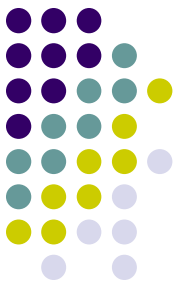


Q

Phlyctenulosis

- Phlyctenules are

two words



A

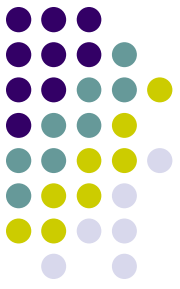
Phlyctenulosis

- Phlyctenules are inflammatory nodules



Q

Phlyctenulosis



- Phlyctenules are **inflammatory nodules**
- Can be located at the , on the , or on the

A

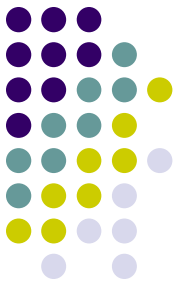
Phlyctenulosis



- Phlyctenules are inflammatory nodules
- Can be located at the limbus, on the cornea, or on the conj

Q

Phlyctenulosis

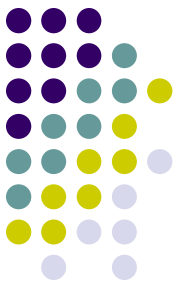


- Phlyctenules are inflammatory nodules
- Can be located at the limbus, on the cornea, or on the conj

Do they typically present unilaterally, or bilaterally?

A

Phlyctenulosis

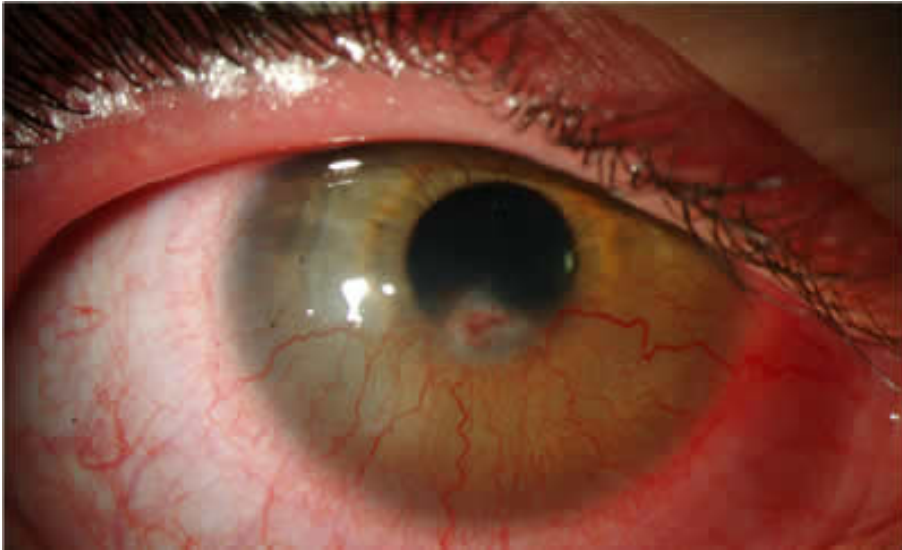
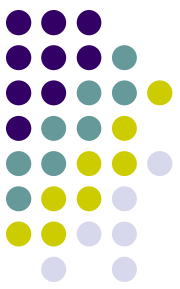


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- Can be located at the limbus, on the cornea, or on the conj

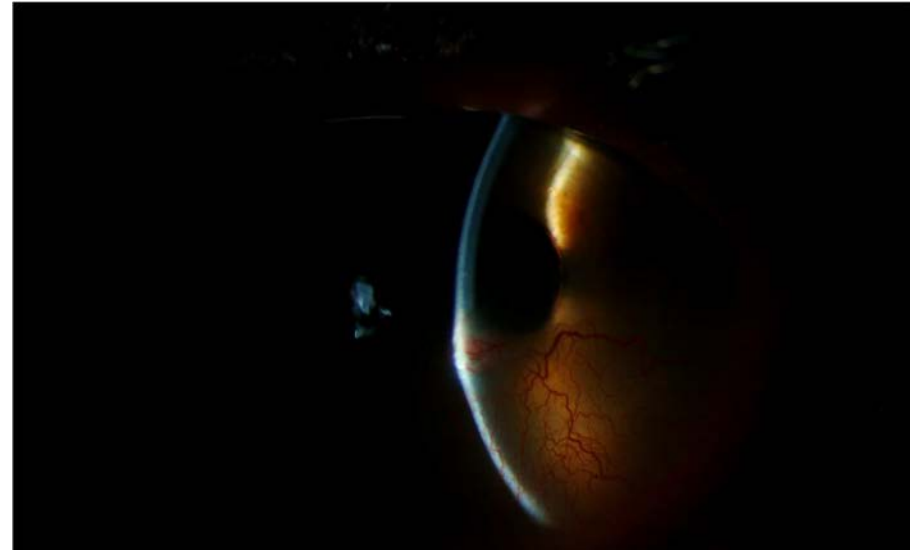
Do they typically present unilaterally, or bilaterally?

Unilaterally (but it's not uncommon to see scars on the fellow eye)

Phlyctenulosis

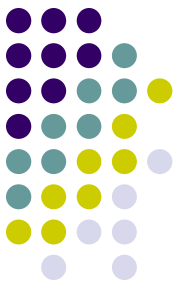


Phlyctenule



Same phlyctenule (pic to show elevation)

Corneal phlyctenule



Q

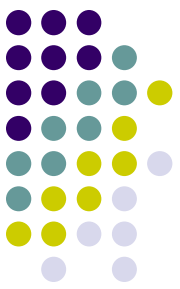
Phlyctenulosis

- Phlyctenules are **inflammatory nodules**
- Can be located at the **limbus**, on the **cornea**, or on the **conj**
- Are , in color, and are associated with

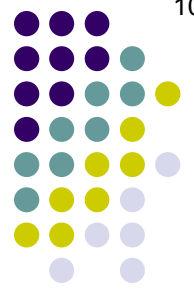
two words

A

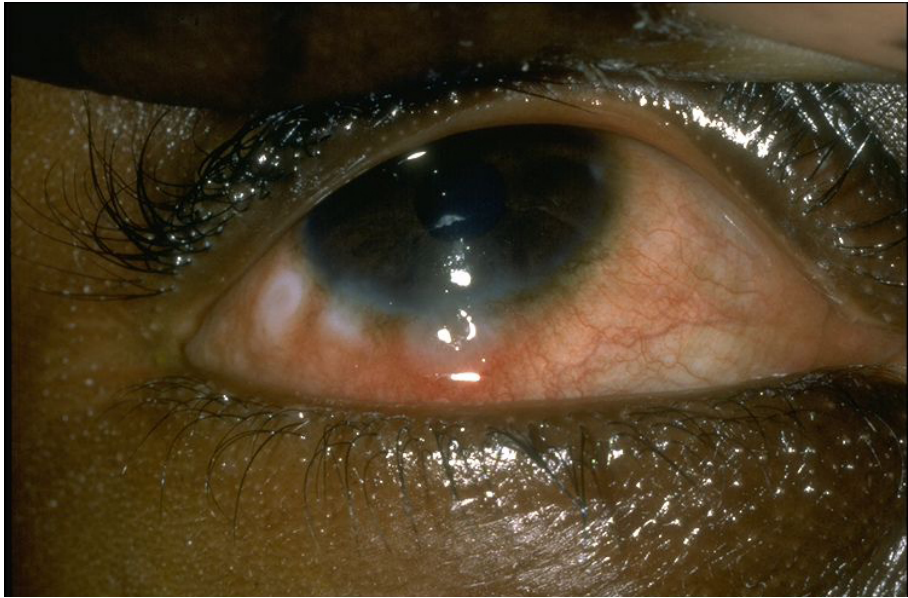
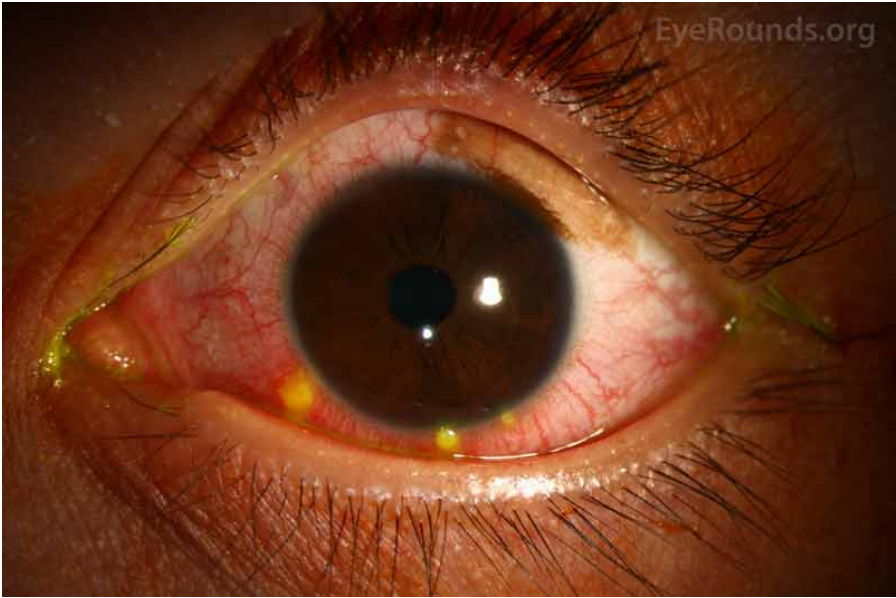
Phlyctenulosis



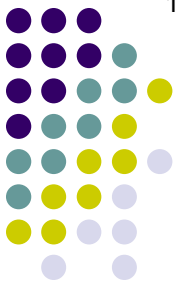
- Phlyctenules are inflammatory nodules
- Can be located at the limbus, on the cornea, or on the conj
- Are small, gray or yellow in color, and are associated with engorged vasculature



Phlyctenulosis



Phlyctenules: Yellow; gray

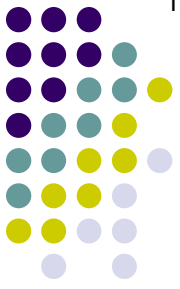


Phlyctenulosis



Phlyctenules: Engorged vasculature

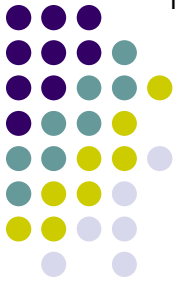
Q

Phlyctenulosis

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- Can be located at the **limbus**, on the **cornea**, or on the **conj**
- Are **small**, **gray** or **yellow** in color, and are associated with **engorged vasculature**
- Is a Type **#** hypersensitivity reaction

A

Phlyctenulosis



- Phlyctenules are **inflammatory nodules**
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- Are **small**, **gray** or **yellow** in color, and are associated with **engorged vasculature**
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Q

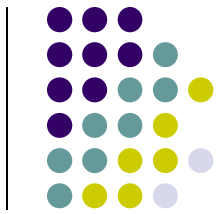
Phlyctenulosis



Speaking of hypersensitivity reactions...
How many types of ocular-surface hypersensitivity reactions are there?

A

Phlyctenulosis



Type I

Type II

Type III

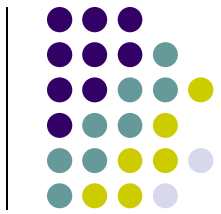
Type IV

Speaking of hypersensitivity reactions...

How many types of ocular-surface hypersensitivity reactions are there?

Q

Phlyctenulosis



Type I

Type II

Type III

Type IV

Type I reactions involve... [One word that captures the nature of this rxn]
Type II reactions involve...
Type III reactions involve...
Type IV reactions involve...

Speaking of hypersensitivity reactions...

How many types of ocular-surface hypersensitivity reactions are there?

A

Phlyctenulosis



Anaphylaxis

Type I

Type II

Type III

Type IV

Type I reactions involve...Anaphylaxis

Type II reactions involve...

Type III reactions involve...

Type IV reactions involve...

Speaking of hypersensitivity reactions...

How many types of ocular-surface hypersensitivity reactions are there?

Q

Phlyctenulosis



Anaphylaxis

Type I

Type II

Type III

Type IV

Type I reactions involve...Anaphylaxis

Type II reactions involve... [Two words capturing this rxn]

Type III reactions involve...

Type IV reactions involve...

A

Phlyctenulosis



Anaphylaxis

Cytotoxic Ab

Type I

Type II

Type III

Type IV

Type I reactions involve...Anaphylaxis

Type II reactions involve...Cytotoxic antibodies

Type III reactions involve...

Type IV reactions involve...

Q

Phlyctenulosis



Anaphylaxis

Cytotoxic Ab

Type I

Type II

Type III

Type IV

Type I reactions involve...Anaphylaxis

Type II reactions involve...Cytotoxic antibodies

Type III reactions involve... [Three words for this one]

Type IV reactions involve...

A

Phlyctenulosis



Anaphylaxis

Cytotoxic Ab

**Immune-complex
reactions**

Type I

Type II

Type III

Type IV

Type I reactions involve...Anaphylaxis

Type II reactions involve...Cytotoxic antibodies

Type III reactions involve...Immune-complex reactions

Type IV reactions involve...

Q

Phlyctenulosis



Anaphylaxis

Cytotoxic Ab

*Immune-complex
reactions*

Type I

Type II

Type III

Type IV

Type I reactions involve...Anaphylaxis

Type II reactions involve...Cytotoxic antibodies

Type III reactions involve...Immune-complex reactions

Type IV reactions involve... [Three words again]

A

Phlyctenulosis



Anaphylaxis

Cytotoxic Ab

**Immune-complex
reactions**

**Cell-mediated
reactions**

Type I

Type II

Type III

Type IV

Type I reactions involve...Anaphylaxis

Type II reactions involve...Cytotoxic antibodies

Type III reactions involve...Immune-complex reactions

Type IV reactions involve...Cell-mediated reactions

Q

Phlyctenulosis

Anaphylaxis

Cytotoxic Ab

*Immune-complex
reactions*

**Cell-mediated
reactions**

Type I

Type II

Type III

Type IV

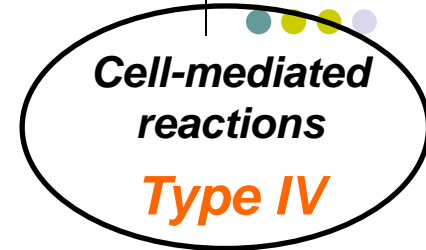
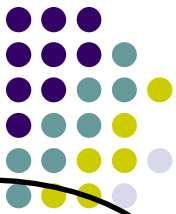
Type I reactions involve...Anaphylaxis

Type II reactions involve...Cytotoxic antibodies

Type III reactions involve...Immune-complex reactions

Type IV reactions involve...Cell-mediated reactions

'Cell-mediated reaction'...Which sort of immune cell is doing the mediating?



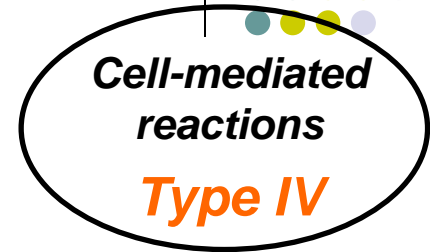
A

Phlyctenulosis

Anaphylaxis

Cytotoxic Ab

Immune-complex reactions



Cell-mediated reactions

Type IV

Type I

Type II

Type III

Type I reactions involve...Anaphylaxis
Type II reactions involve...Cytotoxic antibodies
Type III reactions involve...Immune-complex reactions
Type IV reactions involve...Cell-mediated reactions

'Cell-mediated reaction'...Which sort of immune cell is doing the mediating?
T-helper cells

Q

Phlyctenulosis

Anaphylaxis

Cytotoxic Ab

*Immune-complex
reactions*

**Cell-mediated
reactions**

Type I

Type II

Type III

Type IV

Type I reactions involve...Anaphylaxis

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T-helper cells*

In what way are T-helper cells mediating the reaction?

A

Phlyctenulosis

Anaphylaxis

Type I

Cytotoxic Ab

Type II

*Immune-complex
reactions*

Type III

**Cell-mediated
reactions**

Type IV

Type I reactions involve...Anaphylaxis
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Type III reactions involve...Immune-complex reactions
Type IV reactions involve...Cell-mediated reactions

'Cell-mediated reaction'...Which sort of immune cell is doing the mediating?
T-helper cells

In what way are T-helper cells mediating the reaction?

In Type IV reactions, T-helpers interact with antigens, thereby becoming activated. Once activated, the T-helpers release chemotactic factors that recruit and activate macrophages.

Q

Phlyctenulosis

Anaphylaxis

Type I

Cytotoxic Ab

Type II

*Immune-complex
reactions*

Type III

**Cell-mediated
reactions**

Type IV

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That's a convoluted process. How long does it take to become clinically apparent?

A

Phlyctenulosis

Anaphylaxis

Type I

Cytotoxic Ab

Type II

*Immune-complex
reactions*

Type III

**Cell-mediated
reactions**

Type IV

Type I reactions involve...Anaphylaxis
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24-72 hours, which is why this reaction is often referred to as *delayed hypersensitivity*

Phlyctenulosis



Anaphylaxis

Cytotoxic Ab

Immune-complex reactions

Cell-mediated reactions

Type I

Type II

Type III

Type IV

Type I reactions involve...Anaphylaxis
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Type III reactions involve...Immune-complex reactions
Type IV reactions involve...Delayed hypersensitivity

'Cell-mediated reaction'...Which sort of immune cell is doing the mediating?
T-helper cells

In what way are T-helper cells activated?
In Type IV reactions, once T-helper cells are activated, the T-helpers release chemotactic factors that recruit and activate macrophages.

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24-72 hours, which is why this reaction is often referred to as **delayed hypersensitivity**

Phlyctenulosis



Anaphylaxis

Cytotoxic Ab

Immune-complex reactions

Cell-mediated reactions

Type I

Type II

Type III

Type IV

Type I reactions involve...Anaphylaxis
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In what way a
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24-72 hours, which is why this reaction is often referred to as **delayed hypersensitivity**

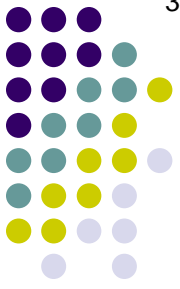
Q

Phlyctenulosis

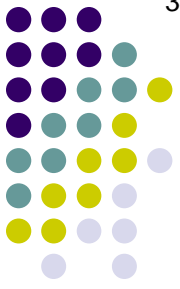
- Phlyctenules are **inflammatory nodules**
- Can be located at the **limbus**, on the **cornea**, or on the **conj**
- Are **small**, **gray** or **yellow** in color, and are associated with **engorged vasculature**
- Is a Type **IV** hypersensitivity reaction
- In developed nations, is usually associated with bug

A

Phlyctenulosis



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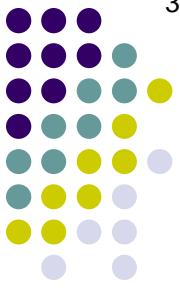


Q

Phlyctenulosis

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- Is a Type IV hypersensitivity reaction
- In developed nations, is usually associated with [?]~~S~~aurus_^
^v
 less

What is the inciting antigen in less-developed nations?



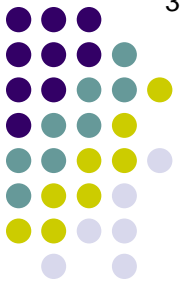
A

Phlyctenulosis

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- Are small, gray or yellow in color, and are associated with engorged vasculature
- Is a Type IV hypersensitivity reaction
- In developed nations, is usually associated with ^{TB}~~S~~aurous
^{less}

What is the inciting antigen in less-developed nations?

In such nations, the classic cause is TB (assuming its endemic)



Q

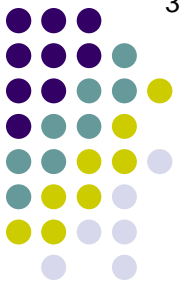
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_{less}

What is the inciting antigen in less-developed nations?

In such nations, the classic cause is TB (assuming its endemic)

What subgroup/special population residing in such nations are the classic example for having TB-induced phlyctenulosis?



A

Phlyctenulosis

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less

What is the inciting antigen in less-developed nations?

In such nations, the classic cause is TB (assuming its endemic)

What subgroup/special population residing in such nations are the classic example for having TB-induced phlyctenulosis?

Malnourished children



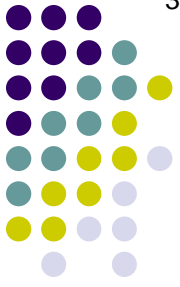
Q

Phlyctenulosis

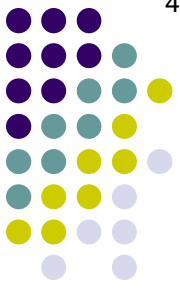
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- Is a Type **IV** hypersensitivity reaction
- In developed nations, is usually associated with ***S aureus***
- Chief complaint:

A

Phlyctenulosis



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- Chief complaint: **Mild pain**



Q

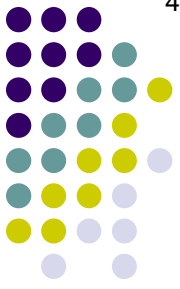
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- Chief complaint: **Mild pain**
- Dz progression:

first event	→		→	
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Q/A

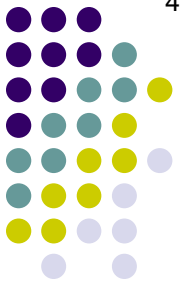
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- In developed nations, is usually associated with ***S aureus***
- Chief complaint: **Mild pain**
- Dz progression: **Elevation** → next event →

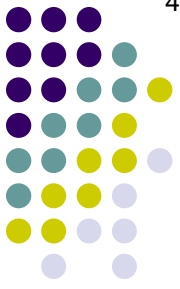
Q/A

Phlyctenulosis

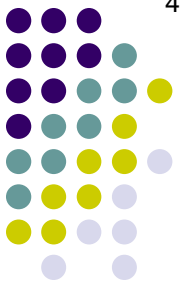


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- Chief complaint: **Mild pain**
- Dz progression: **Elevation** → **ulceration** → **final event**

A

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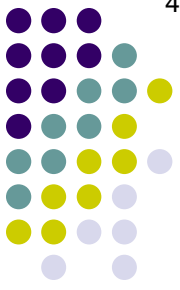


Q

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- Chief complaint: Mild pain
- Dz progression: **Elevation** → **ulceration** → **involution**

How long does the elevation/ulceration/involution process take?



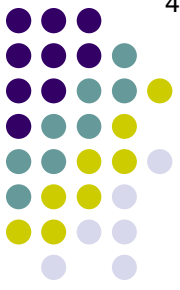
A

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How long does the elevation/ulceration/involution process take?

A few weeks

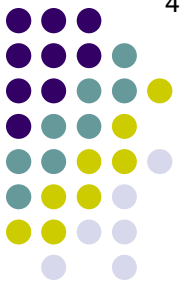


Q

Phlyctenulosis

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Is involution always the final outcome?



A

Phlyctenulosis

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- Are small, gray or yellow in color, and are associated with engorged vasculature
- Is a Type IV hypersensitivity reaction
- In developed nations, is usually associated with *S aureus*
- Chief complaint: Mild pain
- Dz progression: Elevation → ulceration → **involution**

Is involution always the final outcome?

Yes and no—conj phlyctenules **never** scar, but corneal ones can; wedge-shaped inferior limbal scars are suggestive of prior occurrences



Q

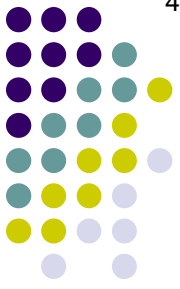
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- Is a Type **IV** hypersensitivity reaction
- In developed nations, is usually associated with ***S aureus***
- Chief complaint: **Mild pain**
- Dz progression: **Elevation** → **ulceration** → **involution**
- Treatment:

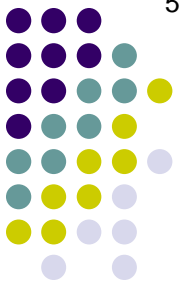
two words	+	two diff words	+/-	two words (one diff)
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A

Phlyctenulosis



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- In developed nations, is usually associated with ***S aureus***
- Chief complaint: **Mild pain**
- Dz progression: **Elevation** → **ulceration** → **involution**
- Treatment: **Lid hygiene** + **topical abx** +/- **topical steroids**

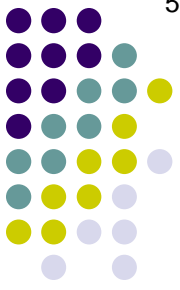


Phlyctenulosis

Q

- Phlyctenules are inflammatory nodules
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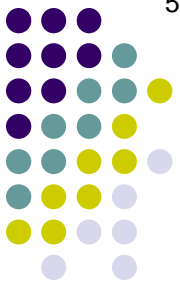
Reluctantly, judiciously and sparingly. While effective, over and/or chronic use runs the risk of side effects.



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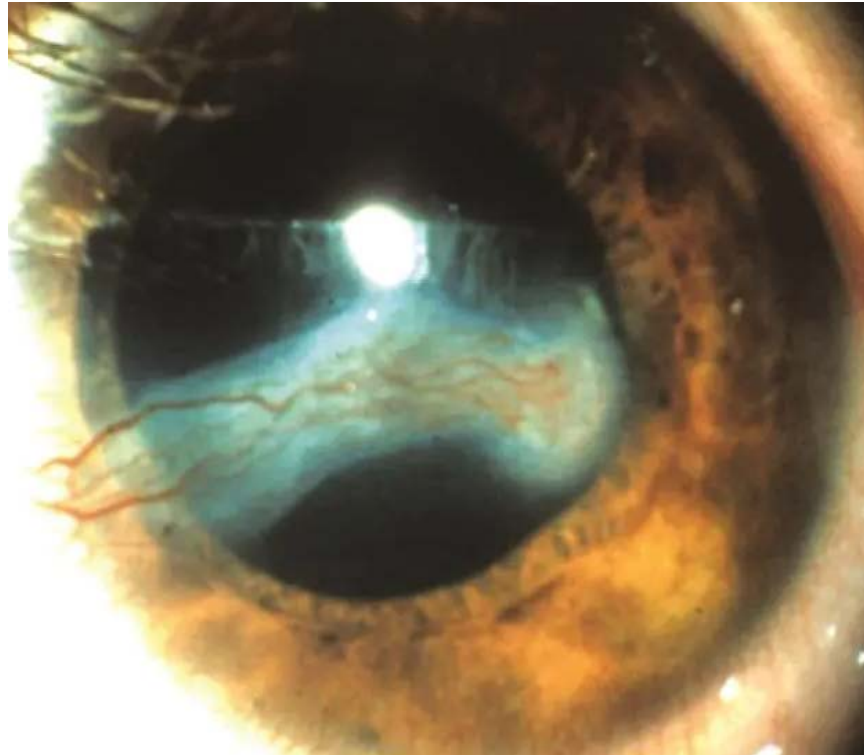
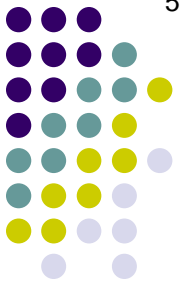


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Phlyctenulosis



Recurrent corneal phlyctenule that has progressed into the visual axis