All lesions of the eyelid and epibulbar tissue can be said to have one of two appearances—what are they?

?  ?

(Obviously, there are multiple legit ways to answer this question, but there’s one best way in the context of this slide-set)
All lesions of the eyelid and epibulbar tissue can be said to have one of two appearances—what are they?

Pigmented        Nonpigmented

(Obviously, there are multiple legit ways to answer this question, but there’s one best way in the context of this slide-set)
**Melanocytic Eyelid and Epibulbar Lesions**

All lesions of the eyelid and epibulbar tissue can be said to have one of two appearances—what are they? Which lesions can present pigmented, and which can present nonpigmented?

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*(Don’t spend too much time sweating this—it’s kinda rhetorical)*
**Melanocytic Eyelid and Epibulbar Lesions**

*All lesions of the eyelid and epibulbar tissue can be said to have one of two appearances—what are they? Which lesions can present pigmented, and which can present nonpigmented?*

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*No question—proceed when ready*
All lesions of the eyelid and epibulbar tissue can be said to have one of two appearances—what are they? Which lesions can present pigmented, and which can present nonpigmented?

**Point #1:** Regardless of cell of origin, any eyelid or epibulbar lesion can be pigmented.
All lesions of the eyelid and epibulbar tissue can be said to have one of two appearances—what are they? Which lesions can present pigmented, and which can present nonpigmented?

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Point #1: Regardless of cell of origin, any eyelid or epibulbar lesion can be pigmented. This includes melanocytic lesions (duh).

No question—proceed when ready
Melanocytic Eyelid and Epibulbar Lesions

All lesions of the eyelid and epibulbar tissue can be said to have one of two appearances—what are they? Which lesions can present pigmented, and which can present nonpigmented?

Point #2:
--Lesions of melanocytic origin can be nonpigmented

No question—proceed when ready
Melanocytic Eyelid and Epibulbar Lesions

Note! This question concerns melanocytic lesions specifically, not pigmented lesions generally

? All melanocytic lesions of the eyelid and epibulbar tissue arise from one of two cell types—what are they?

? (OTOH, this question only has one legit answer)
Melanocytic Eyelid and Epibulbar Lesions

Melanocytes

*All melanocytic lesions of the eyelid and epibulbar tissue arise from one of two cell types—what are they?*

Nevus cells

*(OTOH, this question only has one legit answer)*
Melanocytes

Let’s consider the embryology of melanocytes. From which primordial cell do they derive?
Melanocytes

Let’s consider the embryology of melanocytes. From which primordial cell do they derive? Neural crest cells (NCCs)
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Briefly, what’s the backstory on neural crest cells?
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Melanocytic Eyelid and Epibulbar Lesions

Melanocytes

Let’s consider the embryology of melanocytes. From which primordial cell do they derive? Neural crest cells (NCCs)

Briefly, what’s the backstory on neural crest cells?
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Melanocytes

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Melanocytic Eyelid and Epibulbar Lesions

Neural crest cells…
Melanocytic Eyelid and Epibulbar Lesions

Neural crest cells...and their derivatives
Melanocytic Eyelid and Epibulbar Lesions

Melanocytes

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Other than giving rise to melanocytes, does neuroectodermal tissue play any role in eye morphogenesis? It does indeed—neuroectoderm gives rise to the two words and the abb.
Melanocytic Eyelid and Epibulbar Lesions

Melanocytes

Let’s consider the embryology of melanocytes. From which primordial cell do they derive?
Neural crest cells (NCCs)

Briefly, what’s the backstory on neural crest cells?
NCCs are a subtype of neuroectodermal cells. Early in embryogenesis, some of the neuroectodermal cells located along the dorsal aspect of the neural tube are induced to transition into NCCs. NCCs then migrate widely across the embryo and differentiate into various tissues, including melanocytes. The cohort of NCCs from which melanocytes derive gives rise also to neurons and glial cells.

Other than giving rise to melanocytes, does neuroectodermal tissue play any role in eye morphogenesis? It does indeed—neuroectoderm gives rise to the neurosensory retina and the RPE, for example.
Melanocytic Eyelid and Epibulbar Lesions

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So, the NS retina and RPE derive from NCCs?
Melanocytic Eyelid and Epibulbar Lesions

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So, the NS retina and RPE derive from NCCs? No no no, don’t get it twisted—they derive from neuroectoderm, which is the same primordial tissue that gives rise to NCCs.
Let's consider the embryology of melanocytes. From which primordial cell do they derive? Neural crest cells (NCCs).

Briefly, what's the backstory on neural crest cells? NCCs are a subtype of neuroectodermal cells. Early in embryogenesis, some of the neuroectodermal cells located along the dorsal aspect of the neural tube are induced to transition into NCCs. NCCs then migrate widely across the embryo, and upon arriving at their destination they proliferate and differentiate into specialized tissues and cells, including melanocytes. The cohort of NCCs from which melanocytes derive gives rise also to neurons and glial cells.

There is a condition—well known to you, dear reader—that consists of a multitude of lesions, most of which are either melanocytic or neuroglial in origin. What is this condition? Neurofibromatosis type 1 (NF1).
Let’s consider the embryology of melanocytes. From which primordial cell do they derive? Neural crest cells (NCCs)

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Briefly, what’s the backstory on neural crest cells?

In one word, what sort of condition is NF1?

Neurofibromatosis type 1 (NF1)
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In one word, what sort of condition is NF1? A phakomatosis

Neurofibromatosis type 1 (NF1)
Melanocytes

Let’s consider the embryology of melanocytes. From which primordial cell do they derive? Neural crest cells (NCCs)

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Neural crest cells (NCCs) are a subtype of neuroectodermal cells. Early in embryogenesis, some of the neuroectodermal cells located along the dorsal aspect of the neural tube are induced to transition into NCCs. NCCs then migrate widely across the embryo, and upon arriving at their destination they proliferate and differentiate into specialized tissues and cells, including melanocytes. The cohort of NCCs from which melanocytes derive gives rise also to neurons and glial cells.

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Neurofibromatosis type 1 (NF1)

In one word, what sort of condition is NF1?

A phakomatosis

What are the four classic neuroglial lesions in NF1?
Melanocytic Eyelid and Epibulbar Lesions

Melanocytes

Let’s consider the embryology of melanocytes. From which primordial cell do they derive? Neural crest cells (NCCs)

Briefly, what’s the backstory on neural crest cells?

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Neurofibromatosis type 1 (NF1)

neurons and glial cells

Neuroglial lesions

--Nodular neurofibromas
--Plexiform neurofibromas
--Optic glioma
--Prominent corneal nerves

What are the four classic neuroglial lesions in NF1?
Melanocytic Eyelid and Epibulbar Lesions

- Plexiform neurofibroma
- Nodular neurofibroma
- Optic nerve glioma
- NF1: Neuroglial lesions
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Neurofibromatosis type 1 (NF1)

Neuroglial lesions

-- Nodular neurofibromas
-- Plexiform neurofibromas
-- Optic glioma
-- Prominent corneal nerves

Melanocytic lesions

-- ?
-- ?
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What are the four classic melanocytic lesions in NF1?
Melanocytes

Let’s consider the embryology of melanocytes. From which primordial cell do they derive? Neural crest cells (NCCs)

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Neurofibromatosis type 1 (NF1)

neurons and glial cells

Melanocytic lesions
--Café au lait spots
--Axillary/inguinal freckles
--Lisch nodules
--Choroidal lesions

What are the four classic melanocytic lesions in NF1?

Neuroglial lesions
--Nodular neurofibromas
--Plexiform neurofibromas
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Eyelid and Epibulbar Lesions

Lisch nodules

Café-au-lait spots

Axillary freckling

NF1: Melanocytic lesions
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Neurofibromatosis type 1 (NF1)

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Neuroglial lesions
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In what fundamental way do these lesions differ (other than the cell type of origin, duh)?

Melanocytic lesions
--Café au lait spots
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Melanocytic Eyelid and Epibulbar Lesions

Melanocytes

Let’s consider the embryology of melanocytes. From which primordial cell do they derive? Neural crest cells (NCCs)

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Neural crest cells (NCCs) are a subtype of neuroectodermal cells. Early in embryogenesis, some of the neuroectodermal cells located along the dorsal aspect of the neural tube are induced to transition into NCCs. NCCs then migrate widely across the embryo, and upon arriving at their destination they proliferate and differentiate into specialized tissues and cells, including melanocytes. The cohort of NCCs from which melanocytes derive also gives rise to neurons and glial cells.

Neurofibromatosis type 1 (NF1)

In what fundamental way do these lesions differ (other than the cell type of origin, duh)?

The melanocytic lesions are of no clinical significance beyond establishing the diagnosis, whereas the neuroglial lesions are associated with significant ocular and/or systemic morbidity.

Melanocytic lesions
--Café au lait spots
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A phakomatosis

Neurofibromatosis type 1 (NF1)

neurons and glial cells

In one word, what sort of condition is NF1?

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Melanocytic Eyelid and Epibulbar Lesions

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Briefly, what’s the backstory on neural crest cells?

For more on NF1 and other phakomatoses, see slide-set P10

most of which are either melanocytic or neuroglial in origin. What is this condition? Neurofibromatosis type 1 (NF1)

In what fundamental way do these lesions differ (other than the cell type of origin, duh)? The melanocytic lesions are of no clinical significance beyond establishing the diagnosis, whereas the neuroglial lesions are associated with significant ocular and/or systemic morbidity.
Melanocytes

Next let’s consider the function of surface melanocytes. What do they do?

A surprising number of things, but for our purposes their function is manufacturing melanin, the main pigment of the body surface. What is the name of the membrane-bound structure in which melanin is contained? A melanosome. Do melanocytes hang onto their melanosomes? No—once packaged in melanosomes, melanin is transferred to neighboring cells (e.g., skin melanocytes transfer their melanin to nearby keratinocytes). Some people have darker skin than others. (Thanks, Captain Obvious.) Is it the case that darker-complected individuals have more melanocytes? No, the number of melanocytes does not vary with degree of pigmentation—people with darker complexion have more melanin in their keratinocytes.
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Do melanocytes hang onto their melanosomes?
Melanocytes

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Melanocytic Eyelid and Epibulbar Lesions

Melanocyte and its keratinocytes
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Now let’s consider the histology of surface melanocytes. Where do they reside?
Melanocytes

Now let’s consider the histology of surface melanocytes. Where do they reside? Most are found in the  [ ] layer of the  [ ] (if we’re talking about skin).
Melanocytes

Now let’s consider the histology of surface melanocytes. Where do they reside? Most are found in the basal layer of the epidermis (if we’re talking about skin). Some skin melanocytes are subepidermal (i.e., located in the dermis). Likewise, some conj melanocytes are subepithelial; these are often located in the conjunctival stroma (aka the substantia propria), or in the underlying episcleral tissue.
Now let's consider the histology of surface melanocytes. Where do they reside? Most are found in the basal layer of the epidermis (if we’re talking about skin) or the layer of the (if we’re talking about the conj.).
Melanocytic Eyelid and Epibulbar Lesions

Melanocytes

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In what key way do epithelial and dermal melanocytes differ?
Melanocytic Eyelid and Epibulbar Lesions

Melanocytes

Now let’s consider the histology of surface melanocytes. Where do they reside? Most are found in the basal layer of the epidermis (if we’re talking about skin) or the basal layer of the epithelium (if we’re talking about the conj). Some skin melanocytes are sub-epidermal (ie, located in the dermis). Likewise, some conj melanocytes are subepithelial; these are often located in the conj stroma (aka the substantia propria), or in the underlying episcleral tissue.

In what key way do epithelial and dermal melanocytes differ? Under normal conditions, dermal melanocytes do not produce melanin.
Melanocytes

Nevus cells

Now let’s turn our attention to nevus cells. What are they?
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Now let’s turn our attention to nevus cells. What are they?
Nevus cells are a type of melanocyte. However, they differ from typical melanocytes in two key ways:
--With respect to **attribute #1**
--With respect to **attribute #2**
Nevus cells

Now let’s turn our attention to nevus cells. What are they?
Nevus cells are a type of melanocyte. However, they differ from typical melanocytes in two key ways:

--With respect to **shape**

--With respect to **distribution**
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--With respect to shape: Typical melanocytes are described as **dendritic**, whereas nevus cells are **round**

--With respect to distribution
Melanocytic Eyelid and Epibulbar Lesions

Nevus cells

Now let’s turn our attention to nevus cells. What are they? Nevus cells are a type of melanocyte. However, they differ from typical melanocytes in two key ways:

--With respect to **shape**: Typical melanocytes are described as dendritic, whereas nevus cells are round.
--With respect to **distribution**
Melanocytic Eyelid and Epibulbar Lesions

Melanocyte

Don’t be fooled by the round cell body! Note the extensive network of processes snaking out amongst the keratinocytes

Melanocytes vs nevus cells
Melanocytic Eyelid and Epibulbar Lesions

Don’t be fooled by the round cell body! Note the extensive network of processes snaking out amongst the keratinocytes. It’s because of all these processes that melanocytes are described as ‘dendritic.’
Melanocytic Eyelid and Epibulbar Lesions

If this is here, it means I have yet to find a satisfactory rendering of a nevus cell.

Melanocyte

Nevus cell

Melanocytes vs nevus cells
Nevus cells

Now let’s turn our attention to nevus cells. What are they? Nevus cells are a type of melanocyte. However, they differ from typical melanocytes in two key ways:

--With respect to shape: Typical melanocytes are described as dendritic, whereas nevus cells are round.

There is an exception to this rule, ie, there is one specific subset of nevus cells that have dendritic processes. With what ‘colorful’ nevus are these cells associated?
Melanocytic Eyelid and Epibulbar Lesions

Nevus cells

*Now let’s turn our attention to nevus cells. What are they?*

Nevus cells are a type of melanocyte. However, they differ from typical melanocytes in two key ways:

---

**With respect to shape:** Typical melanocytes are described as *dendritic*, whereas nevus cells are *round*.

**With respect to distribution:**

---

*There is an exception to this rule, ie, there is one specific subset of nevus cells that have dendritic processes. With what ‘colorful’ nevus are these cells associated?*

Blue nevi
Now let’s turn our attention to nevus cells. What are they? Nevus cells are a type of melanocyte. However, they differ from typical melanocytes in two key ways:

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**Blue nevi** (Note: Sometimes the term [spindly](#) is used to describe their shape rather than ‘dendritic,’ so don’t be thrown if you see that word used to describe them)
Melanocytic Eyelid and Epibulbar Lesions

Nevus cells

Now let’s turn our attention to nevus cells. What are they? Nevus cells are a type of melanocyte. However, they differ from typical melanocytes in two key ways:

- With respect to **shape**: Typical melanocytes are described as *dendritic*, whereas *nevus cells are round*.
- With respect to *distribution*.

There is an exception to this rule, i.e., there is one specific subset of nevus cells that have dendritic processes. With what ‘colorful’ nevus are these cells associated? **Blue nevi** (Note: Sometimes the term *spindly* is used to describe their shape rather than ‘dendritic,’ so don’t be thrown if you see that word used to describe them)
Now let’s turn our attention to nevus cells. What are they?

Nevus cells are a type of melanocyte. However, they differ from typical melanocytes in two key ways:

--With respect to shape: Typical melanocytes are described as dendritic, whereas nevus cells are round.

--With respect to distribution: Typical melanocytes are found to be evenly dispersed throughout the tissue in which they reside, whereas nevus cells are clustered together.
Nevus cells

Now let’s turn our attention to nevus cells. What are they?
Nevus cells are a type of melanocyte. However, they differ from typical melanocytes in two key ways:

--With respect to shape: Typical melanocytes are described as dendritic, whereas nevus cells are round.

--With respect to distribution: Typical melanocytes are found to be evenly dispersed throughout the tissue in which they reside, whereas nevus cells are clustered together.
Melanocytic Eyelid and Epibulbar Lesions

Melanocytes

Nevus cells

*Now let’s turn our attention to nevus cells. What are they?*

Nevus cells are a type of melanocyte. However, they differ from typical melanocytes in two key ways:

--With respect to **shape**: Typical melanocytes are described as dendritic, whereas nevus cells are round

--With respect to **distribution**: Typical melanocytes are found to be evenly dispersed throughout the tissue in which they reside, whereas nevus cells are **clustered together**

What is the $1$ term for these clusters?
Nevus cells

Now let’s turn our attention to nevus cells. What are they? Nevus cells are a type of melanocyte. However, they differ from typical melanocytes in two key ways:
--With respect to shape: Typical melanocytes are described as dendritic, whereas nevus cells are round
--With respect to distribution: Typical melanocytes are found to be evenly dispersed throughout the tissue in which they reside, whereas nevus cells are clustered together

What is the $1$ term for these clusters? ‘Nests’
Melanocytic Eyelid and Epibulbar Lesions

Melanocytes

Nevus cells

*Now let’s turn our attention to* nevus cells. *What are they?*

Nevus cells are a type of melanocyte. However, they differ from typical melanocytes in two key ways:

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- **With respect to shape:** Typical melanocytes are described as dendritic, whereas nevus cells are round.

- **With respect to distribution:** Typical melanocytes are found to be evenly dispersed throughout the tissue in which they reside, whereas nevus cells are clustered together.

*What is the $1 term for these clusters?* ‘Nests’

*What is the $10 term for these nests?*
Now’s turn our attention to nevus cells. What are they? Nevus cells are a type of melanocyte. However, they differ from typical melanocytes in two key ways:

--With respect to shape: Typical melanocytes are described as dendritic, whereas nevus cells are round

--With respect to distribution: Typical melanocytes are found to be evenly dispersed throughout the tissue in which they reside, whereas nevus cells are clustered together

*What is the $1 term for these clusters?* ‘Nests’

*What is the $10 term for these nests?* ‘Theques’
At long last we’re ready to start talking about Melanocytic lesions of the eyelid skin and epibulbar tissue. As we will see, equivalent lesions are found in each tissue type, so *if you can remember a lesion in one tissue, you can deduce the equivalent lesion in the other*. In order to facilitate this sort of understanding, we will review the lesions in tandem.
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

At long last we’re ready to start talking about Melanocytic lesions of the eyelid skin and epibulbar tissue. As we will see, equivalent lesions are found in each tissue type, so if you can remember a lesion in one tissue, you can deduce the equivalent lesion in the other. In order to facilitate this sort of understanding, we will review the lesions in tandem.

Epibulbar tissue

Two notes before proceeding: This review is an amalgam of material from the Path, Plastics, External Disease and Peds books. As usual, small inconsistencies exist among the books; I have smoothed these over as best I can. (Regarding skin lesions I leaned into the Plastics book; for epibulbar lesions, External Disease.) Further, for some lesions the BCSC emphasized the cell type of origin, whereas for others it didn’t; I followed suit. As always, caveat emptor.
All melanocytic lesions of the eyelid skin can be traced to one of three cell sources:
All melanocytic lesions of the eyelid skin can be traced to one of three cell sources: Melanocytes in the epidermis, melanocytes in the dermis, or nevus cells.
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes  Dermal melanocytes  Nevus cells

All melanocytic lesions of the eyelid skin can be traced to one of three cell sources: Melanocytes in the epidermis, melanocytes in the dermis, or nevus cells

Epibulbar tissue

The analogous cell-sources of melanocytic lesions of the epibulbar tissue are:
All melanocytic lesions of the eyelid skin can be traced to one of three cell sources: Melanocytes in the epidermis, melanocytes in the dermis, or nevus cells.

The analogous cell-sources of melanocytic lesions of the epibulbar tissue are: Melanocytes in the epithelium, melanocytes in the subepidermal tissue, or nevus cells.
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes  Dermal melanocytes  Nevus cells

?  ?  ?

Melanocytic lesions in both the lid and epibulbar locations can be classified as…

Epibulbar tissue

Epithelial melanocytes  Subepithelial melanocytes  Nevus cells

?  ?  ?

Melanocytic lesions in both the lid and epibulbar locations can be classified as…
Melanocytic Eyelid and Epibulbar Lesions

**Eyelid Skin**

- Epidermal melanocytes
- Dermal melanocytes

Benign

Pre-malignant

- Melanocytic lesions in both the lid and epibulbar locations can be classified as…Benign, pre-malignant or malignant

Malignant

**Epibulbar tissue**

- Epithelial melanocytes
- Subepithelial melanocytes

Benign

Pre-malignant

- Melanocytic lesions in both the lid and epibulbar locations can be classified as…Benign, pre-malignant or malignant

Malignant
Let's start our review of melanocytic lesions with **benign lesions deriving from epidermal and epithelial melanocytes**.
There are two benign eyelid skin lesions attributable to epidermal melanocytes—what are they?
There are two benign eyelid skin lesions attributable to epidermal melanocytes—what are they?
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

- Epidermal melanocytes
  - Ephelis
  - Lentigines
- Dermal melanocytes

Benign
- Pre-malignant
- Malignant

Epibulbar tissue

- Epithelial melanocytes
  - ?
  - ?
- Subepithelial melanocytes
  - Nevus cells

Benign
- Pre-malignant
- Malignant

What are the equivalent lesions of epibulbar tissue?
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

- Epidermal melanocytes
  - Ephelis
  - Lentigines
- Dermal melanocytes

Benign

Pre-malignant

Malignant

Epibulbar tissue

- Epithelial melanocytes
  - Ephelis
  - CAM
- Subepithelial melanocytes

Benign

Pre-malignant

Malignant

What are the equivalent lesions of epibulbar tissue?
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Benign

Pre-malignant

Malignant

Epidermal melanocytes

Dermal melanocytes

What is the layperson word for ephelis?

'Ephelis' or 'Freckle'

Epibulbar tissue

Benign

Pre-malignant

Malignant

Epithelial melanocytes

Subepithelial melanocytes

Nevus cells
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Benign

Ephelis

Lentigines

Pre-malignant

Malignant

Eyelid Skin

Nevus cells

Epibulbar tissue

Epithelial melanocytes

Subepithelial melanocytes

Benign

Ephelis

CAM

Pre-malignant

Malignant

What is the layperson word for ephelis?
‘Freckle’
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Ephelis

Lentigines

Nevus cells

Benign

Pre-malignant

Malignant

What is the layperson word for ephelis?

‘Freckle’

Hol up…You’re saying freckles of the ocular surface are a thing?

Camouflaged Angiomas

External Dz book mentions ocular-surface ephelides (in a Table), but doesn’t address them at all in-text. And because the book doesn’t delve into them, neither will we.
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Benign
- Epidermal melanocytes
- Ephelis
- Lentigines

Pre-malignant
- "Freckle"
- "Cam"

Malignant
- Nevus cells

Hol up... You're saying freckles of the ocular surface are a thing? Apparently, yes.
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Nevus cells

Benign

Ephelis

Lentigines

Pre-malignant

Malignant

Epithelial melanocytes

What is the layperson word for ephelis?

‘Freckle’

What is the plural of ephelis?

‘Ephelides’

Hol up…You’re saying freckles of the ocular surface are a thing?

Apparently, yes

Are they, like, a big deal?
**Melanocytic Eyelid and Epibulbar Lesions**

**Eyelid Skin**

- Epidermal melanocytes
- Dermal melanocytes
- Nevus cells

**Benign**
- Ephelis
- Lentigines

**Pre-malignant**
- Ephelis

**Malignant**
- Ephelis
- CAM

---

**What is the layperson word for ephelis?**

Freckle

**What is the plural of ephelis?**

Ephelides

---

_Hol up…You’re saying freckles of the ocular surface are a thing? Apparently, yes_

Are they, like, a big deal?

Apparently, no—the *External Dz* book mentions ‘ocular-surface ephelis’ in a Table, but doesn’t address them at all in text.

**Because the book doesn’t delve into them, neither will we.**
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Benign
Ephelis
Lentigines

Pre-malignant

Malignant

What is the layperson word for ephelis?
‘Freckle’

What is the plural of ephelis?

Epibulbar tissue

Epithelial melanocytes

Subepithelial melanocytes

Benign
Ephelis
CAM

Pre-malignant

Malignant

Nevus cells

Nevus cells
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Benign

Ephelis

Lentigines

Pre-malignant

Malignant

Epibulbar tissue

Epithelial melanocytes

Subepithelial melanocytes

Benign

Ephelis

CAM

Pre-malignant

Malignant

What is the layperson word for ephelis?
‘Freckle’

What is the plural of ephelis?
‘Ephelides’
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Ephelis

Lentigines

Epithelial melanocytes

Subepithelial melanocytes

Benign

Pre-malignant

Malignant

Nevus cells

What is the basic issue (ie, cause) underlying ephelides?

Simply an increase in the production of melanin by typical melanocytes typically located (ie, in the basal layer of the epidermis)

Are ephelides more likely in fair-skinned, or dark-skinned individuals?

Fair skinned

Do ephelides change in response to sunlight exposure?

Yes— they darken
What is the basic issue (ie, cause) underlying ephelides?
Simply an increase in the production of melanin by typical melanocytes typically located (ie, in the basal layer of the epidermis)

What is the layperson word for ephelis?
‘Freckle’

What is the plural of ephelis?
‘Ephelides’

What is the basic issue (ie, cause) underlying ephelides?
Simply an increase in the production of melanin by typical melanocytes typically located (ie, in the basal layer of the epidermis)
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Epithelial melanocytes

Subepithelial melanocytes

Nevus cells

Benign

Pre-malignant

Malignant

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Are ephelides more likely in fair-skinned, or dark-skinned individuals?

'Ephelis' (Freckle)

'Ephelides' (plural of ephelis)
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Ephelis

Lentigines

Epithelial melanocytes

Subepithelial melanocytes

Nevus cells

Benign

Pre-malignant

Malignant

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Simply an increase in the production of melanin by typical melanocytes typically located (ie, in the basal layer of the epidermis)

Are ephelides more likely in fair-skinned, or dark-skinned individuals?
Fair skinned

Nevus cells

Eyelid Skin

What is the layperson word for ephelis?
‘Freckle’

What is the plural of ephelis?
‘Ephelides’
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Benign

Ephelis

Lentigines

Pre-malignant

Malignant

What is the basic issue (ie, cause) underlying ephelides? Simply an increase in the production of melanin by typical melanocytes typically located (ie, in the basal layer of the epidermis)

Are ephelides more likely in fair-skinned, or dark-skinned individuals? Fair skinned

Do ephelides change in response to sunlight exposure?
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Epithelial melanocytes

Subepithelial melanocytes

Benign

Pre-malignant

Malignant

What is the basic issue (ie, cause) underlying ephelides?
Simply an increase in the production of melanin by typical melanocytes typically located (ie, in the basal layer of the epidermis)

Are ephelides more likely in fair-skinned, or dark-skinned individuals?
Fair skinned

Do ephelides change in response to sunlight exposure?
Yes—they darken (and in the absence of exposure, they fade)

Ephelis

Ephelides
Classic ephelides concentration across the sun-exposed malar region
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

- Epidermal melanocytes
- Dermal melanocytes
- Nevus cells

Epibulbar tissue

- Epithelial melanocytes
- Subepithelial melanocytes
- Nevus cells

Benign
- Ephelis
- Lentigines

Pre-malignant
Malignant

In what fundamental ways do lentigines differ from ephelides?
- Lentigines are larger
- Unlike the normal number in ephelides, the number of melanocytes in lentigines is increased
Melanocytic Eyelid and Epibulbar Lesions

**Eyelid Skin**

- **Epidermal melanocytes**
- **Dermal melanocytes**
- **Nevus cells**

**Benign**

- **Ephelis**
- **Lentigines**

**Pre-malignant**

**Malignant**

**Epibulbar tissue**

- **Epithelial melanocytes**
- **Subepithelial melanocytes**
- **Nevus cells**

In what fundamental ways do lentigines differ from ephelides?

- Lentigines are a little larger vs smaller.
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Benign

Epidermal melanocytes

Ephelis

Lentigines

Dermal melanocytes

Nevus cells

Pre-malignant

Malignant

Epibulbar tissue

Epithelial melanocytes

Subepithelial melanocytes

Nevus cells

Benign

Ephelis

CAM

Pre-malignant

Malignant

In what fundamental ways do lentigines differ from ephelides?
--Lentigines are a little larger
--
In what fundamental ways do lentigines differ from ephelides? --Lentigines are a little larger
--Unlike the normal number in ephelides, the number of melanocytes in lentigines is increased vs decreased
In what fundamental ways do lentigines differ from ephelides?

--Lentigines are a little larger

--Unlike the normal number in ephelides, the number of melanocytes in lentigines is increased
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Benign

Pre-malignant

Malignant

Epibulbar tissue

Epithelial melanocytes

Subepithelial melanocytes

Benign

Pre-malignant

Malignant

There are two basic types of lentigines—what are they?

Simple lentigo and solar lentigo

Simple lentigines are not related to sun exposure, whereas solar lentigines are

Ephelis

Lentigines

Nevus cells

Ephelis

CAM
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Benign

Ephelis

Lentigines

Pre-malignant

Malignant

Epibulbar tissue

Epithelial melanocytes

Subepithelial melanocytes

Benign

Ephelis

CAM

Pre-malignant

Malignant

There are two basic types of lentigines—what are they?
Simple lentigo and solar lentigo

Nevus cells

Nevus cells
There are two basic types of lentigines—what are they?

Simple lentigo and solar lentigo

By what variants of the terms simple lentigo and solar lentigo are these also known?

'Ventigo simplex' and 'solar lentigo'

Does lentigo simplex and/or solar lentigo have malignant potential?

No
There are two basic types of lentigines—what are they?

**Simple lentigo and solar lentigo**

*By what variants of the terms simple lentigo and solar lentigo are these also known?*

‘Lentigo simplex’ and ‘senile lentigo’

Does lentigo simplex and/or solar lentigo have malignant potential?

No
There are two basic types of lentigines—what are they?
- Simple lentigo
- Solar lentigo

By what variants of the terms simple lentigo and solar lentigo are these also known?
- ‘Lentigo simplex’
- ‘Senile lentigo’

Why is it called 'senile lentigo'?
Because it is more common in the elderly.
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

There are two basic types of lentigines—what are they?

Simple lentigo and solar lentigo

By what variants of the terms simple lentigo and solar lentigo are these also known?

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‘Lentigo simplex’ and ‘senile lentigo’

Why is it called senile lentigo?

Because it is more common in the elderly

Speaking of the elderly…What does Grandma call these lesions?

Liver spots
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Benign

Ephelis

Lentigines

Pre-malignant

Nevus cells

Nevus cells

Malignant

Ephelis

CAM

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‘Lentigo simplex’ and ‘senile lentigo’

Does lentigo simplex and/or solar lentigo have malignant potential?

No
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Benign

Epithelial melanocytes

Subepithelial melanocytes

Pre-malignant

Malignant

There are two basic types of lentigines—what are they?

Simple lentigo and solar lentigo

By what variants of the terms simple lentigo and solar lentigo are these also known?

‘Lentigo simplex’ and ‘senile lentigo’

Does lentigo simplex have malignant potential?

No

I coulda sworn lentigo simplex had malignant potential. You sure about this?

Yes, I’m sure. You’re thinking of lentigo maligna, a pre-malignant melanocytic lesion of the skin.
There are two basic types of lentigines—what are they?

Simple lentigo and solar lentigo

By what variants of the terms simple lentigo and solar lentigo are these also known?

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There are two basic types of lentigines—what are they?

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Simple lentigo and solar lentigo

In what fundamental way do they differ?
There are two basic types of lentigines—what are they?
Simple lentigo and solar lentigo

In what fundamental way do they differ?
Simple lentigines are not related to sun exposure, whereas solar lentigines are
Solar lentigines: Classic location (dorsum of the hand)
Melanocytic Eyelid and Epibulbar Lesions

Solar lentigo of upper lid
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Benign

Ephelis

Lentigines

Pre-malignant

Malignant

Simple lentigo

There are two basic types of lentigines—what are they?

Simple lentigines have a syndromic association with colon cancer. What is the name of this syndrome?

Peutz-Jeghers syndrome

Epibulbar tissue

Epithelial melanocytes

Subepithelial melanocytes

Benign

Ephelis

CAM

Pre-malignant

Malignant
There are two basic types of lentigines—what are they? Simple lentigo and solar lentigo.

Simple lentigines have a syndromic association with colon cancer. What is the name of this syndrome? Peutz-Jeghers syndrome.
Peutz-Jeghers syndrome: Eyelid simple lentigines
There are two basic types of lentigines—what are they?

Simple lentigo and solar lentigo

Simple lentigines have a syndromic association with colon cancer. What is the name of this syndrome?

How is Peutz-Jeghers pronounced?

Pyoots jeh grz
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Benign

Pre-malignant

Malignant

Ephelis

Lentigines

Epibulbar tissue

Nevus cells

Epithelial melanocytes

Subepithelial melanocytes

Nevus cells

There are two basic types of lentigines—what are they?

Simple lentigo and solar lentigo

Simple lentigines have a syndromic association with colon cancer. What is the name of this syndrome?

Peutz-Jeghers syndrome

How is Peutz-Jeghers pronounced?

Pyoots jeh-grrz
There are two basic types of lentigines—what are they?

Simple lentigo and solar lentigo.

In what fundamental way do they differ?

Simple lentigines are not related to sun exposure, whereas solar lentigines are.

Simple lentigines have a syndromic association with colon cancer. What is the name of this syndrome?

Peutz-Jeghers syndrome.

Are lentigo simplex eyelid lesions the classic harbinger of Peutz-Jeghers syndrome?
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Benign

Epibulbar tissue

Pre-malignant

Malignant

Nevus cells

There are two basic types of lentigines—what are they?

Simple lentigo and solar lentigo

Simple lentigines have a syndromic association with colon cancer. What is the name of this syndrome?

Peutz-Jeghers syndrome

Are lentigo simplex eyelid lesions the classic harbinger of Peutz-Jeghers syndrome?

No, pigmented lesions of the perioral region are the classic/most common finding
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Benign

Ephelis

Lentigines

Pre-malignant

Malignant

There are two basic types of lentigines—what are they?

- Simple lentigo
- Solar lentigo

Simple lentigines are not related to sun exposure, whereas solar lentigines are.

Simple lentigines have a syndromic association with colon cancer. What is the name of this syndrome?

- Peutz-Jeghers syndrome

Are lentigo simplex eyelid lesions the classic harbinger of Peutz-Jeghers syndrome?

No, pigmented lesions of the perioral region are the classic/most common finding.
Characteristic circumoral pigmentation in a patient with Peutz-Jeghers syndrome
Speaking of: Did you notice the pigmented lip lesions in this pic?
There are two basic types of lentigines—what are they?

Simple lentigo and solar lentigo

Simple lentigines have a **syndromic association with colon cancer**.

What is the name of this syndrome?

When ‘colon cancer + ophthalmic issue’ is mentioned, three syndromes should come to mind. One is Peutz-Jeghers syndrome. What are the other two?
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
Dermal melanocytes

Benign
Epithelial melanocytes
Subepithelial melanocytes

Pre-malignant
Ephelis
CAM

Malignant
Ephelis
Nevis cells

Simple lentigo
There are two basic types of lentigines—what are they?
Simple lentigines and solar lentigo

There are two basic types of lentigines—what are they?

Simple lentigines have a syndromic association with colon cancer.
What is the name of this syndrome?

When ‘colon cancer + ophthalmic issue’ is mentioned, three syndromes should come to mind. One is Peutz-Jeghers syndrome. What are the other two?
Gardner syndrome and Muir-Torre syndrome
There are two basic types of lentigines—what are they?

Simple lentigo and solar lentigo

Simple lentigines have a **syndromic association with colon cancer**.

What is the name of this syndrome?

Gardner syndrome

Gardner syndrome is an important subtype of what class of condition?

Familial adenomatous polyposis

What proportion of untreated Gardner syndrome pts will develop colon cancer?

All of them

By what age will this occur?

40, maybe a little later

What is the treatment of choice?

Prophylactic colectomy
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
Dermal melanocytes
Nevus cells

Benign
Pre-malignant
Malignant

Ephelis
Lentigines

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Pre-malignant

Malignant
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- Pts develop hundreds of colonic polyps, a significant number of which are malignant
Intraocular Tumors of Childhood

Gardner syndrome: Colonic polyps
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- Prophylactic colectomy
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal
melanocytes

Dermal
melanocytes

Nevus cells

Benign

Ephelis

Pre-malignant

Simple lentigo

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Malignant

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Eyelid Skin

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Benign

Pre-malignant

Malignant

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Prophylactic colectomy
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

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<th>Malignant</th>
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Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Nevus cells

Benign

Ephelis

Lentigines

Pre-malignant

Simple lentigo

and solar lentigo

Malignant

There are two basic types of lentigines—what are they?

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What is the name of this syndrome?

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By what age will this occur?

40, maybe a little later.

What is the treatment of choice?
**Melanocytic Eyelid and Epibulbar Lesions**

**Eyelid Skin**

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*There are two basic types of lentigines—what are they?*

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Peutz-Jeghers syndrome

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What proportion of untreated Gardner syndrome pts will develop colon cancer? All of them.

By what age will this occur? 40, maybe a little later.

What is the treatment of choice? Prophylactic colectomy.

What ocular finding is associated with Gardner syndrome? CHRPE-like lesions.

What does CHRPE stand for in this context? Congenital hypertrophy of the RPE.

How does CHRPE present? As solitary or grouped hyperpigmented lesions.
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

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**Melanocytic Eyelid and Epibulbar Lesions**

**Eyelid Skin**

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**Benign**

Simple lentigo

**Pre-malignant**

Ephelis and solar lentigo

**Malignant**

**There are two basic types of lentigines—what are they?**

Simple lentigo and solar lentigo

**Simple lentigines have a [syndromic association with colon cancer](#).**

- **What is the name of this syndrome?**
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- **How does CHRPE present?**
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Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
Dermal melanocytes
Nevus cells

Benign
Ephelis
Lentigines

Pre-malignant
Simple lentigo
and solar lentigo

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What ocular finding is associated with Gardner syndrome?
CHRPE-like lesions

**CHRPE** stand for in this context?
Congenital hypertrophy of the RPE

Prophylactic colectomy
**Melanocytic Eyelid and Epibulbar Lesions**

### Eyelid Skin

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#### Benign

- **Ephelis**
- **Lentigines**

#### Pre-malignant

- **Simple lentigo**

#### Malignant

- **Colo-rectal melanocytic tumors**

---

**There are two basic types of lentigines—what are they?**

- **Simple lentigo**
- **Solar lentigo**

**In what fundamental way do they differ?**

- Simple lentigines are not related to sun exposure, whereas solar lentigines are.

**Simple lentigines have a **syndromic association with colon cancer**.**

**What is the name of this syndrome?**

- **Peutz-Jeghers syndrome**

When ‘colon cancer + ophthalmic issue’ is mentioned, three syndromes should come to mind. One is Peutz-Jeghers syndrome. What are the other two?

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- **Muir-Torre syndrome**

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**By what age will this occur?**

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**What is the treatment of choice?**

- **Prophylactic colectomy**

**What ocular finding is associated with Gardner syndrome?**

- **CHRPE-like lesions**

**What does CHRPE stand for in this context?**

- **Congenital hypertrophy of the RPE**

**How does CHRPE present?**

- As solitary or grouped hyperpigmented lesions
There are two basic types of lentigines—what are they?

Simple lentigo and solar lentigo

Simple lentigines have a syndromic association with colon cancer. What is the name of this syndrome?

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What is the treatment of choice?

Prophylactic colectomy

What ocular finding is associated with Gardner syndrome?

CHRPE-like lesions

What does CHRPE stand for in this context?

Congenital hypertrophy of the RPE

How does CHRPE present?

As solitary or grouped hyperpigmented lesions

Prophylactic colectomy
Intraocular Tumors of Childhood

Solitary

Grouped

CHRPE
There are two basic types of lentigines—what are they? Simple lentigo and solar lentigo

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What is the name of this syndrome? Peutz-Jeghers syndrome

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How does CHRPE present? As solitary or grouped hyperpigmented lesions

What characteristics of a CHRPE-like presentation increase the likelihood that it is actually a manifestation of Gardner syndrome?

What is the treatment of choice? Prophylactic colectomy
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Nevus cells

Benign

Simple lentigo

Ephelis

Lentigines

Pre-malignant

Malignant

There are two basic types of lentigines—what are they?

Simple lentigo and solar lentigo

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Gardner syndrome and Muir-Torre syndrome

Gardner syndrome is an important subtype of what class of condition? It is a form of ‘familial adenomatous polyposis’

What transpires in a familial adenomatous polyposis that is concerning?

Pts develop hundreds of colonic polyps, a significant number of which are malignant

What proportion of untreated Gardner syndrome pts will develop colon cancer?

All of them

By what age will this occur?

40, maybe a little later

What is the treatment of choice?

Prophylactic colectomy

What ocular finding is associated with Gardner syndrome?

CHRPE-like lesions

What does CHRPE stand for in this context?

Congenital hypertrophy of the RPE

How does CHRPE present?

As solitary or grouped hyperpigmented lesions

What characteristics of a CHRPE-like presentation increase the likelihood that it is actually a manifestation of Gardner syndrome?

--If it is bi- v unilateral (regular CHRPE is almost always bi- v unilateral)

As solitary or grouped hyperpigmented lesions

Prophylactic colectomy
Melanocytic Eyelid and Epibulbar Lesions

**Eyelid Skin**

- Epidermal melanocytes
- Dermal melanocytes
- Nevus cells

**Benign**
- Ephelis
- Lentigines

**Pre-malignant**
- Simple lentigo
- Solar lentigo

**Malignant**

---

**What are the two basic types of lentigines?**
- Simple lentigo
- Solar lentigo

**In what fundamental way do they differ?**
- Simple lentigos are not related to sun exposure, whereas solar lentigos are.

**What is the name of the syndrome that simple lentigos have a syndromic association with?**
- Peutz-Jeghers syndrome

**When ‘colon cancer + ophthalmic issue’ is mentioned, three syndromes should come to mind. One is Peutz-Jeghers syndrome. What are the other two?**
- Gardner syndrome
- Muir-Torre syndrome

**Gardner syndrome is an important subtype of what class of condition?**
- Familial adenomatous polyposis

**What transpires in a familial adenomatous polyposis that is concerning?**
- Pts develop hundreds of colonic polyps, a significant number of which are malignant.

**What proportion of untreated Gardner syndrome pts will develop colon cancer?**
- All of them

**By what age will this occur?**
- 40, maybe a little later

**What is the treatment of choice?**
- Prophylactic colectomy

**What ocular finding is associated with Gardner syndrome?**
- CHRPE-like lesions

**What does CHRPE stand for in this context?**
- Congenital hypertrophy of the RPE

**How does CHRPE present?**
- As solitary or grouped hyperpigmented lesions

**What characteristics of a CHRPE-like presentation increase the likelihood that it is actually a manifestation of Gardner syndrome?**
- If it is bilateral (regular CHRPE is almost always unilateral)

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Melanocytic Eyelid and Epibulbar Lesions

CHRPE-like lesions of Gardner syndrome: Bilateral presentation
There are two basic types of lentigines—what are they? Simple lentigo and solar lentigo.

Simple lentigines have a syndromic association with colon cancer. What is the name of this syndrome? Peutz-Jeghers syndrome.

When ‘colon cancer + ophthalmic issue’ is mentioned, three syndromes should come to mind. One is Peutz-Jeghers syndrome. What are the other two? Gardner syndrome and Muir-Torre syndrome.

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What proportion of untreated Gardner syndrome pts will develop colon cancer? All of them.

By what age will this occur? 40, maybe a little later.

What is the treatment of choice? Prophylactic colectomy.

What ocular finding is associated with Gardner syndrome? CHRPE-like lesions.

What does CHRPE stand for in this context? Congenital hypertrophy of the RPE.

How does CHRPE present? As solitary or grouped hyperpigmented lesions.

What characteristics of a CHRPE-like presentation increase the likelihood that it is actually a manifestation of Gardner syndrome? —If it is bilateral (regular CHRPE is almost always unilateral)

—If the lesions are scattered throughout multiple sectors of the eyes (ie, not ‘grouped’)

—?” distribution pattern

Prophylactic colectomy
There are two basic types of lentigines—what are they? 

Simple lentigo and solar lentigo

Simple lentigines have a **syndromic association with colon cancer**

What is the name of this syndrome? 

Peutz-Jeghers syndrome

When ‘colon cancer + ophthalmic issue’ is mentioned, three syndromes should come to mind. One is Peutz-Jeghers syndrome. What are the other two? 

Gardner syndrome and Muir-Torre syndrome

Gardner syndrome is an important subtype of what class of condition? 

It is a form of ‘familial adenomatous polyposis’

What transpires in a familial adenomatous polyposis that is concerning? 

Pts develop hundreds of colonic polyps, a significant number of which are malignant

What proportion of untreated Gardner syndrome pts will develop colon cancer? 

All of them

By what age will this occur? 

40, maybe a little later

What is the treatment of choice? 

Prophylactic colectomy

What ocular finding is associated with Gardner syndrome? 

CHRPE-like lesions

What does **CHRPE** stand for in this context? 

Congenital hypertrophy of the RPE

How do CHRPE present? 

As solitary or grouped hyperpigmented lesions

What characteristics of a CHRPE-like presentation increase the likelihood that it is actually a manifestation of Gardner syndrome? 

- If it is bilateral (regular CHRPE is almost always unilateral)
- If the lesions are scattered throughout multiple sectors of the eyes (ie, not ‘grouped’)
Melanocytic Eyelid and Epibulbar Lesions

CHRPE-like lesions of Gardner syndrome: Scattered distribution
There are two basic types of lentigines—what are they?
- Simple lentigo
- Solar lentigo

Simple lentigines have a **syndromic association with colon cancer**.

What is the name of this syndrome?
- Peutz-Jeghers syndrome

When ‘colon cancer + ophthalmic issue’ is mentioned, three syndromes should come to mind. One is Peutz-Jeghers syndrome. What are the other two?
- Gardner syndrome
- Muir-Torre syndrome

Gardner syndrome is an important subtype of what class of condition?
- It is a form of ‘familial adenomatous polyposis’

What transpires in a familial adenomatous polyposis that is concerning?
- Pts develop hundreds of colonic polyps, a significant number of which are malignant

What ocular finding is associated with Gardner syndrome?
- CHRPE-like lesions

What characteristics of a CHRPE-like presentation increase the likelihood that it is actually a manifestation of Gardner syndrome?
- If it is bilateral (regular CHRPE is almost always unilateral)
- If the lesions are scattered throughout multiple sectors of the eyes (ie, not ‘grouped’)
- If the shape of the lesions is pisciform

What is the treatment of choice?
- Prophylactic colectomy
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

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There are two basic types of lentigines—what are they?

Simple lentigo and solar lentigo

Simple lentigines have a **s Syndromic association with colon cancer**

What is the name of this syndrome?

Peutz-Jeghers syndrome

When ‘colon cancer + ophthalmic issue’ is mentioned, three syndromes should come to mind.

One is Peutz-Jeghers syndrome. What are the other two?

Gardner syndrome and Muir-Torre syndrome

Gardner syndrome is an important subtype of what class of condition?

It is a form of ‘familial adenomatous polyposis’

What transpires in a familial adenomatous polyposis that is concerning?

Pts develop hundreds of colonic polyps, a significant number of which are malignant

What proportion of untreated Gardner syndrome pts will develop colon cancer?

All of them

By what age will this occur?

40, maybe a little later

What is the treatment of choice?

Prophylactic colectomy

What ocular finding is associated with Gardner syndrome?

CHRPE-like lesions

What does CHRPE stand for in this context?

Congenital hypertrophy of the RPE

How do CHRPE-like lesions present?

As solitary or grouped hyperpigmented lesions

What characteristics of a CHRPE-like presentation increase the likelihood that it is actually a manifestation of Gardner syndrome?

--If it is bilateral (regular CHRPE is almost always unilateral)
--If the lesions are scattered throughout multiple sectors of the eyes (ie, not ‘grouped’)
--If the shape of the lesions is pisciform
There are two basic types of lentigines—what are they?

- **Simple lentigo**
- **Solar lentigo**

**Simple lentigines** have a **syndromic association with colon cancer**. What is the name of this syndrome?

**Peutz-Jeghers syndrome**

When ‘colon cancer + ophthalmic issue’ is mentioned, three syndromes should come to mind. One is Peutz-Jeghers syndrome. What are the other two?

- **Gardner syndrome**
- **Muir-Torre syndrome**

Gardner syndrome is an important subtype of what class of condition?

It is a form of ‘familial adenomatous polyposis’.

What transpires in a familial adenomatous polyposis that is concerning?

Pts develop hundreds of colonic polyps, a significant number of which are malignant.

What ocular finding is associated with Gardner syndrome?

**CHRPE-like lesions**

**CHRPE** stands for what in this context?

**Congenital hypertrophy of the RPE**

How does CHRPE present?

As solitary or grouped hyperpigmented lesions

What characteristics of a CHRPE-like presentation increase the likelihood that it is actually a manifestation of Gardner syndrome?

- If it is bilateral (regular CHRPE is almost always unilateral)
- If the lesions are scattered throughout multiple sectors of the eyes (i.e., not ‘grouped’)
- If the shape of the lesions is pisciform

**What does pisciform mean?**

It means ‘fish-shaped’

What proportion of untreated Gardner syndrome pts will develop colon cancer?

All of them

By what age will this occur?

40, maybe a little later

What is the treatment of choice?

Prophylactic colectomy
Melanocytic Eyelid and Epibulbar Lesions

**Eyelid Skin**

- Epidermal melanocytes
- Dermal melanocytes
- Nevus cells
- Benign
- Pre-malignant
- Malignant
- Ephelis
- Lentigines
- Nevis cells
- Epibulbar tissue

There are two basic types of lentigines—what are they?

- **Simple lentigo**
- Solar lentigo

Simple lentigines have a **syndromic association with colon cancer**. What is the name of this syndrome?

- Peutz-Jeghers syndrome

When ‘colon cancer + ophthalmic issue’ is mentioned, three syndromes should come to mind. One is Peutz-Jeghers syndrome. What are the other two?

- Gardner syndrome
- Muir-Torre syndrome

Gardner syndrome is an important subtype of what class of condition?

- Familial adenomatous polyposis

What transpires in a familial adenomatous polyposis that is concerning?

- Pts develop hundreds of colonic polyps, a significant number of which are malignant

What proportion of untreated Gardner syndrome pts will develop colon cancer?

- All of them

By what age will this occur?

- 40, maybe a little later

What is the treatment of choice?

- Prophylactic colectomy

What ocular finding is associated with Gardner syndrome?

- CHRPE-like lesions

What does CHRPE stand for in this context?

- Congenital hypertrophy of the RPE

How does CHRPE present?

- As solitary or grouped hyperpigmented lesions
- It means ‘pisciform’

What characteristics of a CHRPE-like presentation increase the likelihood that it is actually a manifestation of Gardner syndrome?

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CHRPE-like lesions of Gardner syndrome: Pisciform shape
Melanocytic Eyelid and Epibulbar Lesions

**Eyelid Skin**

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- Dermal melanocytes
- Nevus cells
- Nevus cells

**Benign**
- Ephelis
- Lentigines

**Pre-malignant**
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How is Muir-Torre pronounced?
- Mur (rhymes with ‘pure’) tore-
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Mure (rhymes with pure) tore-ay
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Epithelial melanocytes

Subepithelial melanocytes

Nevus cells

Benign

Ephelis

Lentigines

Pre-malignant

Simple lentigo

Solar lentigo

Malignant

Epibulbar tissue

There are two basic types of lentigines—what are they?

Simple lentigo and solar lentigo

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Peutz-Jeghers syndrome

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Gardner syndrome and Muir-Torre syndrome

What is the main ophthalmic manifestation of Muir-Torre syndrome?

Multiple sebaceous lesions of (but not necessarily limited to) the eyelids

Mainly sebaceous-cell adenomas and carcinomas

Does Muir-Torre present with multiple adenomatous polyps of the colon as in Peutz-Jeghers and Gardner syndrome?

No; Muir-Torre is an example of a disease spectrum called Hereditary Non-Polyposis Colorectal Cancer
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Nevus cells

Benign

Ephelis

Lentigines

Pre-malignant

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Solar lentigo

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Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

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Multiple skin-colored to yellow–pink papules (arrows) on the face of a 64-year-old woman with a history of colon and cervical cancer. A skin biopsy confirmed a diagnosis of sebaceous adenoma resulting from Muir–Torre syndrome.
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Benign

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Lentigines

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Eyelid Skin

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Epibulbar tissue

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Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

- Epidermal melanocytes
- Dermal melanocytes
- Ephelis
- Lentigines

Nevus cells

Benign
- Pre-malignant
- Malignant

Epibulbar tissue

- Epithelial melanocytes
- Subepithelial melanocytes
- Ephelis

Nevus cells

Benign
- Pre-malignant
- Malignant

What does CAM stand for in this context?

- CAM: Complexion-associated melanosis
- Racial melanosis
- Benign acquired melanosis
- Benign epithelial melanosis
- Primary conjunctival melanosis
- Acquired hypermelanosis
**Melanocytic Eyelid and Epibulbar Lesions**

### Eyelid Skin

- **Epidermal melanocytes**
- **Dermal melanocytes**

### Pre-malignant

- Ephelis
- Lentigines

### Benign

- Nevus cells

### Malignant

### Epibulbar tissue

- **Epithelial melanocytes**
- **Subepithelial melanocytes**

### Pre-malignant

- Ephelis

### Benign

- **CAM**

### Complexion-associated melanosis

---

*What does CAM stand for in this context?*

Complexion-associated melanosis
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
Dermal melanocytes

Benign
Ephelis
Lentigines

Pre-malignant
Malignant

Epibulbar tissue

Epithelial melanocytes
Subepithelial melanocytes

Benign
Ephelis

Pre-malignant
Malignant

What does CAM stand for in this context?
Complexion-associated melanosis

CAM is known by several other names—what are they?
--?
--?
--?
--?
--?
### Melanocytic Eyelid and Epibulbar Lesions

#### Eyelid Skin

<table>
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#### Epibulbar tissue

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**What does CAM stand for in this context?**

Complexion-associated melanosis

**CAM is known by several other names—what are they?**

--Racial melanosis
--Benign acquired melanosis
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--Primary conjunctival melanosis
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Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

- Epidermal melanocytes
- Dermal melanocytes

Benign
- Ephelis
- Lentigines

Pre-malignant

Malignant

Who is prone to developing CAM?

Epithelial melanocytes

Benign
- CAM

Pre-malignant

Malignant

Nevus cells

Who is prone to developing CAM?

It can arise in any racial group, but is commonly associated with more darkly pigmented peoples.

Which portion of the conj is most likely to be involved?
The perilimbal region.

Does it present in unilateral, or bilateral fashion?
Bilateral (and fairly symmetrically so).

Can the palpebral conj be involved? The caruncle? The cornea?
Yes. Yes. Yes—it's called striate melanokeratosis.

What is its malignant potential?
Essentially none.
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
- Ephelis
- Lentigines

Dermal melanocytes

Nevus cells

Benign

Pre-malignant

Malignant

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Melanocytic Eyelid and Epibulbar Lesions

**Eyelid Skin**

Epidermal melanocytes

Dermal melanocytes

Nevus cells

**Benign**

- Ephelis
- Lentigines

**Pre-malignant**

**Malignant**

Who is prone to developing CAM?

It can arise in any racial group, but is commonly associated with more darkly pigmented peoples.

At what life-stage does CAM typically first appear?

Essentially none

At what life-stage does CAM typically first appear?

Young adulthood

Does it tend to be static?

No, it typically progresses with advancing age

Eyelid Skin

Epithelial melanocytes

Subepithelial melanocytes

Benign

Pre-malignant

Malignant

CAM

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What is its malignant potential?
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
Dermal melanocytes

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Benign
Pre-malignant
Malignant

Nevus cells

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Eyelid Skin

Pre-malignant
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CAM
Melanocytic Eyelid and Epibulbar Lesions

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Nevus cells

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Subepithelial melanocytes

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## Melanocytic Eyelid and Epibulbar Lesions

### Eyelid Skin

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### CAM

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### Melanocytic Eyelid and Epibulbar Lesions

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The perilimbal region

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What is its malignant potential? Essentially none.
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
- Ephelis
- Lentigines

Dermal melanocytes

Nevus cells

Who is prone to developing CAM?
It can arise in any racial group, but is commonly associated with more darkly pigmented peoples

Epithelial melanocytes
- Ephelis

Which portion of the conj is most likely to be involved?
The perilimbal region

Benign
- CAM

Pre-malignant

Malignant
Melanocytic Eyelid and Epibulbar Lesions

CAM: Perilimbal involvement
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
Dermal melanocytes

Benign

Pre-malignant

Malignant

Nevus cells

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Essentially none

Upon close inspection, CAM lesions often exhibit a subtle but distinctive pattern—what is it?
Who is prone to developing CAM?
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Which portion of the conj is most likely to be involved?
The perilimbal region.

Upon close inspection, CAM lesions often exhibit a subtle but distinctive pattern—what is it?
‘Microfolds’ (see the next slide).
Complexion-associated melanosis. Slit-lamp photograph of a 73-year-old Black man that demonstrates conjunctival pigmentation with limbal “microfolds” [inset].
Who is prone to developing CAM?
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Melanocytic Eyelid and Epibulbar Lesions

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Benign
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Pre-malignant

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**Eyelid Skin**

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Lentigines

**Pre-malignant**

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Bilateral (and fairly symmetrically so).

**Can the palpebral conj be involved? The caruncle?**

Yes.
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
Dermal melanocytes
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Benign

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Malignant

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Melanocytic Eyelid and Epibulbar Lesions

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Yes. Yes. Yes—it's called two words
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Eyelid Skin

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Melanocytic Eyelid and Epibulbar Lesions

CAM: Striate melanokeratosis
Melanocytic Eyelid and Epibulbar Lesions

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What is its malignant potential?
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Dermal melanocytes

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Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
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Nevus cells

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Epithelium
Lentigines

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Who is prone to developing CAM?
It can arise in any racial group, but is commonly associated with more darkly pigmented peoples.

Which portion of the conj is most likely to be involved?

There’s a simple, commonsense reason why these highly pigmented lesions have essentially no malignant potential. What is it?

Yes. Yes. Yes—it’s called “striate melanokeratosis.”

What is its malignant potential?
Essentially none.
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
Dermal melanocytes
Epitelioid melanocytes
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Pre-malignant

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Yes. Yes. Yes—it's called striate melanokeratosis.

What is its malignant potential?
Essentially none.

There's a simple, commonsense reason why these highly pigmented lesions have essentially no malignant potential. What is it?
It's because the increased pigment in CAM doesn’t stem from the proliferation of melanocytes (with its attendant risk of malignant transformation).
**Melanocytic Eyelid and Epibulbar Lesions**

**Eyelid Skin**

- Epidermal melanocytes
- Dermal melanocytes
- Nevus cells

**Benign**
- Ephelis
- Lentigines

**Pre-malignant**

**Malignant**

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Essentially none.

There’s a simple, commonsense reason why these highly pigmented lesions have essentially no malignant potential. What is it?
It’s because the increased pigment in CAM doesn’t stem from the proliferation of melanocytes (with its attendant risk of malignant transformation), but rather (as mentioned earlier) from an increase in the rate of melanin synthesis and transfer to adjacent basal epithelial cells.
Melanocytic Eyelid and Epibulbar Lesions

CAM is a *nonproliferative* process: The number of melanocytes is normal, they just produce an increased amount of melanin that gets transferred to the surrounding keratinocytes.

CAM
Complexion-associated melanosis. A, Clinical appearance. B, Histologic examination shows a normal density of small, morphologically unremarkable melanocytes confined mainly to the basal layer of the epithelium (arrows) with variable extension of pigment into more superficial epithelial layers.
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Ephelis

Lentigines

Benign

Pre-malignant

Malignant

Epibulbar tissue

Epithelial melanocytes

Subepithelial melanocytes

Ephelis

CAM

Benign

Pre-malignant

Malignant

Next, let’s look at *benign lesions deriving from dermal and subepithelial melanocytes*

*No question—proceed when ready*
Melanocytic Eyelid and Epibulbar Lesions

**Eyelid Skin**

- **Epidermal melanocytes**
  - Ephelis
  - Lentigines
- **Dermal melanocytes**

There are three benign eyelid skin lesions attributable to dermal melanocytes—what are they?

**Epibulbar tissue**

- **Epithelial melanocytes**
  - Ephelis
  - CAM
- **Subepithelial melanocytes**

- Nevus cells
**Melanocytic Eyelid and Epibulbar Lesions**

### Eyelid Skin

<table>
<thead>
<tr>
<th>Benign</th>
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<th>Malignant</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dermal melanocytes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue nevus</td>
<td>(Oculo)dermal melanocytosis</td>
<td></td>
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</tbody>
</table>

*There are three benign eyelid skin lesions attributable to dermal melanocytes—what are they? (Note: Oculodermal melanocytosis and dermal melanocytosis are separate conditions)*

### Epibulbar tissue

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**Nevus cells**
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Benign

- Epidermal melanocytes
  - Ephelis
  - Lentigines

Pre-malignant

Malignant

- Dermal melanocytes
  - Blue nevus
  - (Oculo)dermal melanocytosis

Epibulbar tissue

Benign

- Epithelial melanocytes
  - Ephelis
  - CAM

Pre-malignant

Malignant

- Subepithelial melanocytes
  - ?
  - ?

What are the equivalent lesions of epibulbar tissue?
**Melanocytic Eyelid and Epibulbar Lesions**

**Eyelid Skin**

*Benign*

- Epidermal melanocytes
  - Ephelis
  - Lentigines

*Dermal melanocytes*

*Bilateral lentigines syndrome* (Oculo)dermal melanocytosis

**Pre-malignant**

**Malignant**

**Epibulbar tissue**

*Benign*

- Epithelial melanocytes
  - Ephelis
  - CAM

*Subepithelial melanocytes*

- Blue nevus?
  - Ocular(dermal) melanocytosis

**Pre-malignant**

**Malignant**

*What are the equivalent lesions of epibulbar tissue?*

*(Ditto for oculodermal melanocytosis and ocular melanocytosis)*
**Melanocytic Eyelid and Epibulbar Lesions**

**Eyelid Skin**

- **Epidermal melanocytes**
  - Ephelis
  - Lentigines

- **Dermal melanocytes**
  - Blue nevus
  - (Oculo)dermal melanocytosis

**Epibulbar tissue**

- **Epithelial melanocytes**
  - Ephelis
  - CAM

- **Subepithelial melanocytes**
  - Blue nevus?
  - Ocular(dermal) melanocytosis

**What are the equivalent lesions of epibulbar tissue?**

*(Ditto for oculodermal melanocytosis and ocular melanocytosis)*

*We'll unpack the question mark shortly*
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Benign
- Epidermal melanocytes
  - Ephelis
  - Lentigines

Pre-malignant

Malignant

- Dermal melanocytes
  - Blue nevus (Oculo) dermal melanocytosis

Note: The terms dermal melanocytosis and ocular melanocytosis refer to related but separate conditions at each location

Epibulbar tissue

Benign
- Epithelial melanocytes
  - Ephelis
  - CAM

Pre-malignant

Malignant

- Subepithelial melanocytes
  - Blue nevus? Ocular (dermal) melanocytosis

Nevus cells
Melanocytic Eyelid and Epibulbar Lesions

Eyeled Skin

Epidermal melanocytes
- Ephelis
- Lentigines

Dermal melanocytes
- Blue nevus
- Oculo dermal melanocytosis

Note: But oculodermal melanocytosis refers to a single condition involving both locations

Epibulbar tissue

Epithelial melanocytes
- Ephelis
- CAM

Subepithelial melanocytes
- Blue nevus?”
- Oculo dermal melanocytosis

Benign
- Nevus cells

Pre-malignant

Malignant
- Nevus cells

Benign

Pre-malignant

Malignant
First things first. Surely something called a blue nevus is made up of nevus cells—specifically, those ‘blue nevus cells’ mentioned on an earlier slide?
**Melanocytic Eyelid and Epibulbar Lesions**

**Eyelid Skin**

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First things first. Surely something called a blue nevus is made up of nevus cells—specifically, those ‘blue nevus cells’ mentioned on an earlier slide? You’d think so, wouldn’t you? And in truth, they probably are. But the latest edition (at the time of this writing) of the Plastics book refers to the responsible cells as “dermal melanocytes.” Caveat emptor.
First things first. Surely something called a blue nevus is made up of nevus cells—specifically, those ‘blue nevus cells’ mentioned on an earlier slide? You’d think so, wouldn’t you? And in truth, they probably are. But the latest edition (at the time of this writing) of the Plastics book refers to the responsible cells as “dermal melanocytes.” Caveat emptor.

Diameter-wise, are blue nevi large, or small?
**Melanocytic Eyelid and Epibulbar Lesions**

## Eyelid Skin

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<tr>
<td>melanocytes</td>
<td>Ephelis</td>
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**First things first. Surely something called a **blue nevus** is made up of nevus cells—specifically, those ‘blue nevus cells’ mentioned on an earlier slide?**

You’d think so, wouldn’t you? And in truth, **they probably are**. But the latest edition (at the time of this writing) of the *Plastics* book refers to the responsible cells as “dermal melanocytes.” Caveat emptor.

**Diameter-wise, are blue nevi large, or small?**

Small—less than 10 mm

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<td>CAM</td>
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# and units
First things first. Surely something called a blue nevus is made up of nevus cells—specifically, those ‘blue nevus cells’ mentioned on an earlier slide? You’d think so, wouldn’t you? And in truth, they probably are. But the latest edition (at the time of this writing) of the Plastics book refers to the responsible cells as “dermal melanocytes.” Caveat emptor.

Diameter-wise, are blue nevi large, or small? Small—less than 10 mm
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
Dermal melanocytes

Nevus cells

Benign

Epithelial melanocytes
Subepithelial melanocytes

Pre-malignant

Ephelis
Lentigines

Malignant

First things first. Surely something called a blue nevus is made up of nevus cells—specifically, those ‘blue nevus cells’ mentioned on an earlier slide? You’d think so, wouldn’t you? And in truth, they probably are. But the latest edition (at the time of this writing) of the Plastics book refers to the responsible cells as “dermal melanocytes.” Caveat emptor.

Diameter-wise, are blue nevi large, or small?
Small—less than 10 mm

Are they flat, or elevated?

Benign

Ephelis
CAM

Pre-malignant

Blue nevus?
Ocular(odermal) melanocytosis

Malignant
First things first. Surely something called a blue nevus is made up of nevus cells—specifically, those ‘blue nevus cells’ mentioned on an earlier slide? You’d think so, wouldn’t you? And in truth, they probably are. But the latest edition (at the time of this writing) of the Plastics book refers to the responsible cells as “dermal melanocytes.” Caveat emptor.

Diameter-wise, are blue nevi large, or small?
Small—less than 10 mm

Are they flat, or elevated?
Elevated—looks like a small dark dome
Melanocytic Eyelid and Epibulbar Lesions

Blue nevus (not eyelid, obvs)
## Melanocytic Eyelid and Epibulbar Lesions

### Eyelid Skin

<table>
<thead>
<tr>
<th>Category</th>
<th>Cell Type</th>
<th>Lesion Type</th>
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</thead>
<tbody>
<tr>
<td>Benign</td>
<td>Epidermal melanocytes</td>
<td>Ephelis, Lentigines</td>
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### Epibulbar tissue

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### About that question mark:
The latest (again, as I write this) edition of the *External Dz* book doesn’t mention blue nevi of the conj. The *Path* book *might* (it’s not entirely clear in context).
**Melanocytic Eyelid and Epibulbar Lesions**

### Eyelid Skin
- **Epidermal melanocytes**
  - Ephelis
  - Lentigines
- **Dermal melanocytes**
  - Blue nevus
  - (Oculo)dermal melanocytosis

### Epibulbar tissue
- **Epithelial melanocytes**
  - Ephelis
  - CAM
- **Subepithelial melanocytes**
  - Blue nevus?
  - Ocular(dermal) melanocytosis

**About that question mark:** The latest (again, as I write this) edition of the *External Dz* book doesn’t mention blue nevi of the conj. The *Path* book *might* (it’s not entirely clear in context). My take: The likelihood of encountering an OKAP question about blue nevi of the conj is too low to warrant fretting about (like I’m doing right now).
Melanocytic Eyelid and Epibulbar Lesions

Just because: Blue nevus of the conjunctiva
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
- Ephelis
- Lentigines

Dermal melanocytes
- Blue nevus
- (Oculo)dermal melanocytosis

Nevus cells

Benign
- Nevis cells

Pre-malignant

Malignant

How does dermal melanocytosis present?

- With eyelid and periocular skin containing patches of diffusely brown, gray or blue pigmentation

- Does it tend to be unilateral, or bilateral?
  - It is unilateral in about 95% of cases

- Is there a gender predilection?
  - Yes, ♀ are more likely to be affected

- Does it manifest an ethnic predilection?
  - Yes, those of Hispanic, African or Asian descent are at increased risk
Melanocytic Eyelid and Epibulbar Lesions

Epidermal melanocytes
- Ephelis
- Lentigines

Dermal melanocytes
- Blue nevus
- Ocular (dermal) melanocytosis

Eyelid Skin

Benign
- Nevus cells

Pre-malignant

Malignant

How does dermal melanocytosis present?
With eyelid and periocular skin containing patches of diffusely brown, gray or blue pigmentation.
**Melanocytic Eyelid and Epibulbar Lesions**

**Eyelid Skin**

- Epidermal melanocytes
- Dermal melanocytes

- Benign
  - Ephelis
  - Lentigines

- Pre-malignant
- Malignant

- Nevus cells

**How does dermal melanocytosis present?**
With eyelid and periocular skin containing patches of diffusely brown, gray or blue pigmentation.

**The pigment tends to be distributed in a particular pattern—what is it?**

- With eyelid and periocular skin containing patches of diffusely brown, gray or blue pigmentation.
- Tends to be limited to the dermatomes of V1 (ophthalmic nerve) and V2 (maxillary nerve).
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Benign

Ephelis

Lentigines

Nevus cells

Pre-malignant

Malignant

How does dermal melanocytosis present?
With eyelid and periocular skin containing patches of diffusely brown, gray or blue pigmentation

The pigment tends to be distributed in a particular pattern—what is it?
It tends to be limited to the dermatomes of V1 (aka the ophthalmic nerve) and another nerve

Ocular (odermal) melanocytosis

CAM

Ocular (odermal) melanocytosis
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
- Ephelis
- Lentigines

Dermal melanocytes
- Blue nevus
- (Oculo)dermal melanocytosis

Benign

Pre-malignant

Malignant

How does dermal melanocytosis present?
With eyelid and periocular skin containing patches of diffusely brown, gray or blue pigmentation

The pigment tends to be distributed in a particular pattern—what is it?
It tends to be limited to the dermatomes of V1 (aka the ophthalmic nerve) and V2 (aka the maxillary nerve)

Yes, ♀ are more likely to be affected
Yes, those of Hispanic, African or Asian descent are at increased risk

Eyelid Skin

Nevus cells

Epibulbar tissue

Ocular (odermal) melanocytosis
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
- Ephelis
- Lentigines

Dermal melanocytes
- Blue nevus
- (Oculo)dermal melanocytosis

Benign

Pre-malignant

Malignant

Nevus cells

How does dermal melanocytosis present?
With eyelid and periocular skin containing patches of diffusely brown, gray or blue pigmentation

The pigment tends to be distributed in a particular pattern—what is it?
It tends to be limited to the dermatomes of $V_1$ (aka the ophthalmic nerve) and $V_2$ (aka the maxillary nerve)
Melanocytic Eyelid and Epibulbar Lesions

Dermal melanocytosis
**Melanocytic Eyelid and Epibulbar Lesions**

**Eyelid Skin**

- Epidermal melanocytes
  - Ephelis
  - Lentigines
- Dermal melanocytes
  - Blue nevus
  - Ocular (odermal) melanocytosis

**Benign**

**Pre-malignant**

**Malignant**

How does dermal melanocytosis present?
With eyelid and periocular skin containing patches of diffusely brown, gray or blue pigmentation

Does it tend to be unilateral, or bilateral?

Does it tend to be unilateral, or bilateral?

Yes, ♀ are more likely to be affected
Yes, those of Hispanic, African or Asian descent are at increased risk
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
- Ephelis
- Lentigines

Dermal melanocytes
- Blue nevus

Nevus cells

How does dermal melanocytosis present?
With eyelid and periocular skin containing patches of diffusely brown, gray or blue pigmentation

Does it tend to be unilateral, or bilateral?
It is unilateral in about **95%** of cases

Benign

Pre-malignant

Malignant

Ocular (odermal) melanocytosis
### Melanocytic Eyelid and Epibulbar Lesions

#### Eyelid Skin

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**How does dermal melanocytosis present?**
With eyelid and periocular skin containing patches of diffusely brown, gray or blue pigmentation

**Does it tend to be unilateral, or bilateral?**
It is unilateral in about 95% of cases
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Benign
- Epidermal melanocytes
  - Ephelis
  - Lentigines

Pre-malignant

Malignant
- Dermal melanocytes
  - Blue nevus
    - (Oculo)dermal melanocytosis

Nevus cells

How does dermal melanocytosis present?
With eyelid and periocular skin containing patches of diffusely brown, gray or blue pigmentation

Does it tend to be unilateral, or bilateral?
It is unilateral in about 95% of cases

Is there a gender predilection?
Yes, ♀ are more likely to be affected

Does it manifest an ethnoicity predilection?
Yes, those of Hispanic, African or Asian descent are at increased risk
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
- Ephelis
- Lentigines

Dermal melanocytes
- Blue nevus
- (Oculo)dermal melanocytosis

Benign

Pre-malignant

Malignant

How does dermal melanocytosis present?
With eyelid and periocular skin containing patches of diffusely brown, gray or blue pigmentation

Does it tend to be unilateral, or bilateral?
It is unilateral in about 95% of cases

Is there a gender predilection?
Yes, ♀ are more likely to be affected
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Benign

Epidermal melanocytes
EPHELIS
Lentigines

Dermal melanocytes
BLUE NEVUS

Pre-malignant

Malignant

Nevus cells

How does dermal melanocytosis present?
With eyelid and periocular skin containing patches of diffusely brown, gray or blue pigmentation

Does it tend to be unilateral, or bilateral?
It is unilateral in about 95% of cases

Is there a gender predilection?
Yes, ♀ are more likely to be affected

Ocular(dermal) melanocytosis
**Melanocytic Eyelid and Epibulbar Lesions**

### Eyelid Skin

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**How does dermal melanocytosis present?**
With eyelid and periocular skin containing patches of diffusely brown, gray or blue pigmentation.

**Does it tend to be unilateral, or bilateral?**
It is unilateral in about 95% of cases.

**Is there a gender predilection?**
Yes, ♀ are more likely to be affected.

**Does it manifest an ethnicity predilection?**
Yes, those of Hispanic, African or Asian descent are at increased risk.
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
- Ephelis
- Lentigines

Dermal melanocytes
- Blue nevus
- (Oculo)dermal melanocytosis

Benign
- Nevus cells

Pre-malignant

Malignant

How does dermal melanocytosis present?
With eyelid and periocular skin containing patches of diffusely brown, gray or blue pigmentation

Does it tend to be unilateral, or bilateral?
It is unilateral in about 95% of cases

Is there a gender predilection?
Yes, ♀ are more likely to be affected

Does it manifest an ethnicity predilection?
Yes, those of Hispanic, African or Asian descent are at increased risk
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Epheles

Lentigines

Blue nevus

Ocular (odermal) melanocytosis

How does dermal melanocytosis present?
With eyelid and periocular skin containing patches of diffusely brown, gray, or blue pigmentation.

Does it tend to be unilateral, or bilateral?
It is unilateral in about 95% of cases.

Is there a gender predilection?
Yes, ♀ are more likely to be affected.

Does it manifest an ethnicity predilection?
Yes, those of Hispanic, African, or Asian descent are at increased risk.
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
  Ephelis
  Lentigines

Dermal melanocytes
  Blue nevus
  (Oculo) dermal melanocytosis

Benign
  Nevus cells

Pre-malignant
  Nevus cells

Malignant
  Nevus cells

Both the Path and Plastics books state that dermal melanocytosis is a form of another melanocytic lesion—which one? (It's already been mentioned.)

How does dermal melanocytosis present?
With eyelid and periocular skin containing patches of diffusely brown, gray or blue pigmentation

Does it tend to be unilateral or bilateral?
It is unilateral in about 95% of cases

Is there a gender predilection?
Yes, ♀ are more likely to be affected

Does it manifest an ethnicity predilection?
Yes, those of Hispanic, African or Asian descent are at increased risk
Melanocytic Eyelid and Epibulbar Lesions

**Eyelid Skin**

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<td>Ocular(dermal) melanocytosis</td>
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**How does dermal melanocytosis present?**
- With eyelid and periocular skin containing patches of diffusely brown, gray or blue pigmentation

**Does it tend to be unilateral or bilateral?**
- It is unilateral in about 95% of cases

**Is there a gender predilection?**
- Yes, ♀ are more likely to be affected

**Does it manifest an ethnicity predilection?**
- Yes, those of Hispanic, African or Asian descent are at increased risk

*Both the Path and Plastics books state that dermal melanocytosis is a form of another melanocytic lesion—which one? (It’s already been mentioned.) Both books refer to it as a form of ‘blue nevus.’*
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Nevus cells

Benign

Ephelis

Lentigines

Blue nevus

(ocular) dermal melanocytosis

Pre-malignant

Malignant

Both the Path and Plastics books state that dermal melanocytosis is a form of another melanocytic lesion— which one? (It’s already been mentioned.) Both books refer to it as a form of ‘blue nevus.’ Note that, with respect to cell of origin, this puts us in the same dilemma we were with blue nevi.

How does it present?

With eyelid and periocular skin containing patches of diffusely brown, gray or blue pigmentation

Does it tend to be unilateral, or bilateral?

It is unilateral in about 95% of cases

Is there a gender predilection?

Yes, ♀ are more likely to be affected

Does it manifest an ethnicity predilection?

Yes, those of Hispanic, African or Asian descent are at increased risk

Benign

Pre-malignant

Malignant

Path and Plastics

Oculo(dermal) melanocytosis
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

- **Epidermal melanocytes**
  - Ephelis
  - Lentigines

- **Dermal melanocytes**
  - Blue nevus (Oculo) dermal melanocytosis

**Benign**

- Nevus cells

**Pre-malignant**

**Malignant**

*How does dermal melanocytosis present?*

With eyelid and periocular skin containing patches of diffusely brown, gray, or blue pigmentation.

*With eyelid and periocular skin containing patches of diffusely brown, gray, or blue pigmentation.*

*Does it tend to be unilateral, or bilateral?*

It is unilateral in about 95% of cases.

*Does it manifest an ethnicity predilection?*

Yes, those of Hispanic, African or Asian descent are at increased risk.

Speaking of the *Plastics* book, an important observation: The current (2020-21) version states that dermal melanocytosis is a form of another melanocytic lesion—which one? (It's already been mentioned.) Both the Path and *Plastics book* state that dermal melanocytosis is a form of another melanocytic lesion—*Blue nevus.* Note that with respect to cell of origin this puts us in the same place we were with blue nevi.

Speaking of the *Plastics* book, an important observation: The current (2020-21) version states that dermal melanocytosis is aka *Nevus of Ota.* Per every other *BCSC* book that addresses the topic, as well as per other Academy sources, this assertion is erroneous—it is oculo*dermal melanocytosis* (to be discussed very shortly) that is aka nevus of Ota, not dermal melanocytosis.
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
- Ephelis
- Lentigines

Dermal melanocytes
- Blue nevus

Epithelial melanocytes
- Ephelis
- CAM

Nevus cells

Benign
- Ephelis
- Lentigines

Pre-malignant
- Blue nevus

Malignant

How does ocular melanocytosis present?

Ocular (odermal) melanocytosis

An eye with ocular melanocytosis is at increased risk of what potentially blinding ocular condition?

Glaucoma—about 10% of these eyes develop it

Does it manifest an ethnicity predilection?

Like the dermal version, it is more common among individuals of Hispanic, African, and/or Asian descent.
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Melanocytic Eyelid and Epibulbar Lesions

Ocular melanocytosis
Melanocytic Eyelid and Epibulbar Lesions

Ocular melanocytosis
Melanocytic Eyelid and Epibulbar Lesions

A, Clinical photograph illustrating slate-gray patches of pigmentation of the scleral surface.
B, Histologic examination shows an increased population of intensely pigmented spindle and dendritic melanocytes in the deep episclera (E), sclera (S), and uveal tract (U).

Ocular melanocytosis
Melanocytic Eyelid and Epibulbar Lesions

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**Ocular (odermal) melanocytosis**
**Melanocytic Eyelid and Epibulbar Lesions**

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- Ephelis  
- CAM  

**Ocular (odermal) melanocytosis**

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*If you said melanoma, hold that thought…*
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Is the glaucoma open angle, or closed?
Glaucoma

Ocular (odermal) melanocytosis

Like the dermal version, it is more common among individuals of Hispanic, African, and/or Asian descent

Is the glaucoma open angle, or closed?
Open

Ah, so they're at risk for POAG?
No. Remember, the P in POAG stands for primary; the glaucoma in ocular melanocytosis is secondary.
Melanocytic Eyelid and Epibulbar Lesions

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Dermal melanocytes
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Epithelial melanocytes
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Nevus cells

Eyelid Skin

Melanocytic Nevi

An eye with ocular melanocytosis is at increased risk of glaucoma—about 10% of these eyes develop it. Is it usually unilateral? Yes. Does it manifest an ethnicity predilection? Yes, like the dermal version, it is more common among individuals of Hispanic, African, and/or Asian descent. Is the glaucoma open angle, or closed? Open. Ah, so they're at risk for POAG? No. Remember, the P in POAG stands for primary; the glaucoma in ocular melanocytosis is secondary.
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Getting back to the ‘Hold that thought’: Does ocular melanocytosis convey an increased risk of melanoma?

Melanoma?
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Which pts are at increased risk?
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Ocular (odermal) melanocytosis
Epibulbar tissue
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- Nevus cells
- Ocular (dermal) melanocytosis

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## Melanocytic Eyelid and Epibulbar Lesions

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### Ocular (Odermal) Melanocytosis

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**So when a melanoma arises, is it in the episcleral pigmented patch?**
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Ocular (odermal) melanocytosis

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Eyelid Skin
Nevus cells
Epibulbar tissue
Melanocytic Eyelid and Epibulbar Lesions

Ocular (odermal) melanocytosis

What is the lifetime risk of uveal melanoma in a white person without ocular melanocytosis?
About 6 in a million

What is the lifetime risk of uveal melanoma in a white person with ocular melanocytosis?
About 1 in 400!
### Melanocytic Eyelid and Epibulbar Lesions

#### Eyelid Skin

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**When a melanoma arises, is it in the episcleral pigmented patch?**

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Malignant

How does ocular melanocytosis present?
With slate-gray patches of episcleral pigmentation

Does it tend to be unilateral, or bilateral?
It is usually unilateral

An eye with ocular melanocytosis is at increased risk of what potentially blinding ocular condition?

Getting back to the ‘Hold that thought’: Does ocular melanocytosis convey an increased risk of melanoma?

What is the lifetime risk of uveal melanoma in a white person without ocular melanocytosis?
About 6 in a million

What is the lifetime risk of uveal melanoma in a white person with ocular melanocytosis?
About 1 in 400!

majority occur in the uvea.
**Melanocytic Eyelid and Epibulbar Lesions**

**Eyelid Skin**

- **Epidermal melanocytes**
  - Ephelis
  - Lentigines

- **Dermal melanocytes**
  - Blue nevus

**Benign**

**Pre-malignant**

**Malignant**

- **Nevus cells**
- **Oculo dermal melanocytosis**

*Remind me: Oculodermal melanocytosis is aka...*

- **Nevus of Ota**
  - Does nevus of Ota tend to occur in a V1/V2 distribution like dermal melanocytosis? **Yes**
  - Does it convey a risk of melanoma in white folk like ocular melanocytosis? **Yes**
  - Does it have a female preponderance like dermal melanocytosis? **Yes**
  - Does it convey a risk of glaucoma like ocular melanocytosis? **Yes**
  - Does it have an Asian/African/Hispanic preponderance like both ocular and dermal melanocytosis? **Yes**
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
Dermal melanocytes

Ephelis
Lentigines

Blue nevus

Benign

Pre-malignant

Malignant

Nevus cells

Oculodermal melanocytosis

Remind me: Oculodermal melanocytosis is aka... Nevus of Ota

Oculo dermal melanocytosis

Nevus of Ota

Yes

Yes

Yes

Yes

Yes
Oculodermal melanocytosis (nevus of Ota)
# Melanocytic Eyelid and Epibulbar Lesions

## Eyelid Skin

<table>
<thead>
<tr>
<th>Category</th>
<th>Epidermal melanocytes</th>
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Remind me: **Oculodermal melanocytosis is aka… Nevus of Ota**

Does nevus of Ota tend to occur in a V1/V2 distribution like dermal melanocytosis?
Melanocytic Eyelid and Epibulbar Lesions

Epidermal melanocytes

Dermal melanocytes

Ephelis

Lentigines

Blue nevus

Epithelial melanocytes

Subepithelial melanocytes

Benign
Pre-malignant
Malignant

Eyelid Skin

Nevus cells

Epibulbar tissue

Oculo-dermal melanocytosis

Does nevus of Ota tend to occur in a V1/V2 distribution like dermal melanocytosis? Yes

Remind me: Oculodermal melanocytosis is aka...

Nevus of Ota

Does nevus of Ota tend to occur in a V1/V2 distribution like dermal melanocytosis? Yes

Does it convey a risk of melanoma in white folk like ocular melanocytosis? Yes

Does it have a female preponderance like dermal melanocytosis? Yes

Does it convey a risk of glaucoma like ocular melanocytosis? Yes

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**Melanocytic Eyelid and Epibulbar Lesions**

**Eyelid Skin**

- Epidermal melanocytes
  - Ephelis
  - Lentigines
- Dermal melanocytes
  - Blue nevus
  - **Oculo dermal melanocytosis**
- Nevus cells

Benign
- Ephelis
- Lentigines

Pre-malignant
- **Nevus of Ota**

Malignant
- CAM
- CAM nevus
  - **Oculo dermal melanocytosis**

*Remind me: Oculodermal melanocytosis is aka…* Nevius of Ota

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- Dermal melanocytes

- Nevus cells

**Benign**

- Lentigines
- Blue nevus

**Pre-malignant**

**Malignant**

Remind me: *Oculodermal melanocytosis is aka…Nevus of Ota*

*Does nevus of Ota tend to occur in a V1/V2 distribution like dermal melanocytosis? Yes*

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**Nevus of Ota**

- Oculo
dermal melanocytosis
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

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Nevus cells

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- Oculo\(\text{dermal}\) melanocytosis

Malignant
- Remind me: Oculodermal melanocytosis is aka… Nevus of Ota

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Pre-malignant

Malignant

**Oculo\(\text{dermal}\) melanocytosis**
Melanocytic Eyelid and Epibulbar Lesions

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Nevus of Ota
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Oculo dermal melanocytosis
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- Nevus of Ota

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  - Lentigines
- **Dermal melanocytes**
  - Blue nevus
  - (Oculo)dermal melanocytosis

**Epibulbar tissue**

- **Benign**
  - Epithelial melanocytes
    - Ephelis
  - CAM
- **Subepithelial melanocytes**
  - Blue nevus
  - Ocular(odermal) melanocytosis

Next, let’s look at **benign lesions deriving from nevus cells**

No question—proceed when ready
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

- **Epidermal melanocytes**
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- **Dermal melanocytes**
  - Blue nevus
  - (Oculo)dermal melanocytosis

What benign eyelid skin lesion is attributable to nevus cells?

Epibulbar tissue

- **Epithelial melanocytes**
  - Ephelis
  - CAM

- **Subepithelial melanocytes**
  - Blue nevus
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- **Nevus cells**
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Melanocytic Eyelid and Epibulbar Lesions

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- Nevus cells

Pre-malignant

Malignant

Epibulbar tissue

Benign
- Epithelial melanocytes
  - Ephelis
  - CAM
- Nevus cells

Pre-malignant

Malignant

- Subepithelial melanocytes
  - Blue nevus
  - Ocular(odermal) melanocytosis

What is its epibulbar equivalent?
Melanocytic Eyelid and Epibulbar Lesions

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- Epidermal melanocytes
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  - Lentigines
- Dermal melanocytes
  - Blue nevus
  - (Oculo)dermal melanocytosis

**Epibulbar tissue**

- Epithelial melanocytes
  - Ephelis
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- Subepithelial melanocytes
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What is its epibulbar equivalent?

Nevus cells

Nevus
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

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Epithelial melanocytes

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Nevus cells

Are congenital eyelid nevi visible at birth?

Benign

Pre-malignant

Malignant

Nevus cells

Nevus

Nevus

Ocular(dermal) melanocytosis
Melanocytic Eyelid and Epibulbar Lesions

Ephelis
Lentigines
Blue nevus
Nevus
Ephelis
CAM
Ocular(odermal) melanocytosis

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- Blue nevus

Pre-malignant
- Nevus cells

Malignant
- Nevus

Are congenital eyelid nevi visible at birth?
You’d think so, but no

Nevi have a three-stage ‘life cycle.’ What are the stages?

Where are the theques at each stage? What does each stage look like?

To where (ie, which skin layer) the nevus cells are found at that stage?

- The dermis-epidermis junction. Small, pigmented, flat lesion
- Extending down into the dermis, up through the epidermis. Somewhat larger, somewhat more pigmented, somewhat elevated lesion
- Dermis only (after involution of the epidermal component).
Are congenital eyelid nevi visible at birth?
You’d think so, but no

Nevi have a three-stage ‘life cycle.’ What are the stages?

**Junctional**
- Dermal

**Compound**
- Epithelial melanocytes
- Subepithelial melanocytes
- Nevus cells

**Dermal**
- Nevus cells

-Epithelial melanocytes
- Subepithelial melanocytes
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Benign

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You’d think so, but no

Nevi have a three-stage ‘life cycle.’ What are the stages? To what do the stage-names refer?
Are congenital eyelid nevi visible at birth? You’d think so, but no.

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To where (ie, which skin layer) the nevus cells are found at that stage:
- Junctional
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Eyelid Skin

Epidermal melanocytes
- Ephelis

Dermal melanocytes
- Blue nevus

Nevus cells

Benign
- Ephelis
- CAM

Pre-malignant

Malignant

Subepithelial melanocytes
- Blue nevus
- Ocular (odermal) melanocytosis

---

Melanocytic Eyelid and Epibulbar Lesions

Oculo (odermal) melanocytosis
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
Epithelial melanocytes
Ephelis

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Subepithelial melanocytes
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Nevus cells
Nevus cells
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Benign
Pre-malignant
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You’d think so, but no

Nevi have a three-stage ‘life cycle.’ What are the stages? To what do the stage-names refer?
Where are the nevus cells at each stage?

To where (ie, which skin layer) the nevus cells are found at that stage

--Junctional: ?
--Compound

--Dermal
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

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--Compound
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Benign
Pre-malignant
Malignant

Epithelial melanocytes
Subepithelial melanocytes

Nevus cells

Benign
Pre-malignant
Malignant

Ephelis
CAM

Blue nevus
Ocular(dermal) melanocytosis
**Melanocytic Eyelid and Epibulbar Lesions**

*Junctional* nevus. Nest of nevus cells (pigmented in this case) are apparent at the dermal–epidermal junction.
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

- Epidermal melanocytes
- Dermal melanocytes

Benign

- Ephelis
- Blue nevus

Pre-malignant

- Nevus cells

Malignant

- Nevus cells
- Ocular (odermal) melanocytosis

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Nevi have a three-stage ‘life cycle.’ What are the stages? To what do the stage-names refer?

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To where (ie, which skin layer) the nevus cells are found at that stage

- Junctional: The dermis-epidermis junction
- Compound: ?

- Dermal

Next Q
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
Ephelis

Dermal melanocytes
Blue nevus

Nevus cells

Benign

Pre-malignant

Malignant

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Nevi have a three-stage ‘life cycle.’ What are the stages? To what do the stage-names refer?

Where are the nevus cells at each stage?

To where (ie, which skin layer) the nevus cells are found at that stage

--Junctional: The dermis-epidermis junction
--Compound: Extending down into the dermis, up through the epidermis

--Dermal

Epithelial melanocytes
Ephelis
CAM

Subepithelial melanocytes
Blue nevus
Ocular(dermal) melanocytosis

Nevus cells

Nevus
Compound nevus. Nests of nevus cells are present in the dermis (arrows) as well as at the dermal–epidermal junction (arrowheads)
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

- Epidermal melanocytes
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Benign

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Pre-malignant

- Nevus

Malignant

- Epithelial melanocytes
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- CAM

Pre-malignant

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Malignant

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Nevi have a three-stage ‘life cycle.’ What are the stages? To what do the stage-names refer?
Where are the nevus cells at each stage?

- Junctional: The dermis-epidermis junction
- Compound: Extending down into the dermis, up through the epidermis
- Dermal: ?

To where (ie, which skin layer) the nevus cells are found at that stage
Are congenital eyelid nevi visible at birth?
You’d think so, but no

Nevi have a three-stage ‘life cycle.’ What are the stages? *To what do the stage-names refer?*
Where are the nevus cells at each stage?
To where (ie, which skin layer) the nevus cells are found at that stage
--Junctional: The dermis-epidermis junction
--Compound: Extending down into the dermis, up through the epidermis
--Dermal: Dermis only

Eyelid Skin

Melanocytic Eyelid and Epibulbar Lesions

Epidermal melanocytes

Dermal melanocytes

Ephelis

Blue nevus

Nevus cells

Benign

Pre-malignant

Malignant

Epithelial melanocytes

Subepithelial melanocytes

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Ocular(odermal) melanocytosis

CAM

Nevus

Ocular(odermal) melanocytosis
Melanocytic Eyelid and Epibulbar Lesions

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Where are the nevus cells at each stage?
To where (ie, which skin layer) the nevus cells are found at that stage
--Junctional: The dermis-epidermis junction
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--Dermal: Dermis only

What happens to the portion of the nevus that was up in the epidermis?
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
Ephelis

Dermal melanocytes
Blue nevus

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To where (ie, which skin layer) the nevus cells are found at that stage
--Junctional: The dermis-epidermis junction
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--Dermal: Dermis only

What happens to the portion of the nevus that was up in the epidermis?
It involutes

Pre-malignant

Malignant
Dermal nevus. The nests of nevus cells are confined to the dermis, and there is no junctional component. The superficial extent of the nevus cell nests is indicated with *arrowheads*. 
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

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Benign

Pre-malignant

Malignant

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Where are the nevus cells at each stage? What does each stage look like?
To where (ie, which skin layer) the nevus cells are found at that stage:

--Junctional: The dermis-epidermis junction.

--Compound: Extending down into the dermis, up through the epidermis

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Next Q

(this is part of it too)

Epithelial melanocytes

Subepithelial melanocytes

Nevus cells

Nevus

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Blue nevus

Ocular(dermal) melanocytosis
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Eyelid Skin

**Melanocytic Eyelid and Epibulbar Lesions**

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- Junctional: The dermis-epidermis junction. **Small, pigmented, flat lesion**
- Compound: Extending down into the dermis, up through the epidermis. **Somewhat larger, somewhat more pigmented, somewhat elevated lesion**
- Dermal: Dermis only

---

Epithelial melanocytes
Subepithelial melanocytes
Nevus cells

- Ephelis
- Blue nevus
- Ocular(odermal) melanocytosis

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PREP
Melanocytic Eyelid and Epibulbar Lesions

Compound nevus
Melanocytic Eyelid and Epibulbar Lesions

Eyelid margin nevus
**Melanocytic Eyelid and Epibulbar Lesions**

**Eyelid Skin**

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To what do the stage-names refer?
Where are the nevus cells at each stage? What does each stage look like?

- **Junctional:** The dermis-epidermis junction. *Small, pigmented, flat lesion*
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Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Ephelis

Blue nevus

Are congenital eyelid nevi visible at birth?
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When do junctional nevi appear?
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
Dermal melanocytes

Ephelis
Blue nevus

Epithelial melanocytes
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Benign
Pre-malignant
Malignant

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When do junctional nevi appear?
In childhood
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Ephelis

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When do junctional nevi appear?
In childhood

A small flat pigmented lesion—sounds like an ephelis to me. How are junctional nevi and ephelides differentiated clinically?
**Eyelid Skin**

Epidermal melanocytes

Dermal melanocytes

- **Epithelial melanocytes**
  - Subepithelial melanocytes

**Benign**

- Ephelis
- Blue nevus

**Pre-malignant**

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**When do junctional nevi appear?**
In childhood

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At what age do junctional nevi start evolving into compound nevi?
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes  Dermal melanocytes
Ephelis  Blue nevus

Epithelial melanocytes  Subepithelial melanocytes

Benign

Pre-malignant

Malignant

Nevus cells

Are congenital eyelid nevi visible at birth?
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At what age do junctional nevi start evolving into compound nevi?
Adolescence
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
- Ephelis

Dermal melanocytes
- Blue nevus

Benign

Pre-malignant

Malignant

Are congenital eyelid nevi visible at birth?
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At what age do compound nevi evolve into dermal nevi?

The BCSC doesn’t specify, but the Plastics book does say that virtually all nevi have reached the dermal stage by age 70

A small nonpigmented lesion—sounds like unaffected skin to me. How are dermal nevi distinguished from the surrounding skin?
If they’re no longer elevated, they might not be distinguishable

This is why the elderly—like young children—seem to have few (if any) nevi.

As the dermatologists say: ‘We come into the world without moles, and we leave without moles.’
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
Epithelial melanocytes
Subepithelial melanocytes

Dermal melanocytes

Nevus cells

Benign

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Pre-malignant

- Nevus

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**Eyelid Skin**

- Epidermal melanocytes
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- Blue nevus

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**Pre-malignant**

**Malignant**

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Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

- Epidermal melanocytes
- Dermal melanocytes

Benign

- Ephelis
- Lentigines
- Blue nevus

Pre-malignant

- Nevus cells

Malignant

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Type of Nevus | Pigmented? | Elevated?
--- | --- | ---
Junctional | ? | ?
Compound | | |
Subepi/Dermal | | |
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

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**Eyelid Skin**

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Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
- Ephelis
- Lentigines

Dermal melanocytes
- Blue nevus
- (Oculo)dermal melanocytosis

Nevus cells
- Nevus

Benign

Pre-malignant

Malignant

During what period of life do conj nevi typically appear?

Eyelid Skin

Epithelial melanocytes
- Ephelis
- CAM

Subepithelial melanocytes
- Ocular(odermal) melanocytosis

Nevus cells
- Nevus

Benign

Pre-malignant

Malignant
During what period of life do conj nevi typically appear?

The first or second decade—similar to lid nevi
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In what three locations are they most commonly found?
--?
--?
--?
During what period of life do conj nevi typically appear?
The first or second decade—similar to lid nevi

In what three locations are they most commonly found?
--Juxtalimbal
--Plica
--Caruncle
Melanocytic Eyelid and Epibulbar Lesions

Conjunctival nevus: Typical locations

Juxtalimbal

Plica

Caruncle
Melanocytic Eyelid and Epibulbar Lesions

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- Ephelis
- Lentigines

Dermal melanocytes
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Benign
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Pre-malignant
- Nevus

Malignant
- Neoplasms

During what period of life do conj nevi typically appear?
The first or second decade—similar to lid nevi

In what two locations are they most commonly found?
- --?
- --?

On which portions of the conj are nevi typically not found?
- --?
- --?

Nevus cells

Nevus
Melanocytic Eyelid and Epibulbar Lesions

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Malignant
- Nevus

During what period of life do conj nevi typically appear?
The first or second decade—similar to lid nevi

In what two locations are they most commonly found?
- Juxtalimbal
- Plica
- Caruncle

Are they usually unilateral, or bilateral?
- Unilateral

Can they be nonpigmented?
- Yes—about 1/3 are nearly devoid of pigment

On which portions of the conj are nevi typically not found?
- Forniceal
- Palpebral

What should you do if you find a nevus-like lesion in one of these areas?
- Biopsy it
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

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- Ephelis
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Which location is the most common?
- Juxtalimbal
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In what three locations are they most commonly found? - Juxtalimbal!
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- Juxtalimbal
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Regarding juxtalimbal nevi:
Do they tend to be elevated, or flat?

Unilateral

Can they be nonpigmented?
Yes—about 1/3 are nearly devoid of pigment

Which location is the most common?
Juxtalimbal
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

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- Lentigines

Dermal melanocytes
- Blue nevus
- (Oculo)dermal melanocytosis

Epithelial melanocytes
- Nevus cells

Nevus

Nevus cells

Benign

Pre-malignant

Malignant

During what period of life do conj nevi typically appear?
The first or second decade—similar to lid nevi

In what three locations are they most commonly found?
- Juxtalimbal
- Plica
- Corneoscleral

Which location is the most common?
Juxtalimbal

Regarding juxtalimbal nevi:
Do they tend to be elevated, or flat?
They are essentially always flat

CAM

Ocular(odermal) melanocytosis

Benign

Pre-malignant

Malignant

Yes—about 1/3 are nearly devoid of pigment

No—about 2/3 are pigmented
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Ephelis

Lentigines

Blue nevus

Nevus cells

(Oculo)dermal melanocytosis

Benign

Pre-malignant

Malignant

During what period of life do conj nevi typically appear?
The first or second decade—similar to lid nevi

In what three locations are they most commonly found?

Juxtalimbal

Plica

Caruncle

Are they usually unilateral, or bilateral?
Unilateral

Can they be nonpigmented?
Yes—about 1/3 are nearly devoid of pigment

Which location is the most common?

Juxtalimbal

Regarding juxtalimbal nevi:

Do they tend to be elevated, or flat?

They are essentially always flat

Benign

Pre-malignant

Malignant

CAM

Ocular(odermal) melanocytosis

Nevus cells

Nevus
Melanocytic Eyelid and Epibulbar Lesions

**Eyelid Skin**

- Epidermal melanocytes
- Dermal melanocytes
- Nevus cells
- Nevus

**Benign**

- Ephelis
- Lentigines
- CAM

**Pre-malignant**

- Blue nevus
- (Oculo)dermal melanocytosis

**Malignant**

- (Oculo)dermal melanocytosis

**During what period of life do conj nevi typically appear?**

The first or second decade—similar to lid nevi

**In what three locations are they most commonly found?**

Juxtalimbal, Plica, Conjunctiva

**Which location is the most common?**

Juxtalimbal

**Regarding juxtalimbal nevi:**

*Do they tend to be elevated, or flat?*

They are essentially always flat

*Are epithelial inclusion cysts a common finding?*

Yes—about half of all nevi at this location contain them
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

- Epidermal melanocytes
- Dermal melanocytes
- Nevus cells
- Nevus
- CAM
- Ocular(odermal) melanocytosis

Benign
- Ephelis
- Lentigines

Pre-malignant

Malignant
- Which location is the most common?
  - Juxtalimbal

Regarding juxtalimbal nevi:
- Do they tend to be elevated, or flat?
  - They are essentially always flat
- Are epithelial inclusion cysts a common finding?
  - Yes—about % of all nevi at this location contain them

During what period of life do conj nevi typically appear?
The first or second decade—similar to lid nevi

In what three locations are they most commonly found?
- Juxtalimbal
- Plica
- Caruncle

Are they usually unilateral, or bilateral?
- Unilateral

Can they be nonpigmented?
- Yes—about 1/3 are nearly devoid of pigment

Which location is the most common?
- Juxtalimbal
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

- Epidermal melanocytes
- Dermal melanocytes
- Nevus cells
- Nevus
- (Oculo)dermal melanocytosis

**Benign**

- Ephelis
- Lentigines
- CAM

**Pre-malignant**

**Malignant**

- Blue nevus

**During what period of life do conj nevi typically appear?**

- The first or second decade—similar to lid nevi

**In what three locations are they most commonly found?**

- Juxtalimbal
- Plica
- Caruncle

**Which location is the most common?**

- Juxtalimbal

**Regarding juxtalimbal nevi:**

- *Do they tend to be elevated, or flat?*
  - They are essentially always flat

- *Are epithelial inclusion cysts a common finding?*
  - Yes—about half of all nevi at this location contain them
A, Clinical appearance with characteristic cystic areas (*arrows*). B, Histologically, the nevus cells have round, oval, or pear-shaped nuclei with a moderate amount of cytoplasm, mostly arranged in nests (*arrowheads*). Note the epithelial inclusion cysts (*asterisks*) within the lesion, correlating with the clinical appearance.

Conj nevus
Conj nevus: Epithelial inclusion cysts on AS-OCT
**Melanocytic Eyelid and Epibulbar Lesions**

### Eyelid Skin

<table>
<thead>
<tr>
<th>Type</th>
<th>Lesions</th>
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<tbody>
<tr>
<td>Epidermal</td>
<td>Ephelis, Lentigines</td>
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<tr>
<td>Dermal</td>
<td>Blue nevus, (Oculo)dermal melanocytosis</td>
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</table>

### Nevus Cells

<table>
<thead>
<tr>
<th>Type</th>
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<tbody>
<tr>
<td>Benign</td>
<td>Nevus cells</td>
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<tr>
<td>Pre-malignant</td>
<td>Nevus</td>
</tr>
<tr>
<td>Malignant</td>
<td>Nevus cells, Ocular(odermal) melanocytosis</td>
</tr>
</tbody>
</table>

**During what period of life do conj nevi typically appear?**
- The first or second decade—similar to lid nevi

**In what three locations are they most commonly found?**
- Juxtalimbal
- Plica
- Caruncle

**Which location is the most common?**
- Juxtalimbal

**Regarding juxtalimbal nevi:**
- *Do they tend to be elevated, or flat?*
  - They are essentially always flat

**Epithelial inclusion cysts**
- Yes—about half of all nevi at this location contain them

**Epithelial cysts can cause nevus enlargement. What is the mechanism for this?**
- Epithelial inclusion cysts can cause nevus enlargement. The mechanism is due to goblet cells in the cyst wall secreting mucin, causing the cyst (and lesion) to enlarge.
During what period of life do conj nevi typically appear?
The first or second decade—similar to lid nevi

In what three locations are they most commonly found?
- Juxtalimbal
- Plica
- Caruncle

Which location is the most common?
Juxtalimbal

Regarding juxtalimbal nevi:
Do they tend to be elevated, or flat?
They are essentially always flat

Are epithelial inclusion cysts a common finding?
Yes—about half of all nevi at this location contain them

Epithelial cysts can cause nevus enlargement. What is the mechanism for this?
Cells in the cyst wall secrete mucin, causing the cyst (and lesion) to enlarge
Melanocytic Eyelid and Epibulbar Lesions

**Eyelid Skin**

- Epidermal melanocytes
  - Ephelis
  - Lentigines
- Dermal melanocytes
  - Blue nevus
  - (Oculo)dermal melanocytosis

**Benign**

- Nevus cells

**Pre-malignant**

- Nevus cells

**Malignant**

- Nevus cells

---

During what period of life do conj nevi typically appear?
The first or second decade—similar to lid nevi

In what three locations are they most commonly found?
- Juxtalimbal
- Plica
- Caruncle

Are they usually unilateral, or bilateral?
Unilateral

Can they be nonpigmented?
Yes—about 1/3 are nearly devoid of pigment

Nevus cells

Which location is the most common?
Juxtalimbal

Regarding juxtalimbal nevi:
Do they tend to be elevated, or flat?
They are essentially always flat

Are epithelial inclusion cysts a common finding?
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Epithelial inclusion cysts

**Epithelial cysts can cause nevus enlargement. What is the mechanism for this?**
Goblet cells in the cyst wall secrete mucin, causing the cyst (and lesion) to enlarge
### Melanocytic Eyelid and Epibulbar Lesions

#### Eyelid Skin

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<tr>
<th>Location</th>
<th>Lesion</th>
<th>Type</th>
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<td>Ephelis</td>
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<tr>
<td>Dermal</td>
<td>Lentigines</td>
<td>Pre-malignant</td>
</tr>
<tr>
<td>Nevus cells</td>
<td>Blue nevus</td>
<td>Malignant</td>
</tr>
<tr>
<td>Nevus</td>
<td>(Oculo)dermal</td>
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</table>

#### Benign
- Ephelis
- Lentigines

#### Pre-malignant
- The first or second decade

#### Malignant
- Juxtalimbal

During what period of life do conj nevi typically appear? Similar to lid nevi

In what three locations are they most commonly found?

- Juxtalimbal

Speaking of enlargement... If a limbal nevus has been present since the first decade, it will often be observed to enlarge at a later date. During what time period does this tend to occur?

The first or second decade

Epithelial cysts can cause nevus enlargement. What is the mechanism for this? Goblet cells in the cyst wall secrete mucin, causing the cyst (and lesion) to enlarge.
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

<table>
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<tr>
<th>Benign</th>
<th>Pre-malignant</th>
<th>Malignant</th>
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<tbody>
<tr>
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<td>Dermal melanocytes</td>
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<td>Nevus cells</td>
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</table>

During what period of life do conj nevi typically appear? **The first or second decade**

In what three locations are they most commonly found? **Juxtalimbal**

Speaking of enlargement...If a limbal nevus has been present since the first decade, it will often be observed to enlarge at a later date. During what time period does this tend to occur? The second decade, specifically during **puberty**.

Epithelial cysts can cause nevus enlargement. What is the mechanism for this? Goblet cells in the cyst wall secrete mucin, causing the cyst (and lesion) to enlarge.
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

<table>
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<th>Benign</th>
<th>Pre-malignant</th>
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<tbody>
<tr>
<td>Epidermal melanocytes</td>
<td>Dermal melanocytes</td>
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<td>Ephelis</td>
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<td>Nevus</td>
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<tr>
<td>Lentigines</td>
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During what period of life do conj nevi typically appear? The first or second decade—similar to lid nevi

In what three locations are they most commonly found? Juxtalimbal—Plica—Caruncle

Are they usually unilateral, or bilateral? Unilateral

Can they be nonpigmented? Yes—about 1/3 are nearly devoid of pigment

Regarding juxtalimbal nevi:
Do they tend to be elevated, or flat? They are essentially always flat

Are epithelial inclusion cysts a common finding? Yes—about half of all nevi at this location contain them

Epithelial cysts can cause nevus enlargement. What is the mechanism for this? Goblet cells in the cyst wall secrete mucin, causing the cyst (and lesion) to enlarge

Speaking of enlargement…If a limbal nevus has been present since the first decade, it will often be observed to enlarge at a later date. During what time period does this tend to occur? The second decade, specifically during puberty

Does this enlargement tend to occur slowly, or rapidly? Rapidly

A parent notes rapid enlargement of a pigmented spot on her child’s eye. Not surprisingly, what is the concern? Malignant transformation

Is the concern justified—does malignant transformation occur at this age? Essentially never. Reassure the parent that such enlargement is common, expected, and of no clinical concern.
### Melanocytic Eyelid and Epibulbar Lesions

#### Eyelid Skin

<table>
<thead>
<tr>
<th>Location</th>
<th>Lesions</th>
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<tr>
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<tr>
<td>Dermal</td>
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<tr>
<td>Nevus cells</td>
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</table>

#### Benign

- Ephelis
- Lentigines

#### Pre-malignant

- Ephelis

#### Malignant

- Juxtalimbal

---

**During what period of life do conj nevi typically appear?**
The first or second decade—similar to lid nevi

**In what three locations are they most commonly found?**
- Juxtalimbal
- Plica
- Caruncle

**Are they usually unilateral, or bilateral?**
Unilateral

**Can they be nonpigmented?**
Yes—about 1/3 are nearly devoid of pigment

**Regarding juxtalimbal nevi:**
- Do they tend to be elevated, or flat?
  - They are essentially always flat
- Are epithelial inclusion cysts a common finding?
  - Yes—about half of all nevi at this location contain them

**Epithelial cysts can cause nevus enlargement. What is the mechanism for this?**
Goblet cells in the cyst wall secrete mucin, causing the cyst (and lesion) to enlarge

---

**Speaking of enlargement...**
If a limbal nevus has been present since the first decade, it will often be observed to enlarge at a later date. During what time period does this tend to occur?
The second decade, specifically during puberty

**Does this enlargement tend to occur slowly, or rapidly?**
Rapidly

**Does this enlargement tend to occur slowly, or rapidly?**
Rapidly

Does this concern—malignant transformation—occur at this age?
Essentially never. Reassure the parent that such enlargement is common, expected, and of no clinical concern.
### Melanocytic Eyelid and Epibulbar Lesions

#### Eyelid Skin

<table>
<thead>
<tr>
<th>Category</th>
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<tr>
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<td>Nevus cells</td>
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<tr>
<td><strong>Benign</strong></td>
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<td>(Oculo)dermal melanocytosis</td>
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<td><strong>Lentigines</strong></td>
<td>Blue nevus</td>
<td>Nevus cells</td>
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<td><strong>Malignant</strong></td>
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<td>Nevus cells</td>
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</tbody>
</table>

**During what period of life do conj nevi typically appear?**
- **The first or second decade**

**In what three locations are they most commonly found?**
- Juxtalimalbal

**Speaking of enlargement…If a limbal nevus has been present since the first decade, it will often be observed to enlarge at a later date. During what time period does this tend to occur?**
- The second decade, specifically during puberty

**Does this enlargement tend to occur slowly, or rapidly?** Rapidly

**Epithelial cysts can cause nevus enlargement. What is the mechanism for this?**
- Goblet cells in the cyst wall secrete mucin, causing the cyst (and lesion) to enlarge
### Melanocytic Eyelid and Epibulbar Lesions

**Eyelid Skin**

<table>
<thead>
<tr>
<th>Benign</th>
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<th>Malignant</th>
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<tbody>
<tr>
<td>Epidermal melanocytes</td>
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<tr>
<td>Dermal melanocytes</td>
<td>Blue nevus</td>
<td>Nevus (Oculo)dermal melanocytosis</td>
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</table>

### During what period of life do conj nevi typically appear?
- The first or second decade—similar to lid nevi

### In what three locations are they most commonly found?
- Juxtalimbal
- Plica
- Caruncle

### Are they usually unilateral, or bilateral?
- Unilateral

### Can they be nonpigmented?
- Yes—about 1/3 are nearly devoid of pigment

### Regarding juxtalimbal nevi:
- Do they tend to be elevated, or flat?
  - They are essentially always flat

### Are epithelial inclusion cysts a common finding?
- Yes—about half of all nevi at this location contain them

### Epithelial cysts can cause nevus enlargement. What is the mechanism for this?
- Goblet cells in the cyst wall secrete mucin, causing the cyst (and lesion) to enlarge

### Speaking of enlargement...If a limbal nevus has been present since the first decade, it will often be observed to enlarge at a later date. During what time period does this tend to occur?
- The second decade, specifically during puberty

### Does this enlargement tend to occur slowly, or rapidly? **Rapidly**

### A parent notes rapid enlargement of a pigmented spot on her child’s eye. Not surprisingly, what is the concern?
- Malignant transformation

### Is the concern justified—does malignant transformation occur at this age?
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Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
Dermal melanocytes

Epithelial melanocytes
Subepithelial melanocytes

Benign
Ephelis
Lentigines

Pre-malignant

Malignant

During what period of life do conj nevi typically appear? The first or second decade—similar to lid nevi

In what three locations are they most commonly found? Juxtalimbal—Plica—Caruncle

Are they usually unilateral, or bilateral? Unilateral

Can they be nonpigmented? Yes—about 1/3 are nearly devoid of pigment

Regarding juxtalimbal nevi:
Do they tend to be elevated, or flat? They are essentially always flat

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During what period of life do conj nevi typically appear? The first or second decade — similar to lid nevi

In what three locations are they most commonly found? Juxtalimbal, Plica, Caruncle

Are they usually unilateral, or bilateral? Unilateral

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Regarding juxtalimbal nevi:
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**Melanocytic Eyelid and Epibulbar Lesions**

**Eyelid Skin**

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<th>Malignant</th>
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<tbody>
<tr>
<td>Epidermal melanocytes</td>
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<tr>
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<tr>
<td>Nevus cells</td>
<td>(Oculo)dermal melanocytosis</td>
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**During what period of life do conj nevi typically appear?**
Similar to lid nevi

**In what three locations are they most commonly found?**
- Juxtalimbal
- Plica
- Caruncle

**Are they usually unilateral, or bilateral?**
Unilateral

**Can they be nonpigmented?**
Yes—about 1/3 are nearly devoid of pigment

**Regarding juxtalimbal nevi:**
- Do they tend to be elevated, or flat?
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## Melanocytic Eyelid and Epibulbar Lesions

### Eyelid Skin

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<tr>
<td>Lentigines</td>
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#### Benign

- Ephelis
- Lentigines

#### Pre-malignant

The first or second decade

#### Malignant

Juxtalimbal

During what period of life do conj nevi typically appear? Similar to lid nevi

In what three locations are they most commonly found?

- Juxtalimbal
- Plica
- Caruncle

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Regarding juxtalimbal nevi:

Do they tend to be elevated, or flat?

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Epithelial cysts can cause nevus enlargement. What is the mechanism for this?

Goblet cells in the cyst wall secrete mucin, causing the cyst (and lesion) to enlarge

Speaking of enlargement…If a limbal nevus has been present since the first decade, it will often be observed to enlarge at a later date. During what time period does this tend to occur?

The second decade, specifically during puberty

So you’re saying conj nevi carry essentially no risk of malignant transformation?

No, I’m saying the risk during puberty is essentially zero. It can occur later in life

Is the concern justified—does malignant transformation occur at this age?

Essentially never. Reassure the parent that such enlargement is common, expected, and of no clinical concern.
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

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<td>Nevus cells</td>
<td>Nevus</td>
<td>Neovascular melanoma</td>
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During what period of life do conj nevi typically appear? The first or second decade—similar to lid nevi.

In what three locations are they most commonly found? Juxtalimbal—Plica—Caruncle.

Are they usually unilateral, or bilateral? Unilateral.

Can they be nonpigmented? Yes—about 1/3 are nearly devoid of pigment.

Regarding juxtalimbal nevi:
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### Melanocytic Eyelid and Epibulbar Lesions

#### Eyelid Skin

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<th>Type</th>
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<tr>
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#### Nevus Cells

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**During what period of life do conj nevi typically appear?**
The first or second decade—similar to lid nevi

**In what three locations are they most commonly found?**
Juxtalimbal

**Are they usually unilateral, or bilateral?**
Unilateral

**Can they be nonpigmented?**
Yes—about 1/3 are nearly devoid of pigment

**Regarding juxtalimbal nevi:**
Do they tend to be elevated, or flat?
They are essentially always flat

**Are epithelial inclusion cysts a common finding?**
Yes—about half of all nevi at this location contain them

**Epithelial cysts can cause nevus enlargement.** What is the mechanism for this?
Goblet cells in the cyst wall secrete mucin, causing the cyst (and lesion) to enlarge

**Speaking of enlargement...If a limbal nevus has been present since the first decade, it will often be observed to enlarge at a later date. During what time period does this tend to occur?**
The second decade, specifically during puberty

**So you’re saying conj nevi carry essentially no risk of malignant transformation?**
No, I’m saying the risk during puberty is essentially zero. It can occur later in life.

**Is the risk of malignant transformation large, or small?**
Quite small (<1%)

**Is the concern justified—does malignant transformation occur at this age?**
**Essentially never.** Reassure the parent that such enlargement is common, expected, and of no clinical concern.
**Melanocytic Eyelid and Epibulbar Lesions**

**Eyelid Skin**

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<th>Malignant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epidermal melanocytes</td>
<td>Ephelis</td>
<td>Blue nevus (Oculo)dermal melanocytosis</td>
</tr>
<tr>
<td>Dermal melanocytes</td>
<td>Lentigines</td>
<td>Nevus cells</td>
</tr>
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**During what period of life do conj nevi typically appear?**
*The first or second decade*

**In what three locations are they most commonly found?**
*Juxtalimbal, Plica, Caruncle*

**Are they usually unilateral, or bilateral?**
*Unilateral*

**Can they be nonpigmented?**
*Yes—about 1/3 are nearly devoid of pigment*

**Regarding juxtalimbal nevi:**
*Do they tend to be elevated, or flat?*  
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**Speaking of enlargement…If a limbal nevus has been present since the first decade, it will often be observed to enlarge at a later date. During what time period does this tend to occur?**
*The second decade, specifically during puberty*

**Does this enlargement tend to occur slowly, or rapidly?**
*Rapidly*

**A parent notes rapid enlargement of a pigmented spot on her child’s eye. Not surprisingly, what is the concern?**
*Malignant transformation*

**Is the concern justified—does malignant transformation occur at this age?**
*Essentially never*

*Reassure the parent that such enlargement is common, expected, and of no clinical concern.*

**Is the risk of malignant transformation large, or small?**
*Quite small (<1%)*
## Melanocytic Eyelid and Epibulbar Lesions

### Eyelid Skin

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### During what period of life do conj nevi typically appear?
The first or second decade—similar to lid nevi

### In what three locations are they most commonly found?
- Juxtalimbal
- Plica
- Caruncle

### Are they usually unilateral, or bilateral?
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Yes—about 1/3 are nearly devoid of pigment

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Quite small (<1%)
## Melanocytic Eyelid and Epibulbar Lesions

### Eyelid Skin

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<th>Location</th>
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<tbody>
<tr>
<td>Epidermal</td>
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<tr>
<td>Dermal</td>
<td>In the dermis</td>
<td>Dermal melanocytes</td>
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<tr>
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<tr>
<td>Malignant</td>
<td></td>
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### Nevi

**During what period of life do conj nevi typically appear?**
- The first or second decade — similar to lid nevi

**In what three locations are they most commonly found?**
- Juxtalimbal
- Plica
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**There’s a simple, commonsense reason why these pigmented lesions have a nonzero malignancy risk.**
- What is it?
  - It’s that the evolution of a nevus does involve replication of melanocytes, which introduces the opportunity for malignant transformation.

---

**During what period of life do conj nevi typically appear?**
- The first or second decade — similar to lid nevi

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Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

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<th>Nevoid Signs</th>
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</table>
| Epidermal melanocytes | Ephelis                | Lentigines               | Blue nevus 
(Oculo)dermal melanocytosis                     |
| Dermal melanocytes  |                        |                          |                                                   |
| Nevus cells         |                        |                          |                                                   |

Benign

Pre-malignant

Malignant

During what period of life do conj nevi typically appear?
The first or second decade

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**Melanocytic Eyelid and Epibulbar Lesions**

**Eyelid Skin**

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**Benign**

- Ephelis
- Lentigines

**Pre-malignant**

**Malignant**

- During what period of life do conj nevi typically appear? *The first or second decade*—similar to lid nevi
- In what three locations are they most commonly found? 
  - Juxtalimbal

Speaking of enlargement...If a limbal nevus has been present since the first decade, it will often be observed to enlarge at a later date. During what time period does this tend to occur? *The second decade, specifically during puberty*

**So you’re saying conj nevi carry essentially no risk of malignant transformation?**

No, I’m saying the risk *during puberty* is essentially zero. **It can occur later in life.**

**Is the risk of malignant transformation large, or small?**

Quite small (<1%)

**Is the concern justified—does malignant transformation occur at this age?**

Essentially never. Reassure the parent that such enlargement is common, expected, and of no clinical concern.

There’s a simple, commonsense reason why these pigmented lesions have a nonzero malignancy risk. What is it? It’s that the evolution of a nevus does involve replication of melanocytes, which introduces the opportunity for malignant transformation.

Epithelial cysts can cause nevus enlargement. Why? Goblet cells in the cyst wall secrete mucin, causing...

**For this reason, most conj nevi should be followed with serial photography every 6-12 months or so**
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
- Ephelis
- Lentigines

Dermal melanocytes
- Blue nevus
- (Oculo)dermal melanocytosis

Nevus cells

Benign

Pre-malignant

Malignant

During what period of life do conj nevi typically appear?
The first or second decade—similar to lid nevi

In what three locations are they most commonly found?
- Juxtalimbal
- Plica
- Caruncle

Are they usually unilateral, or bilateral?
Unilateral

Can they be nonpigmented?
Yes—about 1/3 are nearly devoid of pigment

Regarding juxtalimbal nevi:
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The second decade, specifically during puberty

So you’re saying conj nevi carry essentially no risk of malignant transformation?
No, I’m saying the risk during puberty is essentially zero. It can occur later in life.

Is the risk of malignant transformation quite small (~1%)?
Yes

Is the concern justified—does malignant transformation occur at this age?
Essentially never. Reassure the parent that such enlargement is common, expected, and of no clinical concern.

Wait, most? Which nevi shouldn’t be followed like this?
Most conj nevi should be followed with serial photography every 6-12 months or so

There’s a simple, commonsense reason why these pigmented lesions have a nonzero malignancy risk. What is it?
The evolution of a nevus does involve replication of melanocytes, which introduces the opportunity for malignant transformation.
# Melanocytic Eyelid and Epibulbar Lesions

## Eyelid Skin

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During what period of life do conj nevi typically appear?

The first or second decade—similar to lid nevi

In what three locations are they most commonly found?

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Are they usually unilateral, or bilateral?

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The second decade, specifically during puberty

Is the risk of malignant transformation during puberty essentially no risk of malignant transformation?

No, I’m saying the risk during puberty is essentially zero. It can occur later in life.

Is the risk of malignant transformation quite small, (~1%)?

Quite small (~1%)

There’s a simple, commonsense reason why these pigmented lesions have a nonzero malignancy risk. What is it?

The evolution of a nevus does involve replication of melanocytes, which introduces the opportunity for malignant transformation

For this reason, most conj nevi should be followed with serial photography every 6-12 months or so

Wait, most? Which nevi shouldn’t be followed like this?

Those on the palpebral or forniceal conj, remember?

most conj nevi should be followed
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
- Ephelis
- Lentigines

Dermal melanocytes
- Blue nevus
- (Oculo)dermal melanocytosis

Nevus cells
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Benign
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Quite small.

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Melanocytic Eyelid and Epibulbar Lesions

PAM of the palpebral conjunctiva
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
- Ephelis
- Lentigines

Dermal melanocytes
- Blue nevus
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Nevus cells
- Nevus

Benign
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- 

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Remind me: How should they be managed?
Biopsy them at the time they're discovered

There’s a simple, commonsense reason why these pigmented lesions have a nonzero malignancy risk. What is it?
Evolution of a nevus does involve replication of melanocytes, which introduces the opportunity for malignant transformation.

For this reason, most conj nevi should be followed with serial photography every 6-12 months or so.

Is the conjunctiva (cong) the same as the conjunctiva (conj)?
No

Is the conjunctival epithelium special in any way?
No—normal stratified squamous

Is the conjunctiva (cong) the same as the conjunctiva (conj)?
No
Melanocytic Eyelid and Epibulbar Lesions

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During what period of life do conj nevi typically appear? The first or second decade—similar to lid nevi

In what three locations are they most commonly found? Juxtalimbal

Speaking of enlargement…If a limbal nevus has been present since the first decade, it will often be observed to enlarge at a later date. During what time period does this tend to occur? The second decade, specifically during puberty

So you’re saying conj nevi carry essentially no risk of malignant transformation? No, I’m saying the risk during puberty is essentially zero. It can occur later in life.

Is the risk of malignant transformation quite small? Yes—<1%.

Is there a simple, commonsense reason why these pigmented lesions have a nonzero malignancy risk? What is it? The evolution of a nevus does involve replication of melanocytes, creating the opportunity for malignant transformation

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### Melanocytic Eyelid and Epibulbar Lesions

**Eyelid Skin**

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**During what period of life do conj nevi typically appear?**
The first or second decade—similar to lid nevi

**In what three locations are they most commonly found?**
Juxtalimbal, Plica, Caruncle

**Are they usually unilateral, or bilateral?**
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Yes—about 1/3 are nearly devoid of pigment

**Regarding juxtalimbal nevi:**
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**Finally: Enlargement during a related life-event is also common and not a harbinger of malignant transformation. What is this related life-event?**
**Pregnancy**
During what period of life do conj nevi typically appear? The first or second decade—similar to lid nevi

In what three locations are they most commonly found? Juxtalimbal—Plica—Caruncle

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Is the concern justified—does malignant transformation occur at this age? Essentially never. Reassure the parent that such enlargement is common, expected, and of no clinical concern.

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Nevus cells

Benign

Ephelis

Lentigines

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(Oculo)dermal melanocytosis

Pre-malignant

Malignant

Nevus cells

Epithelial melanocytes

Subepithelial melanocytes
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
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Lentigines
Blue nevus
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Melanocytic Eyelid and Epibulbar Lesions

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- Nevus

Benign

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Malignant

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Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
- Ephelis
- Lentigines

Dermal melanocytes
- Blue nevus
- (Oculo)dermal melanocytosis

Benign
- Ephelis
- CAM

Pre-malignant

Malignant

During what period of life do conj nevi typically appear? The first or second decade—similar to lid nevi

In what three locations are they most commonly found? --Juxtalimbal --Plica --Caruncle

Are they usually unilateral, or bilateral? Unilateral

Can they be nonpigmented? Yes—about % are nearly devoid of pigment
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
Dermal melanocytes

Benign
Ephelis
Lentigines

Pre-malignant
Blue nevus

Malignant
(Oculo)dermal melanocytosis

During what period of life do conj nevi typically appear?
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In what three locations are they most commonly found?
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Are they usually unilateral, or bilateral?
Unilateral

Can they be nonpigmented?
Yes—about 1/3 are nearly devoid of pigment

Nevus cells
Nevus
Nevus cells
Nevus
Ocular(dermal) melanocytosis
Nevus
Melanocytic Eyelid and Epibulbar Lesions

Conjunctival nevus: Nonpigmented
Melanocytic Eyelid and Epibulbar Lesions

But...But I can still see it—it clearly has a pinkish color. How can it be called ‘nonpigmented’?

Conjunctival nevus: Nonpigmented
Conjunctival nevus: Nonpigmented

But...But I can still see it—it clearly has a pinkish color. How can it be called ‘nonpigmented’?

The term nonpigmented here doesn’t mean ‘lacking in color’; it means lacking in pigment, specifically the pigment known as melanin. (The more term amelanotic is more accurate, probably preferable.)
Do conj nevi go through the same three-stage life cycle as lid nevi?

---

**Melanocytic Eyelid and Epibulbar Lesions**

**Eyelid Skin**

- Epidermal melanocytes
- Dermal melanocytes

**Benign**
- Ephelis
- CAM

**Pre-malignant**

**Malignant**
- Blue nevus
- Ocular(odermal) melanocytosis

---

Where are the nevus cells at each stage?

- **Junctional**: The epithelial-stromal/subepi junction. Small, pigmented, flat lesion
- **Compound**: Extending down into the stroma/subepi, and up through the epithelium. When the epithelial component involutes late in life, the nevus enter the stromal/subepi stage.
- **Dermal–Stromal/subepithelial?**
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
Dermal melanocytes
Nevus cells

Pre-malignant
Malignant

Benign

Epithelial melanocytes
Subepithelial melanocytes
Nevus cells

Ephelis
Blue nevus
Ocular(odermal) melanocytosis

Do conj nevi go through the same three-stage life cycle as lid nevi?
Essentially yeah, but of course there’s no dermis in the conj, so there can’t be a dermal stage.

-- Junctional: The epithelial-stromal/subepi junction. Small, pigmented, flat lesion
-- Compound: Extending down into the stroma/subepi, and up through the epithelium.
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MelanocyticEyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Nevus cells

Benign

Epithelial melanocytes

Subepithelial melanocytes

Nevus cells

Cancer

Ephelis

Blue nevus

Ocular(odermal) melanocytosis

Do conj nevi go through the same three-stage life cycle as lid nevi?
Essentially yeah, but of course there's no dermis in the conj, so there can't be a dermal stage.
As noted earlier in the set, the conj 'dermis' is the subepithelium or stroma.

Where are the nevus cells at each stage?
Note that the conj has an epithelium, not an epidermis, so the 'junction' of the junctional stage is that of the epithelium and stroma/subepi. Similarly, the 'compound stage' involves nevus cells extending down into the stroma/subepi and up through the epithelium. When the epithelial component involutes late in life, the nevus enter the stromal/subepi stage.

--Junctional: The epithelial-stromal/subepi junction. Small, pigmented, flat lesion

--Compound: Extending down into the stroma/subepi, and up through the epithelium.

--?
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Nevus cells

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Pre-malignant

Benign

Epithelial melanocytes

Subepithelial melanocytes

Nevus cells

Pre-malignant

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Epithelis

Blue nevus

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--- Junctional: ?
--- Compound
--- Stromal/subepithelial

Nevus cells

Epithelial melanocytes

Subepithelial melanocytes

Epithelial melanocytes

Blue nevus

Ocular(dermal) melanocytosis

Benign

Pre-malignant

Malignant
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

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Dermal melanocytes

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Benign

Pre-malignant

Malignant

Epithelial melanocytes

Subepithelial melanocytes

Nevus cells

Ephelis

CAM

Blue nevus

Ocular(dermal) melanocytosis
Conjunctival nevus: Junctional
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
Dermal melanocytes
Nevus cells

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Benign
Pre-malignant
Malignant
**Melanocytic Eyelid and Epibulbar Lesions**

**Eyelid Skin**

- Epidermal melanocytes
- Dermal melanocytes
- Nevus cells

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- **Compound**: Extending down into the stroma/subepi, and up through the epithelium
- **Stromal/subepithelial**

---

**Benign**

- Ephelis
- CAM

---

**Pre-malignant**

---

**Malignant**

- Blue nevus
- Ocular(odermal) melanocytosis

---

**Nevus cells**
Conjunctival nevus: Compound
**Melanocytic Eyelid and Epibulbar Lesions**

**Eyelid Skin**

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**Epidermal melanocytes**

**Dermal melanocytes**

**Nevus cells**

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**Benign**

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--Stromal/subepithelial
Melanocytic Eyelid and Epibulbar Lesions

Conjunctival nevus: Stromal
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

- Epidermal melanocytes
  - Ephelis
  - Lentigines
- Dermal melanocytes
  - Blue nevus
- Nevus cells
  - (Oculo)dermal melanocytosis

Benign

Pre-malignant

Malignant

Next, let’s look at pre-malignant lesions deriving from dermal and subepithelial melanocytes

Epibulbar tissue

- Epithelial melanocytes
  - Ephelis
  - CAM
- Subepithelial melanocytes
  - Blue nevus
  - Ocular(odermal) melanocytosis
- Nevus cells
  - Nevus

Benign

Pre-malignant

Malignant

No question—proceed when ready
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

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<tr>
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<tr>
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<tr>
<td>Lentigines</td>
<td>Nevus</td>
</tr>
</tbody>
</table>

Benign

Pre-malignant

Malignant

What pre-malignant eyelid skin lesion is attributable to epidermal melanocytes?

(We mentioned it previously)

Epibulbar tissue

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Benign

Pre-malignant

Malignant
### Melanocytic Eyelid and Epibulbar Lesions

#### Eyelid Skin

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Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
- Ephelis
- Lentigines

Dermal melanocytes
- Blue nevus
- (Oculo)dermal melanocytosis

Nevus cells

Benign

Pre-malignant
- Lentigo maligna

Malignant

Epibulbar tissue

Epithelial melanocytes
- Ephelis
- CAM

Subepithelial melanocytes
- Blue nevus
- Ocular(odermal) melanocytosis

Nevus cells

Benign

Pre-malignant
- ?

Malignant

What is its epibulbar equivalent?
Melanocytic Eyelid and Epibulbar Lesions

**Eyelid Skin**

- **Epidermal melanocytes**
  - Ephelis
  - Lentigines

- **Dermal melanocytes**
  - Blue nevus
  - (Oculo)dermal melanocytosis

**Epibulbar tissue**

- **Epithelial melanocytes**
  - Ephelis
  - CAM

- **Subepithelial melanocytes**
  - Blue nevus
  - Ocular(dermal) melanocytosis

**Nevus cells**

- Nevus

**What is its epibulbar equivalent?**
Melanocytic Eyelid and Epibulbar Lesions

**Eyelid Skin**

- **Epidermal melanocytes**
  - Ephelis
  - Lentigines
- **Dermal melanocytes**
  - Blue nevus
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**Epibulbar tissue**

- **Epithelial melanocytes**
  - Ephelis
  - CAM
- **Subepithelial melanocytes**
  - Blue nevus
  - Ocular(dermal) melanocytosis

**Nevus cells**

- Benign
- Pre-malignant
- Malignant

What does PAM stand for in this context?
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
- Ephelis
- Lentigines

Dermal melanocytes
- Blue nevus
- (Oculo)dermal melanocytosis

Nevus cells

Benign
Pre-malignant
Malignant

Epibulbar tissue

Epithelial melanocytes
- Ephelis
- CAM

Subepithelial melanocytes
- Blue nevus
- Ocular(odermal) melanocytosis

Nevus cells

Benign
Pre-malignant
Malignant

PAM

What does PAM stand for in this context?
Primary acquired melanosis
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

- Epidermal melanocytes
- Dermal melanocytes
- Nevus cells
- Nevus
- Nevus cells
- (Oculo)dermal melanocytosis

Benign
- Ephelis
- Lentigines
- Blue nevus
- Nevus
- Lentigo maligna

Pre-malignant
- Lentigo maligna

Malignant
- PAM

Who is at risk for lentigo maligna?
Old white people—the older and whiter they are, the greater the risk

When lentigo maligna of the lids is present, it often has spread from what location?
That sun-exposed part of the face, specifically the malar region

How can lentigo maligna be distinguished from simple and solar lentigines?
Lentigo maligna lesions tend to be larger, to have borders that are more irregular, and to have more color variation within them than do the lentigines

Are lentigo maligna lesions flat, or elevated?
Flat
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Nevus cells

Nevus

BENIGN

Ephelis

Lentigines

Blue nevus

(OCULO)DERMAL MELANOCYTOSIS

PRE-MALIGNANT

Lentigo maligna

Who is at risk for lentigo maligna?
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MALIGNANT

PAM

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Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
Dermal melanocytes

Benign
Ephelis
Lentigines

Pre-malignant
Lentigo maligna

Pre-malignant
PAM

Malignant

Who is at risk for lentigo maligna?
Old white people—the older and whiter they are, the greater the risk

“The whiter”—what does this mean exactly?

“Who is at risk for lentigo maligna? — Old white people—the older and whiter they are, the greater the risk

“The whiter”—what does this mean exactly?
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
- Ephelis
- Lentigines

Dermal melanocytes
- Blue nevus
- (Oculo)dermal melanocytosis

Benign
- Nevus cells

Pre-malignant
- Lentigo maligna

Malignant
- PAM

Who is at risk for lentigo maligna?
Old white people—the older and whiter they are, the greater the risk

"The whiter"—what does this mean exactly?
Simply that individuals with a fairer complexion are at greater risk
**Melanocytic Eyelid and Epibulbar Lesions**

**Eyelid Skin**

- **Epidermal melanocytes**
  - Ephelis
  - Lentigines

- **Dermal melanocytes**
  - Blue nevus
  - (Oculo)dermal melanocytosis

**Benign**

- Nevus cells

**Pre-malignant**

- Lentigo maligna

**Malignant**

- PAM

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That sun-exposed part of the face, specifically the malar region

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**Are lentigo maligna lesions flat, or elevated?**
Flat
# Melanocytic Eyelid and Epibulbar Lesions

## Eyelid Skin

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## Benign

- Ephelis
- Lentigines

## Pre-malignant

**Lentigo maligna**

### Who is at risk for lentigo maligna?
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### When lentigo maligna of the lids is present, it often has spread from what location?
That sun-exposed part of the face, specifically the **malar** region

## Malignant

- PAM

## Pre-malignant

- PAM

## Malignant
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

Dermal melanocytes

Nevus cells

Nevus

Benign

Epheles

Lentigines

Pre-malignant

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Pre-malignant

PAM

Malignant

Oculo)dermal melanocytosis
Lentigo maligna that has spread from the malar region to the lid
Melanocytic Eyelid and Epibulbar Lesions

Callback to a pic from earlier in the set that referred to the malar region as “sun-exposed”

Classic ephelides concentration across the sun-exposed malar region
**Melanocytic Eyelid and Epibulbar Lesions**

**Eyelid Skin**

- **Epidermal melanocytes**
- **Dermal melanocytes**

**Benign**
- Ephelis
- Lentigines

**Pre-malignant**
- Lentigo maligna

**Malignant**
- PAM

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**Melanocytic Eyelid and Epibulbar Lesions**

**Eyelid Skin**

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Dermal melanocytes

Nevus cells

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Subepithelial melanocytes

Benign

Ephelis

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Lentigo maligna lesions tend to be larger vs smaller

Pre-malignant

PAM

Malignant
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes

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Lentigo maligna lesions tend to be larger

Pre-malignant

PAM

Malignant
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**Eyelid Skin**

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- **Dermal melanocytes**
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- Ephelis
- Lentigines

**Pre-malignant**
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Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

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- Dermal melanocytes
- Nevus cells

Benign
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- (Oculo)dermal melanocytosis
- Nevus cells
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Malignant
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

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Dermal melanocytes
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Lentigo maligna. Note the color variation, irregular borders
Melanocytic Eyelid and Epibulbar Lesions

Solar lentigines for comparison. Within each lesion note the regular borders, uniform coloring.
## Melanocytic Eyelid and Epibulbar Lesions

### Eyelid Skin

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### Benign

- Nevus cells
- Lentigo maligna

### Pre-malignant

- Lentigo maligna

### Malignant

- PAM

---

**Who is at risk for lentigo maligna?**

Old white people—the older and whiter they are, the greater the risk.

**When lentigo maligna of the lids is present, it often has spread from what location?**

That sun-exposed part of the face, specifically the malar region.

**How can lentigo maligna be distinguished from simple and solar lentigines?**

Lentigo maligna lesions tend to be **larger**, to have borders that are more **irregular**, and to have **more color variation** within them than do the lentigines.

*The size of a lentigo maligna lesion differ from that of the lentigines in another important way—what is it?*
### Melanocytic Eyelid and Epibulbar Lesions

#### Eyelid Skin

**Epidermal melanocytes**
- Ephelis
- Lentigines

**Dermal melanocytes**
- Blue nevus
- (Oculo)dermal melanocytosis

#### Benign
- Nevis cells

#### Pre-malignant
- Lentigo maligna

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**The size of a lentigo maligna lesion differ from that of the lentigines in another important way—what is it?**
The size of the maligna lesion expands—rapid radial growth is the rule

#### Malignant
- PAM
### Melanocytic Eyelid and Epibulbar Lesions

#### Eyelid Skin

<table>
<thead>
<tr>
<th>Type</th>
<th>Cells</th>
<th>Lesions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epidermal</td>
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<td>Ephelis, Lentigines</td>
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<td>Dermal</td>
<td>Dermal melanocytes</td>
<td>Blue nevus, Nevus</td>
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<td>Nevus cells</td>
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#### Benign
- Ephelis
- Lentigines
- Nevus cells
- Oculo(dermal) melanocytosis

#### Pre-malignant
- Lentigo maligna

### Questions

- **Who is at risk for lentigo maligna?**
  - Old white people—the older and whiter they are, the greater the risk

- **When lentigo maligna of the lids is present, it often has spread from what location?**
  - That sun-exposed part of the face, specifically the malar region

- **How can lentigo maligna be distinguished from simple and solar lentigines?**
  - Lentigo maligna lesions tend to be larger and larger and larger and... irregular, and to have more color variation within them than do the lentigines.

- **The size of a lentigo maligna lesion differ from that of the lentigines in another important way—what is it?**
  - The size of the maligna lesion expands—*rapid radial growth* is the rule.

- **What is the underlying cause of this radial growth?**
  - Unchecked intradermal proliferation of melanocytes and larger and larger and...
**Melanocytic Eyelid and Epibulbar Lesions**

### Eyelid Skin

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Unchecked intradermal proliferation of melanocytes
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

- **Epidermal melanocytes**
- **Dermal melanocytes**
- **Nevus cells**

**Benign**
- Ephelis
- Lentigines

**Pre-malignant**
- Lentigo maligna

**Malignant**
- PAM

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Can an eyelid lentigo maligna lesion spread across the gray line to the palpebral conj?**Rapid radial growth** is the rule

What is the underlying cause of this radial growth?
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Melanocytic Eyelid and Epibulbar Lesions

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Can an eyelid lentigo maligna lesion spread across the gray line to the palpebral conj?
Indeed it can

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Unchecked intradermal proliferation of melanocytes

Pre-malignant
- PAM

Malignant
Lentigo maligna crossing onto the palpebral conjunctiva.
Melanocytic Eyelid and Epibulbar Lesions

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Epidermal melanocytes

Dermal melanocytes

Ephelis

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Are lentigo maligna lesions flat, or elevated?
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Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
- Ephelis
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That this portion of the lesion is now undergoing vertical growth

Vertical growth is an ominous sign—why?
It indicates this portion has transformed from lentigo maligna into full-blown melanoma
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Lentigo maligna lesion containing several areas of vertical growth
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No—not really—only 2-3% will do so

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**Eyelid Skin**

- Epidermal melanocytes
- Dermal melanocytes
- Nevus cells
- Nevus
- Nevus cells
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**Benign**
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- Lentigines

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Flat.

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Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

- Epidermal melanocytes
- Dermal melanocytes
- Ephelis
- Blue nevus

Benign

- Nevus cells

Pre-malignant

- PAM

Malignant

Who is at risk for developing PAM?

Same people at risk for lentigo maligna—older (it presents in middle age) white folk.

How do you differentiate between PAM and a plain ol' nevus at the slit lamp?

You don’t—this can only be done at the pathologist’s bench.

Are PAM lesions flat, or elevated?

Flat (like lentigo maligna)

As is the case with their lentigo maligna cousin, is the presence of a vertical growth component an alarming development?

Yes

Also like lentigo maligna: Is malignant transformation of PAM an unlikely occurrence?

Yes, but… (we will unpack this shortly)
Melanocytic Eyelid and Epibulbar Lesions

**Eyelid Skin**

- Epidermal melanocytes
- Dermal melanocytes
- Ephelis
- Blue nevus

**Nevus cells**

**Benign**

- Lentigo
- Blue nevus

**Pre-malignant**

- PAM

**Malignant**

- Lentigo maligna
- Ephelis
- CAM
- Blue nevus

Who is at risk for developing PAM?
Same people at risk for lentigo maligna—older (it presents in middle age) white folk

Life-stage:

- lentigo
- lentigo maligna
- melanoma

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Ephelis

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Blue nevus

Nevus cells

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How do you differentiate between PAM and a plain ol’ nevus at the slit lamp?

Pre-malignant  

PAM

Malignant

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Also like lentigo maligna: Is malignant transformation of PAM an unlikely occurrence?
Yes, but… (we will unpack this shortly)
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**CAM**  
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Same people at risk for lentigo maligna—older (it presents in middle age) white folk

**How do you differentiate between PAM and a plain ol’ nevus at the slit lamp?**
You don’t—this can only be done at the pathologist’s bench

To be clear: *What I’m saying is, if you encounter a lesion suspicious for PAM, you must perform an excisional biopsy!*

Pre-malignant  
PAM  
Malignant

No question—proceed when ready
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

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Same people at risk for lentigo maligna—older (it presents in middle age) white folk

How do you differentiate between PAM and a plain ol' nevus at the slit lamp?
You don't—this can only be done at the pathologist's bench

Are there any exam findings suggestive that a lesion is PAM rather than a nevus?

- Whereas half of conj nevi are cystic, the proportion of PAM lesions that are cystic is none
- PAM pigment may be distributed in a pattern described as 'peppery'
- If the lesion continues to enlarge after puberty
- If nodules develop within it
- If it has feeder vessels

Pre-malignant
PAM
Malignant
Melanocytic Eyelid and Epibulbar Lesions

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Epidermal melanocytes

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Yes; these include:
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--PAM pigment is often distributed in a pattern described as spicy

Pre-malignant

PAM

Malignant
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You don’t—this can only be done at the pathologist’s bench.

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Yes; these include:
- Whereas half of conj nevi are cystic, the proportion of PAM lesions that are cystic is none.
- PAM pigment is often distributed in a pattern described as ‘peppery’.
Primary acquired melanosis (PAM). Slit-lamp photograph of a 72-year-old white man that shows “peppery” pigmentation of the perilimbal conjunctiva [rectangle].
Melanocytic Eyelid and Epibulbar Lesions

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--If the lesion continues to enlarge after life-stage
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How do you differentiate between PAM and a plain ol’ nevus at the slit lamp?

You don’t—this can only be done at the pathologist’s bench

At what lesion-size should you start being concerned?

The BCSC books differ (modestly) on this: Per the External Disease book, start worrying when a lesion is larger than 2 clock-hrs; per the Path book, when it’s 3+

continues to enlarge

If the lesion continues to enlarge after puberty

Yes

Also like lentigo maligna: Is malignant transformation of PAM an unlikely occurrence?

Yes, but… (we will unpack this shortly)
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--If the lesion persists after puberty
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--If the lesion continues to enlarge
--

PAM

Pre-malignant

Malignant
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
Dermal melanocytes
Ephelis
Blue nevus

Epithelial melanocytes
Subepithelial melanocytes

Benign
Pre-malignant
Malignant

Lentigo maligna
Ephelis
CAM
Blue nevus
Nevus

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Same people at risk for lentigo maligna—older (it presents in middle age) white folk

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Are there any exam findings suggestive that a lesion is PAM rather than a nevus?
Yes; these include:

- Whereas half of conj nevi are cystic, the proportion of PAM lesions that are cystic is none
- PAM pigment is often distributed in a pattern described as ‘peppery’
- If the lesion continues to enlarge after puberty
- If nodules develop within it

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--If it has... two words

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--If the lesion continues to enlarge after puberty
--If nodules develop within it
--If it has feeder vessels

Pre-malignant
Malignant

PAM
Melanocytic Eyelid and Epibulbar Lesions

Note the nodularity, and feeder vessels (disclosure: this is a melanoma, not PAM)
Melanocytic Eyelid and Epibulbar Lesions

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Benign

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Dermal melanocytes

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Lentigines

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PAM, bulbar conj: Large, flat, no cysts; pt white, elderly (I’m inferring they’re aged by the fact they’re s/p CE)
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## Melanocytic Eyelid and Epibulbar Lesions

### Eyelid Skin

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### Nevus cells

- Benign
- Pre-malignant
- Malignant

### Eyelid Skin

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**Melanocytic Eyelid and Epibulbar Lesions**

### Eyelid Skin

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--PAM without
--PAM with

Pre-malignant PAM

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Pre-malignant
PAM
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**Melanocytic Eyelid and Epibulbar Lesions**

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---What are ‘atypical features’ histologically?---The usual suspects, including:

---Mitotic figures
---Cells that are:

----Enlarged
----‘Epithelioid’ in appearance

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Eyelid Skin

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--Mitotic figures
--Cells that are:

--- abn big vs abn small
--- something-'oid'

in appearance

Pre-malignant

Malignant
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-----color issue

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Melanocytic Eyelid and Epibulbar Lesions

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What is the risk of malignant transformation in PAM?

Pre-malignant

Malignant
PAM with atypia. Atypical, melanin-laden cells are present approximately midway through the epithelium.
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Are PAM lesions flat, or elevated? Flat (like lentigo maligna)

As is the case with their lentigo maligna cousin, is the presence of a vertical growth component an alarming development? Yes

Also like lentigo maligna: Is malignant transformation of PAM an unlikely occurrence? Yes, but... (we will unpack this shortly)
Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

**Speaking of the pathologist…She divvies PAM into two types. What are they?**

--- **PAM without atypia**: Melanocytes confined to the basal epithelial layer; lack atypical features
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Pre-malignant

PAM

Malignant

Nevus cells

Nevus

Proliferating melanocytes

Oculo)dermal melanocytosis
Melanocytic Eyelid and Epibulbar Lesions

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Malignant
Melanocytic Eyelid and Epibulbar Lesions

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Melanocytic Eyelid and Epibulbar Lesions

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B, PAM without atypia, or with mild atypia. There is both increased pigment production and an increased number of melanocytes, but no or very mild change in melanocyte morphology.
Melanocytic Eyelid and Epibulbar Lesions

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B, PAM without atypia, or with mild atypia. There is both increased pigment production and an increased number of melanocytes, but no or very mild change in melanocyte morphology.

C, PAM with moderate to severe atypia. There is increased pigment production and number of melanocytes, and 1) migration of melanocytes into the more superficial epithelial layers, as well as 2) atypical melanocyte morphology.

A

B

C

PAM w/ moderate atypia
Note: Cells less dendritic-y

PAM w/ severe atypia
Note: Cells epithelioid-ish
Melanocytic Eyelid and Epibulbar Lesions

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Melanocytic Eyelid and Epibulbar Lesions

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PAM without atypia and PAM with mild atypia behave alike

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**PAM without atypia and PAM with mild atypia** behave alike
So group them in your head like this!
**PAM with moderate and PAM with severe atypia** behave alike

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If the biopsy returns as one of these, the appropriate management is observation—every 6-12 months or so (~12 if w/o atypia; closer to 6 if with).

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**Melanocytic Eyelid and Epibulbar Lesions**

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Both *PAM without atypia* and *PAM with mild atypia* have a near-zero chance of malignant transformation.

In contrast, *PAM with moderate* or *severe atypia* carry a significant risk (10%–15%) of transformation.

If the biopsy returns as one of these, the appropriate management is observation—every 6-12 months or so (~12 if without; closer to 6 if with).

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Who is at risk for developing PAM?
- Same people at risk for lentigo maligna—older (it presents in middle age) white folk

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Also like lentigo maligna: Is malignant transformation of PAM an unlikely occurrence? Yes, but…(we will unpack this shortly)

If the biopsy returns as one of these, the appropriate management is **complete excision**.
Melanocytic Eyelid and Epibulbar Lesions

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PAM with severe atypia
- What if complete excision is not feasible?

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What if complete excision is not feasible? Adjuvant chemotherapy can be employed with topical MMC.

Remember when we hedged regarding how likely PAM is to undergo malignant transformation...
# Melanocytic Eyelid and Epibulbar Lesions

## Eyelid Skin

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<tr>
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Next, let’s look at malignant lesions, specifically melanoma

## Epibulbar tissue

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There are four types of cutaneous melanoma, one of which accounts for almost all melanomas of the eyelid. Which one is that?
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Lentigo maligna melanoma.
### Melanocytic Eyelid and Epibulbar Lesions

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- Melanoma
- Melanoma

**There are four types of cutaneous melanoma, one of which accounts for almost all melanomas of the eyelid. Which one is that?**
Lentigo maligna melanoma

*Which biopsy technique is preferred in establishing a diagnosis of melanoma?*

Punch biopsy

*Why is punch the preferred technique?*
Because it allows for the determination of tumor thickness

*Why is it important to determine tumor thickness?*
Because of its prognostic value
**Melanocytic Eyelid and Epibulbar Lesions**

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Does punch biopsy increase the risk of metastasis?

No
Melanocytic Eyelid and Epibulbar Lesions

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| Pre-malignant   | Lentigo maligna       |

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Complete tumor removal via wide surgical excision, with intra-op confirmation of clean margins by Pathology using permanent sections.

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The *Plastics* book mentions another option described as a "first-line treatment." What is it?

Immunotherapy drugs
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- What could she find that would prompt regional lymph-node dissection?
  - Microscopic evidence of vascular and/or lymphatic involvement

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Melanocytic Eyelid and Epibulbar Lesions

Eyelid Skin

Epidermal melanocytes
- Ephelis
- Lentigines

Dermal melanocytes
- Blue nevus
- Nevus

Ephelis
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Benign

Pre-malignant
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Malignant

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Pathology
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Oculo(dermal) melanocytosis

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Indeed it is—a whopping 50% of cases will recur.

What implication does this appalling rate carry regarding managing these pts?

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Melanocytic Lesions

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Are all conj melanomas pigmented?

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What are the three origins for a conj melanoma, ie, what can they arise from?

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### Melanocytic Eyelid and Epibulbar Lesions

#### Eyelid Skin

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<th>Pre-malignant</th>
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### In terms of incidence, how do these stack up: Choroidal, skin, and conj melanoma?

Skin is an order of magnitude more common than choroidal, which is in turn an order more common than conj.

### Just how (un)common is conj melanoma?

In white folk the incidence is only 1 per 2 million; in black and Asian pops it's probably an order of magnitude less common.

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### Malignant

Melanoma

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Melanoma
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### Eyelid Skin

- **Epidermal melanocytes**
- **Dermal melanocytes**

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(Don’t @ me, bro—I know they don’t sum to 100. They’re my attempt at a compromise among the varying numbers across the BCSC.)
Melanocytic Eyelid and Epibulbar Lesions

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Malignant Melanoma Melanoma Melanoma
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**Is mortality generally due to local spread, or metastatic disease?**

- Metastatic disease

**By what route does choroidal melanoma usually metastasize?**

- Hematogenous

**By what route does eyelid (ie, skin) melanoma usually metastasize?**

- Lymphatics

**Does conj melanoma metastasize hematogenously like choroidal melanoma, or lymphatically like skin?**

- Lymphatically, like skin

**To what distant location does choroidal melanoma tend to spread?**

- The liver. Of pts who succumb to choroidal melanoma, 95% have liver involvement (and 33% of such cases have only liver involvement).

**To what distant location does skin melanoma tend to spread?**

- Widely to many tissues—no one in particular.

**Does conj melanoma metastasize to the liver like choroidal does, or widely like skin?**

- Widely like skin.
Melanocytic Eyelid and Epibulbar Lesions

Is conj melanoma carry a significant mortality rate? Indeed it does

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### Incidence of Melanoma

- **Choroidal**: An order of magnitude more common than choroidal, which is in turn an order of magnitude more common than conj melanoma.
- **Skin**: An order of magnitude more common than choroidal, which is in turn an order of magnitude more common than conj melanoma.
- **Conj**: In white folk, the incidence is only 1 per 2 million; in black and Asian populations, it’s probably an order of magnitude less common.

### Gender and Age Prevalence

- **Gender**: No gender predilection.
- **Age**: Conj melanoma is a disease of the middle-aged and elderly.

### Pigmentation

- **Conj melanoma**: A surprisingly high proportion (25%) are amelanotic.

### Origins of Conj Melanoma

- De novo: ~25%
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### Metastasis

- **Metastatic dz**: Indeed it does.
- **Overall mortality rate**: There’s some disagreement among the BCSC books, but 25% is a reasonable compromise.
- **Metastatic dz generally**: Metastatic dz.
- **By what route does choroidal melanoma usually metastasize?**: Hematogenous
- **By what route does eyelid (ie, skin) melanoma usually metastasize?**: Lymphatics
- **Does conj melanoma metastasize hematogenously like choroidal, or lymphatically like skin?**: Lymphatically, like skin
- **To what distant location does choroidal melanoma tend to spread?**: The liver. Of pts who succumb to choroidal melanoma, 95% have liver involvement (and 33% of such cases have only liver involvement)
- **To what distant location does skin melanoma tend to spread?**: Widely to many tissues—no one in particular
- **Does conj melanoma metastasize to the liver like choroidal does, or widely like skin?**: Widely like skin

### Melanoma Types

- **Benign**: Nevus
- **Pre-malignant**: CAM, Lentigo maligna
- **Malignant**: Lentigo maligna, Ephelis, Lentigines, Blue nevus, Nevus, Melanoma, Melanoma, Melanoma, Melanoma

### Intraocular Melanocytic Lesions

- **Nevus cells**: Nevis cells
- **Intraocular melanocytosis**: Oculo(odermal) melanocytosis
# Melanocytic Eyelid and Epibulbar Lesions

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Indeed it does.

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There’s some disagreement among the BCSC books, but 25% is a reasonable compromise.

**Is mortality gender-related?**
No.

**Is mortality age-related?**
Yes.

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Just how (un)common is conj melanoma? In white folk the incidence is only 1 per 2 million; in black and Asian pops it’s probably an order of magnitude less common.

Is there a gender predilection? No.

Is there an age predilection? Yes—conj melanoma is a disease of the middle-aged and elderly.

Are all conj melanomas pigmented? No. A surprisingly high proportion (25%) are amelanotic.

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There's some disagreement among the BCSC books, but 25% is a reasonable compromise.

Is mortality generally 2ndary to local spread, or metastatic dz?

Metastatic dz.

By what route does choroidal melanoma usually metastasize?

Hematogenous.

By what route does eyelid (ie, skin) melanoma usually metastasize?

Lymphatics.

Does conj melanoma metastasize hematogenously like choroidal melanoma, or lymphatically like skin?

Lymphatically, like skin.

To what distant location does choroidal melanoma tend to spread?

The liver. Of pts who succumb to choroidal melanoma, 95% have liver involvement (and 33% of such cases have only liver involvement).

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Widely to many tissues—no one in particular.

Does conj melanoma metastasize to the liver like choroidal does, or widely like skin?

Widely like skin.
Melanocytic Eyelid and Epibulbar Lesions

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What does this indicate about the first place metastatic conj melanoma will appear? That it will be in local lymph nodes

Are the two locations for nodes to which the conj drains the preauricular nodes, and the submandibular nodes.

When you're presented on the Boards with a picture and history strongly suggestive of conj melanoma, what are you going to tell the examiner you'll do as part of your initial exam? Check these locations for signs of metastasis.
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Are all conj melanomas pigmented? No. A surprisingly high proportion (25%) are amelanotic.

What are the three origins for a conj melanoma, ie, what can they arise from? What proportion of conj melanomas arise from each?
- De novo: ~25%
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In terms of incidence, how do these stack up: Choroidal, skin, and conj melanoma? Skin is an order of magnitude more common than choroidal, which is in turn an order of magnitude more common than conj melanoma.

Just how (un)common is conj melanoma? In white folk the incidence is only 1 per 2 million; in black and Asian pops it’s probably an order of magnitude less common.

Is there a gender predilection? No.

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**Melanocytic Eyelid and Epibulbar Lesions**

<table>
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<tr>
<th>Lesion</th>
<th>Origin</th>
<th>Type</th>
<th>Benign</th>
<th>Pre-malignant</th>
<th>Malignant</th>
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<tr>
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<td>Epithelial melanocytes</td>
<td>Epidermal</td>
<td>Benign</td>
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<td>Malignant</td>
</tr>
<tr>
<td>Ephelis</td>
<td>Dermal melanocytes</td>
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<td>Malignant</td>
</tr>
<tr>
<td>Blue nevus</td>
<td>Nevus cells</td>
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**Incidence of Choroidal, Skin, and Conj Melanoma**

- Skin is an order of magnitude more common than choroidal, which is in turn an order of magnitude more common than conj melanoma.

**Incidence of Conj Melanoma**

- In white folk, the incidence is only 1 per 2 million; in black and Asian populations, it's probably an order of magnitude less common.

**Gender and Age Predilection**

- There is no gender predilection.
- Conj melanoma is a disease of the middle-aged and elderly.

**Origin of Conj Melanoma**

- De novo: ~25%
- From a nevus: ~2%
- From PAM: ~70%

**Mortality Rate**

- Indeed, it does carry a significant mortality rate.
- The overall mortality rate for conj melanoma is 25%, which is a reasonable compromise.

**Spread of Choroidal Melanoma**

- Hematogenous

**Spread of Eyelid Melanoma**

- Lymphatic

**Metastatic Spread of Conj Melanoma**

- Lympathically, like skin

**To What Distant Location Does Choroidal Melanoma Tend to Spread?**

- The liver. Of pts who succumb to choroidal melanoma, 95% have liver involvement, and 33% of such cases have only liver involvement.

**To What Distant Location Does Skin Melanoma Tend to Spread?**

- Widely to many tissues—no one in particular.
**Melanocytic Eyelid and Epibulbar Lesions**

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# Melanocytic Eyelid and Epibulbar Lesions

- **Epidermal melanocytes**
- **Dermal melanocytes**
- **Ephelis**
- **Lentigines**
- **Blue nevus**
- **Nevus**
- **Epithelial melanocytes**
- **Subepithelial melanocytes**

### In terms of incidence, how do these stack up: Choroidal, skin, and conj melanoma?

- Skin is an order of magnitude more common than choroidal, which is in turn an order of magnitude more common than conj melanoma.

### Just how (un)common is conj melanoma?

- In white folk, the incidence is only 1 per 2 million; in black and Asian populations, it's probably an order of magnitude less common.

### Is there a gender predilection?

- No

### Is there an age predilection?

- Yes—conj melanoma is a disease of the middle-aged and elderly.

### Are all conj melanomas pigmented?

- No. A surprisingly high proportion (25%) are amelanotic.

### What are the three origins for a conj melanoma, ie, what can they arise from?

- **De novo:** ~25%
- **From a nevus:** ~2%
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### Is conj melanoma carry a significant mortality rate?

- Indeed it does.

### What is the overall mortality rate for conj melanoma?

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### By what route does choroidal melanoma usually metastasize?

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### By what route does eyelid (ie, skin) melanoma usually metastasize?

- Lymphatics

### Does conj melanoma metastasize hematogenously like choroidal melanoma, or lymphatically like skin?

- Lymphatically, like skin

### To what distant location does choroidal melanoma tend to spread?

- The liver. Of pts who succumb to choroidal melanoma, 95% have liver involvement (and 33% of such cases have **only** liver involvement).

### To what distant location does skin melanoma tend to spread?

- Widely to many tissues—no one in particular.

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Melanocytic Eyelid and Epibulbar Lesions

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What is the preferred treatment for conj melanoma? Complete tumor removal via wide surgical excision

How wide should the margins be around the lesion? Quite wide—2 mm at least

How should the lesion be handled intraoperatively? It shouldn't—ie, a 'no touch' technique should be employed. That is, at no point during the case should the surgeon make contact with the lesion itself. Further, some surgeons will insist on a 'dry' field (ie, no periodic re-wetting with BSS), as the act of wetting the surface may disseminate cancer cells.
Melanocytic Eyelid and Epibulbar Lesions

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What is the overall mortality rate for conj melanoma?
There is disagreement among the BCSC books, but 25% is a reasonable estimate.

Is melanoma seen more commonly in white, black, or Asian people?
In white folk the incidence is only 1 per 2 million; in black and Asian populations it's probably an order of magnitude less common.

Is there a gender predilection?
No

Is there an age predilection?
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Melanocytic Eyelid and Epibulbar Lesions

**Melanoma**

- **Benign**
- **Pre-malignant**
- **Malignant**

**Melanocytes**

- **Epidermal**
- **Dermal**
- **Epithelial**
- **Subepithelial**

**Lesions**

- **Ephelis**
- **Lentigines**
- **Blue nevus**
- **Nevus**
- **Melanoma**
- **(Oculo)dermal melanocytosis**

**Conjunctival melanoma**

- **Incidence**: Skin is an order of magnitude more common than choroidal, which is in turn more common than conj.
- **Incidence in white folk**: Only 1 per 2 million; in black and Asian populations, it's probably an order of magnitude less common.
- **Gender predilection**: No
- **Age predilection**: Yes—conjunctival melanoma is a disease of the middle-aged and elderly.
- **Pigmentation**: No. A surprisingly high proportion (25%) are amelanotic.
- **Origins**: 
  - De novo: ~25%
  - From a nevus: ~2%
  - From PAM: ~70%

**Mortality rate**: Indeed it does carry a significant mortality rate. The overall mortality rate for conjunctival melanoma is a reasonable compromise of the BCSC books, with 25% being a reasonable estimate.

**Metastasis**

- **Choroidal melanoma**: Usually metastasizes hematogenously, to the liver. Of pts who succumb to choroidal melanoma, 95% have liver involvement, and 33% of such cases have involve the liver only.
- **Skin melanoma**: Tends to spread widely to many tissues—no one in particular.
- **Conjunctival melanoma**: Tends to spread widely like skin melanoma, or lymphatically like skin melanoma.

**Treatment**

- **Complete tumor removal via surgical excision**
  - **Margins**: Quite wide—2 mm or more
  - **Intraoperative handling**: It shouldn't—i.e., a 'no touch' technique should be employed. That is, at no point during the case should the surgeon make contact with the lesion itself. Further, some surgeons will insist on a 'dry' field (i.e., no periodic re-wetting with BSS), as the act of wetting the surface may disseminate cancer cells.
Melanocytic Eyelid and Epibulbar Lesions

Is conj melanoma carry a significant mortality rate? Indeed it does.

What is the preferred treatment for conj melanoma? Complete tumor removal via wide surgical excision.

How wide should the margins be around the lesion? Quite wide—2 mm at least.

How should the lesion be handled intraoperatively? It shouldn't—ie, a 'no touch' technique should be employed. That is, at no point during the case should the surgeon make contact with the lesion itself.

Further, some surgeons will insist on a 'dry' field (ie, no periodic re-wetting with BSS), as the act of wetting the surface may disseminate cancer cells.

To what distant location does choroidal melanoma tend to spread? The liver. Of pts who succumb to choroidal melanoma, 95% have liver involvement (and 33% of such cases have only liver involvement).

To what distant location does skin melanoma tend to spread? Widely to many tissues—no one in particular.

Does conj melanoma metastasize to the liver like choroidal does, or widely like skin? Widely like skin.

What is the preferred treatment for choroidal melanoma? Complete tumor removal via wide surgical excision.

What is the preferred treatment for skin melanoma? Complete tumor removal via wide surgical excision.

Is conj melanoma carry a significant mortality rate? Indeed it does.

In terms of incidence, how do these stack up: Choroidal, skin, and conj melanoma? Skin is an order of magnitude more common than choroidal, which is in turn an order of magnitude more common than conj.

Just how (un)common is conj melanoma? In white folk the incidence is only 1 per 2 million; in black and Asian pops it’s probably an order of magnitude less common.

Is there a gender predilection? No.

Is there an age predilection? Yes—conj melanoma is a disease of the middle-aged and elderly.

Are benign melanocytic lesions of epibulbar tissue associated with conj melanoma? No.

Are pre-malignant melanocytic lesions of epibulbar tissue associated with conj melanoma? No.

Are malignant melanocytic lesions of epibulbar tissue associated with conj melanoma? Yes.

Are epithelial melanocytes or subepithelial melanocytes associated with conj melanoma? No.
Melanocytic Eyelid and Epibulbar Lesions

Is conj melanoma carry a significant mortality rate?
Indeed it does

What is the overall mortality rate for conj melanoma?
There is a real worry that conj melanoma is a real threat

Is melanoctyosis a pre-malignant condition?
Yes

Benign

Pre-malignant

Malignant

To what distant location does choroidal melanoma tend to spread?
The liver. Of pts who succumb to choroidal melanoma, 95% have liver involvement (and 33% of such cases have only liver involvement)

To what distant location does skin melanoma tend to spread?
Widely to many tissues—no one in particular

Does conj melanoma metastasize to the liver like choroidal does, or widely like skin?
Widely like skin

What is the preferred treatment for conj melanoma?
Complete tumor removal via wide surgical excision

How wide should the margins be around the lesion?
Quite wide—2 mm at least

How should the lesion be handled intraoperatively?
It shouldn't—ie, a ‘no touch' technique should be employed. That is, at no point during the case should the surgeon make contact with the lesion itself.

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Melanocytic Eyelid and Epibulbar Lesions

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What is the overall mortality rate for conj melanoma? There is a real lack of data, which is in turn an order of magnitude of cells

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How should the lesion be handled intraoperatively? It shouldn’t—that is, a ‘no touch’ technique should be employed. That is, at no point during the case should the surgeon make contact with the lesion itself, or its microenvironment.

What is the concern motivating the ‘no touch’ technique? That intraop lesion manipulation might seed the ocular surface with tumor cells

In light of this concern, what alternative to excisional biopsy is obviously unacceptable? Incisional biopsy

Is conj melanoma metastasize to the liver like choroidal does, or widely like skin? Widely like skin

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Is melanoma Melanoma Melanoma

Benign

Pre-malignant

Malignant

Melanoma

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Melanoma
Melanocytic Eyelid and Epibulbar Lesions

Is conj melanoma carry a significant mortality rate?
Indeed it does

What is the overall mortality rate for conj melanoma?
There is a real mortality, which is in turn an order of magnitude more common than choroidal, which is in turn an order of magnitude more common than conj.

Is melanoma, skin, and conj melanoma?

What is the preferred treatment for conj melanoma?
Complete tumor removal via wide surgical excision

How wide should the margins be around the lesion?
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How should the lesion be handled intraoperatively?
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In terms of incidence, how do these stack up: Choroidal, skin, and conj melanoma?
Skin is an order of magnitude more common than choroidal, which is in turn an order of magnitude more common than conj.

Just how (un)common is conj melanoma?
In white folk the incidence is only 1 per 2 million; in black and Asian pops it’s probably an order of magnitude less common.

Is there a gender predilection?
No

Is there an age predilection?
Yes—conj melanoma is a disease of the middle-aged and elderly

Are all conj melanomas pigmented?
No. A surprisingly high proportion (25%) are amelanotic

What are the three origins for a conj melanoma, ie, what can they arise from?
- De novo: ~25%
- From a nevus: ~2%
- From PAM: ~70%

Does conj melanoma carry a significant mortality rate?
Indeed it does

What is the overall mortality rate for conj melanoma?
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Is melanoma, skin, and conj melanoma?
Melanocytic Eyelid and Epibulbar Lesions

Is conj melanoma carry a significant mortality rate?
Indeed it does

What is the overall mortality rate for conj melanomas?
There 1 in 100000, which is in turn an order of magnitude lower than choroidal, which is in turn an order of magnitude lower than skin.

Skin is an order of magnitude more common than choroidal, which is in turn an order of magnitude more common than conj.

Just how (un)common is conj melanoma?
In white folk the incidence is only 1 per 2 million; in black and Asian pops it’s probably an order of magnitude less common.

Is there a gender predilection?
No

Is there an age predilection?
Yes—conj melanoma is a disease of the middle-aged and elderly.

Are all conj melanomas pigmented?
No. A surprisingly high proportion (25%) are amelanotic.

What are the three origins for a conj melanoma, i.e., what can they arise from?

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Incisional biopsy.

Benign

Pre-malignant

Malignant

Melanoma

Melanoma

Melanoma

Melanoma

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To what distant location does skin melanoma tend to spread?
Widely to many tissues—no one in particular.

Does conj melanoma metastasize to the liver like choroidal does, or widely like skin?
Widely like skin.

To what distant location does choroidal melanoma tend to spread?
The liver. Of pts who succumb to choroidal melanoma, 95% have liver involvement, and 33% of such cases have only liver involvement.

When does choroidal melanoma metastasize?
Hematogenous.

By what route does eyelid (i.e., skin) melanoma usually metastasize?
Lymphatics.

Does conj melanoma metastasize hematogenously like choroidal does, or lymphatically like skin?
Lymphatically, like skin.
Melanocytic Eyelid and Epibulbar Lesions

Is conj melanoma carry a significant mortality rate?
Indeed it does

What is the overall mortality rate for conj melanoma?
There is no real mortality rate, as it is a rare disease, which in turn an order of magnitude less common than choroidal, which is in turn an order of magnitude less common than skin. The mortality rate is likely to be quite low.

How wide should the margins be around the lesion?
Quite wide—2 mm at least

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What is the preferred treatment for conj melanoma?
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You see the depicted lesion in clinic. Note that it seems to have all the hallmarks of a conj melanoma: It is juxtalimbal and pigmented. It is elevated. It has feeder vessels. It has no cysts. Despite all this, it definitively is not a conj melanoma. What is it?
You see the depicted lesion in clinic. Note that it seems to have all the hallmarks of a conj melanoma: It is juxtalimbal and pigmented. It is elevated. It has feeder vessels. It has no cysts. Despite all this, it definitively is not a conj melanoma. What is it? A melanoma of the ciliary body extending through the sclera. Don’t be fooled by this lesion!
Melanoma of the ciliary body with extrascleral extension, presenting as an ocular surface mass. Note that there is no PAM surrounding the nodule, a clue that the lesion might have an intraocular origin. Also note that the lesion is associated with deep episcleral/scleral vessels (sentinel vessels, *arrow*) and does not obscure the overlying conjunctival vessels. This indicates that the lesion is deep to the conjunctiva.

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