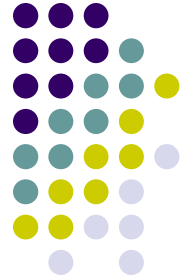


# Superior Limbic Keratoconjunctivitis

?

*What is the 'full name' of SLK?*

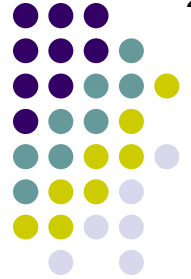


## Superior Limbic Keratoconjunctivitis

*of Theodore*

*What is the 'full name' of SLK?*

Superior limbic keratoconjunctivitis **of Theodore**. I mention this in case you see it sometime, you'll know it's still SLK.



## Superior Limbic Keratoconjunctivitis

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*In a nutshell, what is SLK?*



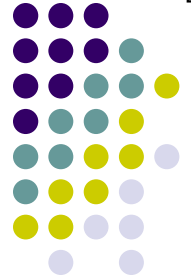
# Superior Limbic Keratoconjunctivitis of Theodore

*What is the 'full name' of SLK?*

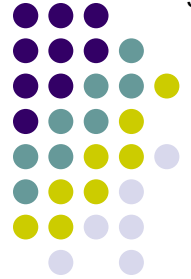
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A chronic/recurrent inflammatory condition of the superior limbal cornea and adjacent conj



# Superior Limbic Keratoconjunctivitis of Theodore



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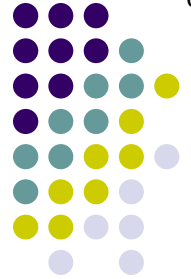
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*What do SLK pts c/o?*

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Superior limbic keratoconjunctivitis **of Theodore**. I mention this in case you see it sometime, you'll know it's still SLK.

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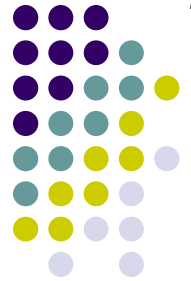
A chronic/recurrent inflammatory condition of the superior limbal cornea and adjacent conj

*What do SLK pts c/o?*

DES-like complaints: Foreign-body sensation; burning

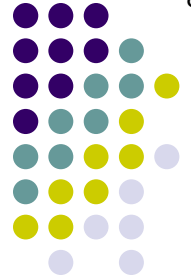
## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	



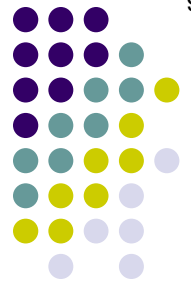
## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion



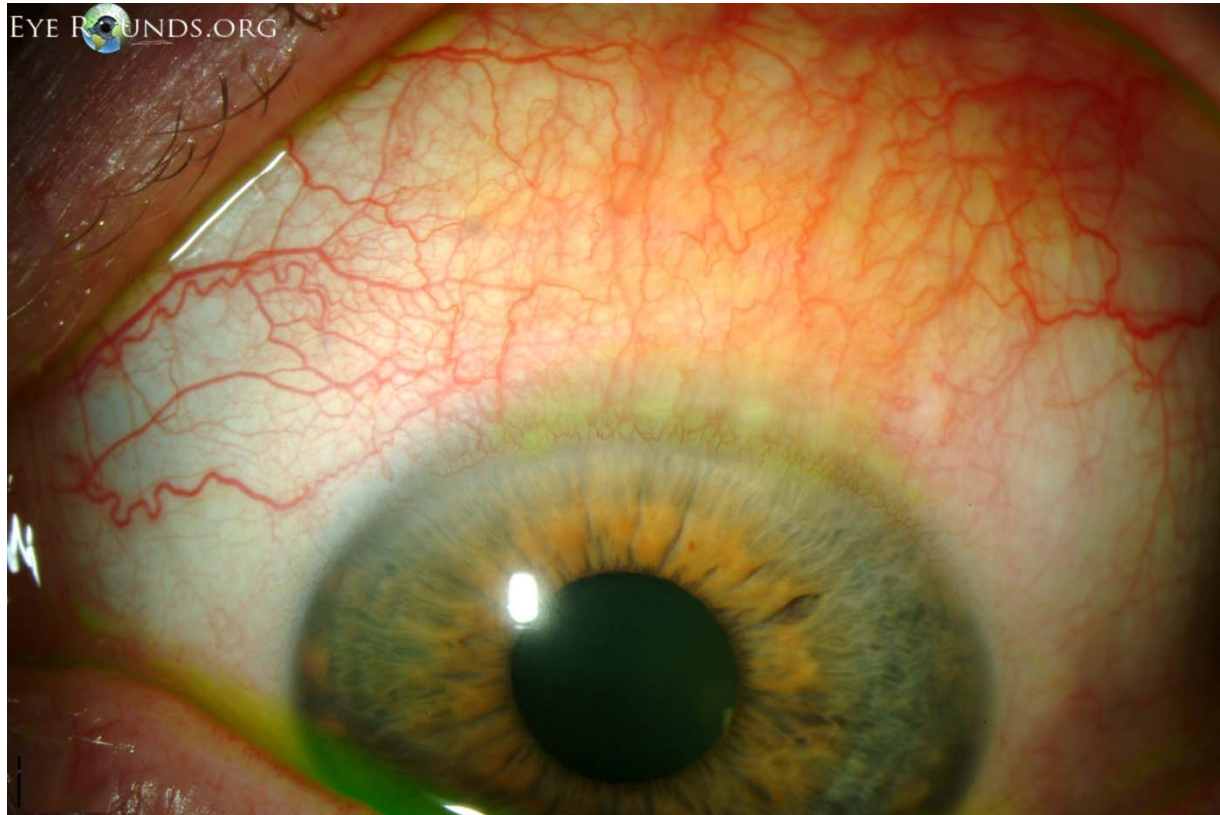


## Superior Limbic Keratoconjunctivitis

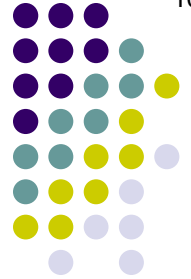


SLK: Superior conj injection

## Superior Limbic Keratoconjunctivitis

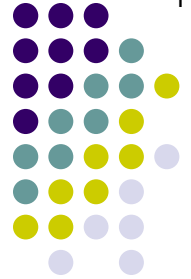


SLK: Superior conj injection



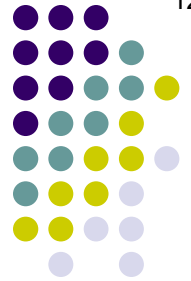
## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	



## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy





## Superior Limbic Keratoconjunctivitis

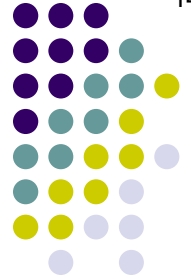
SLK	
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	<b>Superior redundancy</b>

*What does this mean, the superior conj is 'redundant'?*

## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	<b>Superior redundancy</b>

*What does this mean, the superior conj is 'redundant'?*  
It means there is excess/loose conj present

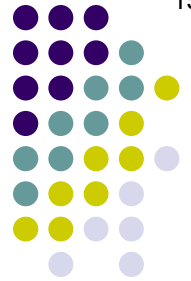


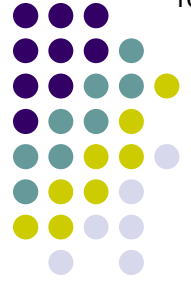
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It means there is excess/loose conj present

*How do you check for this clinically?*





## Superior Limbic Keratoconjunctivitis

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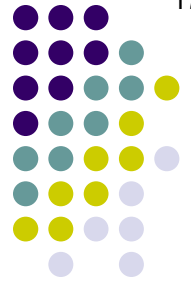
*How do you check for this clinically?*

At the slit lamp, use a cotton-tip to see if you can mobilize the superior conj and 'pull' it over the cornea (this cannot be done with normal conj)



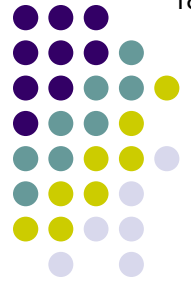
## Superior Limbic Keratoconjunctivitis

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<i>Bulbar conj finding #1</i>	Injection of superior portion
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<i>Bulbar conj finding #3</i>	

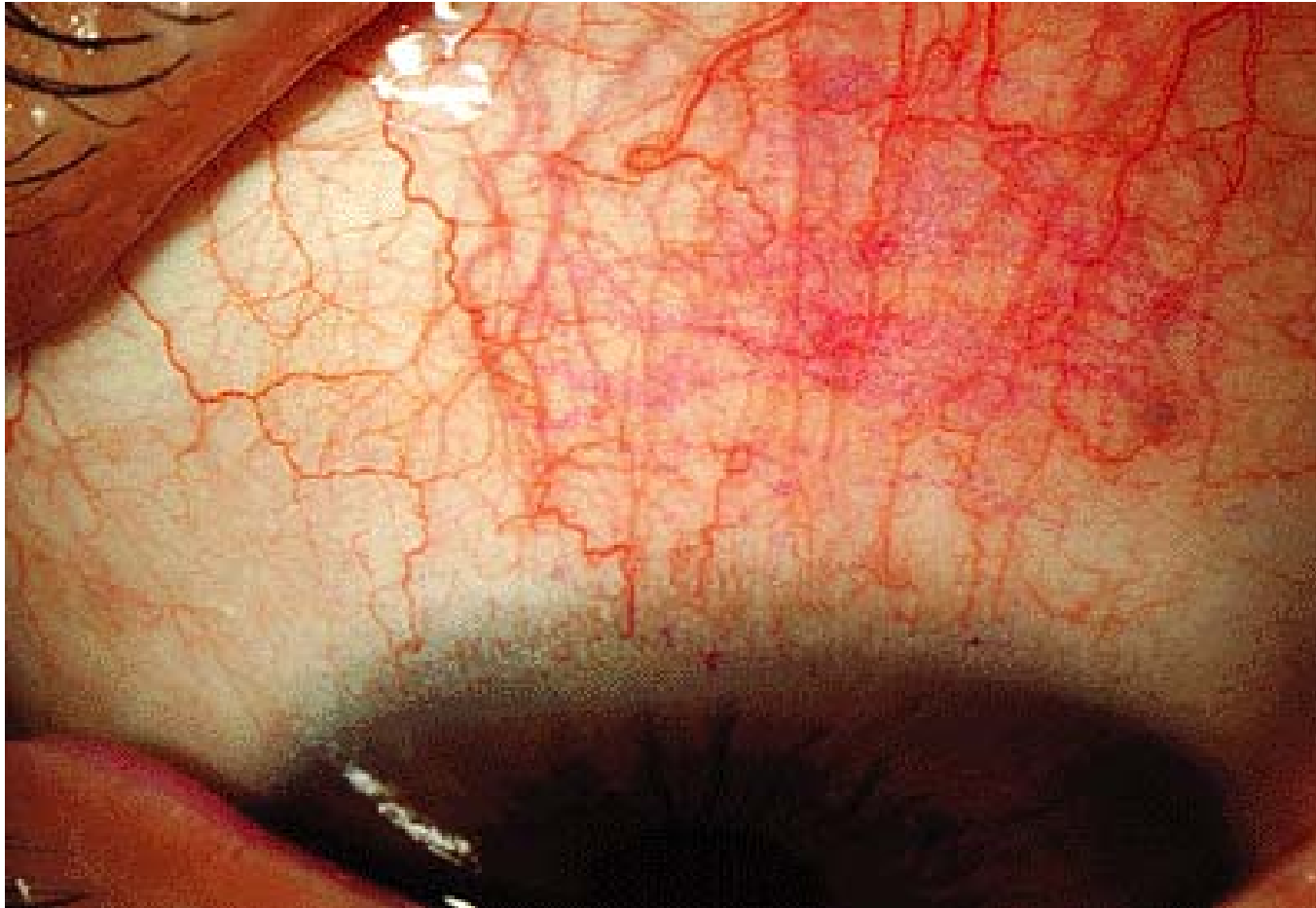


## Superior Limbic Keratoconjunctivitis

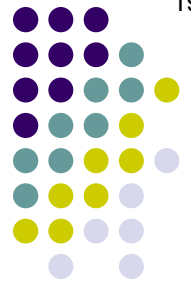
	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining

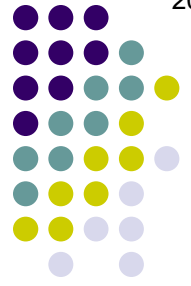


## Superior Limbic Keratoconjunctivitis



SLK: Superior rose bengal staining

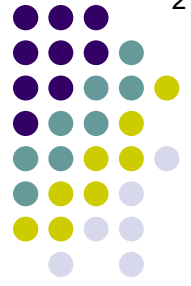




## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	<b>Rose bengal staining</b>

*What does rose bengal stain?*

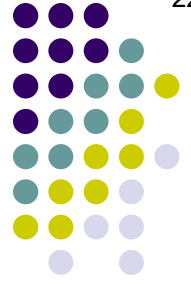


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*What does rose bengal stain?*

The *Cornea BCSC* book says it stains corneal and conj epi cells for which the “protective mucin coating” has been disrupted. In contrast, the *Fundamentals* book says it stains epi cells that are “abnormal” and “devitalized.”



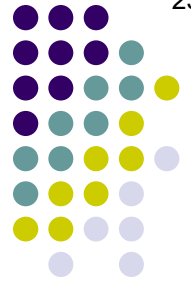
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*Another stain does pretty much the same thing. What is it?*



## Superior Limbic Keratoconjunctivitis

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<i>Bulbar conj finding #1</i>	Injection of superior portion
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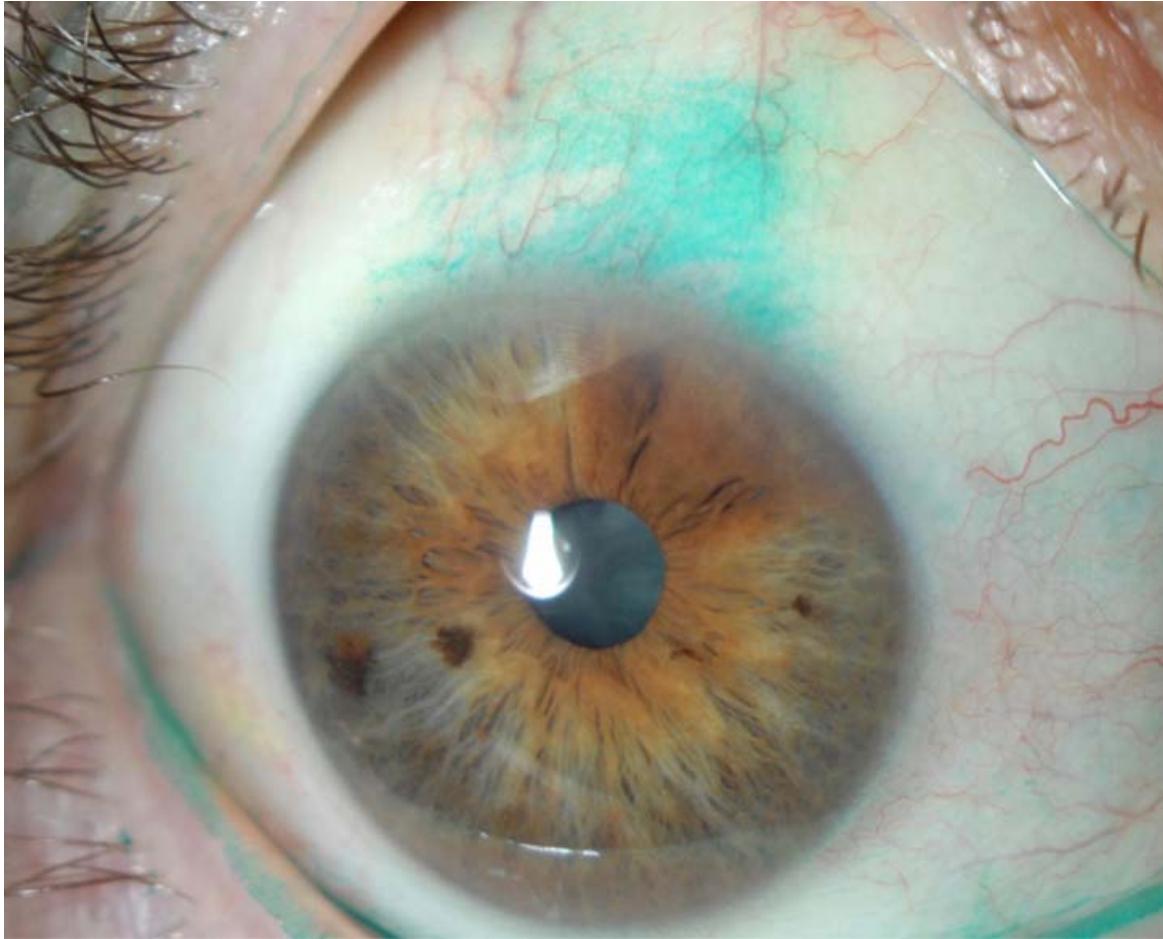
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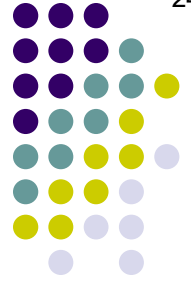
*Another stain does pretty much the same thing. What is it?*

**Lissamine green**

## Superior Limbic Keratoconjunctivitis



SLK: Superior lissamine green staining





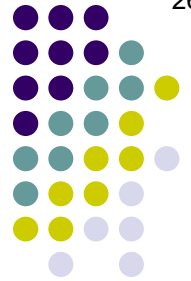
## Superior Limbic Keratoconjunctivitis

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<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining
<i>Tarsal conj finding</i>	

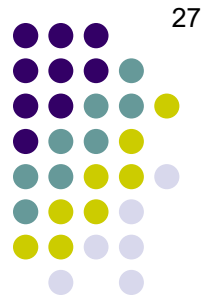


## Superior Limbic Keratoconjunctivitis

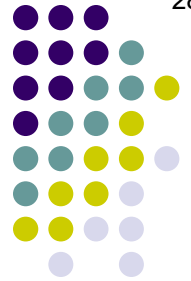
	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining
<i>Tarsal conj finding</i>	Papillary reaction



## Superior Limbic Keratoconjunctivitis



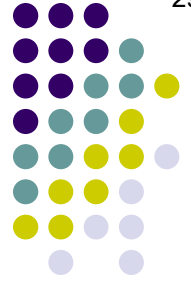
SLK: Superior tarsal conj papillary rxn



## Superior Limbic Keratoconjunctivitis

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<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining
<i>Tarsal conj finding</i>	<b>Papillary reaction</b>

*In this context, what is a papilla?*

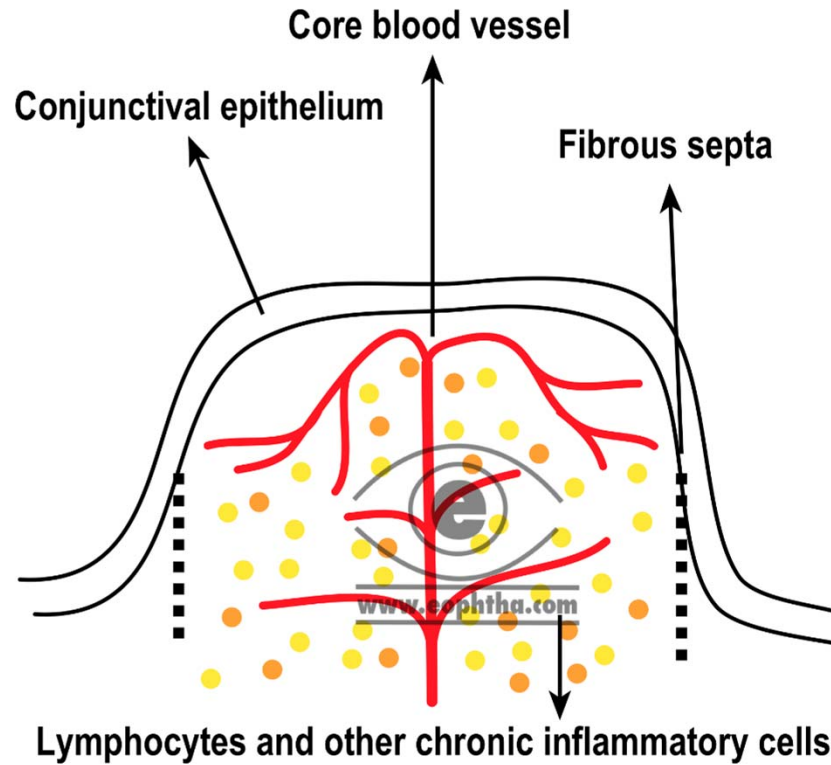
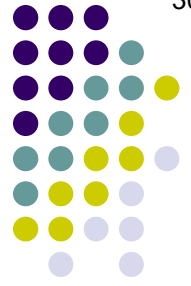


## Superior Limbic Keratoconjunctivitis

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<i>Tarsal conj finding</i>	<b>Papillary reaction</b>

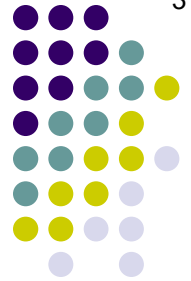
*In this context, what is a papilla?*  
A dilated conj blood vessel with a cuff of edema and inflammatory cells

# Superior Limbic Keratoconjunctivitis



Conjunctival Papilla

Conjunctival papilla



## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining
<i>Tarsal conj finding</i>	<b>Papillary reaction</b>

*In this context, what is a papilla?*

A dilated conj blood vessel with a cuff of edema and inflammatory cells

*What class of condition should come to mind first when papillae are present? (It's not SLK)*



## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
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<i>Bulbar conj finding #3</i>	Rose bengal staining
<i>Tarsal conj finding</i>	<b>Papillary reaction</b>

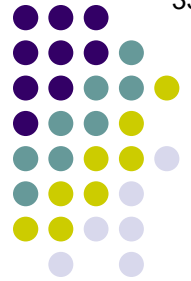
*In this context, what is a papilla?*

A dilated conj blood vessel with a cuff of edema and inflammatory cells

*What class of condition should come to mind first when papillae are present? (It's not SLK)*

Allergic disease (bacterial infection is second)





## Superior Limbic Keratoconjunctivitis

	SLK
Bulbar conj finding #1	Injection of superior portion
Bulbar conj finding #2	Superior redundancy
Bulbar conj finding #3	Rose bengal staining
Tarsal conj finding	<b>Papillary reaction</b>

*In this context, what is a papilla?*

A dilated conj blood vessel with a cuff of edema and inflammatory cells

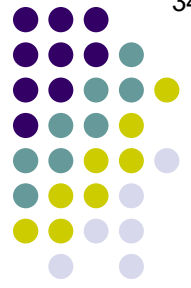
*What class of conditions can be associated with papillae?*

**Allergic disease** (ba

*What are some allergic conditions classic for papillae?*

--  
--  
--

(there are others)



# Superior Limbic Keratoconjunctivitis

	SLK
Bulbar conj finding #1	Injection of superior portion
Bulbar conj finding #2	Superior redundancy
Bulbar conj finding #3	Rose bengal staining
Tarsal conj finding	<b>Papillary reaction</b>

*In this context, what is a papilla?*  
 A dilated conj blood vessel with a cuff of edema and inflammatory cells

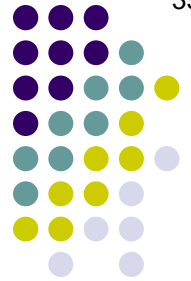
*What class of condition is this? (It's not SLK)*

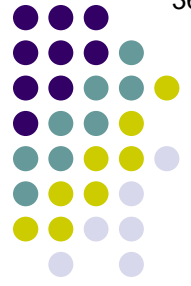
**Allergic disease**

*What are some allergic conditions classic for papillae?*  
 --Seasonal allergic conjunctivitis (SAC)  
 --Vernal keratoconjunctivitis (VKC)  
 --Atopic keratoconjunctivitis (AKC)  
 (there are others)

## Superior Limbic Keratoconjunctivitis

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<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining
<i>Tarsal conj finding</i>	Papillary reaction
<i>Cornea finding #1</i>	

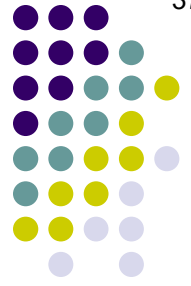




## Superior Limbic Keratoconjunctivitis

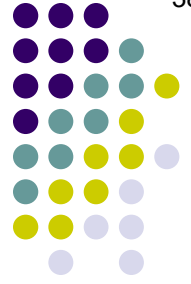
	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining
<i>Tarsal conj finding</i>	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K

*(Punctate epithelial erosions/keratitis)*



## Superior Limbic Keratoconjunctivitis

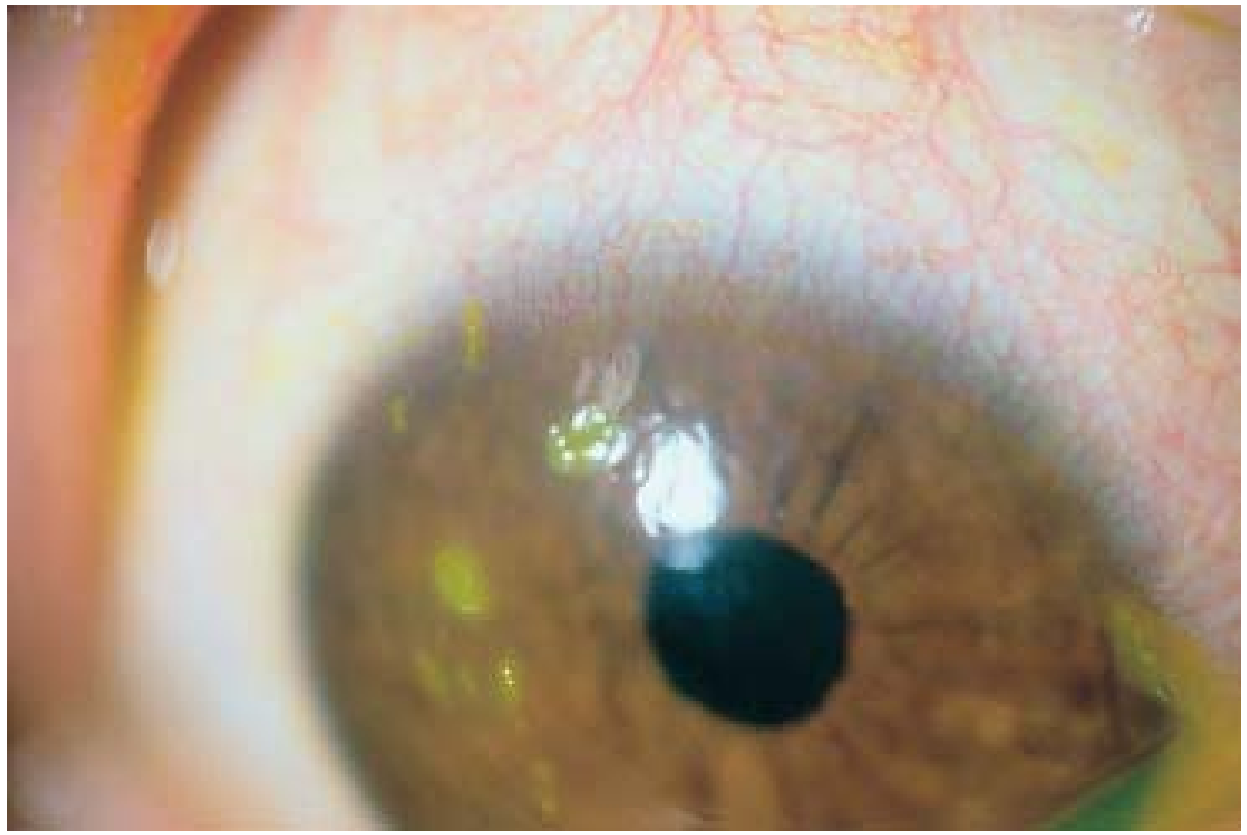
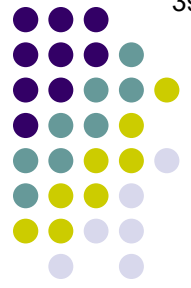
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<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	



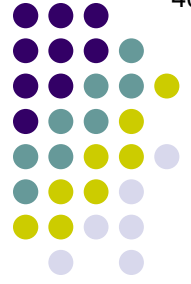
## Superior Limbic Keratoconjunctivitis

	<b>SLK</b>
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining
<i>Tarsal conj finding</i>	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	Filaments superiorly

## Superior Limbic Keratoconjunctivitis



SLK: Superior corneal filaments

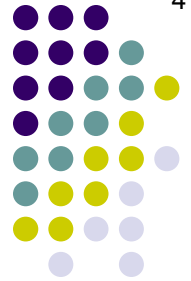


## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining
<i>Tarsal conj finding</i>	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	<b>Filaments</b> superiorly

*In this context, what are filaments?*



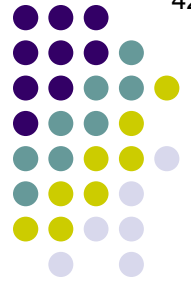


## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining
<i>Tarsal conj finding</i>	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	<b>Filaments</b> superiorly

*In this context, what are filaments?*

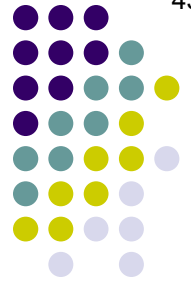
Strands of devitalized epithelial cells and mucus attached to the corneal surface



## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
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<i>Bulbar conj finding #3</i>	Rose bengal staining
<i>Tarsal conj finding</i>	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	Filaments superiorly

So, SLK pts have irritated redundant superior **bulbar** conj, irritated superior **tarsal** conj, and superior corneal abnormalities. What's the mechanism for all this?



## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
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<i>Cornea finding #2</i>	Filaments superiorly

So, SLK pts have irritated redundant superior **bulbar** conj, irritated superior **tarsal** conj, and superior corneal abnormalities. What's the mechanism for all this?

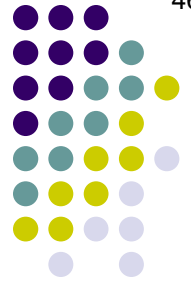
The mechanical theory is the most widely accepted. According to this theory, the superior lid is too tightly apposed to the globe, and the resulting excessive contact and rubbing produces the signs/symptoms of SLK.





## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining
<i>Tarsal conj finding</i>	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	Filaments superiorly
<i>Gender</i>	F>>M



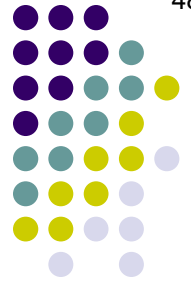
## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining
<i>Tarsal conj finding</i>	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	Filaments superiorly
<i>Gender</i>	F>>M
<i>Age</i>	



## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining
<i>Tarsal conj finding</i>	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	Filaments superiorly
<i>Gender</i>	F>>M
<i>Age</i>	20s – 70s



## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining
<i>Tarsal conj finding</i>	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	Filaments superiorly
<i>Gender</i>	F>>M
<i>Age</i>	20s – 70s
<i>Laterality</i>	(as in uni- vs bilateral)





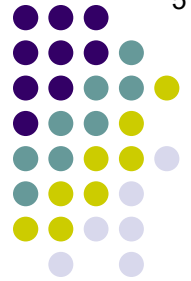
## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
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<i>Tarsal conj finding</i>	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	Filaments superiorly
<i>Gender</i>	F>>M
<i>Age</i>	20s – 70s
<i>Laterality</i>	Bilateral >> unilateral



## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
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<i>Tarsal conj finding</i>	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	Filaments superiorly
<i>Gender</i>	F>>M
<i>Age</i>	20s – 70s
<i>Laterality</i>	Bilateral >> unilateral
<i>Association #1</i>	(Glandular condition)



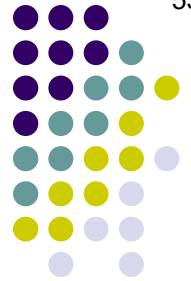
## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining
<i>Tarsal conj finding</i>	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	Filaments superiorly
<i>Gender</i>	F>>M
<i>Age</i>	20s – 70s
<i>Laterality</i>	Bilateral >> unilateral
<i>Association #1</i>	Thyroid dysfunction



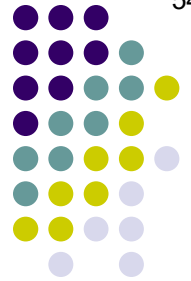
## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining
<i>Tarsal conj finding</i>	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	Filaments superiorly
<b>What percent of SLK pts have thyroid dysfunction?</b>	
<b>Association #1</b>	<b>Thyroid dysfunction</b>



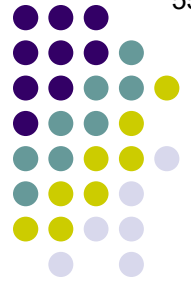
## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
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<i>Tarsal conj finding</i>	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	Filaments superiorly
<p><i>What percent of SLK pts have thyroid dysfunction? At least 30%</i></p>	
<b>Association #1</b>	<b>Thyroid dysfunction</b>



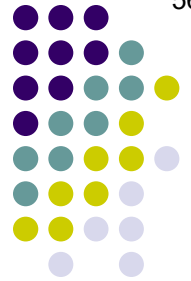
## Superior Limbic Keratoconjunctivitis

	SLK
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<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining
<i>Tarsal conj finding</i>	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	Filaments superiorly
<p><i>What percent of SLK pts have thyroid dysfunction? At least 30%</i></p> <p><i>Are they more likely to be hyper- or hypothyroid?</i></p>	
<b>Association #1</b>	<b>Thyroid dysfunction</b>



## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining
<i>Tarsal conj finding</i>	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	Filaments superiorly
<p><i>What percent of SLK pts have thyroid dysfunction? At least 30%</i></p> <p><i>Are they more likely to be hyper- or hypothyroid? Hyperthyroid</i></p>	
<b>Association #1</b>	<b>Thyroid dysfunction</b>



## Superior Limbic Keratoconjunctivitis

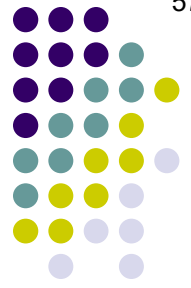
	<b>SLK</b>
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining
<i>Tarsal conj finding</i>	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	Filaments superiorly

*What percent of SLK pts have thyroid dysfunction?*  
**At least 30%**

*Is this association strong enough to warrant working up SLK pts for thyroid dz?*

<b>Association #1</b>	<b>Thyroid dysfunction</b>





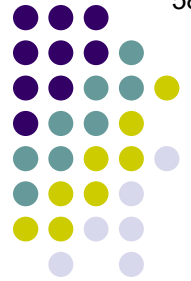
## Superior Limbic Keratoconjunctivitis

	<b>SLK</b>
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining
<i>Tarsal conj finding</i>	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	Filaments superiorly

*What percent of SLK pts have thyroid dysfunction?*  
**At least 30%**

*Is this association strong enough to warrant working up SLK pts for thyroid dz?*  
 Yes—all SLK pts should have test , test , and test (two words) checked

<b>Association #1</b>	<span style="border: 2px solid black; border-radius: 50%; padding: 5px; display: inline-block;"><b>Thyroid dysfunction</b></span>



## Superior Limbic Keratoconjunctivitis

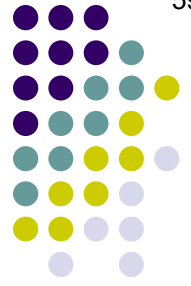
	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining
<i>Tarsal conj finding</i>	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	Filaments superiorly

*What percent of SLK pts have thyroid dysfunction?*

**At least 30%**

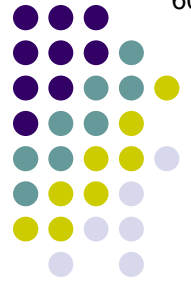
*Is this association strong enough to warrant working up SLK pts for thyroid dz?*  
 Yes—all SLK pts should have TSH , FT<sub>4</sub> , and thyroid antibodies checked

<b>Association #1</b>	<b>Thyroid dysfunction</b>



## Superior Limbic Keratoconjunctivitis

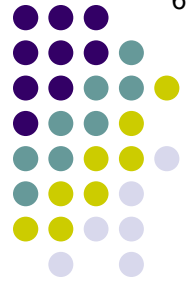
	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
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<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	Filaments superiorly
<i>Gender</i>	F>>M
<i>Age</i>	20s – 70s
<i>Laterality</i>	Bilateral >> unilateral
<i>Association #1</i>	Thyroid dysfunction
<i>Association #2</i>	(Another glandular condition)



## Superior Limbic Keratoconjunctivitis

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<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining
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<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	Filaments superiorly
<i>Gender</i>	F>>M
<i>Age</i>	20s – 70s
<i>Laterality</i>	Bilateral >> unilateral
<i>Association #1</i>	Thyroid dysfunction
<i>Association #2</i>	KCS

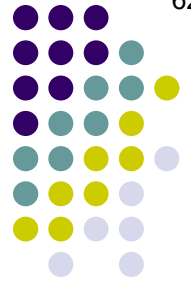
(keratoconjunctivitis sicca)



## Superior Limbic Keratoconjunctivitis

	<b>SLK</b>
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
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<i>Cornea finding #2</i>	Filaments superiorly
<i>Gender</i>	F>>M
<i>Age</i>	20s – 70s
<i>Laterality</i>	Bilateral >> unilateral
<i>Association #1</i>	Thyroid dysfunction
<i>Association #2</i>	<b>KCS</b>

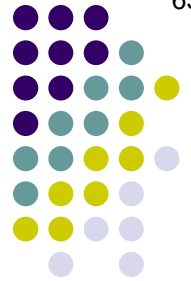
*What percent of SLK pts have KCS?*



## Superior Limbic Keratoconjunctivitis

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<i>Bulbar conj finding #2</i>	Superior redundancy
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<i>Tarsal conj finding</i>	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	Filaments superiorly
<i>Gender</i>	F>>M
<i>Age</i>	20s – 70s
<i>Laterality</i>	Bilateral >> unilateral
<i>Association #1</i>	Thyroid dysfunction
<i>Association #2</i>	<b>KCS</b>

*What percent of SLK pts have KCS?  
About 25%*

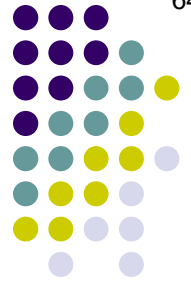


## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining
<i>Tarsal conj finding</i>	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	Filaments superiorly

*Notice how thyroid dysfunction and KCS fit with the mechanical theory of SLK:*

<i>Laterality</i>	Bilateral >> unilateral
<b>Association #1</b>	<b>Thyroid dysfunction</b>
<b>Association #2</b>	<b>KCS</b>



## Superior Limbic Keratoconjunctivitis

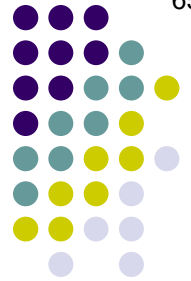
	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
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<i>Bulbar conj finding #3</i>	Rose bengal staining
<i>Tarsal conj finding</i>	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	Filaments superiorly

Notice how thyroid dysfunction and KCS fit with the mechanical theory of SLK:

--Thyroid dysfunction → one word → two words → increased contact

<i>Laterality</i>	Bilateral >> unilateral
<b>Association #1</b>	<b>Thyroid dysfunction</b>
<i>Association #2</i>	KCS



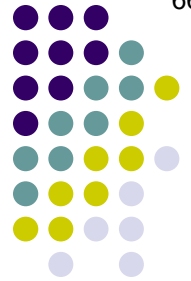


## Superior Limbic Keratoconjunctivitis

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<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	Filaments superiorly

Notice how thyroid dysfunction and KCS fit with the mechanical theory of SLK:  
**--Thyroid dysfunction → exophthalmos → tight apposition → increased contact**

<i>Laterality</i>	Bilateral >> unilateral
<b>Association #1</b>	<b>Thyroid dysfunction</b>
<i>Association #2</i>	KCS



## Superior Limbic Keratoconjunctivitis

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<i>Bulbar conj finding #1</i>	Injection of superior portion
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<i>Tarsal conj finding</i>	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	Filaments superiorly

Notice how thyroid dysfunction and KCS fit with the mechanical theory of SLK:

--Thyroid dysfunction → exophthalmos → tight apposition → increased contact

--KCS → two words → two words → increased contact

<i>Laterality</i>	Bilateral >> unilateral
<b>Association #1</b>	<b>Thyroid dysfunction</b>
<b>Association #2</b>	<b>KCS</b>



## Superior Limbic Keratoconjunctivitis

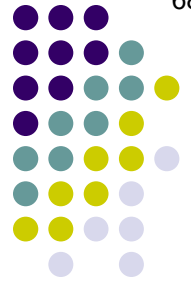
	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
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<i>Cornea finding #2</i>	Filaments superiorly

Notice how thyroid dysfunction and KCS fit with the mechanical theory of SLK:

--**Thyroid dysfunction** → exophthalmos → tight apposition → **increased contact**

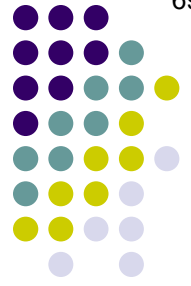
--**KCS** → dry eyes → increased friction → **increased contact**

<i>Laterality</i>	Bilateral >> unilateral
<b>Association #1</b>	<b>Thyroid dysfunction</b>
<b>Association #2</b>	<b>KCS</b>



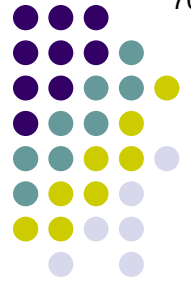
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	SLK
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<i>Bulbar conj finding #3</i>	Rose bengal staining
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<i>Cornea finding #2</i>	Filaments superiorly
<i>Gender</i>	F>>M
<i>Age</i>	20s – 70s
<i>Laterality</i>	Bilateral >> unilateral
<i>Association #1</i>	Thyroid dysfunction
<i>Association #2</i>	KCS
<i>VA loss</i>	(How severe?)



## Superior Limbic Keratoconjunctivitis

	<b>SLK</b>
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining
<i>Tarsal conj finding</i>	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K
<i>Cornea finding #2</i>	Filaments superiorly
<i>Gender</i>	F>>M
<i>Age</i>	20s – 70s
<i>Laterality</i>	Bilateral >> unilateral
<i>Association #1</i>	Thyroid dysfunction
<i>Association #2</i>	KCS
<i>VA loss</i>	Mild

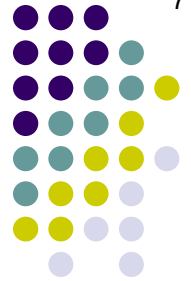


## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining

*How is SLK managed?*

<i>Laterality</i>	Bilateral >> unilateral
<i>Association #1</i>	Thyroid dysfunction
<i>Association #2</i>	KCS
<i>VA loss</i>	Mild



## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining

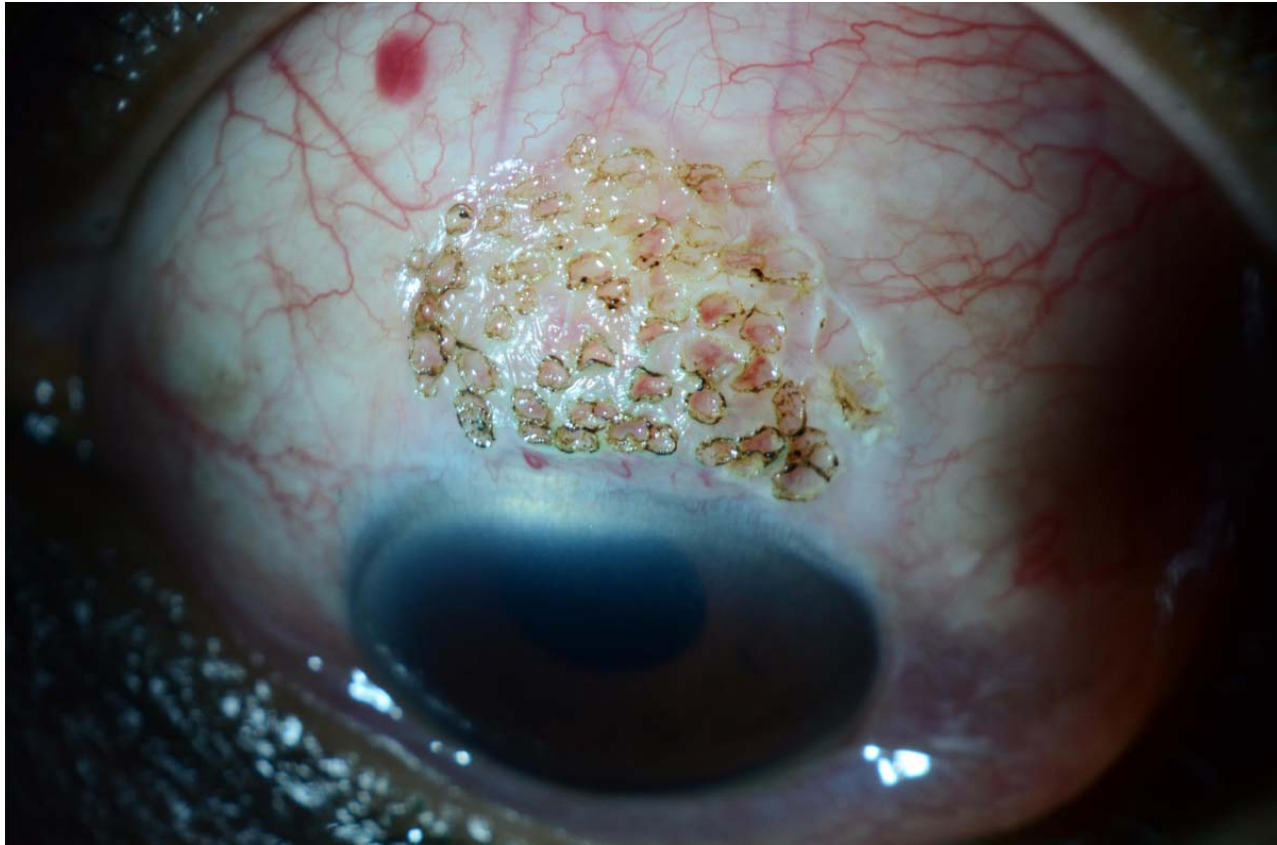
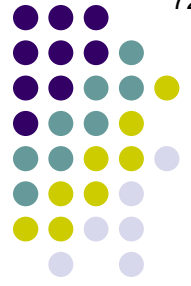
### *How is SLK managed?*

There are a number of treatment options (which is a sign that no one option is particularly effective). These include:

- Topical anti-inflammatory meds
- BCL (must be large enough to cover the involved conj)
- Resection or cauterization of the redundant superior conj

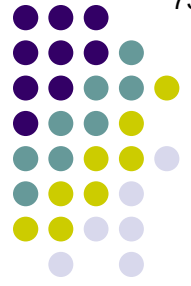
<i>Laterality</i>	Bilateral >> unilateral
<i>Association #1</i>	Thyroid dysfunction
<i>Association #2</i>	KCS
<i>VA loss</i>	Mild

## Superior Limbic Keratoconjunctivitis



SLK: s/p cauterization





## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining

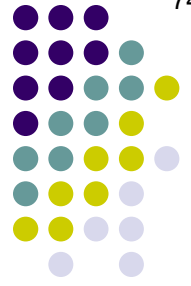
### *How is SLK managed?*

There are a number of treatment options (which is a sign that no one option is particularly effective). These include:

- Topical anti-inflammatory meds
- BCL (must be large enough to cover the involved conj)
- Resection or cauterization of the redundant superior conj

### *What is the long-term prognosis for SLK?*

<i>Laterality</i>	Bilateral >> unilateral
<i>Association #1</i>	Thyroid dysfunction
<i>Association #2</i>	KCS
<i>VA loss</i>	Mild



## Superior Limbic Keratoconjunctivitis

	SLK
<i>Bulbar conj finding #1</i>	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining

### *How is SLK managed?*

There are a number of treatment options (which is a sign that no one option is particularly effective). These include:

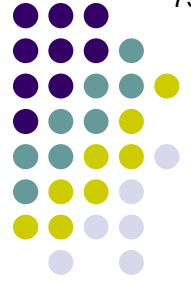
- Topical anti-inflammatory meds
- BCL (must be large enough to cover the involved conj)
- Resection or cauterization of the redundant superior conj

### *What is the long-term prognosis for SLK?*

It tends to be self-limiting, burning out after a number of years (usually 10 or fewer)

<i>Laterality</i>	Bilateral >> unilateral
<i>Association #1</i>	Thyroid dysfunction
<i>Association #2</i>	KCS
<i>VA loss</i>	Mild

## Superior Limbic Keratoconjunctivitis



There is a condition called ***contact lens keratoconjunctivitis*** that has a similar clinical appearance to SLK. However, they are not the same entity, and can and should be differentiated.

*Let's see how they stack up...*

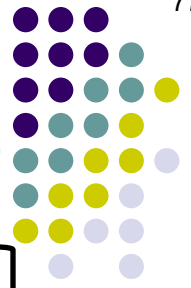
## Superior Limbic Keratoconjunctivitis

	SLK	CL K'conjunctivitis
<i>Bulbar conj finding #1</i>	Injection of superior portion	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining	Rose bengal staining
<i>Tarsal conj finding</i>	Papillary reaction	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K	Superior PEE/K
<i>Cornea finding #2</i>	Filaments superiorly	?
<i>Gender</i>	F>>M	?
<i>Age</i>	20s – 70s	?
<i>Laterality</i>	Bilateral >> unilateral	?
<i>Association #1</i>	Thyroid dysfunction	?
<i>Association #2</i>	KCS	?
<i>VA loss</i>	Mild	?



Same

Same?



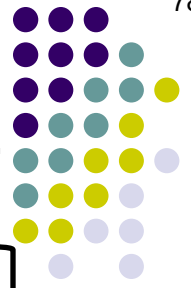
## Superior Limbic Keratoconjunctivitis

	SLK	CL K'conjunctivitis
<i>Bulbar conj finding #1</i>	Injection of superior portion	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining	Rose bengal staining
<i>Tarsal conj finding</i>	Papillary reaction	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K	Superior PEE/K
<b>Cornea finding #2</b>	<b>Filaments superiorly</b>	<b>?</b>
<i>Gender</i>	F>>M	
<i>Age</i>	20s – 70s	
<i>Laterality</i>	Bilateral >> unilateral	
<i>Association #1</i>	Thyroid dysfunction	
<i>Association #2</i>	KCS	
<i>VA loss</i>	Mild	

Same

Same?

## Superior Limbic Keratoconjunctivitis

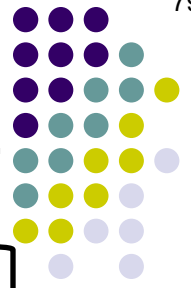


	SLK	CL K'conjunctivitis
<i>Bulbar conj finding #1</i>	Injection of superior portion	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining	Rose bengal staining
<i>Tarsal conj finding</i>	Papillary reaction	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K	Superior PEE/K
<b>Cornea finding #2</b>	<b>Filaments superiorly</b>	<b>No filaments</b>
<b>Gender</b>	<b>F&gt;&gt;M</b>	<b>?</b>
<i>Age</i>	20s – 70s	
<i>Laterality</i>	Bilateral >> unilateral	
<i>Association #1</i>	Thyroid dysfunction	
<i>Association #2</i>	KCS	
<i>VA loss</i>	Mild	

Same

Same?

## Superior Limbic Keratoconjunctivitis



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<i>Bulbar conj finding #1</i>	Injection of superior portion	Injection of superior portion
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<i>Cornea finding #1</i>	Superior PEE/K	Superior PEE/K
<b>Cornea finding #2</b>	<b>Filaments superiorly</b>	<b>No filaments</b>
<b>Gender</b>	<b>F &gt;&gt; M</b>	<b>F = M</b>
<b>Age</b>	<b>20s – 70s</b>	<b>?</b>
<i>Laterality</i>	Bilateral >> unilateral	
<i>Association #1</i>	Thyroid dysfunction	
<i>Association #2</i>	KCS	
<i>VA loss</i>	Mild	

Same

Same?

# Superior Limbic Keratoconjunctivitis

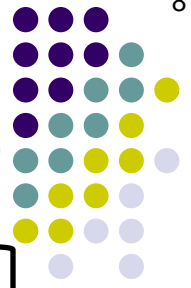


	<b>SLK</b>	<b>CL K'conjunctivitis</b>
<i>Bulbar conj finding #1</i>	Injection of superior portion	Injection of superior portion
<i>Bulbar conj finding #2</i>	Superior redundancy	Superior redundancy
<i>Bulbar conj finding #3</i>	Rose bengal staining	Rose bengal staining
<i>Tarsal conj finding</i>	Papillary reaction	Papillary reaction
<i>Cornea finding #1</i>	Superior PEE/K	Superior PEE/K
<b>Cornea finding #2</b>	<b>Filaments superiorly</b>	<b>No filaments</b>
<b>Gender</b>	<b>F &gt;&gt; M</b>	<b>F = M</b>
<b>Age</b>	<b>20s - 70s</b>	<b>teens - 20s</b>
<b>Laterality</b>	<b>Bilateral &gt;&gt; unilateral</b>	<b>?</b>
<i>Association #1</i>	Thyroid dysfunction	
<i>Association #2</i>	KCS	
<i>VA loss</i>	Mild	

Same

Same?





## Superior Limbic Keratoconjunctivitis

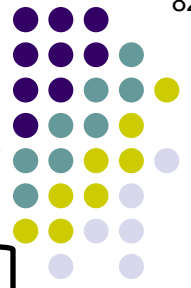
	SLK	CL K'conjunctivitis
<i>Bulbar conj finding #1</i>	Injection of superior portion	Injection of superior portion
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<i>Cornea finding #1</i>	Superior PEE/K	Superior PEE/K
<b>Cornea finding #2</b>	<b>Filaments superiorly</b>	<b>No filaments</b>
<b>Gender</b>	<b>F &gt;&gt; M</b>	<b>F = M</b>
<b>Age</b>	<b>20s - 70s</b>	<b>teens - 20s</b>
<b>Laterality</b>	<b>Bilateral &gt;&gt; unilateral</b>	<b>Unilateral &gt;&gt; bilateral</b>
<b>Association #1</b>	<b>Thyroid dysfunction</b>	<b>?</b>
<i>Association #2</i>	KCS	
<i>VA loss</i>	Mild	

Same

Same?

## Superior Limbic Keratoconjunctivitis

	<b>SLK</b>	<b>CL K'conjunctivitis</b>
<i>Bulbar conj finding #1</i>	Injection of superior portion	Injection of superior portion
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<b>Gender</b>	<b>F &gt;&gt; M</b>	<b>F = M</b>
<b>Age</b>	<b>20s - 70s</b>	<b>teens - 20s</b>
<b>Laterality</b>	<b>Bilateral &gt;&gt; unilateral</b>	<b>Unilateral &gt;&gt; bilateral</b>
<b>Association #1</b>	<b>Thyroid dysfunction</b>	<b>No thyroid association</b>
<b>Association #2</b>	<b>KCS</b>	<b>?</b>
<i>VA loss</i>	Mild	



Same

Same?

## Superior Limbic Keratoconjunctivitis



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<i>Bulbar conj finding #1</i>	Injection of superior portion	Injection of superior portion
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<b>Age</b>	<b>20s – 70s</b>	<b>teens - 20s</b>
<b>Laterality</b>	<b>Bilateral &gt;&gt; unilateral</b>	<b>Unilateral &gt;&gt; bilateral</b>
<b>Association #1</b>	<b>Thyroid dysfunction</b>	<b>No thyroid association</b>
<b>Association #2</b>	<b>KCS</b>	<b>No KCS</b>
<b>VA loss</b>	<b>Mild</b>	<b>?</b>

Same

Same?

## Superior Limbic Keratoconjunctivitis



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<i>Bulbar conj finding #1</i>	Injection of superior portion	Injection of superior portion
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<i>Gender</i>	F >> M	F = M
<i>Age</i>	20s – 70s	teens - 20s
<i>Laterality</i>	Bilateral >> unilateral	Unilateral >> bilateral
<i>Association #1</i>	Thyroid dysfunction	No thyroid association
<i>Association #2</i>	KCS	No KCS
<i>VA loss</i>	Mild	Significant

Same

Same?