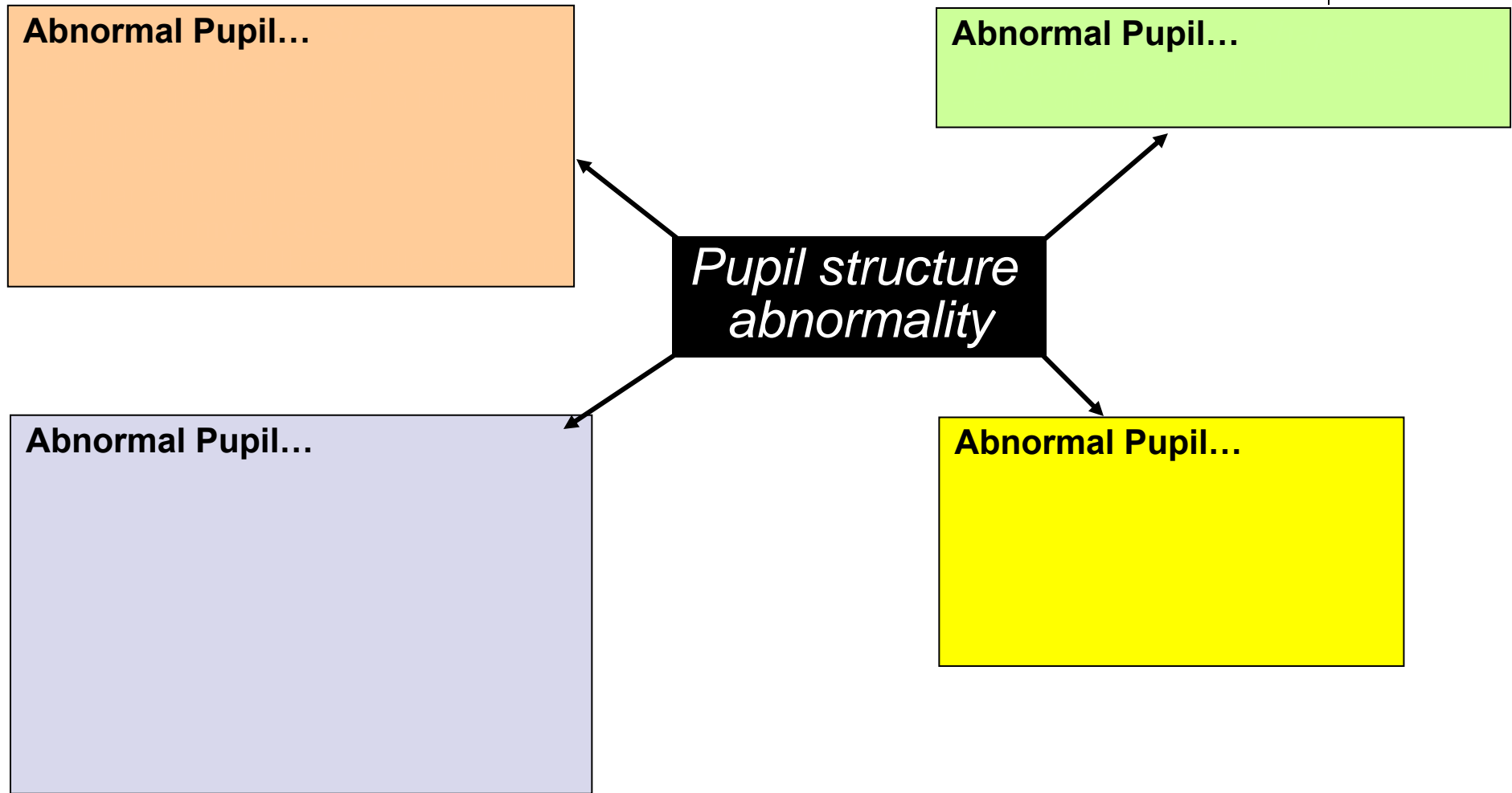
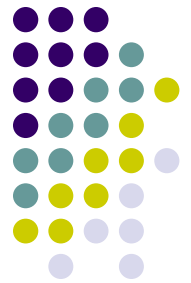
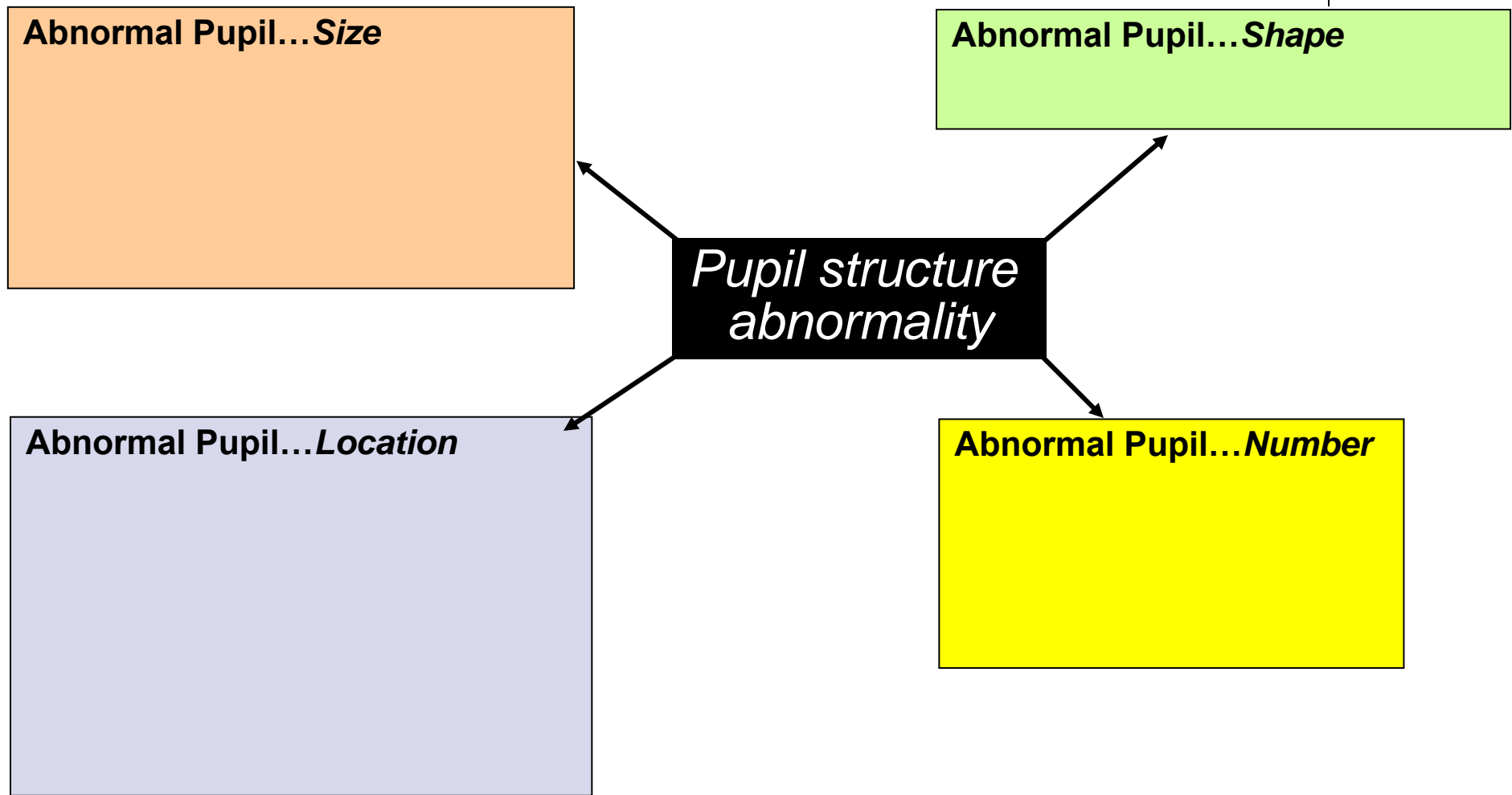
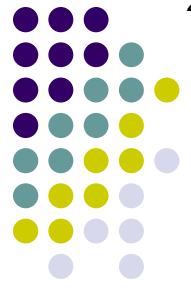


# Abnormalities of Pupil Structure

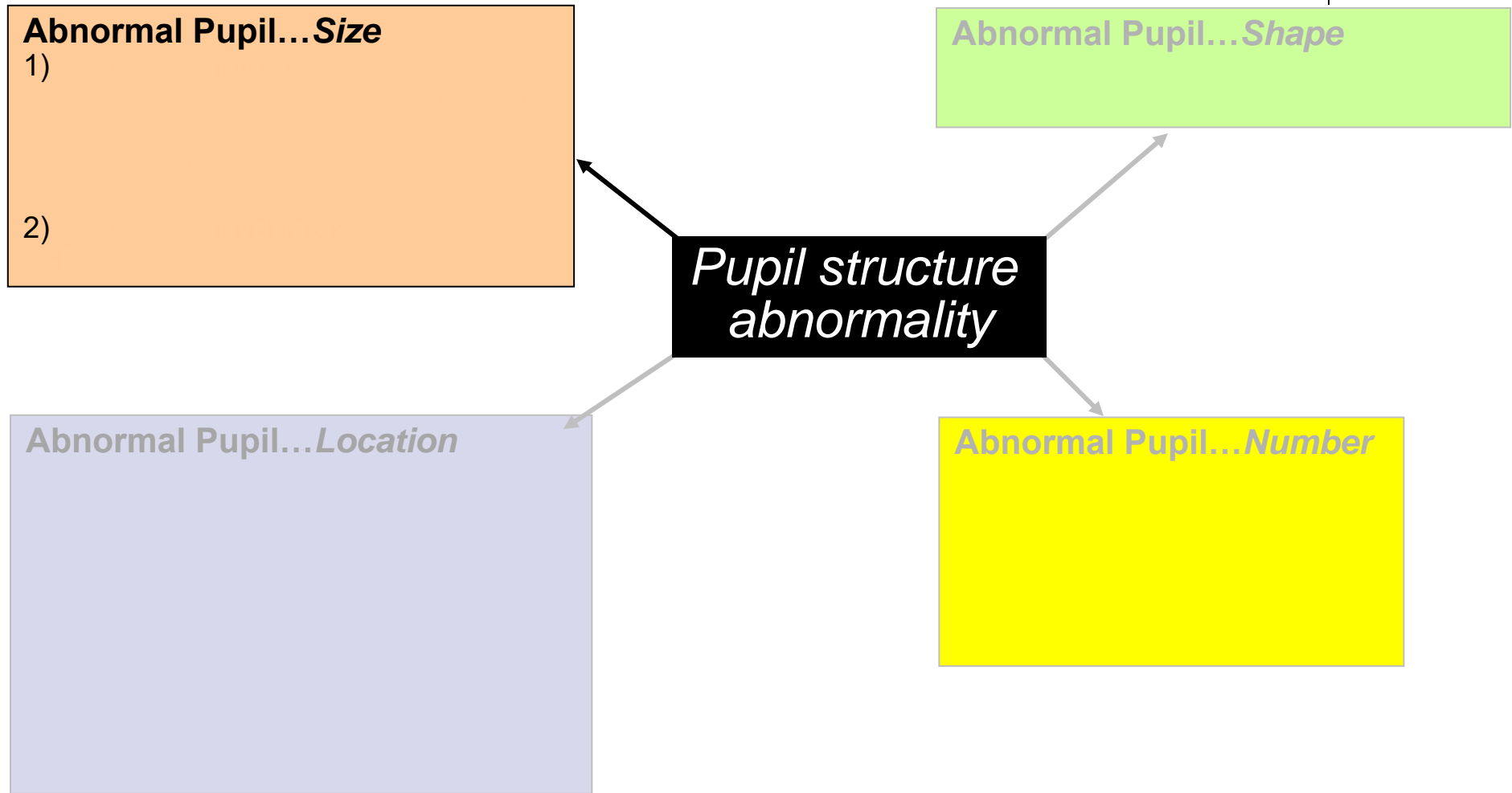
(Other than aniridia)



# Abnormalities of Pupil Structure

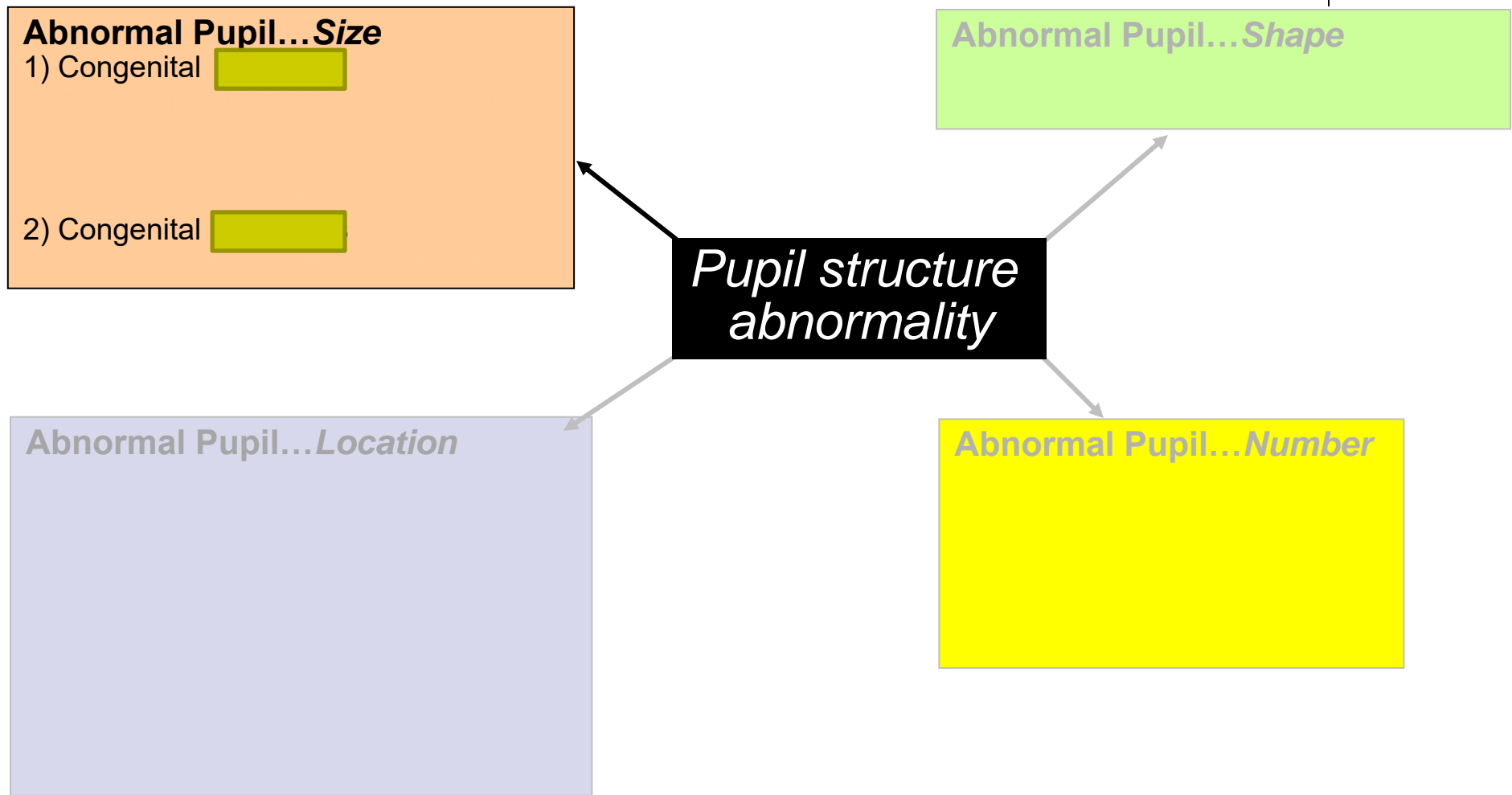


# Abnormalities of Pupil Structure



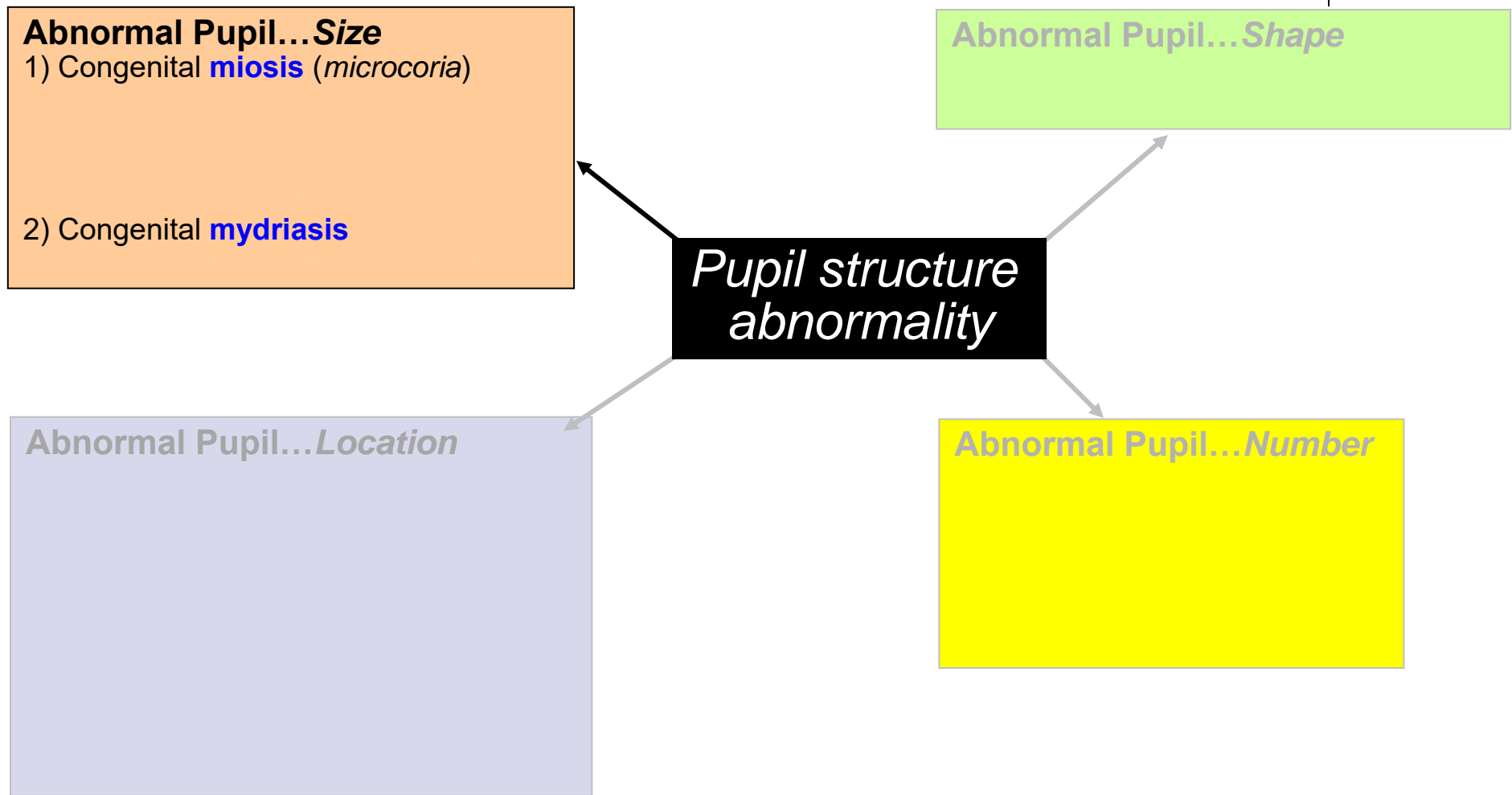


# Abnormalities of Pupil Structure



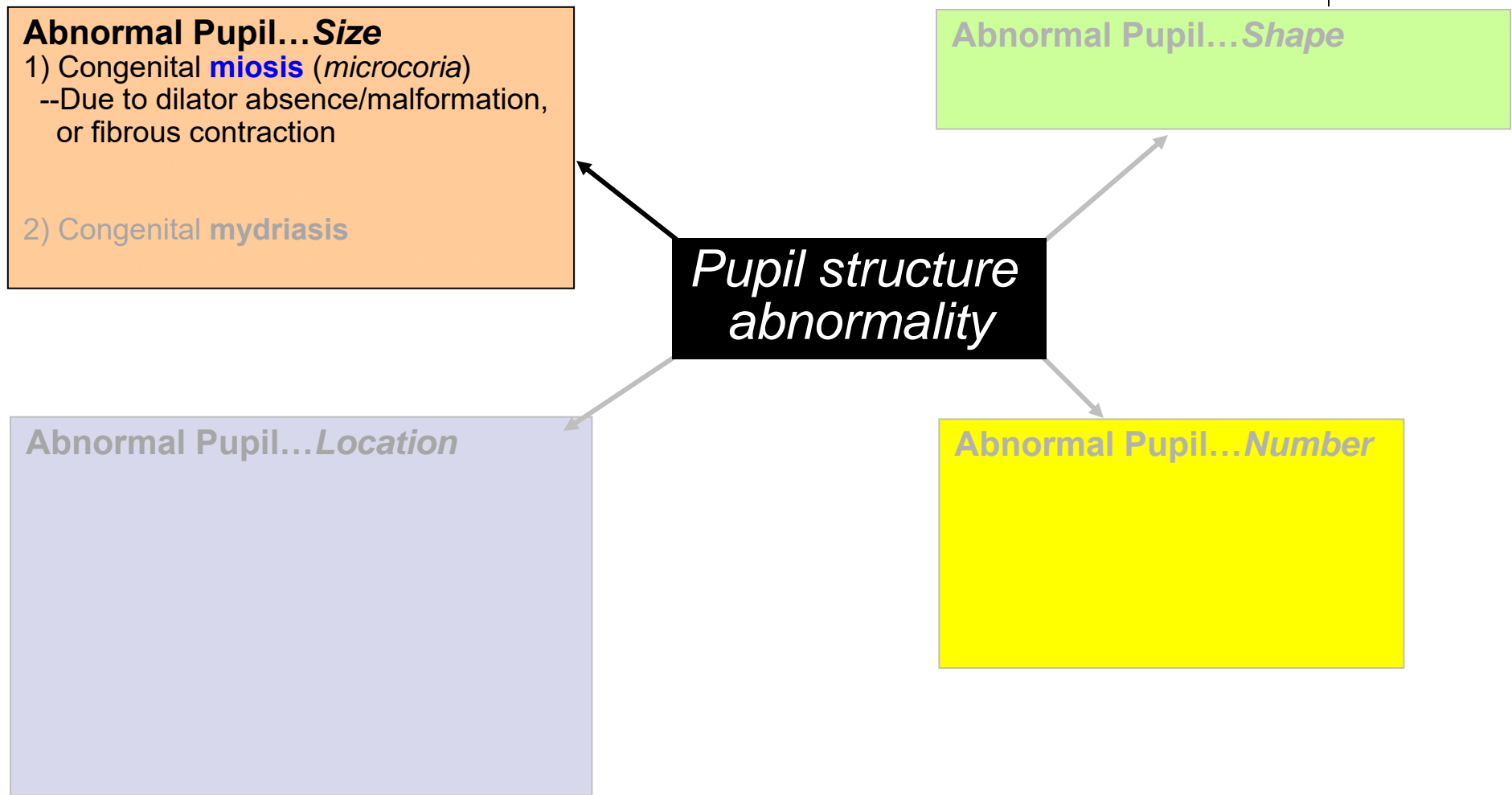


# Abnormalities of Pupil Structure

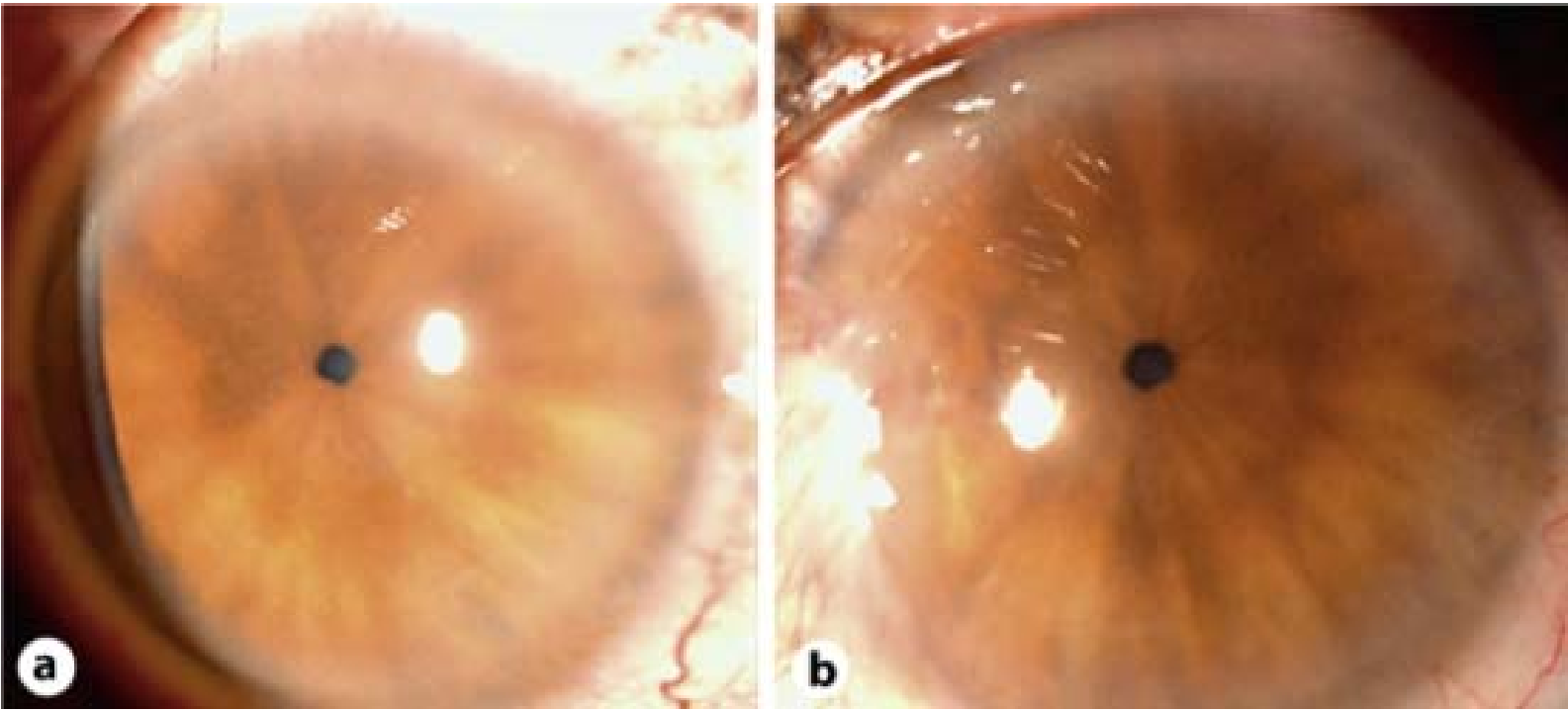




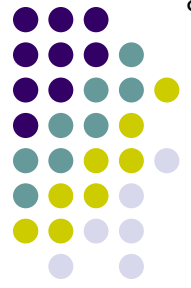
# Abnormalities of Pupil Structure



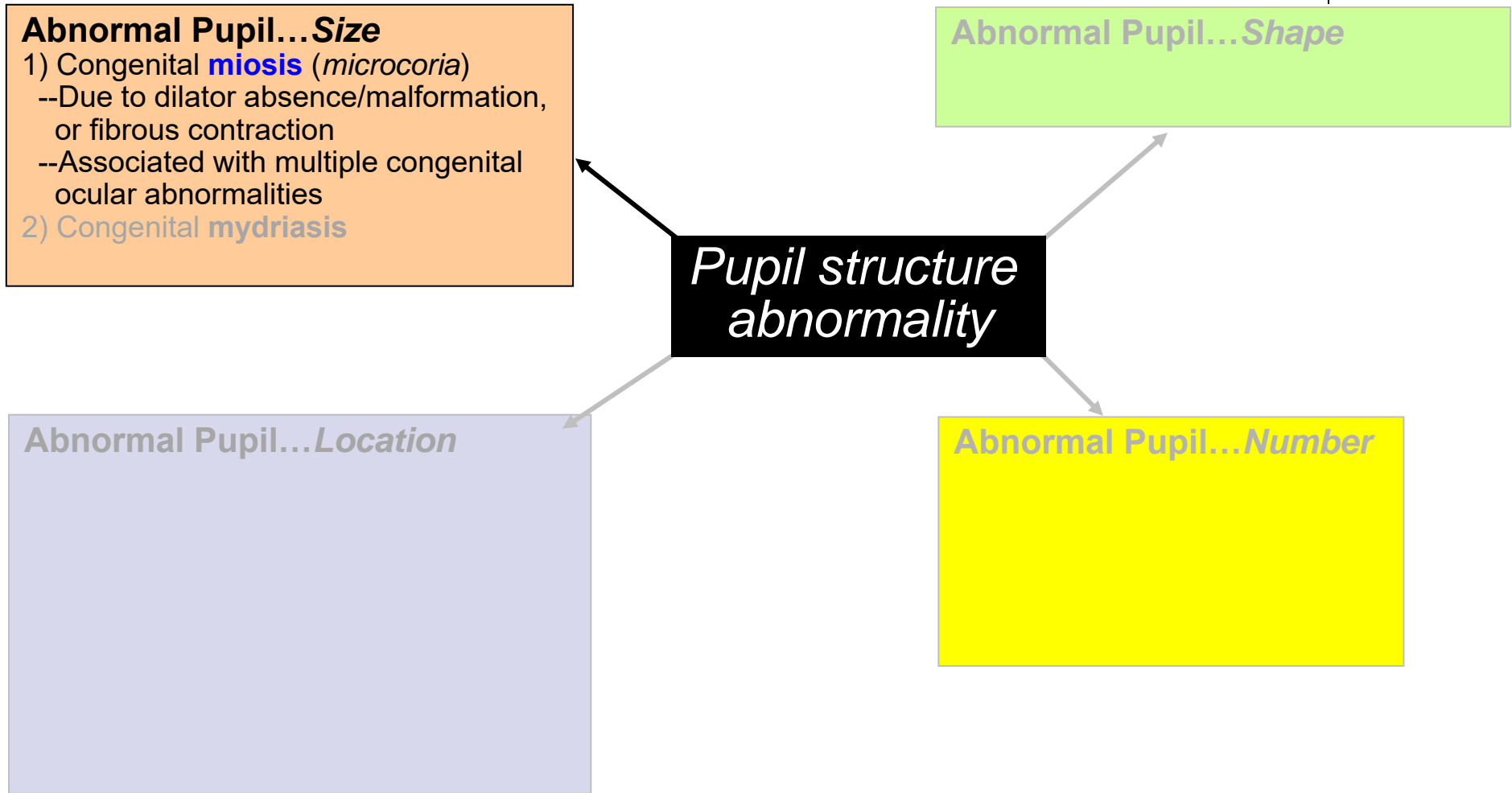
# Abnormalities of Pupil Structure



Congenital microcoria



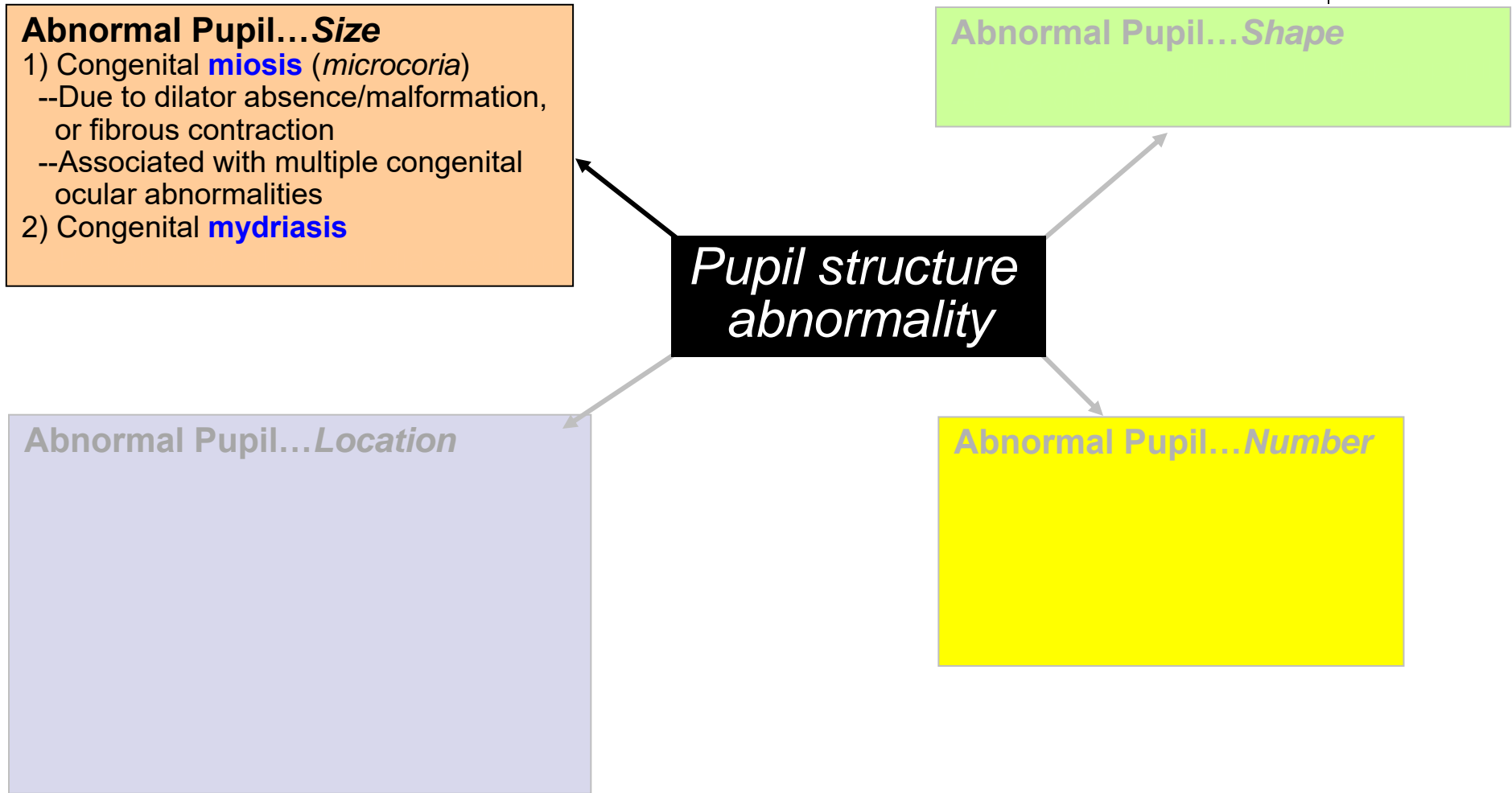
# Abnormalities of Pupil Structure



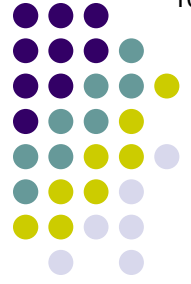




# Abnormalities of Pupil Structure



# Abnormalities of Pupil Structure



## Abnormal Pupil...Size

- 1) Congenital **miosis** (*microcoria*)
  - Due to dilator absence/malformation, or fibrous contraction
  - Associated with multiple congenital ocular abnormalities
- 2) Congenital **mydriasis**
  - Probably part of the aniridia spectrum

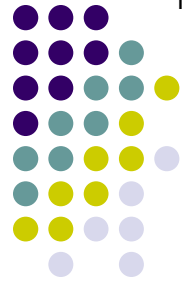
## Abnormal Pupil...Shape

## Pupil structure abnormality

## Abnormal Pupil...Number

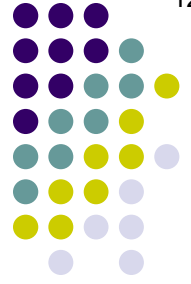
## Abnormal Pupil...Location

# Abnormalities of Pupil Structure



The patient was a 73-year-old white female with bilateral congenital mydriasis and no other abnormalities. The pupils reacted almost imperceptibly to light.

Congenital microcoria



# Abnormalities of Pupil Structure

## Abnormal Pupil...Size

- 1) Congenital **miosis** (*microcoria*)  
--Due to dilator absence/malformation,  
or fibrous contraction  
--Associated with multiple congenital  
ocular abnormalities
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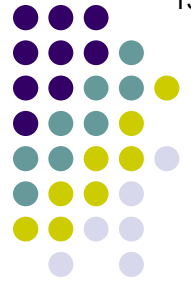
## Abnormal Pupil...Shape

--**Dyscoria** =

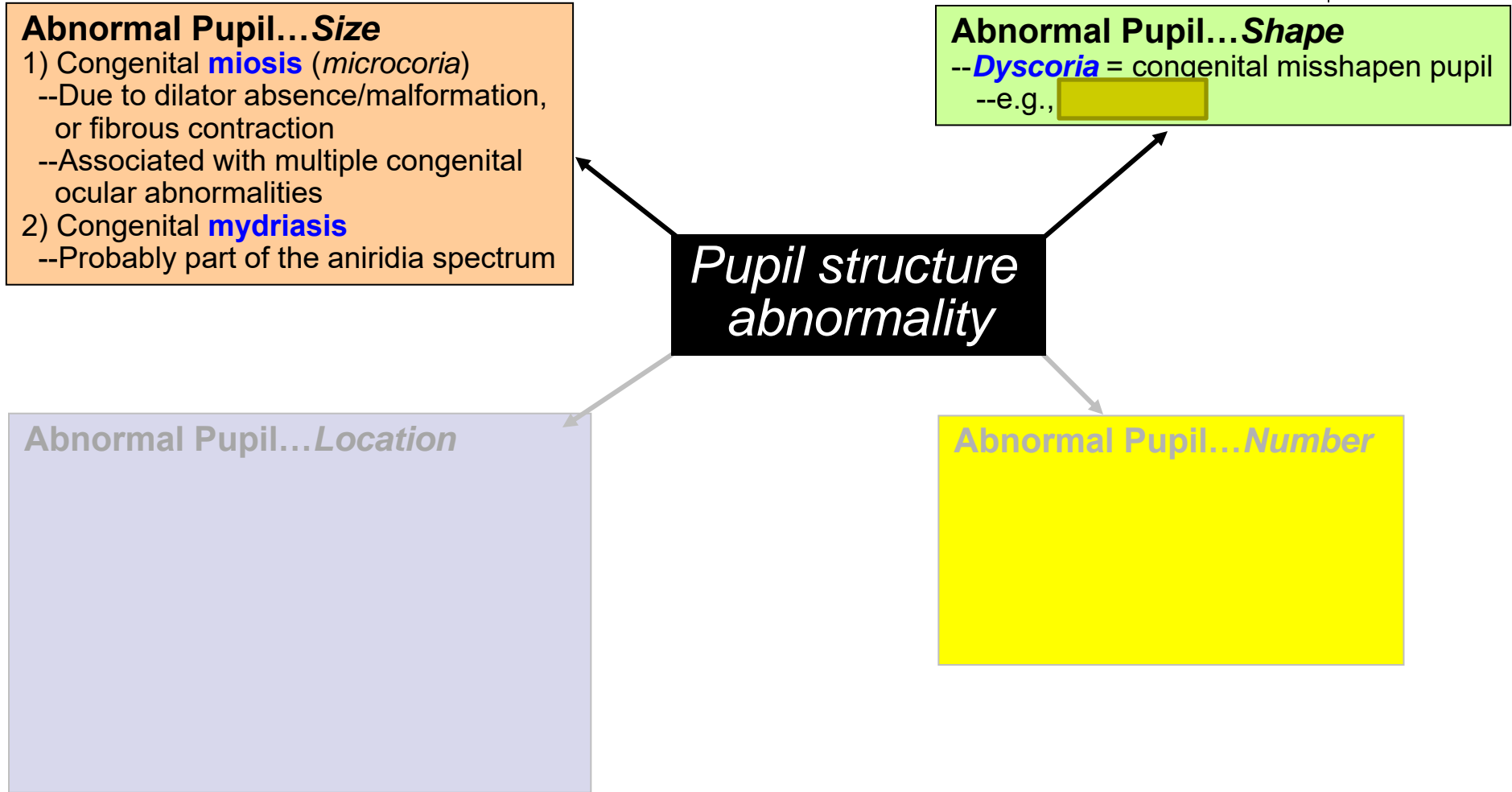
## Pupil structure abnormality

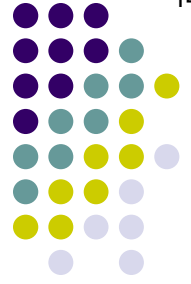
## Abnormal Pupil...Location

## Abnormal Pupil...Number



# Abnormalities of Pupil Structure





# Abnormalities of Pupil Structure

## Abnormal Pupil...Size

- 1) Congenital **miosis** (*microcoria*)
  - Due to dilator absence/malformation, or fibrous contraction
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  - Probably part of the aniridia spectrum

## Abnormal Pupil...Shape

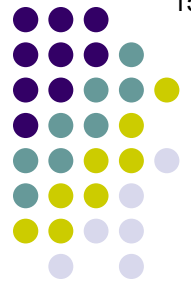
- Dyscoria** = congenital misshapen pupil
- e.g., coloboma

## Pupil structure abnormality

## Abnormal Pupil...Location

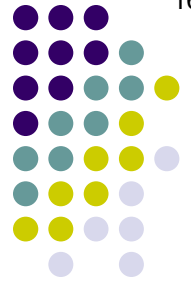
## Abnormal Pupil...Number

# Abnormalities of Pupil Structure



Slit-shaped dyscoric pupil OS (note also the ipsilateral microcornea)

Dyscoria



# Abnormalities of Pupil Structure

**Abnormal Pupil... Size**

- 1) Congenital **miosis** (*microcoria*)
  - Due to dilator absence/malformation, or fibrous contraction
  - Associated with multiple congenital ocular abnormalities
- 2) Congenital **mydriasis**
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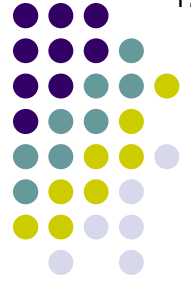
**Abnormal Pupil... Shape**

- Dyscoria** = congenital misshapen pupil
- e.g., **coloboma**

*Pupil structure abnormality*

Abr	Location			
Typical iris coloboma	?			
Atypical iris coloboma	?			





# Abnormalities of Pupil Structure

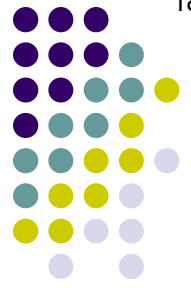
**Abnormal Pupil... Size**  
 1) Congenital **miosis** (*microcoria*)  
 --Due to dilator absence/malformation, or fibrous contraction  
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 --Probably part of the aniridia spectrum

**Abnormal Pupil... Shape**  
 --**Dyscoria** = congenital misshapen pupil  
 --e.g., **coloboma**

*Pupil structure abnormality*

Abn	<i>Location</i>			
<b>Typical iris coloboma</b>	Inferonasal			
<b>Atypical iris coloboma</b>	Anywhere <i>but</i> inferonasal			

# Abnormalities of Pupil Structure

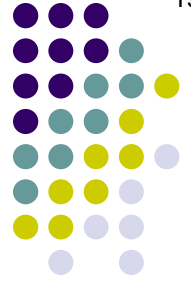


Atypical



Typical

Coloboma



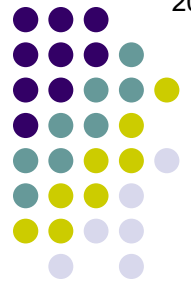
# Abnormalities of Pupil Structure

**Abnormal Pupil... Size**  
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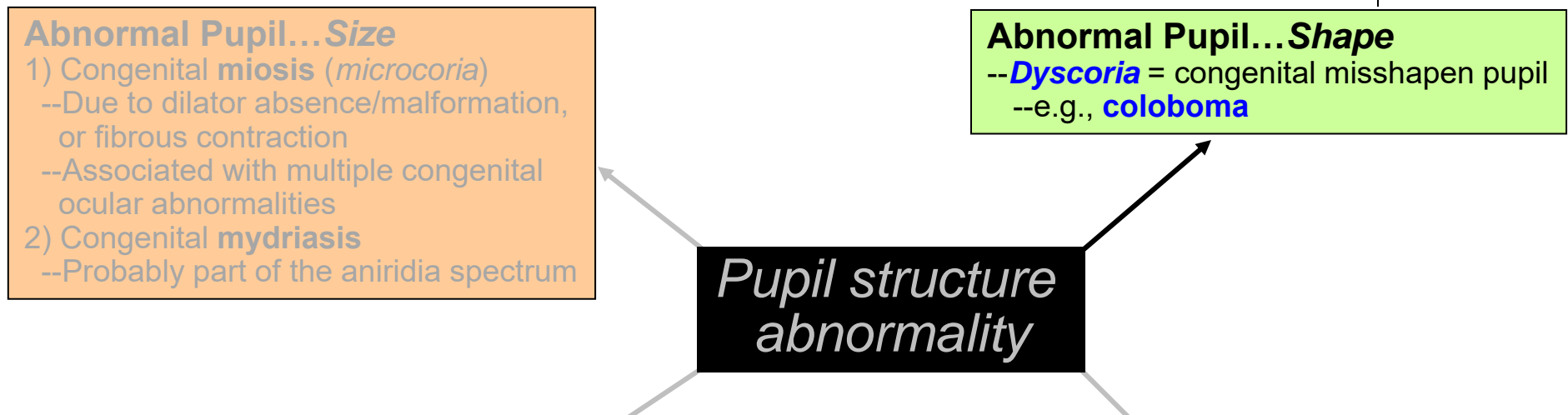
**Abnormal Pupil... Shape**  
 --**Dyscoria** = congenital misshapen pupil  
 --e.g., **coloboma**

*Pupil structure abnormality*

Abn	<i>Location</i>	<i>Etiology</i>		
<b>Typical iris coloboma</b>	Inferonasal	?		
<b>Atypical iris coloboma</b>	Anywhere <i>but</i> inferonasal	?		



# Abnormalities of Pupil Structure



**Abnormal Pupil... Size**

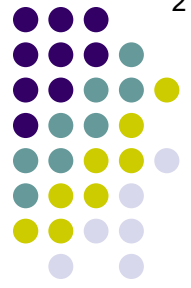
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**Abnormal Pupil... Shape**

- Dyscoria** = congenital misshapen pupil
- e.g., **coloboma**

*Pupil structure abnormality*

Abn	Location	Etiology		
<b>Typical iris coloboma</b>	Inferonasal	Incomplete closure of embryonic fissure		
<b>Atypical iris coloboma</b>	Anywhere <i>but</i> inferonasal	Multiple etiologies implicated		



# Abnormalities of Pupil Structure

**Abnormal Pupil... Size**

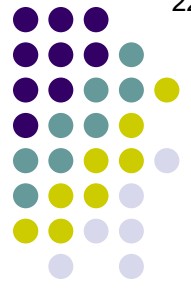
- 1) Congenital **miosis** (*microcoria*)
  - Due to dilator absence/malformation, or fibrous contraction
  - Associated with multiple congenital ocular abnormalities
- 2) Congenital **mydriasis**
  - Probably part of the aniridia spectrum

**Abnormal Pupil... Shape**

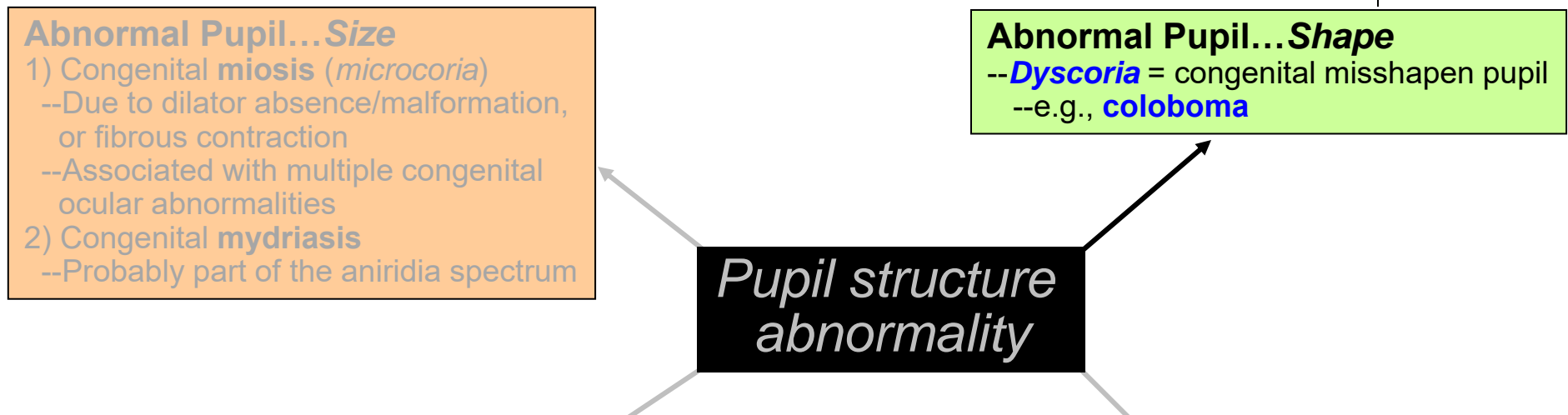
- Dyscoria** = congenital misshapen pupil
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*Pupil structure abnormality*

Abn	<i>Location</i>	<i>Etiology</i>	<i>Associated abnormalities</i>	
<b>Typical iris coloboma</b>	Inferonasal	Incomplete closure of embryonic fissure	?	
<b>Atypical iris coloboma</b>	Anywhere <i>but</i> inferonasal	Multiple etiologies implicated	?	



# Abnormalities of Pupil Structure



**Abnormal Pupil... Size**

- 1) Congenital **miosis** (*microcoria*)
  - Due to dilator absence/malformation, or fibrous contraction
  - Associated with multiple congenital ocular abnormalities
- 2) Congenital **mydriasis**
  - Probably part of the aniridia spectrum

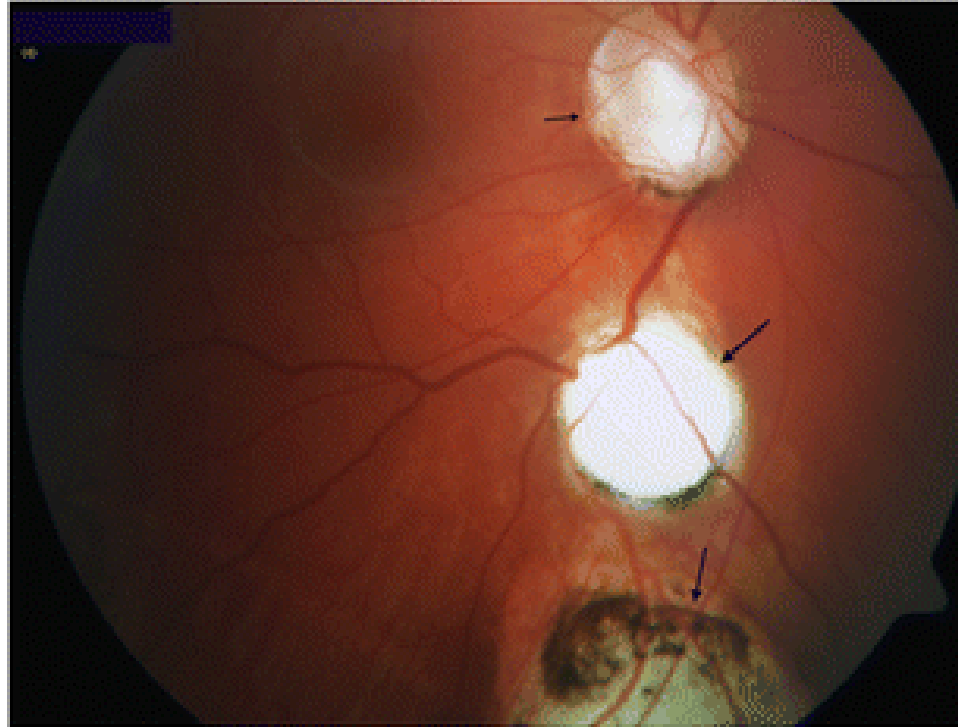
**Abnormal Pupil... Shape**

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*Pupil structure abnormality*

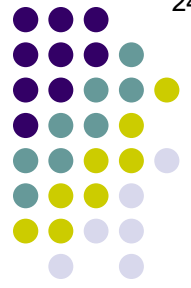
Abn	Location	Etiology	Associated abnormalities	
<b>Typical iris coloboma</b>	Inferonasal	Incomplete closure of embryonic fissure	Colobomas of CB, choroid, optic nerve, retina; nystagmus	
<b>Atypical iris coloboma</b>	Anywhere <i>but</i> inferonasal	Multiple etiologies implicated	None	

# Abnormalities of Pupil Structure

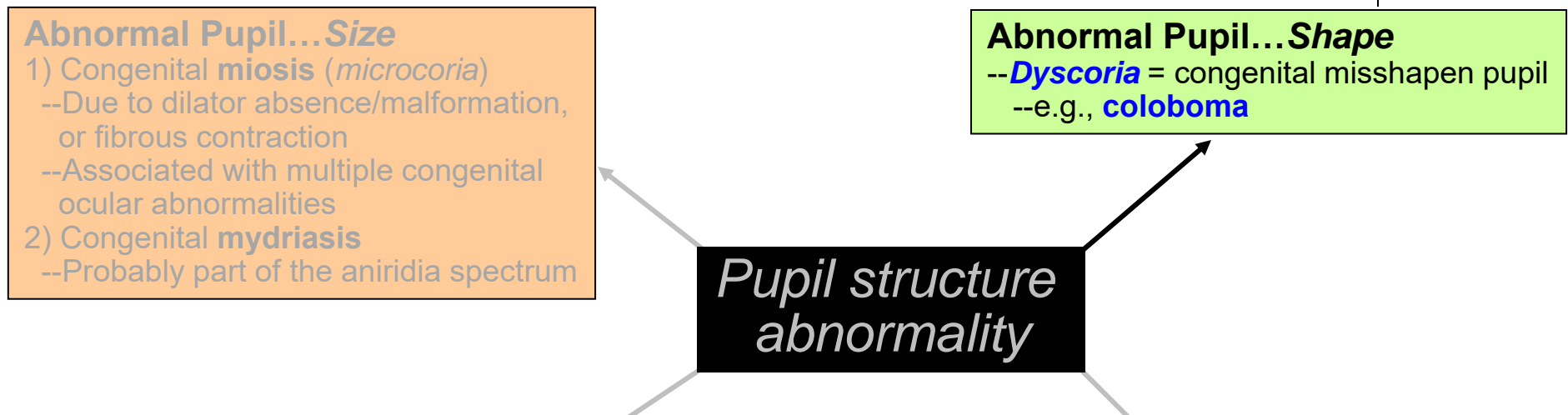


Right eye illustrating optic disc coloboma (*small arrow*) and two retinochoroidal colobomas (*large arrows*)

Coloboma



# Abnormalities of Pupil Structure



**Abnormal Pupil... Size**

- 1) Congenital **miosis** (*microcoria*)
  - Due to dilator absence/malformation, or fibrous contraction
  - Associated with multiple congenital ocular abnormalities
- 2) Congenital **mydriasis**
  - Probably part of the aniridia spectrum

**Abnormal Pupil... Shape**

- Dyscoria** = congenital misshapen pupil
- e.g., **coloboma**

*Pupil structure abnormality*

Abn	Location	Etiology	Associated abnormalities	Workup
<b>Typical iris coloboma</b>	Inferonasal	Incomplete closure of embryonic fissure	Colobomas of CB, choroid, optic nerve, retina; nystagmus	?
<b>Atypical iris coloboma</b>	Anywhere <i>but</i> inferonasal	Multiple etiologies implicated	None	?





# Abnormalities of Pupil Structure

**Abnormal Pupil... Size**

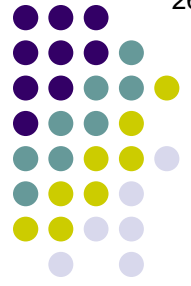
- 1) Congenital **miosis** (*microcoria*)
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**Abnormal Pupil... Shape**

- Dyscoria** = congenital misshapen pupil
- e.g., **coloboma**

*Pupil structure abnormality*

Abn	Location	Etiology	Associated abnormalities	Workup
<b>Typical iris coloboma</b>	Inferonasal	Incomplete closure of embryonic fissure	Colobomas of CB, choroid, optic nerve, retina; nystagmus	If 1+ other organ system abnormal: Do karyotype analysis with extended banding
<b>Atypical iris coloboma</b>	Anywhere <i>but</i> inferonasal	Multiple etiologies implicated	None	None



# Abnormalities of Pupil Structure

## Abnormal Pupil...Size

- 1) Congenital **miosis** (*microcoria*)
  - Due to dilator absence/malformation, or fibrous contraction
  - Associated with multiple congenital ocular abnormalities
- 2) Congenital **mydriasis**
  - Probably part of the aniridia spectrum

## Abnormal Pupil...Shape

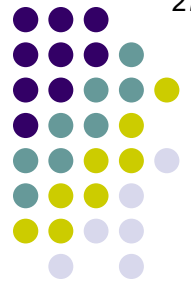
- Dyscoria** = congenital misshapen pupil
- e.g., coloboma

## Pupil structure abnormality

## Abnormal Pupil...Location

## Abnormal Pupil...Number

- Polycoria** =



# Abnormalities of Pupil Structure

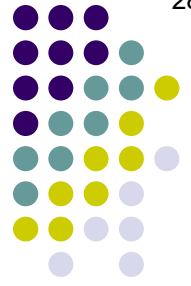
*Pupil structure abnormality*

**Abnormal Pupil...Size**  
1) Congenital **miosis** (*microcoria*)  
--Due to dilator absence/malformation, or fibrous contraction  
--Associated with multiple congenital ocular abnormalities  
2) Congenital **mydriasis**  
--Probably part of the aniridia spectrum

**Abnormal Pupil...Shape**  
--**Dyscoria** = congenital misshapen pupil  
--e.g., coloboma

**Abnormal Pupil...Location**

**Abnormal Pupil...Number**  
--**Polycoria** = >1 pupil



# Abnormalities of Pupil Structure

## Abnormal Pupil... Size

- 1) Congenital **miosis** (*microcoria*)
  - Due to dilator absence/malformation, or fibrous contraction
  - Associated with multiple congenital ocular abnormalities
- 2) Congenital **mydriasis**
  - Probably part of the aniridia spectrum

## Abnormal Pupil... Shape

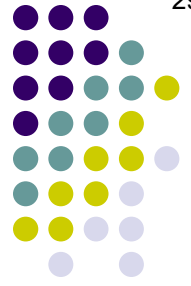
- Dyscoria** = congenital misshapen pupil
- e.g., coloboma

## Pupil structure abnormality

## Abnormal Pupil... Location

## Abnormal Pupil... Number

- Polycoria** = >1 pupil
- True polycoria** requires that each pupil has a...



# Abnormalities of Pupil Structure

## Abnormal Pupil...Size

- 1) Congenital **miosis** (*microcoria*)
  - Due to dilator absence/malformation, or fibrous contraction
  - Associated with multiple congenital ocular abnormalities
- 2) Congenital **mydriasis**
  - Probably part of the aniridia spectrum

## Abnormal Pupil...Shape

- Dyscoria** = congenital misshapen pupil
- e.g., coloboma

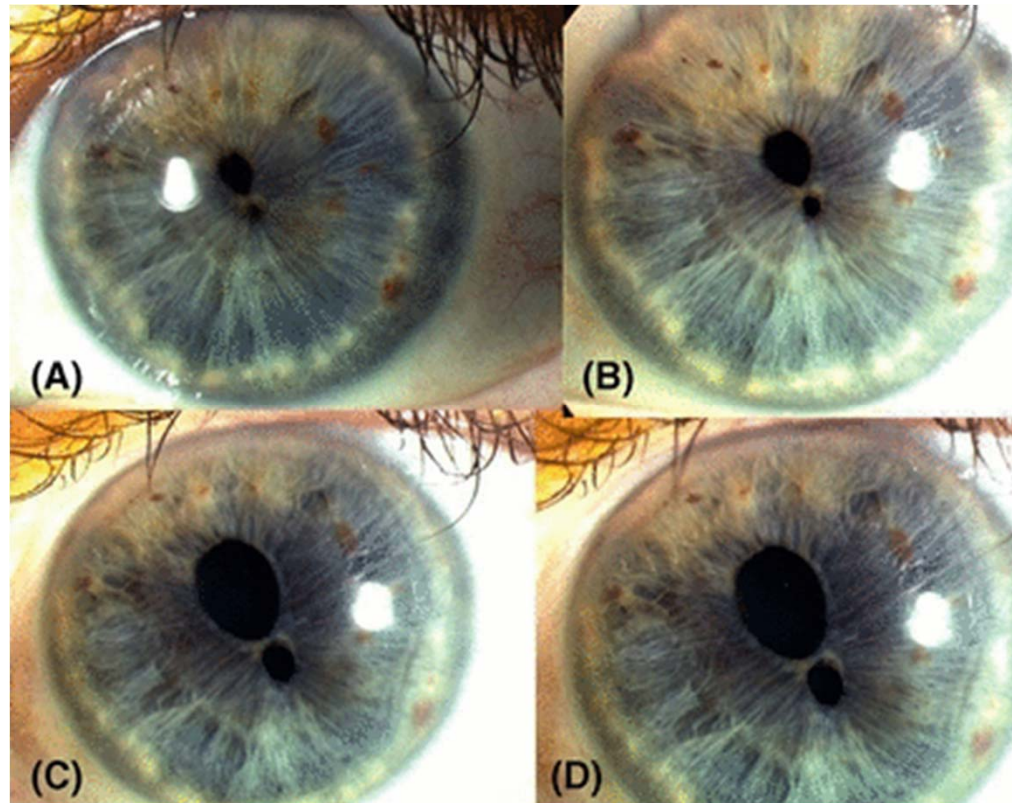
## Pupil structure abnormality

## Abnormal Pupil...Location

## Abnormal Pupil...Number

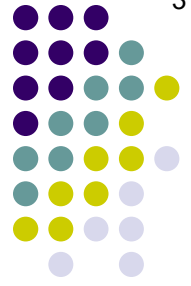
- Polycoria** = >1 pupil
- True polycoria** requires that each pupil has a...**sphincter muscle** (is exceedingly rare)

# Abnormalities of Pupil Structure



Eye in bright light (A) and dim light (B). Following dilatation with tropicamide and phenylephrine (C,D)

True polycoria



# Abnormalities of Pupil Structure

## Abnormal Pupil...Size

- 1) Congenital **miosis** (*microcoria*)
  - Due to dilator absence/malformation, or fibrous contraction
  - Associated with multiple congenital ocular abnormalities
- 2) Congenital **mydriasis**
  - Probably part of the aniridia spectrum

## Abnormal Pupil...Shape

- Dyscoria** = congenital misshapen pupil
- e.g., coloboma

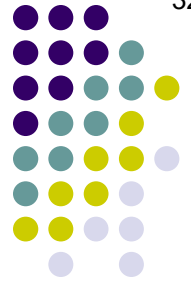
## Pupil structure abnormality

## Abnormal Pupil...Location

## Abnormal Pupil...Number

- Polycoria** = >1 pupil
- True polycoria** requires that each pupil has a...**sphincter muscle** (is exceedingly rare)
- accounts for the vast majority of cases

# Abnormalities of Pupil Structure



## Abnormal Pupil...Size

- 1) Congenital **miosis** (*microcoria*)
  - Due to dilator absence/malformation, or fibrous contraction
  - Associated with multiple congenital ocular abnormalities
- 2) Congenital **mydriasis**
  - Probably part of the aniridia spectrum

## Abnormal Pupil...Shape

- Dyscoria** = congenital misshapen pupil
- e.g., coloboma

## Pupil structure abnormality

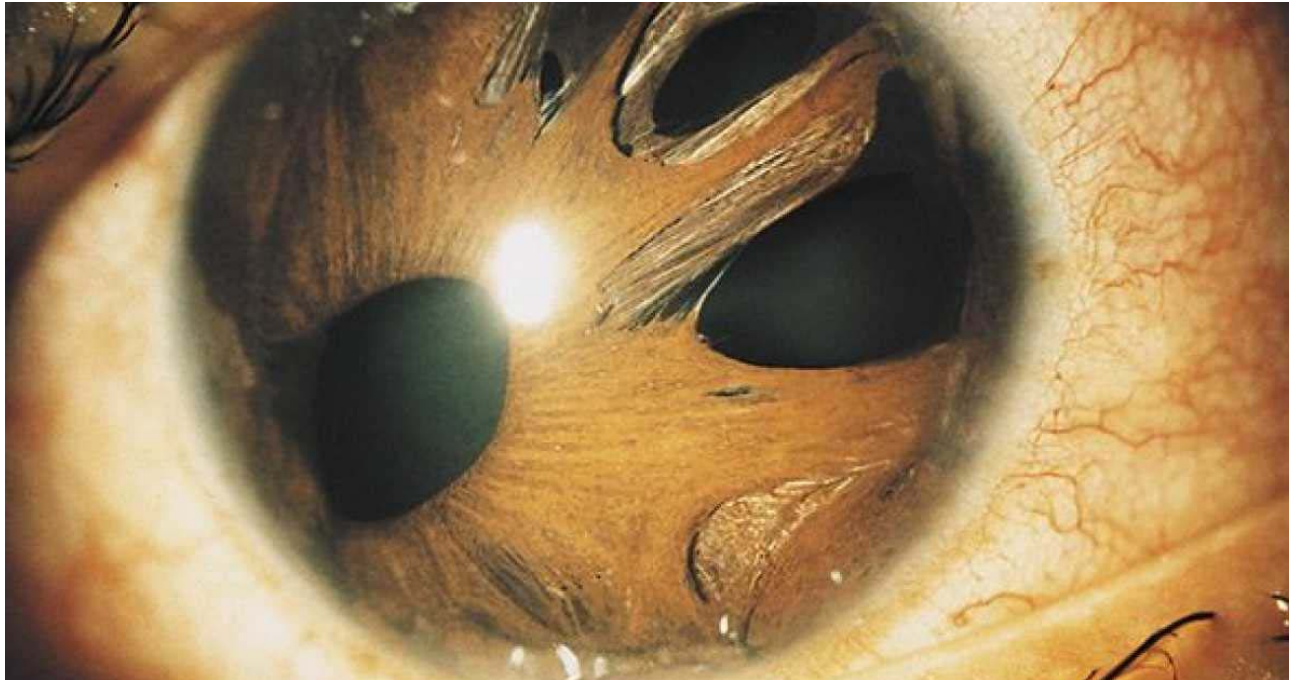
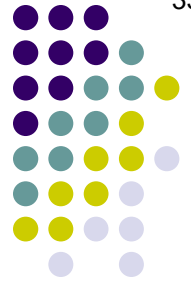
## Abnormal Pupil...Location

## Abnormal Pupil...Number

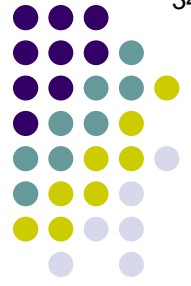
- Polycoria** = >1 pupil
- True polycoria** requires that each pupil has a...**sphincter muscle** (is exceedingly rare)
- Pseudopolycoria** accounts for the vast majority of cases



# Abnormalities of Pupil Structure



Pseudopolyopia in ICE syndrome



# Abnormalities of Pupil Structure

## Abnormal Pupil...Size

- 1) Congenital **miosis** (*microcoria*)
  - Due to dilator absence/malformation, or fibrous contraction
  - Associated with multiple congenital ocular abnormalities
- 2) Congenital **mydriasis**
  - Probably part of the aniridia spectrum

## Abnormal Pupil...Shape

- Dyscoria** = congenital misshapen pupil
- e.g., coloboma

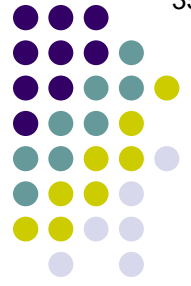
## Pupil structure abnormality

## Abnormal Pupil...Location

**Corectopia** =

## Abnormal Pupil...Number

- Polycoria** = >1 pupil
- True polycoria** requires that each pupil has a...**sphincter muscle** (is exceedingly rare)
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# Abnormalities of Pupil Structure

## Abnormal Pupil...Size

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  - Associated with multiple congenital ocular abnormalities
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  - Probably part of the aniridia spectrum

## Abnormal Pupil...Shape

- Dyscoria** = congenital misshapen pupil
- e.g., coloboma

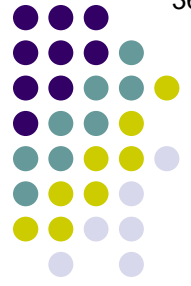
## Pupil structure abnormality

## Abnormal Pupil...Location

**Corectopia** = displacement of pupil

## Abnormal Pupil...Number

- Polycoria** = >1 pupil
- True polycoria** requires that each pupil has a...**sphincter muscle** (is exceedingly rare)
- Pseudopolycoria** accounts for the vast majority of cases



# Abnormalities of Pupil Structure

## Abnormal Pupil... Size

- 1) Congenital **miosis** (*microcoria*)
  - Due to dilator absence/malformation, or fibrous contraction
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## Abnormal Pupil... Shape

- Dyscoria** = congenital misshapen pupil
- e.g., coloboma

## Pupil structure abnormality

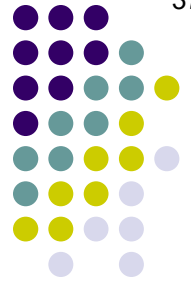
## Abnormal Pupil... Location

- Corectopia** = displacement of pupil
- Slight (.5mm) inferonasal deviation is **normal**

## Abnormal Pupil... Number

- Polycoria** = >1 pupil
- True polycoria** requires that each pupil has a...**sphincter muscle** (is exceedingly rare)
- Pseudopolycoria** accounts for the vast majority of cases

# Abnormalities of Pupil Structure



## Abnormal Pupil... Size

- 1) Congenital **miosis** (*microcoria*)
  - Due to dilator absence/malformation, or fibrous contraction
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- e.g., coloboma

## Pupil structure abnormality

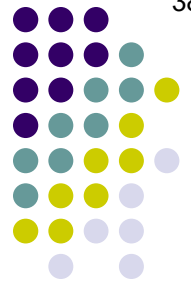
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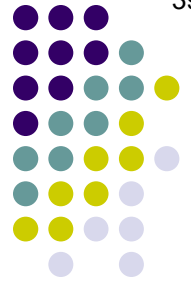
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# Abnormalities of Pupil Structure



Corectopia



# Abnormalities of Pupil Structure

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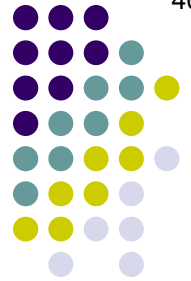
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- a)
  - b)
  - c)
- } 3 high-yield facts about ectopia lentis et pupillae

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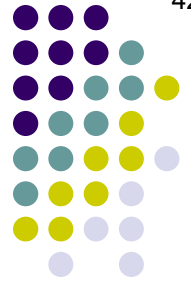
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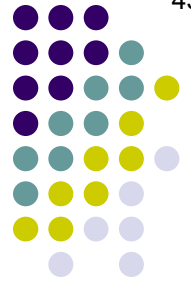
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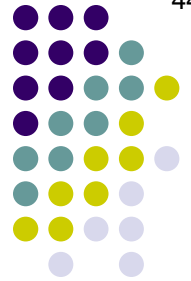
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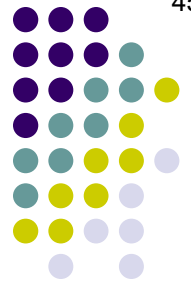
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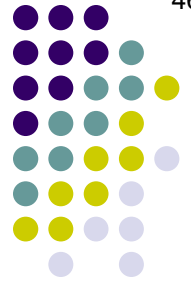
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# Abnormalities of Pupil Structure

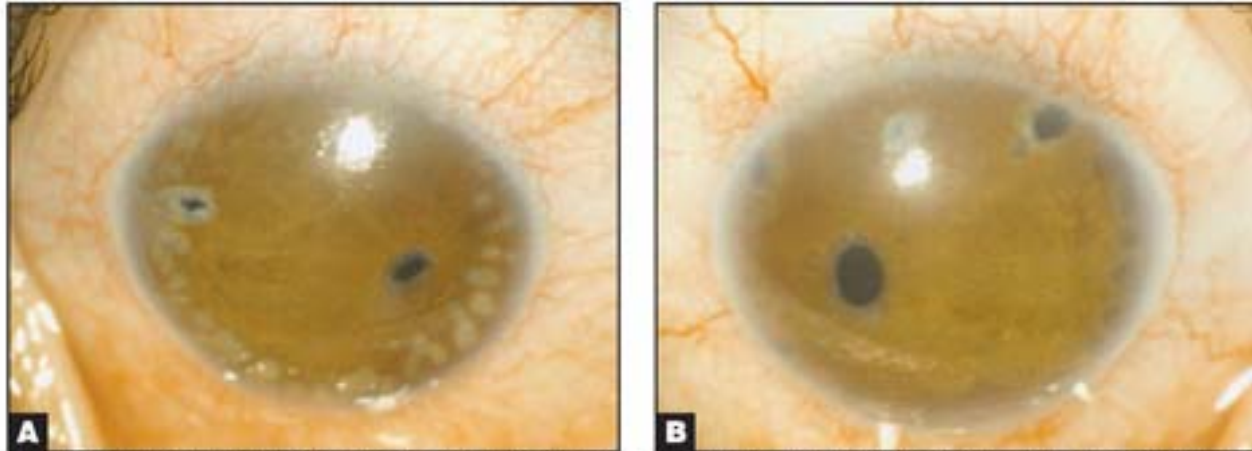
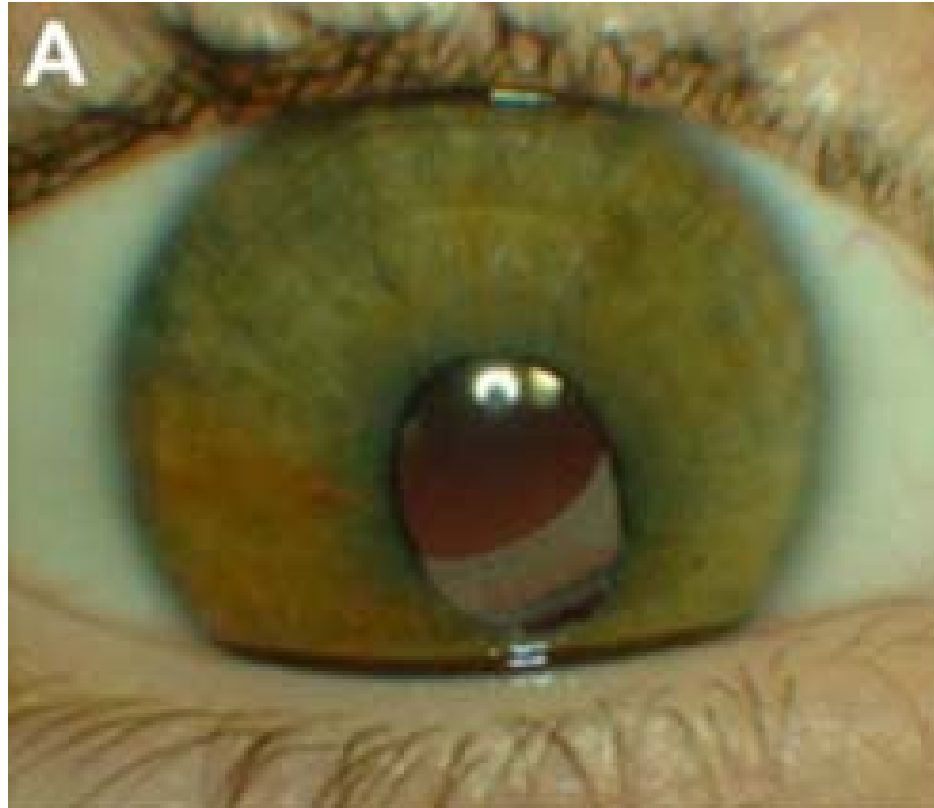
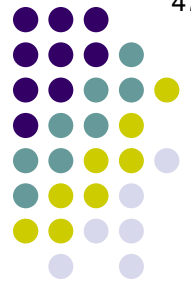


Figure 1. Preoperative view of both eyes in a patient with bilateral ectopia lentis et pupillae syndrome showing several lesions on the iris due to previous laser therapy. (A) Right eye. (B) Left eye.

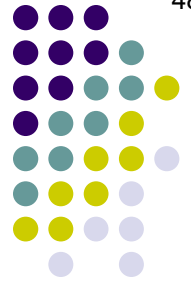


*Ectopia lentis et pupillae*: Bilateral inferonasal displacement of dyscoric, slit-like(ish) pupils

# Abnormalities of Pupil Structure



*Ectopia lentis et pupillae*: Pupil and lens displaced in opposite directions



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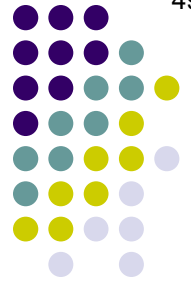
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Slit-like

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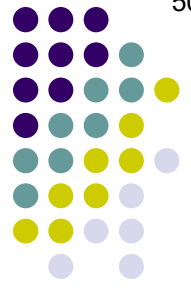
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**Microspherophakia**



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*In a few words, how would you describe the shape of a microspherophakic lens?*

**Abnormal**

Corectopia

- Slight (.5mm) is **normal**
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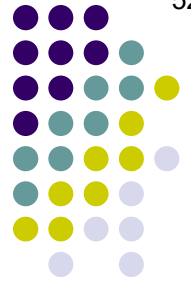
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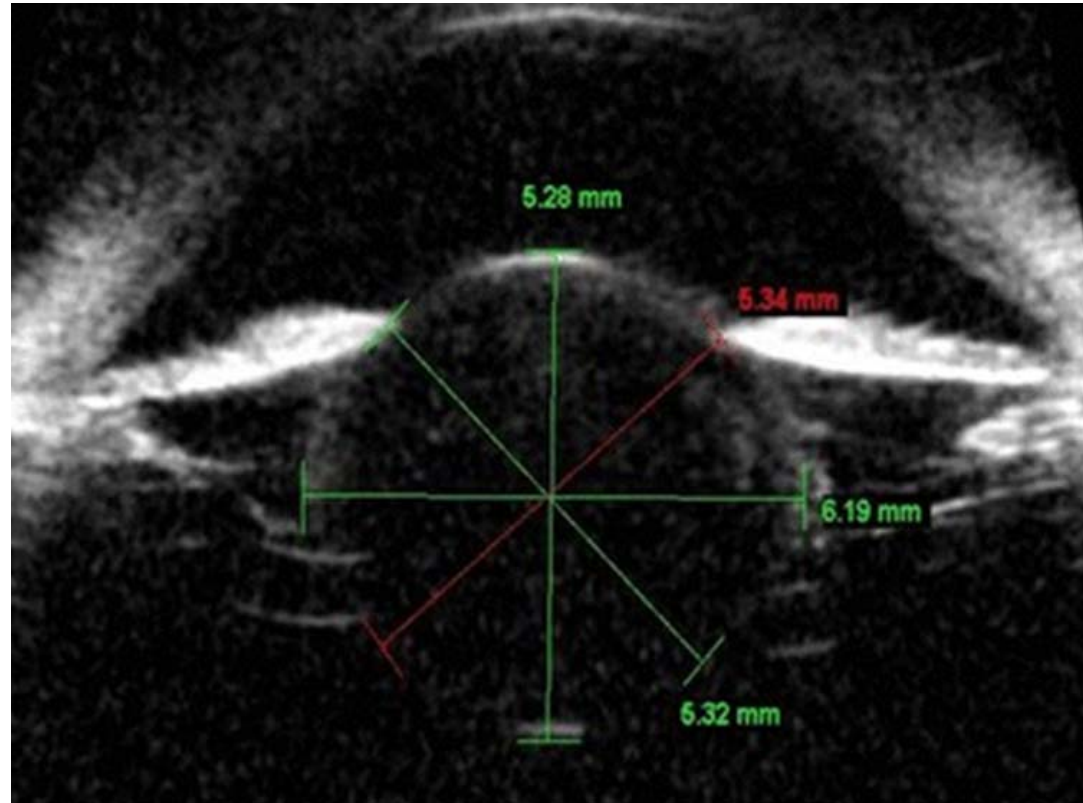
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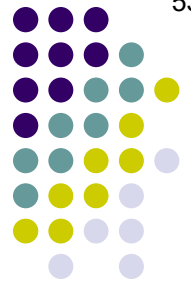
**Microspherophakia**



# Abnormalities of Pupil Structure



Microspherophakia. Note the small size, round shape of the lens



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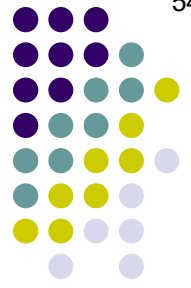
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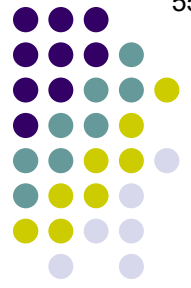
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**Microspherophakia**

# Abnormalities of Pupil Structure



Microspherophakia. Lens is able to fit through the pupillary aperture with mydriasis



# Abnormalities of Pupil Structure

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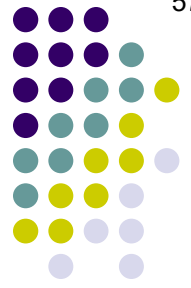
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**Microspherophakia**





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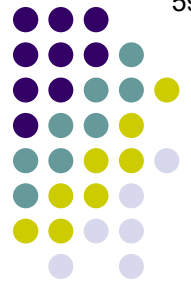
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**Microspherophakia**



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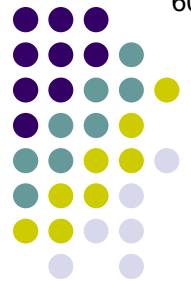
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(‘micro’) and round (‘sphero’)

*What is the classic stature of a W-M pt?*

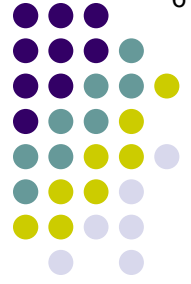
*How does the lens’ small size affect the pupil? What can be seen in the pupillary aperture when the lens’ spherical shape?*

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**Weill-Marchesani syndrome**

**Microspherophakia**

**Abnor**  
 Corecto  
 --Slight  
 is **norm**  
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 a) Bil  
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**What is the classic stature of a W-M pt?**  
Quite short

*How does the lens’ small size affect the pupil?*  
The dilator can be seen in the pupillary aperture when

*What is the lens’ spherical shape?*

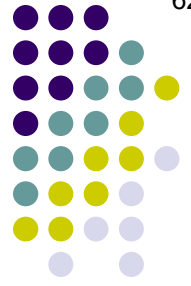
*When you hear microspherophakia, what condition should come immediately to mind?*

**Weill-Marchesani syndrome**

**Microspherophakia**

**Abnor**  
Corecto  
--Slight  
is *norm*  
--Deviat  
Corecto  
sublux  
a) Bil  
b) Pup  
direction  
c) Papis

# Abnormalities of Pupil Structure



Weill-Marchesani syndrome: Short stature



# Abnormalities of Pupil Structure

**Abnormal Pupil... Size**

- 1) Congenital **miosis** (*microcoria*)
  - Due to dilator absence/malformation, or fibrous contraction
  - Associated with multiple congenital ocular abnormalities
- 2) Congenital **mydriasis**
  - Probably part of the aniridia spectrum

**Abnormal Pupil... Shape**

- Dyscoria* = congenital misshapen pupil
- e.g., coloboma

**Pupil structure abnormality**

*In a few words, how would you describe the shape of a microspherophakic lens?*

(‘micro’) and round (‘sphero’)

*What is the classic stature of a W-M pt?*  
Quite short

*What is notable about their digits?*

*How does the lens’ small size affect the pupil?*

Light reflex can be seen in the pupillary aperture when

*What abnormality of lens shape is present?*

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They are short as well

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A dark shadow can be seen in the pupillary aperture when

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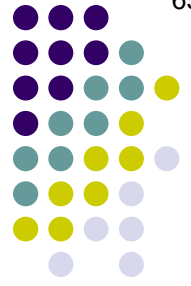
**Weill-Marchesani syndrome**

**Microspherophakia**

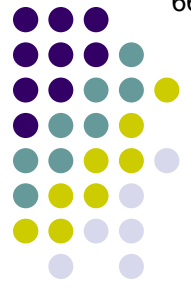
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# Abnormalities of Pupil Structure



Weill-Marchesani syndrome: Short digits



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*What is notable about their joints?*

*How does the lens’ small size?*

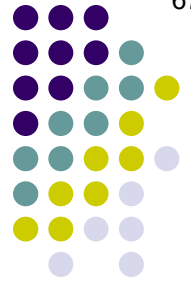
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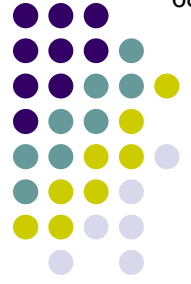
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**For more on W-M, see slide-set FELT14**

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