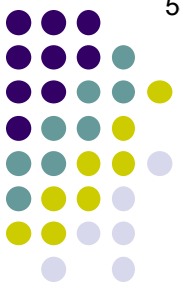
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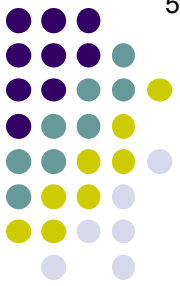
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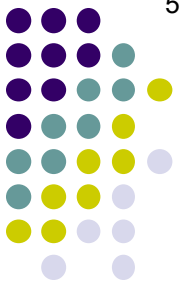
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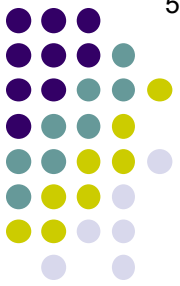
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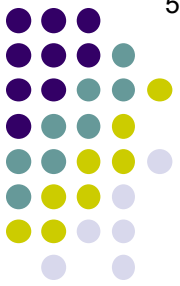
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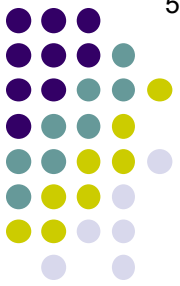
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What is PUK?

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Who is the typical patient?

A male between 40-60 years old

What is the typical presentation of PAN? (Note: It's not ophthalmic.)

Constitutional symptoms: Fever, fatigue, weight loss. Renal vasculitis resulting in secondary HTN is common.

Is there a racial predilection?

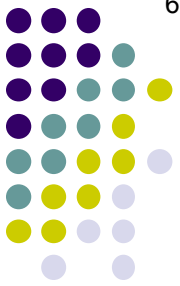
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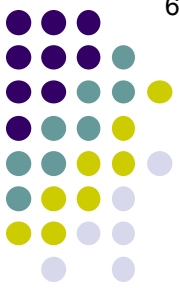
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What proportion of PAN pts develop ophthalmic involvement?

About 20%

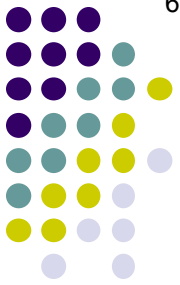
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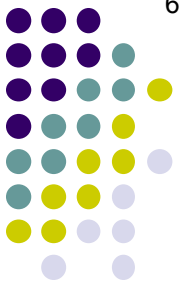
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If a PUK pt does not carry a CTD/autoimmune diagnosis, what should the ophthalmologist do?

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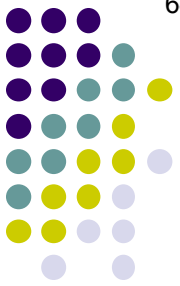
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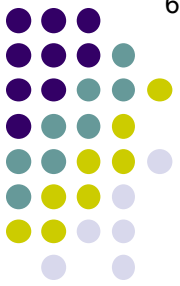
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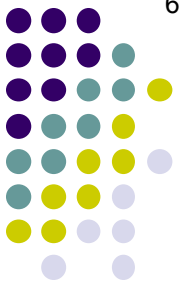
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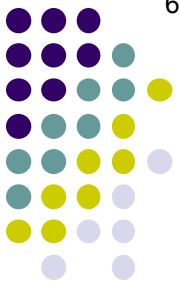
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If the PUK is associated with copious mucopurulent discharge, what infectious etiology should you consider?

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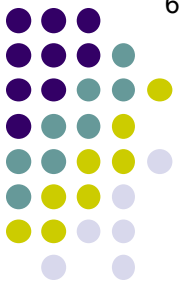
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Infectious PUK

If the PUK is associated with copious mucopurulent discharge, what infectious etiology should you consider?

Gonococcal disease



Q

Concerning PUK

- Autoimmune PUK is usually **unilateral** and **sectoral**
- It often heralds **exacerbation** of systemic disease
- The treatment goal is to stop K melting through 3 maneuvers:

1) Improve

[redacted]

2) Promote

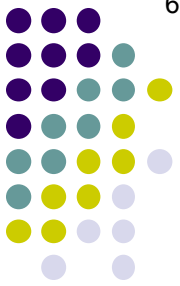
[redacted]

via

4 treatment maneuvers


3) Suppress

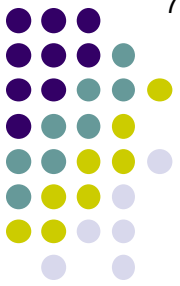
two words



A

Concerning PUK

- Autoimmune PUK is usually **unilateral** and **sectoral**
- It often heralds **exacerbation** of systemic disease
- The treatment goal is to stop K melting through 3 maneuvers:
 - 1) Improve **wetting**
 - 2) Promote **re-epithelialization** via **lubes, BCL, patching, glue**

(bandage contact lens)
 - 3) Suppress **systemic inflammation**



Q

Concerning PUK

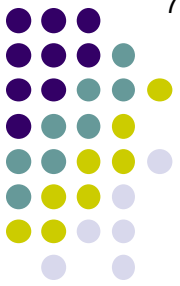
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Of these three maneuvers, which is paramount?

3) Suppress systemic inflammation



A

Concerning PUK

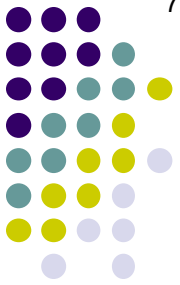
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2) Promote re-epithelialization via

*Of these three maneuvers, which is paramount?
Controlling the underlying disease process--
without this, the other maneuvers are akin to re-
arranging the deck chairs on the *Titanic**

3) **Suppress systemic inflammation**



Q

Concerning PUK

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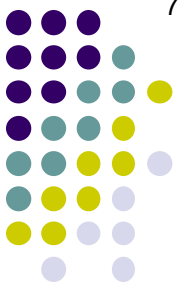
How should one improve wetting?

2) Promote re-epithelialization via lubric, BCL, patching, glue

3) Suppress systemic inflammation. Local maneuvers are

A

Concerning PUK

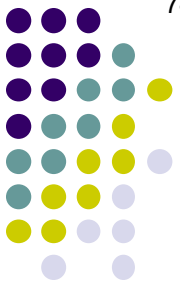


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1) Improve **wetting**

How should one improve wetting?

With frequent dosing of preservative-free artificial tears (PF ATs)



Q

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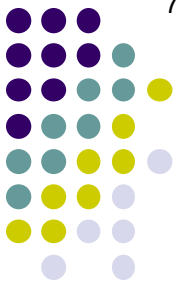
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In addition to improving wetting, what other benefit derives from frequent PF AT use?

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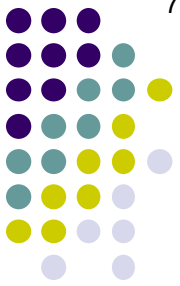
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In addition to improving wetting, what other benefit derives from frequent PF AT use?

They will remove inflammatory cytokines from the ocular surface



Q

Concerning PUK

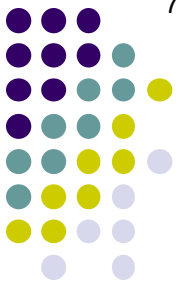
- Autoimmune PUK is usually unilateral and sectoral
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 - 2) Promote re-epithelialization via lubes, BCL, patching **glue**

What specific sort of glue is being referred to here?

A

Concerning PUK

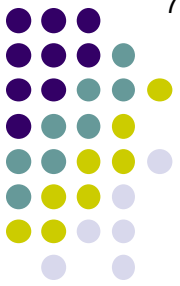
77



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Cyanoacrylate adhesive



Q

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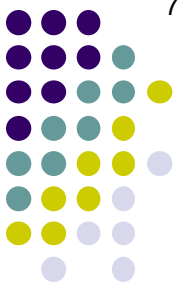
How does glue assist in PUK healing?

1)

2)

A

Concerning PUK



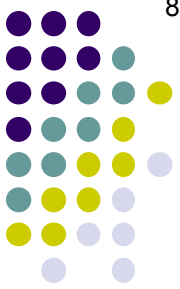
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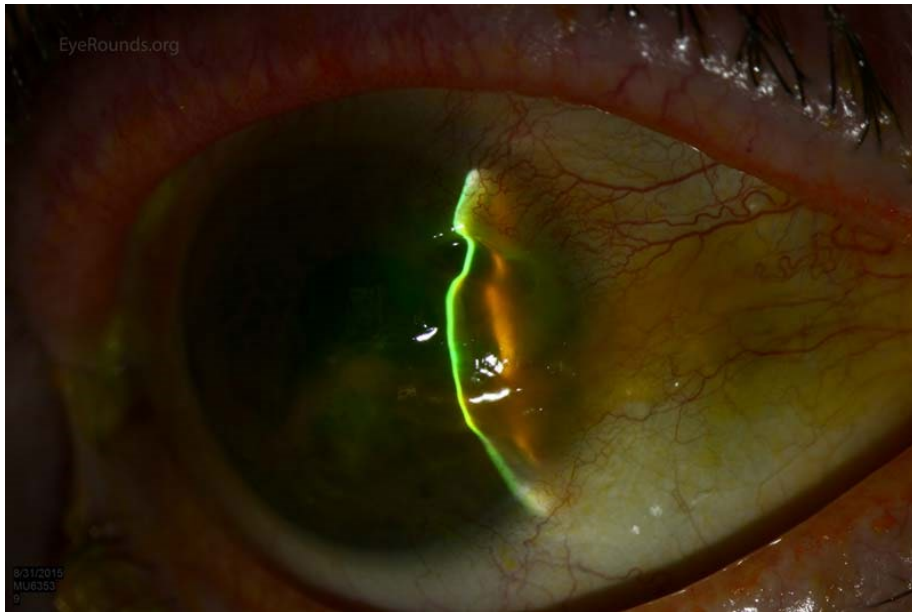
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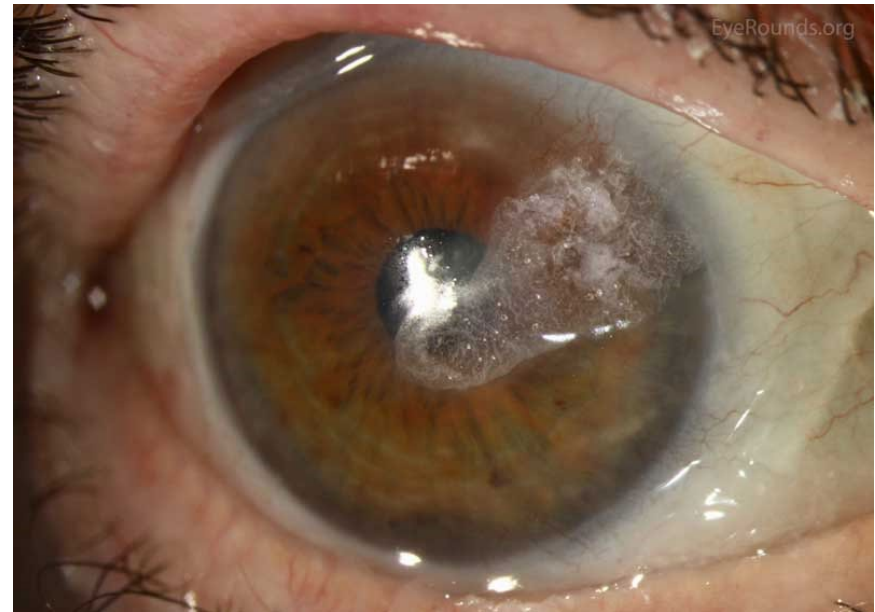
- 1) It provides tectonic stability, thereby reducing the risk of perforation
- 2) It acts as a barrier preventing PMNs from reaching (and destroying) corneal stroma



Concerning PUK

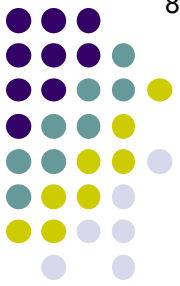


Just prior to perfig



Same eye s/p gluing (and on IMT)

PUK in RA



Q

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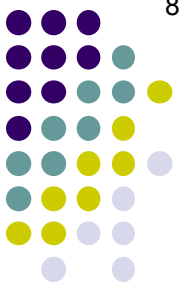
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Use of cyanoacrylate adhesive mandates that what other therapeutic maneuver be applied as well?



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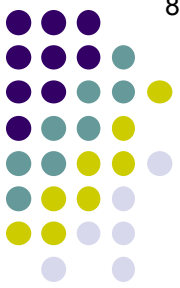
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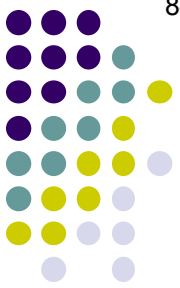
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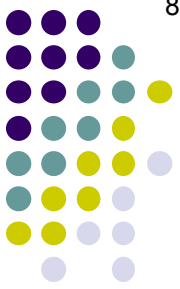
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An antibiotic drop should be used to prophylax against the possibility of a BCL-induced bacterial superinfection



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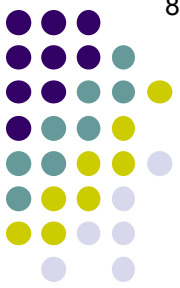
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What bacteria species must you be certain is adequately covered by the antibiotic?



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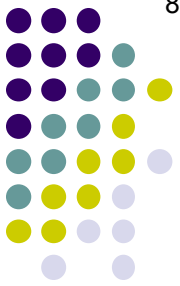
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*What bacteria species must you be certain is adequately covered by the antibiotic? **Pseudomonas***



Q

Concerning PUK

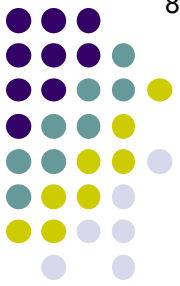
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A

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 - 3) Suppress systemic inflammation
- 4) Conj flap over the peripheral defect?

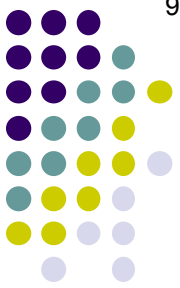
What about using a conj flap to cover the peripheral defect?



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 - 3) Suppress systemic inflammation
- 4) Conj flap over the peripheral defect? NO!

What about using a conj flap to cover the peripheral defect?

Conj flaps are contraindicated in autoimmune PUK because they bring the conj vasculature (and thus all those nasty blood-borne inflammatory mediators) even closer to the melt



Q

Concerning PUK

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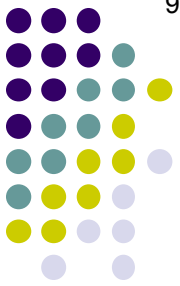
In what clinical scenario might a conj flap over a PUK defect be an appropriate treatment maneuver?

3) Suppress systemic inflammation

4) *Conj flap over the peripheral defect? YES!*

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In what clinical scenario might a conj flap over a PUK defect be an appropriate treatment maneuver?
In **infectious** PUK, especially when the organism is type of bug

3) Suppress systemic inflammation

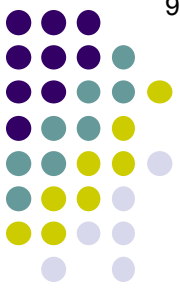
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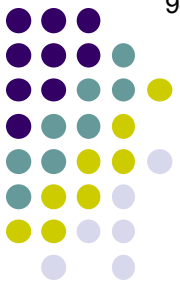
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 In **infectious** PUK, especially when the organism is **fungal**

3) Suppress systemic inflammation

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Q

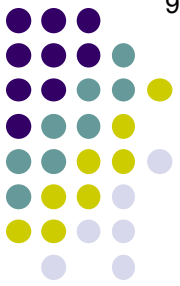
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- 4) Conj surgery:

What about using a conj flap to cover the peripheral defect?

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What conj surgery is very helpful in autoimmune PUK?



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 - 3) Suppress systemic inflammation
- 4) Conj surgery: Sectoral conj resection

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Conj flaps are contraindicated in autoimmune PUK because they bring the conj vasculature (and thus all those nasty blood-borne inflammatory mediators) even closer to the melt

What conj surgery is very helpful in autoimmune PUK?

Sectoral conj resection (ie, cutting the conj **away** from the PUK zone) can be very effective

Q

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

Polyarteritis nodosa (PAN)

Relapsing polychondritis (RP)

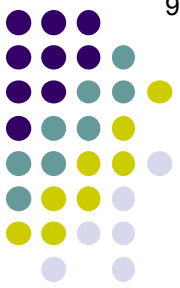
Rheumatoid arthritis (RA)

Granulomatosis with polyangiitis (GwP)

Mooren's ulcer (MU)

Churg-Strauss (CS)

- Saddle-nose deformity (2):



A

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Relapsing polychondritis (RP)

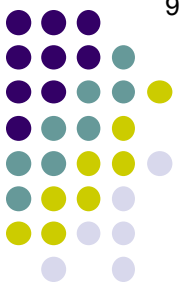
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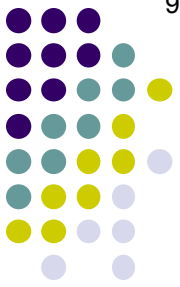
Granulomatosis with polyangiitis (GwP)

Mooren's ulcer (MU)

Churg-Strauss (CS)

- Saddle-nose deformity (2): **RP; GwP**





Concerning PUK



Saddle-nose deformity

Q

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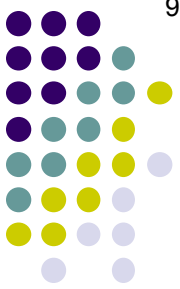
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- **Saddle-nose deformity (2):** RP; GwP

If a pt with a saddle nose had interstitial keratitis rather than PUK, what diagnosis should you consider?



A

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Relapsing polychondritis (RP)

Rheumatoid arthritis (RA)

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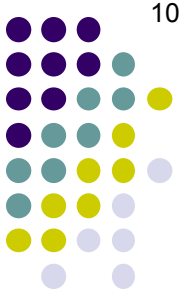
Mooren's ulcer (MU)

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- **Saddle-nose deformity (2):** RP; GwP

If a pt with a saddle nose had interstitial keratitis rather than PUK, what diagnosis should you consider?

Congenital syphilis



Q

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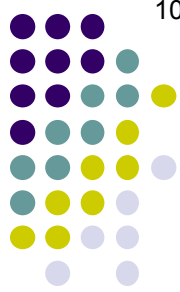
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- Saddle-nose deformity (2): **RP; GwP**
- Asthma and eosinophilia:



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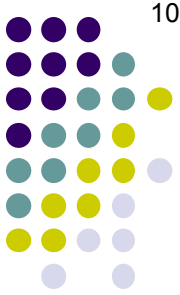
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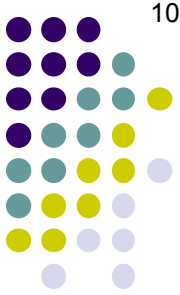
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- Asthma and eosinophilia: **CS**
- Deformed auricular pinnae:



A

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Relapsing polychondritis (RP)

Rheumatoid arthritis (RA)

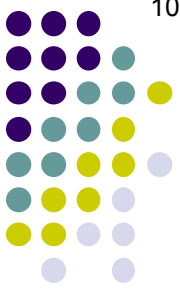
Granulomatosis with polyangiitis (GwP)

Mooren's ulcer (MU)

Churg-Strauss (CS)

- Saddle-nose deformity (2): **RP; GwP**
- Asthma and eosinophilia: **CS**
- Deformed auricular pinnae: **RP**





Concerning PUK



Auricular damage in RP

Q

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

Polyarteritis nodosa (PAN)

Relapsing polychondritis (RP)

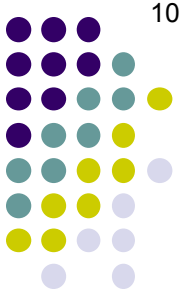
Rheumatoid arthritis (RA)

Granulomatosis with polyangiitis (GwP)

Mooren's ulcer (MU)

Churg-Strauss (CS)

- Saddle-nose deformity (2): **RP; GwP**
- Asthma and eosinophilia: **CS**
- Deformed auricular pinnae: **RP**
- Ulcer has overhanging edge (2):



A

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

Polyarteritis nodosa (PAN)

Relapsing polychondritis (RP)

Rheumatoid arthritis (RA)

Granulomatosis with polyangiitis (GwP)

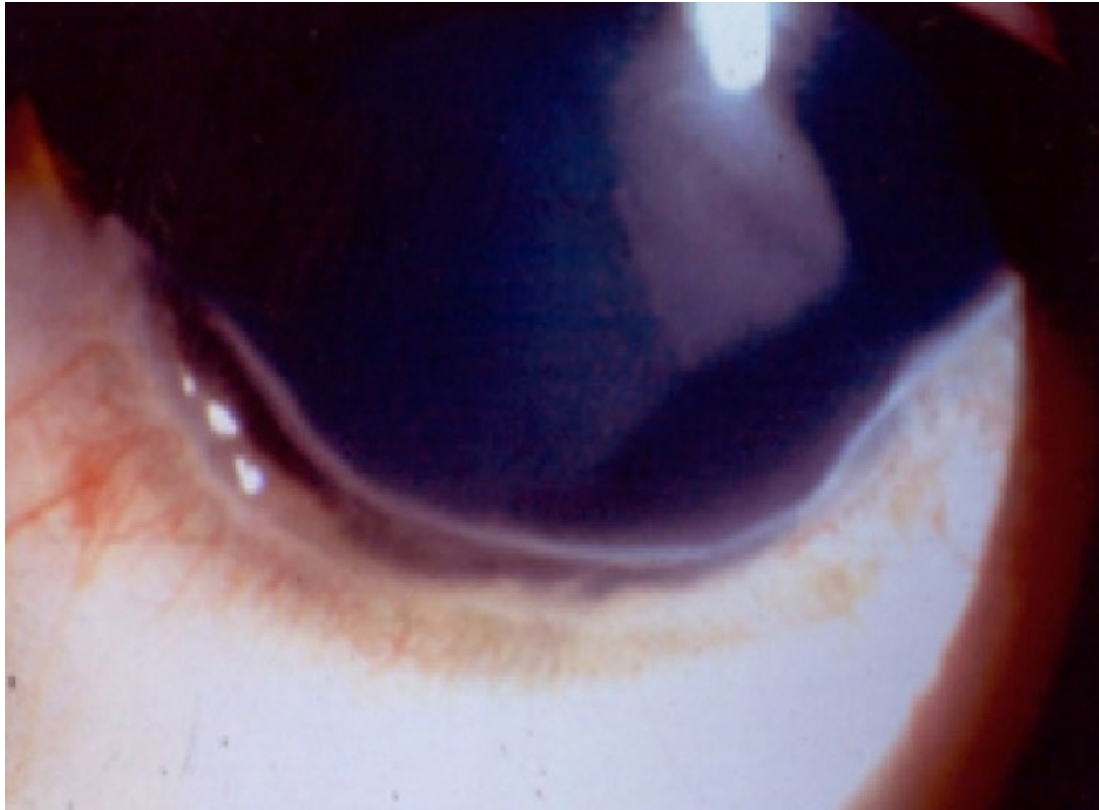
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Churg-Strauss (CS)

- Saddle-nose deformity (2): **RP; GwP**
- Asthma and eosinophilia: **CS**
- Deformed auricular pinnae: **RP**
- Ulcer has overhanging edge (2): **MU; PAN**



Concerning PUK



Mooren's ulcer: Note the overhanging edge



Q

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

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Relapsing polychondritis (RP)

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- Saddle-nose deformity (2): RP; GwP
- Asthma and eosinophilia: CS
- Deformed auricular pinnae: RP
- Ulcer has overhanging edge (2): **MU; PAN**

What is the classic description regarding the pattern of progression for PUK in both Mooren's and PAN?

Starts...

Then extends...

And finally progresses...



A/C

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

Polyarteritis nodosa (PAN)

Relapsing polychondritis (RP)

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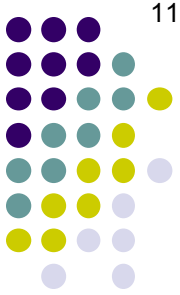
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- Deformed auricular pinnae: RP
- Ulcer has overhanging edge (2): MU; PAN

What is the classic description regarding the pattern of progression for PUK in both Mooren's and PAN?

Starts...**sectoral**

Then extends...

And finally progresses...



A/C

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

Polyarteritis nodosa (PAN)

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Mooren's ulcer (MU)

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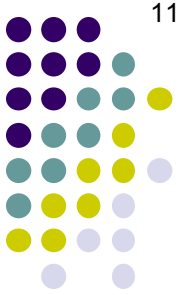
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What is the classic description regarding the pattern of progression for PUK in both Mooren's and PAN?

Starts...**sectoral**

Then extends...**circumferentially**

And finally progresses...



A

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

Polyarteritis nodosa (PAN)

Relapsing polychondritis (RP)

Rheumatoid arthritis (RA)

Granulomatosis with polyangiitis (GwP)

Mooren's ulcer (MU)

Churg-Strauss (CS)

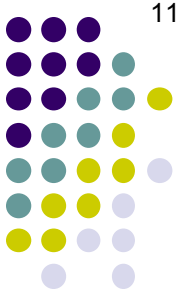
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- Deformed auricular pinnae: RP
- Ulcer has overhanging edge (2): **MU; PAN**

What is the classic description regarding the pattern of progression for PUK in both Mooren's and PAN?

Starts...**sectoral**

Then extends...**circumferentially**

And finally progresses...**centrally**



Q

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

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Rheumatoid arthritis (RA)

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Mooren's ulcer (MU)

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- Deformed auricular pinnae: **RP**
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- Sclera never involved:



A

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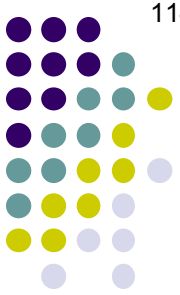
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- Sclera never involved: **MU**



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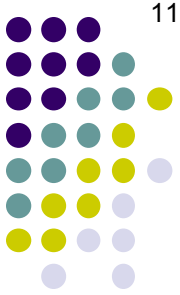
Relapsing polychondritis (RP)

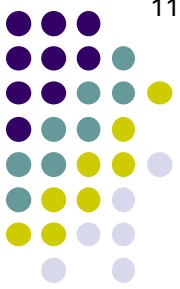
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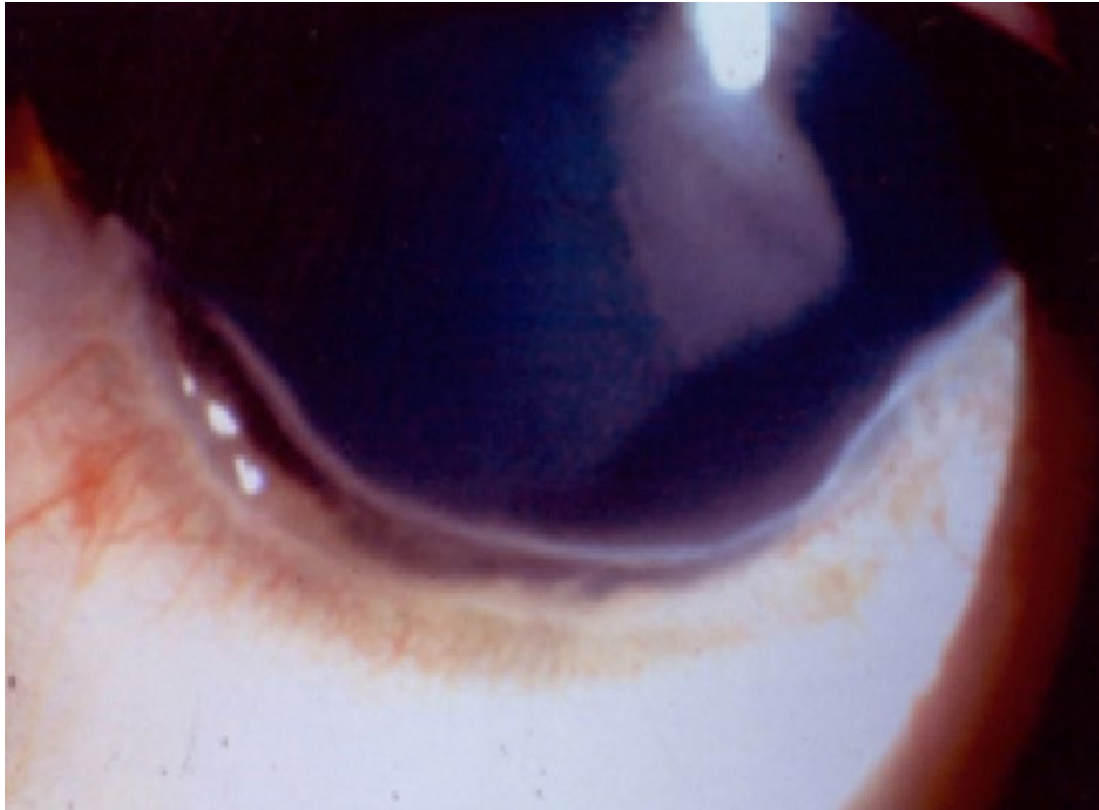
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- Asthma and eosinophilia: CS
- Deformed auricular pinnae: RP
- Ulcer has overhanging edge (2): MU; PAN
- Sclera never involved: **MU**

Take note! This is a key factor differentiating between Mooren's and other forms of PUK.





Concerning PUK



Mooren's ulcer. Note the adjacent sclera is totally quiet

Q

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

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Relapsing polychondritis (RP)

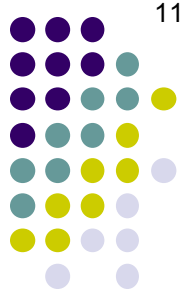
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- Asthma and eosinophilia: **CS**
- Deformed auricular pinnae: **RP**
- Ulcer has overhanging edge (2): **MU; PAN**
- Sclera never involved: **MU**
- ANCA positive (2):



A

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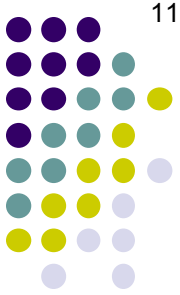
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- Deformed auricular pinnae: **RP**
- Ulcer has overhanging edge (2): **MU; PAN**
- Sclera never involved: **MU**
- ANCA positive (2): **GwP; CS** *(Hey, what about PAN??!! Un momento, por favor)*



Q

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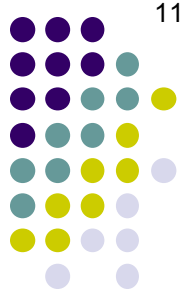
Relapsing polychondritis (RP)

Granulomatosis with polyangiitis (GwP)

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- Saddle-nose deformity (2): RP; GwP
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What does ANCA stand for?



A

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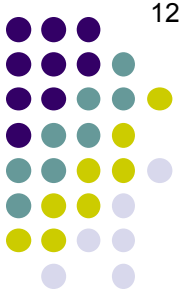
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What does ANCA stand for?

Antineutrophil cytoplasmic antibodies



Q

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What does ANCA stand for?

Antineutrophil cytoplasmic antibodies

What are they?



Q/A

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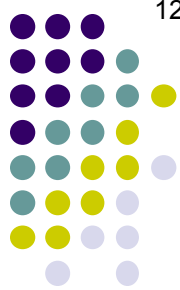
Antineutrophil cytoplasmic antibodies

What are they?

Autoantibodies against antigens found within the



of



A

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

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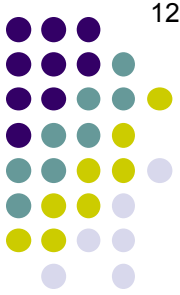
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What does ANCA stand for?

Antineutrophil cytoplasmic antibodies

What are they?

Autoantibodies against antigens found within the cytoplasm of neutrophils



A

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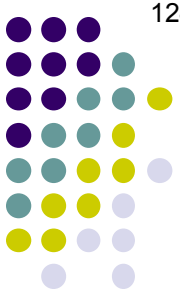
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- Deformed auricular pinnae: RP
- Ulcer has overhanging edge (2): MU; PAN
- Sclera never involved: MU
- **ANCA positive (2): GwP; CS**

What does ANCA stand for?

Anti**neutrophil cytoplasmic** antibodies

What are they?

Autoantibodies against antigens found within the **cytoplasm** of **neutrophils**



Q

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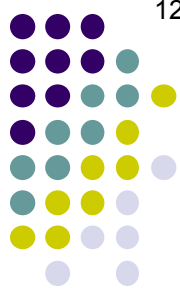
What are they?

Autoantibodies against antigens found within the cytoplasm of neutrophils

With which specific ANCA pattern is each condition associated?

Granulomatosis with polyangiitis: ?

Churg-Strauss



A

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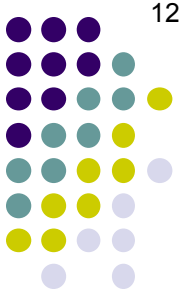
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Autoantibodies against antigens found within the cytoplasm of neutrophils

With which specific ANCA pattern is each condition associated?

Granulomatosis with polyangiitis: Cytoplasmic (c-ANCA)

Churg-Strauss



Q

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Churg-Strauss: ?

A

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What does ANCA stand for?

Antineutrophil cytoplasmic antibodies

What are they?

Autoantibodies against antigens found within the cytoplasm of neutrophils

With which specific ANCA pattern is each condition associated?

Granulomatosis with polyangiitis: Cytoplasmic (c-ANCA)

Churg-Strauss: Perinuclear (p-ANCA)

Q

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

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Mooren's ulcer (MU)

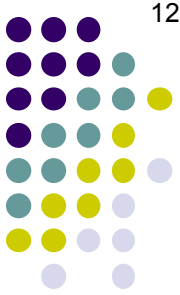
Relapsing polychondritis (RP)

Granulomatosis with polyangiitis (GwP)

Churg-Strauss (CS)

- Saddle-nose deformity (2): RP; GwP
- Asthma and eosinophilia: CS
- Deformed auricular pinnae: RP
- Ulcer has overhanging edge (2): MU; PAN
- Sclera never involved: MU
- ANCA positive (2): GwP; CS; *PAN?*

What about PAN? I thought it was ANCA-positive as well.



A

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

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Rheumatoid arthritis (RA)

Mooren's ulcer (MU)

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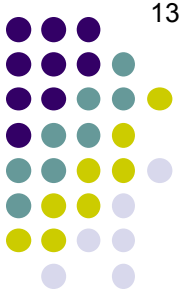
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This is a sticky widget. In the 1990s, rheumatologists determined that the label *PAN* was being applied to conditions that were actually separate disease entities.



Q

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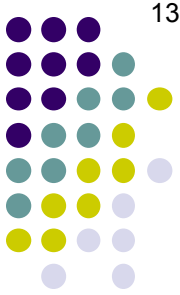
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- Sclera never involved: MU
- ANCA positive (2): GwP; CS; *PAN?*

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This is a sticky widge. In the 1990s, rheumatologists determined that the label *PAN* was being applied to conditions that were actually separate disease entities. Thus, PAN was subdivided into several conditions:

- word + abb.
- two words



A

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

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This is a sticky wicket. In the 1990s, rheumatologists determined that the label *PAN* was being applied to conditions that were actually separate disease entities. Thus, PAN was subdivided into several conditions:

--Classic PAN

--Microscopic polyangiitis



Q

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

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Rheumatoid arthritis (RA)

Mooren's ulcer (MU)

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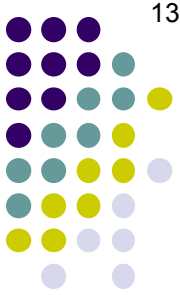
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This is a sticky wicket. In the 1990s, rheumatologists determined that the label *PAN* was being applied to conditions that were actually separate disease entities. Thus, PAN was subdivided into several conditions:

--Classic PAN, which affects...[description of involved vessels]

--Microscopic polyangiitis



A

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

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Rheumatoid arthritis (RA)

Mooren's ulcer (MU)

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Churg-Strauss (CS)

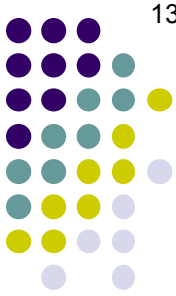
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--*Classic PAN*, which affects...medium- and small-sized 'muscular' arteries

--*Microscopic polyangiitis*



Q

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

Polyarteritis nodosa (PAN)

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Mooren's ulcer (MU)

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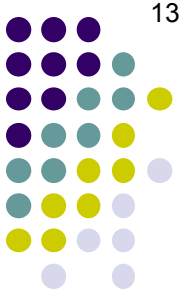
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--*Classic PAN*, which affects...medium- and small-sized 'muscular' arteries; and

--*Microscopic polyangiitis*, which affects...[ditto]



A

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

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Mooren's ulcer (MU)

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Granulomatosis with polyangiitis (GwP)

Churg-Strauss (CS)

- Saddle-nose deformity (2): RP; GwP
- Asthma and eosinophilia: CS
- Deformed auricular pinnae: RP
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- Sclera never involved: MU
- ANCA positive (2): GwP; CS; *PAN?*

What about PAN? I thought it was ANCA-positive as well.

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What's the difference between a 'small-sized' artery and a 'smaller' artery?

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What's the difference between a 'small-sized' artery and a 'smaller' artery?

Rule of thumb: Classic PAN only affects arteries large enough to be named, whereas microscopic angiitis only affects vessels smaller than that.

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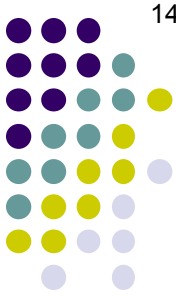
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Unfortunately, no. Per the BCSC *Uveitis* book, ~10% of PAN pts will be c- or p-ANCA positive.



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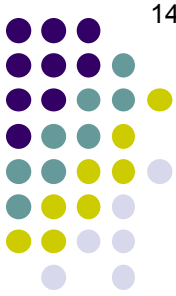
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- Sclera never involved: **MU**
- ANCA positive (2): **GwP; CS; PAN**
- Is a diagnosis of exclusion:



A

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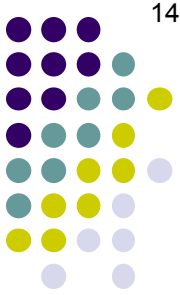
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- Is a diagnosis of exclusion: **MU**



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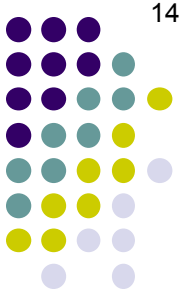
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- ANCA positive (2): **GwP; CS; PAN**
- Is a diagnosis of exclusion: **MU**
- Chest X-ray likely abnormal (3):



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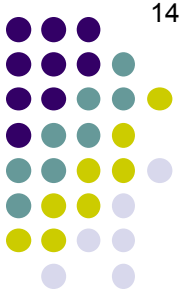
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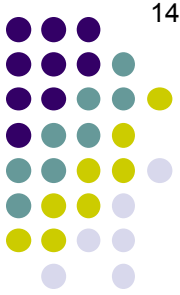
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- Chest X-ray likely abnormal (3): **GwP; CS; RP**
- Associated with hepatitis seropositivity:



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- Chest X-ray likely abnormal (3): GwP; CS; RP
- Associated with **hepatitis seropositivity: PAN**

Which hepatitis virus is definitely associated with PAN?

A

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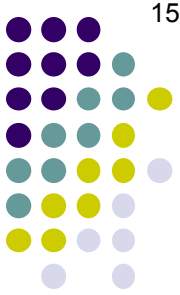
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Which hepatitis virus is definitely associated with PAN?

Hepatitis B



Q

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Hepatitis B

What percent of PAN pts test positive for are Hep B surface Ag ?

A

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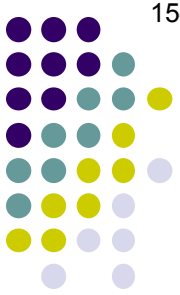
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About 10



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- Chest X-ray likely abnormal (3): GwP; CS; RP
- Associated with **hepatitis seropositivity: PAN**

Which hepatitis virus is definitely associated with PAN?

Hepatitis B

Which form is probably associated, but the evidence is not as strong as for B?

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- Associated with **hepatitis seropositivity: PAN**

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Which form is probably associated, but the evidence is not as strong as for B?

Hepatitis C



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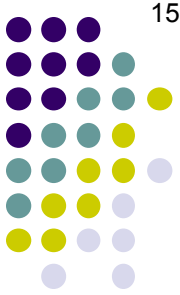
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- Associated with helminthic seropositivity:



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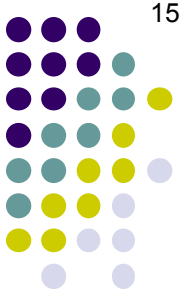
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- Is a diagnosis of exclusion: **MU**
- Chest X-ray likely abnormal (3): **GwP; CS; RP**
- Associated with hepatitis seropositivity: **PAN**
- Associated with helminthic seropositivity: **MU**
- Renal function may be impaired (4):

A

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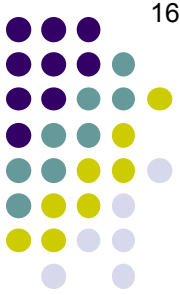
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- Is a diagnosis of exclusion: **MU**
- Chest X-ray likely abnormal (3): **GwP; CS; RP**
- Associated with hepatitis seropositivity: **PAN**
- Associated with helminthic seropositivity: **MU**
- Renal function may be impaired (4): **GwP; PAN; CS; RP**
- Chronic, tx-resistant sinusitis common:



A

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

Polyarteritis nodosa (PAN)

Rheumatoid arthritis (RA)

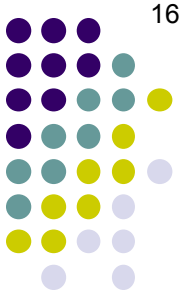
Mooren's ulcer (MU)

Relapsing polychondritis (RP)

Granulomatosis with polyangiitis (GwP)

Churg-Strauss (CS)

- Saddle-nose deformity (2): RP; GwP
- Asthma and eosinophilia: CS
- Deformed auricular pinnae: RP
- Ulcer has overhanging edge (2): MU; PAN
- Sclera never involved: MU
- ANCA positive (2): GwP; CS; PAN
- Is a diagnosis of exclusion: MU
- Chest X-ray likely abnormal (3): GwP; CS; RP
- Associated with hepatitis seropositivity: PAN
- Associated with helminthic seropositivity: MU
- Renal function may be impaired (4): GwP; PAN; CS; RP
- Chronic, tx-resistant sinusitis common: GwP



Q

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

Polyarteritis nodosa (PAN)

Rheumatoid arthritis (RA)

Mooren's ulcer (MU)

Relapsing polychondritis (RP)

Granulomatosis with polyangiitis (GwP)

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- Asthma and eosinophilia: CS
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- Sclera never involved: MU
- ANCA positive (2): GwP; CS; PAN
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- Chest X-ray likely abnormal (3): GwP; CS; RP
- Associated with hepatitis seropositivity: PAN
- Associated with helminthic seropositivity: MU
- Renal function may be impaired (4): GwP; PAN; CS; RP
- Chronic, tx-resistant sinusitis common: GwP
- **Extremely** painful:



A

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

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Rheumatoid arthritis (RA)

Mooren's ulcer (MU)

Relapsing polychondritis (RP)

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- Associated with hepatitis seropositivity: PAN
- Associated with helminthic seropositivity: MU
- Renal function may be impaired (4): GwP; PAN; CS; RP
- Chronic, tx-resistant sinusitis common: GwP
- **Extremely** painful: MU

All forms of inflammatory PUK are painful, but Mooren's is *exceptionally* so!



Q

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

Polyarteritis nodosa (PAN)

Rheumatoid arthritis (RA)

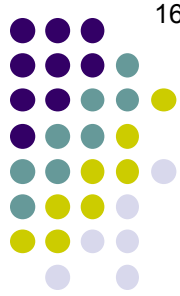
Mooren's ulcer (MU)

Relapsing polychondritis (RP)

Granulomatosis with polyangiitis (GwP)

Churg-Strauss (CS)

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- Renal function may be impaired (4): GwP; PAN; CS; RP
- Chronic, tx-resistant sinusitis common: GwP
- **Extremely** painful: MU
- Anti-CCP Ab positive:



A

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- Associated with hepatitis seropositivity: PAN
- Associated with helminthic seropositivity: MU
- Renal function may be impaired (4): GwP; PAN; CS; RP
- Chronic, tx-resistant sinusitis common: GwP
- **Extremely** painful: MU
- Anti-CCP Ab positive: RA



Churg-Strauss (CS)

- Anti-CCP Ab positive: **RA**

Q

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- Asthma and eosinophilia: CS

- *What does CCP stand for in this context?*

Cyclic citrullinated peptide

-

- *What does it mean to say a peptide has been citrullinated?*

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- **Anti-CCP Ab positive: RA**



Q/A

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

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It means that some of the amino acid moieties within proteins have been enzymatically converted to the amino acid

duh

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-

- **Anti-CCP Ab positive: RA**



S; RP

A

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

Polyarteritis nodosa (PAN)

Rheumatoid arthritis (RA)

Mooren's ulcer (MU)

Relapsing polychondritis (RP)

Granulomatosis with polyangiitis (GwP)

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- *What does CCP stand for in this context?*

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-

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It means that some of the arginine moieties within proteins have been enzymatically converted to the amino acid citrulline

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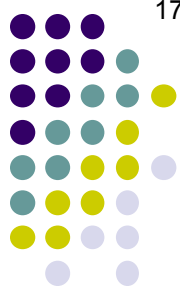
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-

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Q

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- *What does it mean to say a peptide has been citrullinated?*

It means that some of the arginine moieties within proteins have been enzymatically converted to the amino acid citrulline (which one of the 20 standard AAs coded for in our genome)

is vs isn't

-

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-

- **Anti-CCP Ab positive: RA**



A

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

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-

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-

- **Anti-CCP Ab positive: RA**



Q

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

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-

OK, so what does this have to do with RA?

-

-

-

-

-

-

- **Anti-CCP Ab positive: RA**



A

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-

- *OK, so what does this have to do with RA?*

The citrulline moieties alter the conformation of the proteins within which they occur, rendering the proteins novel to the immune system. The immune system of an RA pt will attack them as foreign antigens—hence the presence of anti-CCP antibodies in their serum.

-

-

-

- **Anti-CCP Ab positive: RA**



S; RP

Q

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

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- *When evaluating a pt for RA, I usually check for the presence of serum*

blood test

-

-

- **Anti-CCP Ab positive: RA**



A

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

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- *When evaluating a pt for RA, I usually check for the presence of serum rheumatoid factor (RF) .*

-

-

- **Anti-CCP Ab positive: RA**



Q

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

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- *OK, so what does this have to do with RA?*

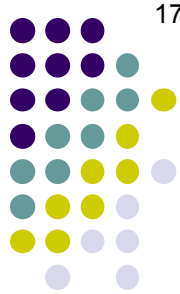
The citrulline moieties alter the conformation of the proteins within which they occur, rendering the proteins novel to the immune system. The immune system of an RA pt will attack them as foreign antigens—hence the presence of anti-CCP antibodies in their serum.

- *When evaluating a pt for RA, I usually check for the presence of serum rheumatoid factor (RF) . Is anti-CCP a better test?*

-

-

- **Anti-CCP Ab positive: RA**



Q/A

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

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-

- *OK, so what does this have to do with RA?*

The citrulline moieties alter the conformation of the proteins within which they occur, rendering the proteins novel to the immune system. The immune system of an RA pt will attack them as foreign antigens—hence the presence of anti-CCP antibodies in their serum.

- *When evaluating a pt for RA, I usually check for the presence of serum rheumatoid factor (RF) . Is anti-CCP a better test?*

Yes, because it has the same sensitivity v specificity but higher sensitivity v specificity (98%) for RA c/w the RF test

- **Anti-CCP Ab positive: RA**



A

For each statement, identify which of these causes of PUK is/are associated (some will more than one answer)

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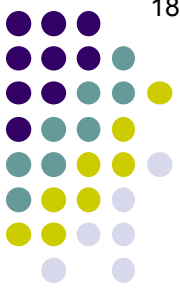
Yes, because it has the same sensitivity but higher specificity (98%) for RA c/w the RF test

- **Anti-CCP Ab positive: RA**



Q

Concerning PUK

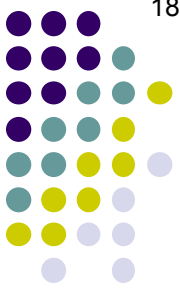


- With respect to manifesting PUK, which of the following doesn't belong, and why?
 - RA, Mooren's, Behçet, IBD

(IBD = Inflammatory bowel disease)

A

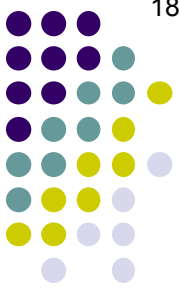
Concerning PUK



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Q

Concerning PUK

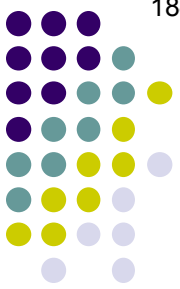


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Why is Mooren's the oddball in this group?

A

Concerning PUK

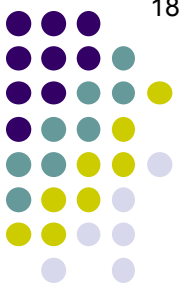


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 - RA, **Mooren's**, Behçet, IBD

Why is Mooren's the oddball in this group?

PUK in the others is due to a systemic condition, whereas Mooren's is, by definition, ocular only

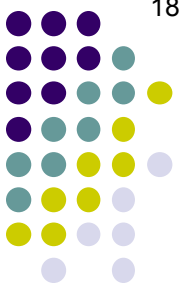
Q

Concerning PUK

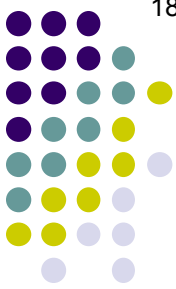
- With respect to manifesting PUK, which of the following doesn't belong, and why?
 - RA, Mooren's, Behçet, IBD
- And in this group?
 - Mooren's, Terrien's marginal, Sarcoid, SLE

A

Concerning PUK



- With respect to manifesting PUK, which of the following doesn't belong, and why?
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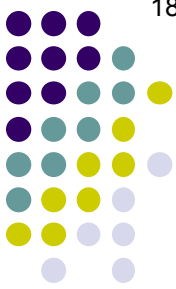


Q

Concerning PUK

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Why is Terrien's the oddball in this group?



Q/A

Concerning PUK

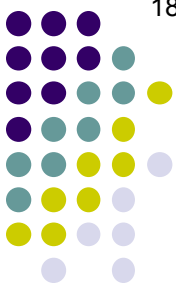
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Why is Terrien's the oddball in this group?

Two reasons:

--PUK in the others is an process; Terrien's is

--



A

Concerning PUK

- With respect to manifesting PUK, which of the following doesn't belong, and why?
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Why is Terrien's the oddball in this group?

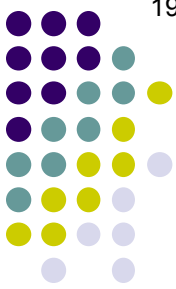
Two reasons:

--PUK in the others is an inflammatory process; Terrien's is noninflammatory

--

Q/A

Concerning PUK



- With respect to manifesting PUK, which of the following doesn't belong, and why?
 - RA, Mooren's, Behçet, IBD
- And in this group?
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Two reasons:

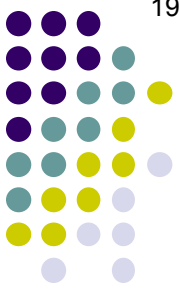
--PUK in the others is an inflammatory process; Terrien's is noninflammatory

--As implied by the word 'ulcerative' in the name, the corneal epithelium is [redacted]

in PUK. In contrast, the epithelium is [redacted] in Terrien's.

A

Concerning PUK



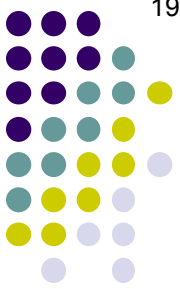
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Two reasons:

--PUK in the others is an inflammatory process; Terrien's is noninflammatory

--As implied by the word 'ulcerative' in the name, the corneal epithelium is disrupted in PUK. In contrast, the epithelium is **intact** in Terrien's.



Q

Concerning PUK

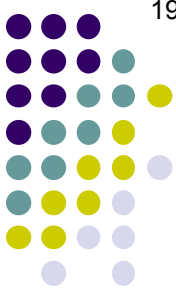
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V *If the epithelium is intact, what is going on that puts Terrien's on the DDx for PUK?*
T

--PUK in the others is an inflammatory process; Terrien's is noninflammatory
--As implied by the word 'ulcerative' in the name, the corneal epithelium is disrupted in PUK. In contrast **the epithelium is intact in Terrien's.**

Q/A

Concerning PUK



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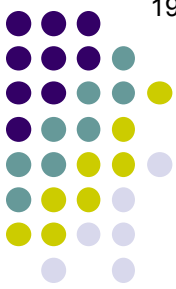
T Progressive peripheral thinning makes the limbal region in Terrien's resemble PUK

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A

Concerning PUK



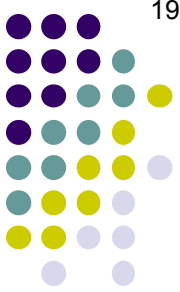
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Q

Concerning PUK

Speaking of Terrien's...

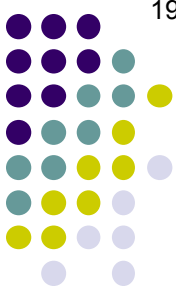
Is it a common, or an uncommon condition?

- W
- the
-
- An
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A

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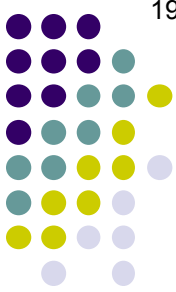
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Q

Concerning PUK

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Q/A

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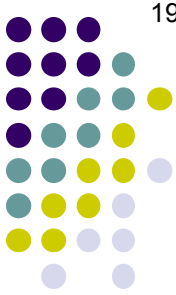
Yes, it is more common in [redacted]

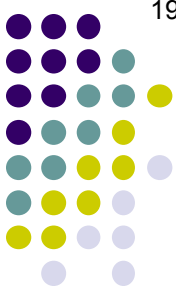
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Concerning PUK

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Is it a common, or an uncommon condition?

Uncommon

Does it have a gender predilection?

Yes, it is more common in males

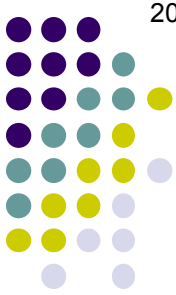
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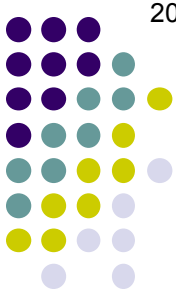
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Young adulthood (late teens - early 30s)

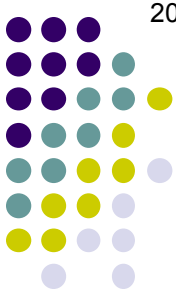
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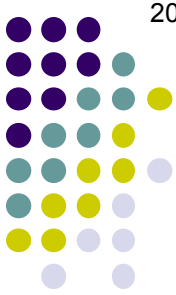
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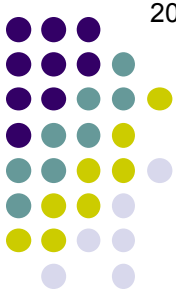
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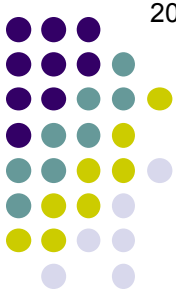
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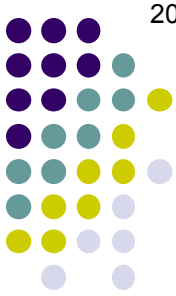
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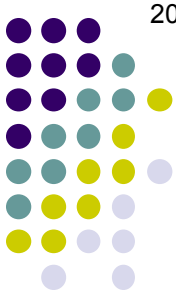
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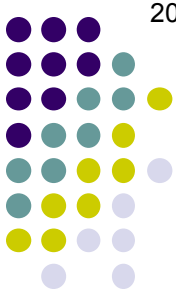
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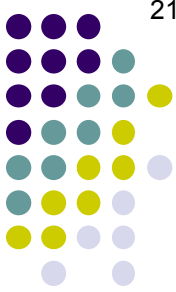
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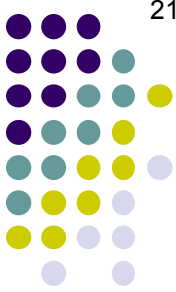
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two words

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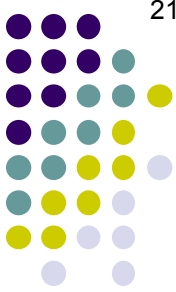
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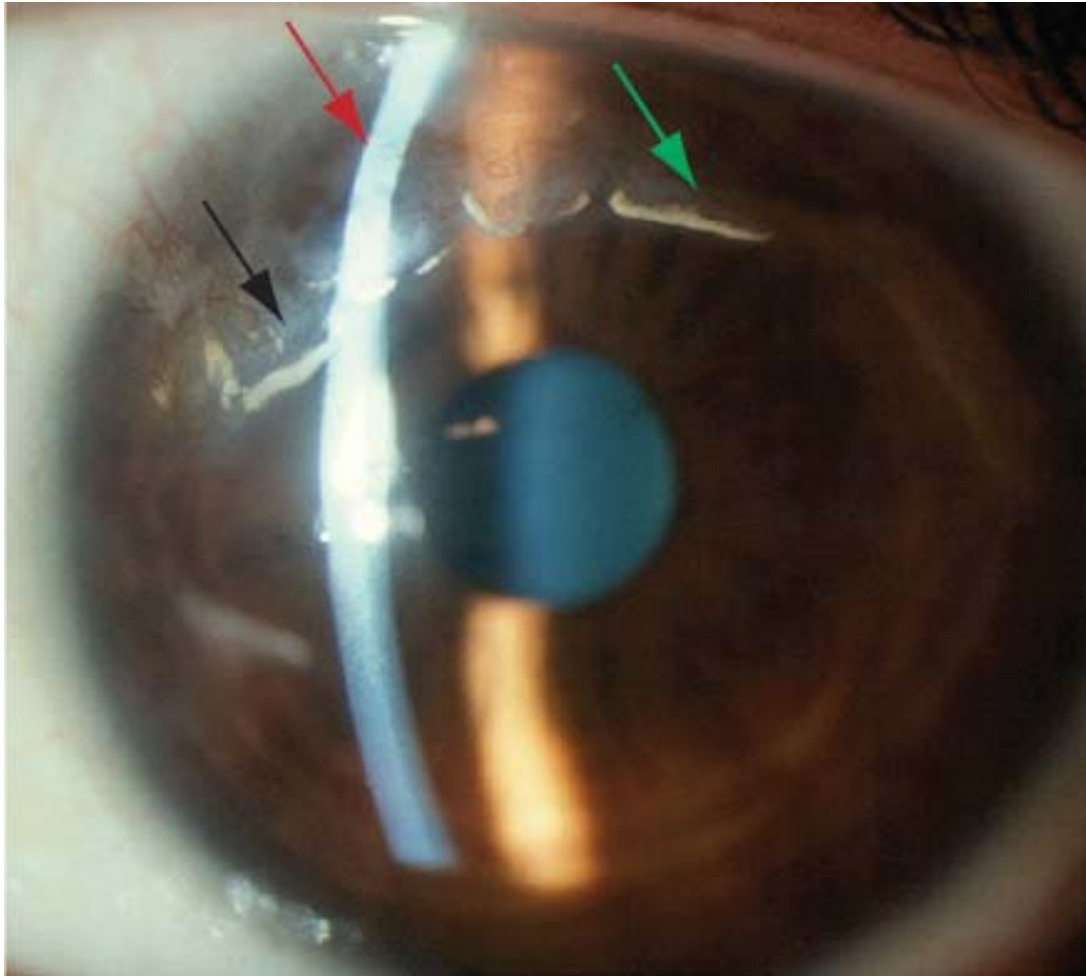
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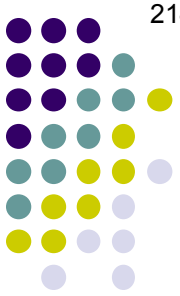
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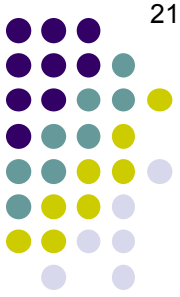
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Concerning PUK



Terrien marginal degeneration with a fine vascular pannus (*black arrow*), **superior thinning** (*red arrow*), and **lipid deposits** (*green arrow*) at the leading edge of the pannus





Concerning PUK



Terrien marginal degeneration. Note the leading lipids and the trailing pannus

Concerning PUK

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Remember this!!! Consider it your tl;dr for Terrien's

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Concerning PUK

Speaking of Terrien's...

Is it a common, or an uncommon condition?

Uncommon

Does Terrien's render the cornea significantly thinner than normal?

Does it have any visual consequences?

While once

ered equal

Is it unilateral?

Bilateral (a

Which side?

It starts su

ess from there?

Does it affect vision? If so, how?

Yes, by inducing high astigmatism

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Concerning PUK

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Uncommon

Does Terrien's render the cornea significantly thinner than normal?

Does it have any other features?

While once

Yes

Is it unilateral?

Bilateral (a

Is the thinned Terrien's cornea at risk for rupture with mild trauma?

Which sector?

It starts su

Does it affect vision? If so, how?

Does it affect vision? If so, how?

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Concerning PUK

Speaking of Terrien's...

Is it a common, or an uncommon condition?

Uncommon

Does it have any systemic implications?

While once

Does Terrien's render the cornea significantly thinner than normal?

Yes

Is it unilateral or bilateral?

Bilateral (and

Is the thinned Terrien's cornea at risk for rupture with mild trauma?

Yes

Which sector is affected?

It starts superiorly

ered equal

ess from there?

Does it affect vision? If so, how?

Yes, by inducing high astigmatism

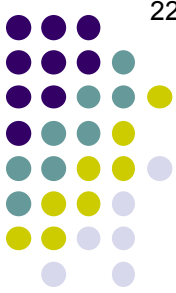
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Does Terrien's render the cornea significantly thinner than normal?

While once Yes

Is it unilateral? Is the thinned Terrien's cornea at risk for rupture with mild trauma?

Bilateral (a Yes

Which section of the cornea is affected? Does it progress from there?

It starts superiorly Do Terrien pts need to wear protective eyewear?

Does it affect vision? If so, how?

Yes, by inducing high astigmatism

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Is it unilateral or bilateral?

Bilateral (a

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Yes

Which side of the cornea is affected?

It starts su

Do Terrien pts need to wear protective eyewear?

Yes

Does it affect vision? If so, how?

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- Why is Terrien's the oddball in this group?
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Concerning PUK

Speaking of Terrien's?

Is it a common, or an uncommon condition?

Uncommon

Does Terrien's render the cornea significantly thinner

Does it have a different shape than normal?

While once Yes

ered equal

There is a lookalike condition--rarer than Terrien's—which differs in that 1) it is more likely to occur in children, and 2) it is inflammatory in nature. The Cornea book speculates that it might not be a separate condition, but rather a manifestation of the same dz process as Terrien. What is it?

Yes

Does it affect vision? If so, how?

Yes, by inducing high astigmatism

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Fuchs' superficial marginal keratitis

Yes

Does it affect vision? If so, how?

Yes, by inducing high astigmatism

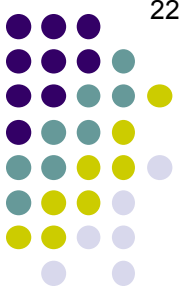
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Concerning PUK



Fuchs' superficial marginal keratitis

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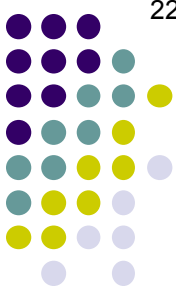
Concerning PUK



- All of the following are true concerning Mooren's ulcer *except* (could be more than one):
 - Cause is unknown
 - One clinical type presents as a unilateral PUK in the elderly
 - The other type presents as bilateral disease in young African women
 - Patients with the 'African' variety often have a history of systemic helminth infection
 - Mooren's responds readily to aggressive local therapy

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Concerning PUK



- All of the following are true concerning Mooren's ulcer *except* (could be more than one):
 - Cause is unknown **T**
 - One clinical type presents as a unilateral PUK in the elderly **T** *men*
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 - Patients with the 'African' variety often have a history of systemic helminth infection **T** *poorly*
 - *Mooren's responds ~~readily~~ to aggressive local therapy*



Concerning PUK

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 - Cause is unknown *T*
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 - Patients with the 'African' variety often have a history of systemic helminth infection *T*
 - *Mooren's responds* ~~readily~~ *poorly* _^ *to aggressive local therapy*

Mooren's ulcer is a chronic, progressive PUK. By definition, the cause is unknown. It starts sectorally, progresses circumferentially, then finally centrally. The leading edge is undermined and de-epithelialized. Two clinical varieties are recognized: Unilateral disease in the elderly, and rapidly progressive, severe bilateral disease that strikes young African men. These men usually are seropositive for helminthic disease.

The plethora of treatments stands as gloomy testimony to the relative ineffectiveness of each. Ocular modalities include topical steroids, BCL, *n-acetylcysteine* drops, topical cyclosporine and conjunctival resection. Quite often, systemic immunosuppressives are needed: steroids, MTX, and/or cyclophosphamide.