In which quadrant of the orbit is the main lacrimal gland located?
In which quadrant of the orbit is the main lacrimal gland located? Superotemporal
In which quadrant of the orbit is the main lacrimal gland located? Superotemporal

The fact that the main lacrimal gland is called the main lacrimal gland suggests the existence of other, non-main lacrimal glands. Do such glands actually exist?
In which quadrant of the orbit is the main lacrimal gland located? Superotemporal

The fact that the main lacrimal gland is called the main lacrimal gland suggests the existence of other, non-main lacrimal glands. Do such glands actually exist?
Indeed they do
In which quadrant of the orbit is the main lacrimal gland located? Superotemporal

*The fact that the main lacrimal gland is called the main lacrimal gland suggests the existence of other, non-main lacrimal glands. Do such glands actually exist? Indeed they do*

*By what general term are the non-main lacrimal glands known? The accessory lacrimal glands*
In which quadrant of the orbit is the main lacrimal gland located? Superotemporal

The fact that the main lacrimal gland is called the main lacrimal gland suggests the existence of other, non-main lacrimal glands. Do such glands actually exist? Indeed they do

By what general term are the non-main lacrimal glands known? The accessory lacrimal glands
In which quadrant of the orbit is the **main lacrimal gland** located?
Superotemporal

*The fact that the main lacrimal gland is called the main lacrimal gland suggests the existence of other, non-main lacrimal glands. Do such glands actually exist? Indeed they do*

*By what general term are the non-main lacrimal glands known? The accessory lacrimal glands*

*How many accessory lacrimal glands are there?*
In which quadrant of the orbit is the **main lacrimal gland** located?
Superotemporal

The fact that the main lacrimal gland is called the **main lacrimal gland** suggests the existence of other, non-main lacrimal glands. Do such glands actually exist?
Indeed they do

By what general term are the non-main lacrimal glands known?
The **accessory lacrimal glands**

How many accessory lacrimal glands are there?
Two
In which quadrant of the orbit is the main lacrimal gland located? Superotemporal.

The fact that the main lacrimal gland is called the main lacrimal gland suggests the existence of other, non-main lacrimal glands. Do such glands actually exist? Indeed they do.

By what general term are the non-main lacrimal glands known? The accessory lacrimal glands.

How many accessory lacrimal glands are there? Two.

The accessory glands have eponymous names—what are they?

--Glands of Krauss, found in the fornices
--Glands of Wolfring found near the tarsal plates

Are these large, singular structures a la the main lac gland? No, they are two sets of (much smaller) glands distributed throughout the orbit.

Which is more numerous—glands of Krauss, or of Wolfring? There are about twice as many glands of Krauss as there are glands of Wolfring.
In which quadrant of the orbit is the **main lacrimal gland** located?
Superotemporal

The fact that the **main lacrimal gland** is called the **main lacrimal gland** suggests the existence of other, non-main lacrimal glands. Do such glands actually exist?
Indeed they do

By what general term are the non-main lacrimal glands known?
**The accessory lacrimal glands**

How many accessory lacrimal glands are there?
Two

The accessory glands have eponymous names—what are they?

--Glands of Krauss
--Glands of Wolfring
In which quadrant of the orbit is the main lacrimal gland located?
Superotemporal

The fact that the main lacrimal gland is called the main lacrimal gland suggests the existence of other, non-main lacrimal glands. Do such glands actually exist?
Indeed they do

By what general term are the non-main lacrimal glands known?
The accessory lacrimal glands

How many accessory lacrimal glands are there?
Two

The accessory glands have eponymous names—what are they?
What is the primary location for each?
--Glands of Krauss, found in the fornices
--Glands of Wolfring, found near the tarsal plates

Are these large, singular structures a la the main lac gland?
No, they are two sets of (much smaller) glands distributed throughout the orbit

Which is more numerous—glands of Krauss, or of Wolfring?
There are about twice as many glands of Krauss as there are glands of Wolfring
In which quadrant of the orbit is the **main lacrimal gland** located? Superotemporal

The fact that the main lacrimal gland is called the **main lacrimal gland** suggests the existence of other, non-main lacrimal glands. Do such glands actually exist? Indeed they do

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Superotemporal

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The accessory lacrimal glands

How many accessory lacrimal glands are there?
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--Glands of Wolfring, found near the tarsal plates

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In which quadrant of the orbit is the main lacrimal gland located?
Superotemporal

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By what general term are the non-main lacrimal glands known?
The accessory lacrimal glands

How many accessory lacrimal glands are there?
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--Glands of Wolfring, found near the tarsal plates

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No, they are two sets of (much smaller) glands distributed throughout the orbit
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Superotemporal

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Indeed they do

By what general term are the non-main lacrimal glands known?
The accessory lacrimal glands

The accessory glands have eponymous names—what are they?

What is the primary location for each?

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--Glands of Wolfring, found near the tarsal plates

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In which quadrant of the orbit is the main lacrimal gland located? Superotemporal

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By what general term are the non-main lacrimal glands known? The accessory lacrimal glands

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By what general term are the non-main lacrimal glands known? The accessory lacrimal glands.

How many accessory lacrimal glands are there? Two.

The accessory glands have eponymous names—what are they? What is the primary location for each?

--Glands of Krauss, found in the fornices
--Glands of Wolfring, found near the tarsal plates

Are these large, singular structures a la the main lac gland? No, they are two sets of (much smaller) glands distributed throughout the orbit.

Which is more numerous—glands of Krauss, or of Wolfring? There are about twice as many glands of Krauss as there are glands of Wolfring.
In which quadrant of the orbit is the **main lacrimal gland** located? Superotemporal

*The fact that the main lacrimal gland is called the **main lacrimal gland** suggests the existence of other, non-main lacrimal glands. Do such glands actually exist? Indeed they do*

*For the remainder of the slide-set the term lacrimal gland should be understood as referring to the **main lacrimal gland***

The accessory glands have eponymous names—what are they? *What is the primary location for each?*

--Glands of Krauss, found in the fornices
--Glands of Wolfring, found near the tarsal plates

*Are these large, singular structures a la the main lac gland? No, they are two sets of (much smaller) glands distributed throughout the orbit*

*Which is more numerous—glands of Krauss, or of Wolfring? There are about twice as many glands of Krauss as there are glands of Wolfring*
In which quadrant of the orbit is the main lacrimal gland located? Superotemporal

The gland resides in a fossa located in which orbital bone?
In which quadrant of the orbit is the main lacrimal gland located?  
Superotemporal

The gland resides in a fossa located in which orbital bone?  
The frontal
In which quadrant of the orbit is the main lacrimal gland located? Superotemporal

*Speaking of* orbital bones...

The gland resides in a fossa located in which orbital bones...

The frontal
What bones comprise the orbit?

**Roof:**

**Lateral wall:**

**Floor:**

**Medial wall:**

*Mnemonic:* 
(forthcoming, starting on the next slide)
What bones comprise the orbit?

(2) Roof:

(2) Lateral wall:

(3) Floor:

(4) Medial wall:

Mnemonic:

“2, 2, 3, 4…”
What bones comprise the orbit?

- **Roof**: Sphenoid (2 bones)
- **Lateral wall**: Sphenoid (2 bones)
- **Floor**: N/A (3 bones)
- **Medial wall**: Sphenoid (4 bones)

**Mnemonic**: “2, 2, 3, 4…Sphenoid everywhere but the floor”
What bones comprise the orbit?

(2) **Roof**: Sphenoid, ?

(2) **Lateral wall**: Sphenoid,

(3) **Floor**: 

(4) **Medial wall**: Sphenoid,

**Mnemonic**: “2, 2, 3, 4…Sphenoid everywhere but the floor”
What bones comprise the orbit?

(2) **Roof**: Sphenoid, frontal

(2) **Lateral wall**: Sphenoid,

(3) **Floor**: 

(4) **Medial wall**: Sphenoid,

**Mnemonic**: “2, 2, 3, 4…Sphenoid everywhere but the floor”
What bones comprise the orbit?

- **Roof:** Sphenoid, frontal
- **Lateral wall:** Sphenoid, ?
- **Floor:**
- **Medial wall:** Sphenoid,

**Mnemonic:** “2, 2, 3, 4…Sphenoid everywhere but the floor”
What bones comprise the orbit?

Number of bones in each wall

(2) Roof: Sphenoid, frontal
(2) Lateral wall: Sphenoid, zygoma
(4) Medial wall: Sphenoid, frontal, Big L and the LFU
(3) Floor:

Mnemonic: “2, 2, 3, 4...Sphenoid everywhere but the floor”
What bones comprise the orbit?

(2) **Roof**: Sphenoid, frontal

(2) **Lateral wall**: Sphenoid, zygoma

(3) **Floor**: ?, ?, ?

(4) **Medial wall**: Sphenoid,

**Mnemonic**: “2, 2, 3, 4…Sphenoid everywhere but the floor”
What bones comprise the orbit?

(2) **Roof**: Sphenoid, frontal

(2) **Lateral wall**: Sphenoid, zygoma

(3) **Floor**: Palatine, maxillary, zygoma

(4) **Medial wall**: Sphenoid, 

**Mnemonic**: “2, 2, 3, 4…Sphenoid everywhere but the floor”
What bones comprise the orbit?

(2) **Roof**: Sphenoid, frontal

(2) **Lateral wall**: Sphenoid, zygoma

(3) **Floor**: Palatine, maxillary, zygoma

(4) **Medial wall**: Sphenoid, ?, ?, ?

**Mnemonic:**
“2, 2, 3, 4…Sphenoid everywhere but the floor”
What bones comprise the orbit?

(2) **Roof**: Sphenoid, frontal

(2) **Lateral wall**: Sphenoid, zygoma

(3) **Floor**: Palatine, maxillary, zygoma

(4) **Medial wall**: Sphenoid, maxillary, ethmoid, lacrimal

**Mnemonic**: “2, 2, 3, 4… Sphenoid everywhere but the floor”
Big L and the LFU

Bones of the orbit
What bones comprise the orbit?

(2) **Roof**: Sphenoid, frontal

(2) **Lateral wall**: Sphenoid, zygoma

(3) **Floor**: Palatine, maxillary, zygoma

(4) **Medial wall**: Sphenoid, maxillary, ethmoid, lacrimal

**Mnemonic**: “2, 2, 3, 4… Sphenoid everywhere but the floor”
What bones comprise the orbit?

- **Roof**:
  - 2 bones: Sphenoid, frontal

- **Lateral wall**:
  - 2 bones: Sphenoid, zygoma

- **Floor**:
  - 3 bones: Palatine, maxillary, zygoma

- **Medial wall**:
  - 4 bones: Sphenoid, maxillary, ethmoid, lacrimal

**Mnemonic:**
“2, 2, 3, 4…Sphenoid everywhere but the floor”

**Another memory aid:**
Big L and the LFU

Note that each wall shares a bone with the next wall:
- Roof → lateral: sphenoid
- Lateral → floor: sphenoid
- Floor → medial:
- Medial → roof:
What bones comprise the orbit?

(2) **Roof**: Sphenoid, frontal

(2) **Lateral wall**: Sphenoid, zygoma

(3) **Floor**: Palatine, maxillary, zygoma

(4) **Medial wall**: Sphenoid, maxillary, ethmoid, lacrimal

**Mnemonic**: “2, 2, 3, 4…Sphenoid everywhere but the floor”
What bones comprise the orbit?

- **(2) Roof:** Sphenoid, frontal

- **(2) Lateral wall:** Sphenoid, zygoma

- **(3) Floor:** Palatine, maxillary, zygoma

- **(4) Medial wall:** Sphenoid, maxillary, ethmoid, lacrimal

**Mnemonic:** “2, 2, 3, 4…Sphenoid everywhere but the floor”

**Another memory aid:**

Note that each wall shares a bone with the next wall:
- Roof → lateral: sphenoid
- Lateral → floor: zygoma
- Floor → medial: maxillary
- Medial → roof:
What bones comprise the orbit?

(2) **Roof:** Sphenoid, frontal

(2) **Lateral wall:** Sphenoid, zygoma

(3) **Floor:** Palatine, maxillary, zygoma

(4) **Medial wall:** Sphenoid, maxillary, ethmoid, lacrimal

**Mnemonic:** “2, 2, 3, 4... Sphenoid everywhere but the floor”

Another memory aid:
Note that each wall shares a bone with the next wall:
- Roof → lateral: **sphenoid**
- Lateral → floor: **zygoma**
- Floor → medial: **maxillary**
- Medial → roof: **sphenoid**
What bones comprise the orbit?

- **Roof?** Sphenoid, frontal
- **Lateral wall?** Sphenoid, zygoma
- **Floor?** Palatine, maxillary, zygoma
- **Medial wall?** Sphenoid, maxillary, ethmoid, lacrimal

Note that each wall shares a bone with the next wall:
- Roof → lateral: sphenoid
- Lateral → floor: zygoma
- Floor → medial: maxillary
- Medial → roof: sphenoid

Mnemonic: “2, 2, 3, 4… Sphenoid everywhere but the floor”

Another memory aid: Big L and the LFU

Only one orbital wall does not extend all the way to the orbital apex—which one? The floor. For this reason, the floor is the shortest of the four orbital walls.
What bones comprise the orbit? 

(2) **Roof?**: Sphenoid, frontal

(2) **Lateral wall?**: Sphenoid, zygoma

(3) **Floor!**: Palatine, maxillary, zygoma

(4) **Medial wall?**: Sphenoid, maxillary, ethmoid, lacrimal

Note that each wall shares a bone with the next wall: 
- Roof → lateral: sphenoid
- Lateral → floor: zygoma
- Floor → medial: maxillary
- Medial → roof: sphenoid

**Mnemonic:** “2, 2, 3, 4…Sphenoid everywhere but the floor”

Another memory aid: Big L and the LFU

Only one orbital wall does not extend all the way to the orbital apex—**which one?**
The floor. For this reason, the floor is the shortest of the four orbital walls.
What bones comprise the orbit?

(2) **Roof?** : Sphenoid, frontal

(2) **Lateral wall?** : Sphenoid, zygoma

(3) **Floor?** : Palatine, maxillary, zygoma

(4) **Medial wall?** : Sphenoid, maxillary, ethmoid, lacrimal

Note that each wall shares a bone with the next wall:
- Roof → lateral: sphenoid
- Lateral → floor: zygoma
- Floor → medial: maxillary
- Medial → roof: sphenoid

**Mnemonic:**
“2, 2, 3, 4…Sphenoid everywhere but the floor”

**Another memory aid:**
Big L and the LFU

**Only one orbital wall does not extend all the way to the orbital apex—which one?**
The floor. For this reason, the floor is the shortest of the four orbital walls.

**Since the floor doesn’t extend all the way to the apex, what comprises the posterior aspect of the inferior orbit?**
An opening into the pterygopalatine fossa.
What bones comprise the orbit?

(2) **Roof**: Sphenoid, frontal
(2) **Lateral wall**: Sphenoid, zygoma
(3) **Floor**: Palatine, maxillary, zygoma
(4) **Medial wall**: Sphenoid, maxillary, ethmoid, lacrimal

Note that each wall shares a bone with the next wall: Roof → lateral: sphenoid
Lateral → floor: zygoma
Floor → medial: maxillary
Medial → roof: sphenoid

**Mnemonic**: “2, 2, 3, 4… Sphenoid everywhere but the floor”

Another memory aid: Big L and the LFU

Only one orbital wall does not extend all the way to the orbital apex—which one? The floor. For this reason, the floor is the shortest of the four orbital walls. Since the floor doesn’t extend all the way to the apex, what comprises the posterior aspect of the inferior orbit? An opening into the... two words
What bones comprise the orbit?

(2) **Roof?**: Sphenoid, frontal

(2) **Lateral wall?**: Sphenoid, zygoma

(3) **Floor?**: Palatine, maxillary, zygoma

(4) **Medial wall?**: Sphenoid, maxillary, ethmoid, lacrimal

Note that each wall shares a bone with the next wall:

**Roof** → **lateral**: sphenoid

**Lateral** → **floor**: zygoma

**Floor** → **medial**: maxillary

**Medial** → **roof**: sphenoid

Another memory aid: **Big L and the LFU**

Number of bones in each wall

Mnemonic: “2, 2, 3, 4...Sphenoid everywhere but the floor”

Only one orbital wall does not extend all the way to the orbital apex—which one? The floor. For this reason, the floor is the shortest of the four orbital walls.

Since the floor doesn’t extend all the way to the apex, what comprises the posterior aspect of the inferior orbit? An opening into the pterygopalatine fossa*

*Sometimes the BCSC refers to this space as the sphenopalatine fossa
Sagittal view of the medial wall of the left orbit. Note how the orbital floor does not extend to the orbital apex, but rather ends at the pterygopalatine fossa.
What bones comprise the orbit?

(2) **Roof?**
- Sphenoid
- Frontal

(2) **Lateral wall?**
- Sphenoid
- Zygoma

(3) **Floor?**
- Palatine
- Maxillary
- Zygoma

(4) **Medial wall?**
- Sphenoid
- Maxillary
- Ethmoid
- Lacrimal

Note that each wall shares a bone with the next wall:
- **Roof** → **lateral**:
  - Sphenoid
- **Lateral** → **floor**:
  - Zygoma
- **Floor** → **medial**:
  - Maxillary
- **Medial** → **roof**:
  - Sphenoid

**Mnemonic:**
"2, 2, 3, 4…Sphenoid everywhere but the floor"

**Another memory aid:**
"Big L and the LFU"

**Foreshadowing alert!**
The pterygopalatine fossa will make another appearance later in the slide-set.

*Sometimes the BCSC refers to this space as the sphenopalatine fossa.*

Only one orbital wall does not extend all the way to the orbital apex—which one? The floor. For this reason, the floor is the shortest of the four orbital walls. Since the floor doesn’t extend all the way to the apex, what comprises the posterior aspect of the inferior orbit? An opening into the pterygopalatine fossa.
In which quadrant of the orbit is the main lacrimal gland located?
Superotemporal

The gland resides in a fossa located in which orbital bone?
The frontal

The lacrimal gland is divided into two lobes—what are they called?
In which quadrant of the orbit is the main lacrimal gland located?
Superotemporal

The gland resides in a fossa located in which orbital bone?
The frontal

The lacrimal gland is divided into two lobes—what are they called?
The orbital and palpebral lobes
Lacrimal gland. The orbital lobe is the larger section; the palpebral lobe is the smaller one.
Lacrimal gland. The orbital lobe is the larger section; the palpebral lobe is the smaller one.
Lacrimal gland. Note that the palpebral lobe is located relatively inferior and anterior to the orbital lobe.
Lacrimal gland. When the upper lid is everted or distracted as above, it is always the palpebral lobe that is visible.
Lacrimal gland. When the upper lid is everted or distracted as above, it is always the palpebral lobe that is visible.
In which quadrant of the orbit is the main lacrimal gland located? Superotemporal

The gland resides in a fossa located in which orbital bone? The frontal

The lacrimal gland is divided into two lobes—what are they called? The orbital and palpebral lobes

What structure does the dividing?
In which quadrant of the orbit is the main lacrimal gland located?
Superotemporal

The gland resides in a fossa located in which orbital bone?
The frontal

The lacrimal gland is divided into two lobes—what are they called?
The orbital and palpebral lobes

What structure does the dividing?
The lateral horn of the levator
In which quadrant of the orbit is the main lacrimal gland located?
Superotemporal

The gland resides in a fossa located in which orbital bone?
The frontal

The lacrimal gland is divided into two lobes—what are they called?
The orbital and palpebral lobes

What structure does the dividing?
The lateral horn of the levator aponeurosis
In which quadrant of the orbit is the main lacrimal gland located?
Superotemporal

The gland resides in a fossa located in which orbital bone?
The frontal

The lacrimal gland is divided into two lobes—what are they called?
The orbital and palpebral lobes

What structure does the dividing?
The lateral horn of the levator aponeurosis

What is the levator aponeurosis?
In which quadrant of the orbit is the main lacrimal gland located? Superotemporal

The gland resides in a fossa located in which orbital bone? The frontal

The lacrimal gland is divided into two lobes—what are they called? The orbital and palpebral lobes

What structure does the dividing? The lateral horn of the levator aponeurosis

What is the levator aponeurosis? It is the tendon of the muscle
In which quadrant of the orbit is the main lacrimal gland located?
Superotemporal

The gland resides in a fossa located in which orbital bone?
The frontal

The lacrimal gland is divided into two lobes—what are they called?
The orbital and palpebral lobes

What structure does the dividing?
The lateral horn of the levator aponeurosis

What is the levator aponeurosis?
It is the tendon of the levator palpebrae superioris muscle
The lacrimal gland and the lateral horn of the levator aponeurosis
In which quadrant of the orbit is the main lacrimal gland located?
Superotemporal

The gland resides in a fossa located in which orbital bone?
The frontal

The lacrimal gland is divided into two lobes—what are they called?
The orbital and palpebral lobes

What structure does the dividing?
The lateral horn of the levator aponeurosis

What is the levator aponeurosis?
It is the tendon of the levator palpebrae superioris muscle

What is the chief function of the levator muscle?
In which quadrant of the orbit is the main lacrimal gland located?
Superotemporal

The gland resides in a fossa located in which orbital bone?
The frontal

The lacrimal gland is divided into two lobes—what are they called?
The orbital and palpebral lobes

What structure does the dividing?
The lateral horn of the levator aponeurosis

What is the levator aponeurosis?
It is the tendon of the levator palpebrae superioris muscle

What is the chief function of the levator muscle?
Retraction (ie, elevation) of the upper lid
In which quadrant of the orbit is the main lacrimal gland located? Superotemporal

The gland resides in a fossa located in which orbital bone? The frontal

The lacrimal gland is divided into two lobes—what are they called? The orbital and palpebral lobes

What structure does the dividing? The lateral horn of the levator aponeurosis

What is the levator aponeurosis? It is the tendon of the levator palpebrae superioris muscle

What is the chief function of the levator muscle? Retraction (ie, elevation) of the upper lid

While it is the primary upper-lid retractor, the levator is not the only one. What other muscle also retracts the upper lid?
In which quadrant of the orbit is the main lacrimal gland located?
Superotemporal

The gland resides in a fossa located in which orbital bone?
The frontal

The lacrimal gland is divided into two lobes—what are they called?
The orbital and palpebral lobes

What structure does the dividing?
The lateral horn of the **levator aponeurosis**

What is the levator aponeurosis?
It is the tendon of the **levator palpebrae superioris** muscle

What is the chief function of the levator muscle?
**Retraction (ie, elevation) of the upper lid**

While it is the primary upper-lid retractor, the levator is not the only one.
What other muscle also retracts the upper lid?
Müller’s muscle
In which quadrant of the orbit is the main lacrimal gland located? 
Superotemporal

The gland resides in a fossa located in which orbital bone? 
The frontal

The lacrimal gland is divided into two lobes—what are they called? 
The orbital and palpebral lobes

What structure does the dividing? 
The lateral horn of the levator aponeurosis

What is the levator aponeurosis? 
It is the tendon of the levator palpebrae superioris muscle

What is the chief function of the levator muscle? 
Retraction (ie, elevation) of the upper lid

After passing through (and divvying up) the lacrimal gland, to what structure on the lateral orbital wall does the lateral horn of the levator aponeurosis attach?
In which quadrant of the orbit is the main lacrimal gland located? Superotemporal

The gland resides in a fossa located in which orbital bone? The frontal

The lacrimal gland is divided into two lobes—what are they called? The orbital and palpebral lobes

What structure does the dividing? The lateral horn of the levator aponeurosis

What is the levator aponeurosis? It is the tendon of the levator palpebrae superioris muscle

What is the chief function of the levator muscle? Retraction (ie, elevation) of the upper lid

After passing through (and divvying up) the lacrimal gland, to what structure on the lateral orbital wall does the lateral horn of the levator aponeurosis attach? Whitnall’s tubercle
In which quadrant of the orbit is the main lacrimal gland located?  
Superotemporal

The gland resides in a fossa located in which orbital bone?  
The frontal

The lacrimal gland is divided into two lobes—what are they called?  
The orbital and palpebral lobes

What structure does the dividing?  
The lateral horn of the **levator aponeurosis**

What is the levator aponeurosis?  
It is the tendon of the **levator palpebrae superioris** muscle

I assume Whitnall’s tubercle is also where Whitnall’s ligament attaches—is that correct?

What structure, after passing through (and divvying up) the lacrimal gland, to what structure on the lateral orbital wall does the lateral horn of the levator aponeurosis attach?

**Whitnall’s tubercle**
In which quadrant of the orbit is the main lacrimal gland located? Superotemporal

The gland resides in a fossa located in which orbital bone? The frontal

The lacrimal gland is divided into two lobes—what are they called? The orbital and palpebral lobes

What structure does the dividing? The lateral horn of the levator aponeurosis

What is the levator aponeurosis? It is the tendon of the levator palpebrae superioris muscle

I assume Whitnall’s tubercle is also where Whitnall’s ligament attaches—is that correct? You’d think so, but no. (For more on the complex anatomy of this aspect of the orbit, see slide-set O8.)
In which quadrant of the orbit is the main lacrimal gland located? Superotemporal

The gland resides in a fossa located in which orbital bone? The frontal

The lacrimal gland is divided into two lobes—what are they called? The orbital and palpebral lobes

What structure does the dividing? The lateral horn of the levator aponeurosis

How many ducts does the lac gland have?
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How many ducts does the lac gland have? Where do they let out? About 12. Into the conj fornix superior to the upper tarsus.
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The lacrimal gland is divided into two lobes—what are they called? The orbital and palpebral lobes

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How many ducts does the lac gland have? Where do they let out? About 12. Into the conj fornix superior to the upper tarsus.

What is the lacrimal functional unit (LFU)?
In which quadrant of the orbit is the main lacrimal gland located?
Superotemporal

The gland resides in a fossa located in which orbital bone?
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The lacrimal gland is divided into two lobes—what are they called?
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What structure does the dividing?
The lateral horn of the levator aponeurosis

How many ducts does the lac gland have? Where do they let out?
About 12. Into the conj fornix superior to the upper tarsus.

What is the lacrimal functional unit (LFU)?
The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film
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What structure does the dividing?
The lateral horn of the levator aponeurosis

How many ducts does the lac gland have? Where do they let out?
About 12. Into the conj fornix superior to the upper tarsus.

What is the lacrimal functional unit (LFU)?
The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film. If the LFU is disrupted, \( \text{Abb.} \) will result.
In which quadrant of the orbit is the main lacrimal gland located?
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The lacrimal gland is divided into two lobes—what are they called?
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What structure does the dividing?
The lateral horn of the levator aponeurosis

How many ducts does the lac gland have? Where do they let out?
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What is the lacrimal functional unit (LFU)?
The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film. If the LFU is disrupted, DES will result.
The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film. If the LFU is disrupted, DES will result.
Big L and the LFU

The Reflex Arc

Sensory receptors

Afferent nerves

This is pretty vague. Can you flesh it out for me?

The LFU is closely analogous to a reflex arc. Recall that a reflex arc has three components: A sensory limb consisting of sensory receptors and afferent nerves.

The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film. If the LFU is disrupted, DES will result.
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The lacrimal gland is divided into two lobes—what are they called?

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What structure does the dividing?

The lateral horn of the levator aponeurosis

How many ducts does the lacrimal gland have? Where do they let out?

About 12. Into the conjunctiva superior to the upper tarsus.

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The Reflex Arc

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In which quadrant of the orbit is the main lacrimal gland located?

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The gland resides in a fossa located in which orbital bone?

The frontal

The lacrimal gland is divided into two lobes—what are they called?

The orbital and palpebral lobes

What structure does the dividing?

The lateral horn of the levator aponeurosis

How many ducts does the lacr gland have? Where do they let out?

About 12. Into the conj fornix superior to the upper tarsus.

What is the lacrimal functional unit (LFU)?

The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film. If the LFU is disrupted, DES will result.

This is pretty vague. Can you flesh it out for me?

The LFU is closely analogous to a reflex arc. Recall that a reflex arc has three components: A sensory limb consisting of sensory receptors and afferent nerves, a motor limb consisting of efferent nerves and the effector end-organ. So when you put your hand on a hot stove, nociceptors in your skin are activated, in turn causing the sensory nerves to which they're attached to fire. The signal is carried to the spinal cord, where it stimulates interneurons that subsequently cause motor nerves to fire. These nerves synapse with motor units in the muscles that cause you to drop an F bomb. (Oh yeah, they also synapse with the muscles that withdraw your hand from the stove.)

The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film. If the LFU is disrupted, DES will result.
In which quadrant of the orbit is the main lacrimal gland located?

Superotemporal.

The gland resides in a fossa located in which orbital bone?

The frontal.

The lacrimal gland is divided into two lobes—what are they called?

The orbital and palpebral lobes.

What structure does the dividing?

The lateral horn of the levator aponeurosis.

How many ducts does the lac gland have? Where do they let out?

About 12. Into the conj fornix superior to the upper tarsus.

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The LFU is closely analogous to a reflex arc. Recall that a reflex arc has three components: A sensory limb consisting of sensory receptors and afferent nerves, a motor limb consisting of efferent nerves and the effector end-organ.

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Big L and the LFU

The Reflex Arc

Sensory limb

Sensory receptors

Afferent nerves

Abb. + two words

Efferent nerves

Motor limb

Effectors

This is pretty vague. Can you flesh it out for me?

The LFU is closely analogous to a reflex arc. Recall that a reflex arc has three components: A sensory limb consisting of sensory receptors and afferent nerves, a motor limb consisting of efferent nerves and the effector end-organ, and a CNS integration center that connects the afferent and efferent limbs.

The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film. If the LFU is disrupted, DES will result.
In which quadrant of the orbit is the main lacrimal gland located?
Superotemporal

The gland resides in a fossa located in which orbital bone?
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What structure does the dividing?
The lateral horn of the levator aponeurosis

How many ducts does the lacr gland have? Where do they let out?
About 12. Into the conj fornix superior to the upper tarsus.

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The LFU is closely analogous to a reflex arc. Recall that a reflex arc has three components: A sensory limb consisting of sensory receptors and afferent nerves, a motor limb consisting of efferent nerves and the effector end-organ, and a CNS integration center that connects the afferent and efferent limbs.

The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film. If the LFU is disrupted, DES will result.
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In the LFU, the sensory limb consists of ocular-surface nociceptors connected to branches of two nerves.

The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film.
In the LFU, the sensory limb consists of ocular-surface nociceptors connected to branches of V1 and V2.

The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film.
In which quadrant of the orbit is the main lacrimal gland located? Superotemporal

The gland resides in a fossa located in which orbital bone? The frontal

The lacrimal gland is divided into two lobes—what are they called? The orbital and palpebral lobes

What structure does the dividing? The lateral horn of the levator aponeurosis

How many ducts does the lac gland have? Where do they let out? About 12. Into the conj fornix superior to the upper tarsus.

What is the lacrimal functional unit (LFU)? The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film.

In the LFU, the sensory limb consists of ocular-surface nociceptors connected to branches of V1 and V2. The motor limb consisting of the lacrimal, meibomian, and goblet glands/cells (innervated by parasympathetics*).

The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film.
In the LFU, the sensory limb consists of ocular-surface nociceptors connected to branches of V1 and V2. The motor limb consisting of the lacrimal, meibomian, and goblet glands/cells (innervated by parasympathetics*)

The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film.

*It must be noted that the precise role of parasympathetic input vis a vis LFU function has yet to be fully elucidated
In the LFU, the sensory limb consists of ocular-surface nociceptors connected to branches of V1 and V2. The motor limb consisting of the lacrimal, meibomian, and goblet glands/cells (innervated by parasympathetics*) as well as the orbicularis oculi muscle (innervated by CN7).

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The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film.
In which quadrant of the orbit is the main lacrimal gland located?

Superotemporal

The gland resides in a fossa located in which orbital bone?

The frontal

The lacrimal gland is divided into two lobes—what are they called?

The orbital and palpebral lobes

What structure does the dividing?

The lateral horn of the levator aponeurosis

How many ducts does the lacr gland have? Where do they let out?

About 12. Into the conj fornix superior to the upper tarsus.

What is the lacrimal functional unit (LFU)?

The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film.

Big L and the LFU

The LFU

--- Sensory limb
  - Sensory receptors
    - Ocular-surface nociceptors
  - Afferent nerves
    - Branches of V₁ and V₂

--- CNS integration center
  - Brainstem
    - CN5 nucleus
  - Superior salivary nucleus
    - CN7 nucleus

--- Motor limb
  - Efferent nerves
    - P’sympathetics
    - CN7

--- Effectors
  - Glands
  - Lacrimal
  - M’bomian
  - Goblet
  - Orbicularis

In the LFU, the sensory limb consists of ocular-surface nociceptors connected to branches of V₁ and V₂. The motor limb consisting of the lacrimal, meibomian, and goblet glands/cells (innervated by parasympathetics) as well as the orbicularis oculi muscle (innervated by CN7). CNS integration takes place in the brainstem and involves the CN5 nucleus, the CN7 nucleus, and the superior salivary nucleus (which is motor to the glands).

I know, the superior salivary nucleus is part of the CN7 nuclear complex, and therefore it’s redundant to list it separately. (I did it like this so the text would match the verbiage in the Figure on the next slide.)

The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film.
The sensory and motor nerves connecting the components of the LFU
In which quadrant of the orbit is the main lacrimal gland located?
Superotemporal

The gland resides in a fossa located in which orbital bone?
The frontal

The lacrimal gland is divided into two lobes—what are they called?
The orbital and palpebral lobes

What structure does the dividing?
The lateral horn of the levator aponeurosis

How many ducts does the lacrinal gland have? Where do they let out?
About 12. Into the conj fornix superior to the upper tarsus.

What is the lacrimal functional unit (LFU)?
The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film.

Note that in addition to events at the ocular surface, the LFU responds also to endocrinologic influences, as well as to cortical inputs.

The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film.
In which quadrant of the orbit is the main lacrimal gland located? **Superotemporal**

The gland resides in a fossa located in which orbital bone? **The frontal**

The lacrimal gland is divided into two lobes—what are they called? **The orbital and palpebral lobes**

What structure does the dividing? **The lateral horn of the levator aponeurosis**

How many ducts does the lacr gland have? Where do they let out? **About 12. Into the conj fornix superior to the upper tarsus.**

What is the lacrimal functional unit (LFU)? **The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film.**

Let's sidebar on the parasympathetics for a moment.

**Big L and the LFU**

**The LFU**

Let’s sidebar on the parasympathetics for a moment.

**The LFU**

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Let’s sidebar on the parasympathetics for a moment.
In which quadrant of the orbit is the main lacrimal gland located?

Superotemporal

The gland resides in a fossa located in which orbital bone?

The frontal

The lacrimal gland is divided into two lobes—what are they called?

The orbital and palpebral lobes

What structure does the dividing?

The lateral horn of the levator aponeurosis

How many ducts does the lacrimal gland have? Where do they let out?

About 12. Into the conjunctival fornix superior to the upper tarsus.

What is the lacrimal functional unit (LFU)?

The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film.

Let’s sidebar on the parasympathetics for a moment. We conceptualize the peripheral parasympathetic pathway as consisting of two portions—what are they?

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The LFU
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Let's sidebar on the parasympathetics for a moment.
We conceptualize the peripheral parasympathetic pathway as consisting of two portions—what are they?
The preganglionic portion (fibers) and the postganglionic portion (fibers)

P'sympathetics

In one sense the sympathetics and parasympathetics are organized in diametrically opposing fashions. What sense is that?
In the sympathetic system, the pre-ganglionic fibers are relatively short, having to extend only from the spinal cord to the sympathetic ganglia located in the sympathetic chain just outside the vertebral column. In contrast, post-ganglionic sympathetic fibers are long, as they have to run all the way from the sympathetic chain to their distant effector organ. Because parasympathetic ganglia are located near the effector organ, not the CNS, in the parasympathetic system these relative lengths are reversed: The pre-ganglionic fibers are long, having to extend from their CNS origin all the way out to the peripherally-located ganglia; from the ganglia, it's a relatively short hop for the post-ganglionic fibers to get to their effector organ.
In which quadrant of the orbit is the main lacrimal gland located? Superotemporal.

The gland resides in a fossa located in which orbital bone? The frontal.

The lacrimal gland is divided into two lobes—what are they called? The orbital and palpebral lobes.

What structure does the dividing? The lateral horn of the levator aponeurosis.

How many ducts does the lacr gland have? Where do they let out? About 12. Into the conj fornix superior to the upper tarsus.

What is the lacrimal functional unit (LFU)? The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film.

Let’s sidebar on the parasympathetics for a moment. We conceptualize the peripheral parasympathetic pathway as consisting of two portions—what are they? The preganglionic portion (fibers) and the postganglionic portion (fibers)

With its central, preganglionic and postganglionic fibers, the sympathetic pathway is conceptualized in a similar manner. That said, in one sense the sympathetics and parasympathetics are organized in diametrically opposing fashions. What sense is that?
In which quadrant of the orbit is the main lacrimal gland located? 
- Superotemporal

The gland resides in a fossa located in which orbital bone?
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The lacrimal gland is divided into two lobes—what are they called?
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What structure does the dividing?
- The lateral horn of the levator aponeurosis

How many ducts does the lacrimal gland have? Where do they let out?
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In the sympathetic system, the preganglionic fibers are relatively short vs long
In which quadrant of the orbit is the main lacrimal gland located?  
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Big L and the LFU

The LFU

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In which quadrant of the orbit is the main lacrimal gland located?

Superotemporal

The gland resides in a fossa located in which orbital bone?

The frontal

The lacrimal gland is divided into two lobes—what are they called?

The orbital and palpebral lobes

What structure does the dividing?

The lateral horn of the levator aponeurosis

How many ducts does the lacrimal gland have? Where do they let out?

About 12. Into the conjunctiva superior to the upper tarsus.

What is the lacrimal functional unit (LFU)?

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Let's sidebar on the parasympathetics for a moment.

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Speaking of parasympathetic ganglia... How many are associated with the cranial nerves in general?

Five

Of the five, how many are of direct concern to us eye dentists?

What are their names? Where is each located?

Each ganglia 'belongs' to specific cranial nerves. To which nerve do the ciliary and pterygopalatine ganglia belong?

Two:

-- The ciliary ganglion is located near the orbital apex. It belongs to cranial nerve 5 (specifically V1, aka the oculomotor nerve).
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Big L and the LFU

The LFU

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Sensory limb → CNS integration → Motor limb

Speaking of parasympathetic ganglia…How many are associated with the cranial nerves in general? Five

parasympathetic ganglia

P’sympathetics

Five (You don’t need to know this fact for the OKAP—I’m just laying some groundwork here)
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Of the five, how many are of direct concern to us eye dentists?

parasympathetic ganglia

P'sympathetics

Glands
---Lacrimal
---M'bomian
---Goblet
---Orbicularis

---Glands

Sensory receptors
Ocular-surface nociceptors
Branches of V1 and V2

CNS integration CNS

Motor limb
Effectors

Sensory limb

Of the five, how many are of direct concern to us eye dentists?
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Two

parasympathetic ganglia
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Five

Of the five, how many are of direct concern to us eye dentists? What are their names?
Two:
--The ganglion
--The ganglion

parasympathetic ganglia

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Speaking of parasympathetic ganglia…How many are associated with the cranial nerves in general? Five

Of the five, how many are of direct concern to us eye dentists? What are their names? Two:

--The ciliary ganglion

--The pterygopalatine ganglion

parasympathetic ganglia
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P'sympathetics

Two words

parasympathetic ganglia

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Big L and the LFU

Sensory limb

Motor limb

CNS

integration

Sensory receptors

Ocular-surface nociceptors

Branches of V1 and V2

Brainstem

-- CN5 nucleus
-- CN7 nucleus
-- Superior salivatory nucleus
-- Glands
  ---- Lacrimal
  ---- M'bomian
  ---- Goblet
-- Orbicularis

The LFU

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Of the five, how many are of direct concern to us eye dentists? What are their names? Where is each located?

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-- The **pterygopalatine ganglion**

parasympathetic ganglia
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parasympathetic ganglia

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parasympathetic ganglia

---

Big L and the LFU

The LFU

---

CNS integration

Motor limb

Sensory limb

Sensory receptors

CNS integration

Motor limb

Effector organs:
--Glands
--Orbicularis
--M'bomian
--Goblet
--Lacrimal

Parasympathetics

sensory limb

motor limb

CNS integration

Eye

Sensory

Motor

CNS integration

Effectors

Sensory

Motor

CNS integration

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---

The parasympathetic system

---

The preganglionic fibers are long, having to extend from their CNS origin all the way out to the peripherally-located ganglia; from the ganglia, it's a relatively short hop for the postganglionic fibers to get to their effector organ.
Big L and the LFU

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parasympathetic ganglia

parasympathetics

P'sympathetics

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Big L and the LFU

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parasympathetic ganglia

parasympathetics

---Glands
---Lacrimal
---M'bomian
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Sympathetics

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The LFU ★★

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What structure does the dividing?
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Speaking of parasympathetic ganglia…How many are associated with the cranial nerves in general?
Five

Of the five, how many are of direct concern to us eye dentists? What are their names? Where is each located? Each ganglia ‘belongs’ to specific cranial nerves. To which nerve do the ciliary and pterygopalatine ganglia belong?
Two:
--The ciliary ganglion is located near the orbital apex. It belongs to cranial nerve 5 (specifically V1, aka the oculomotor nerve).
--The pterygopalatine ganglion is located in the pterygopalatine fossa.
In which quadrant of the orbit is the main lacrimal gland located?  
Superotemporal

The gland resides in a fossa located in which orbital bone?  
The frontal

The lacrimal gland is divided into two lobes—what are they called?  
The orbital and palpebral lobes

What structure does the dividing?  
The lateral horn of the levator aponeurosis

How many ducts does the lacr gland have? Where do they let out?  
About 12. Into the conj fornix superior to the upper tarsus.

What is the lacrimal functional unit (LFU)?  
The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film.

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Parasympathetic ganglia

P’sympathetics

Parasympathetics

Sympathetics

Brainstem

--CN5 nucleus
--CN7 nucleus
--Superior salivatory nucleus

Glands

--Lacrimal
--M’bomian
--Goblet

Orbicularis

The parasympathetics for a moment.

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Big L and the LFU

**The LFU**

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Big L and the LFU
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The Edinger-Westphal nucleus.
In which quadrant of the orbit is the main lacrimal gland located? 
Superotemporal

The gland resides in a fossa located in which orbital bone? 
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Sensory limb
Motor limb

CNS integration

Sensory receptors

Motor effectors

Ocular-surface nociceptors

Branches of V1 and V2

Brainstem
--CN5 nucleus
--CN7 nucleus
--Superior salivatory nucleus
--Glands
----Lacrimal
----M'bomian
----Goblet
--Orbicularis

The LFU

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parasympathetic ganglia

ciliary ganglion

P’sympathetics

Ocular-surface nociceptors

Glands
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Sensory limb  Motor limb
CNS integration

Sensory receptors
Ocular-surface nociceptors
Branches of V1 and V2

Brainstem
--CN5 nucleus
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Superotemporal

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The eponym-eponym nucleus
In which quadrant of the orbit is the main lacrimal gland located? Superotemporal.

The gland resides in a fossa located in which orbital bone? The frontal.

The lacrimal gland is divided into two lobes—what are they called? The orbital and palpebral lobes.

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In which quadrant of the orbit is the main lacrimal gland located?

Superotemporal

The gland resides in a fossa located in which orbital bone?

The frontal

The lacrimal gland is divided into two lobes—what are they called?

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What structure does the dividing?

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Speaking of the preganglionic parasympathetics heading to the pterygopalatine ganglion: After leaving the superior salivatory nucleus, they form a named nerve. What is its name?

Greater petrosal nerve

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name?

Pterygoid canal (aka Vidian's canal)

Two:
  --The ciliary ganglion
  --The pterygopalatine ganglion

The ciliary ganglion is associated with cranial nerve 5 (specifically V1, aka the oculomotor nerve).

The pterygopalatine ganglion is located in the pterygopalatine fossa. It belongs to cranial nerve 7.

From what nucleus do the parasympathetics heading to the ciliary ganglion originate?

Edinger-Westphal nucleus

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In which quadrant of the orbit is the main lacrimal gland located? Superotemporal

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Speaking of the preganglionic parasympathetics heading to the pterygopalatine ganglion: After leaving the superior salivatory nucleus, they form a named nerve. What is its name? The greater petrosal nerve

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The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name? The pterygoid canal (aka Vidian's canal)
In which quadrant of the orbit is the main lacrimal gland located? 
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Sensory limb
Motor limb

CNS integration center

Sensory receptors Afferent nerves

Big L and the LFU

P’sympathetics

Are lesser and deep petrosal nerves actual nerves, or just made up for the question?

parasympathetics heading to the pterygopalatine ganglion

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Are lesser and deep petrosal nerves actual nerves, or just made up for the question? They’re real nerves; we’ll return to them shortly.

parasympathetics heading to the pterygopalatine ganglion
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parasympathetic ganglia
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Big L and the LFU

Speaking of the preganglionic parasympathetics heading to the pterygopalatine ganglion: After leaving the superior salivatory nucleus, they form a named nerve. What is its name? The greater petrosal nerve.

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name? Pterygoid canal (aka Vidian’s canal).

parasympathetics heading to the pterygopalatine ganglion

From what nucleus do the parasympathetics heading to the ciliary ganglion originate? The Edinger-Westphal nucleus.

parasympathetic ganglia

parasympathetics heading to

The pterygopalatine ganglion is located near the orbital apex. It belongs to cranial nerve 5 (specifically V1, aka the oculomotor nerve).

--The ciliary ganglion is located near the orbital apex. It belongs to cranial nerve 5 (specifically V1, aka the oculomotor nerve).

--The pterygopalatine ganglion is located in the pterygopalatine fossa. It belongs to cranial nerve 7.

parasympathetic ganglia

parasympathetics heading to

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name? Pterygoid canal (aka Vidian’s canal).

parasympathetics heading to

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The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name? Pterygoid canal (aka Vidian’s canal).

parasympathetics heading to
In which quadrant of the orbit is the main lacrimal gland located? Superotemporal

The gland resides in a fossa located in which orbital bone? The frontal

The lacrimal gland is divided into two lobes—what are they called? The orbital and palpebral lobes

What structure does the dividing? The lateral horn of the levator aponeurosis

How many ducts does the lacrimal gland have? Where do they let out? About 12. Into the conjunctival fornix superior to the upper tarsus.

What is the lacrimal functional unit (LFU)?

The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film.

Speaking of the preganglionic parasympathetics heading to the pterygopalatine ganglion: After leaving the superior salivatory nucleus, they form a named nerve. What is its name? The greater petrosal nerve

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name? The pterygoid canal

parasympathetics heading to the pterygopalatine ganglion

From what nucleus do the parasympathetics heading to the ciliary ganglion originate? The Edinger-Westphal nucleus

The parasympathetics heading to the pterygopalatine ganglion originate in the superior salivatory nucleus. The preganglionic fibers are long, having to extend from their CNS origin all the way out to the peripherally-located ganglia; from the ganglia, it’s a relatively short hop for the postganglionic fibers to get to their effector organ.
In which quadrant of the orbit is the main lacrimal gland located? Superotemporal.
The gland resides in a fossa located in which orbital bone? The frontal.
The lacrimal gland is divided into two lobes—what are they called? The orbital and palpebral lobes.
What structure does the dividing? The lateral horn of the levator aponeurosis.
How many ducts does the lacrimal gland have? Where do they let out? About 12. Into the conjunctiva superior to the upper tarsus.

What is the lacrimal functional unit (LFU)? The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film.

Let's sidebar on the parasympathetics for a moment. We conceptualize the peripheral parasympathetic pathway as consisting of two portions—what are they? The preganglionic portion (fibers) and the postganglionic portion (fibers).

With its central, preganglionic and postganglionic fibers, the sympathetic pathway is conceptualized in a similar manner. That said, in one sense the sympathetics and parasympathetics are organized in diametrically opposing fashions. What sense is that? In the sympathetic system, the preganglionic fibers are relatively short, having to extend only from the spinal cord to the sympathetic ganglia located in the sympathetic chain just outside the vertebral column.

In contrast, postganglionic sympathetic fibers are long, as they have to run all the way from the sympathetic chain to their distant effector organ. Because parasympathetic ganglia are located near the effector organ, not the CNS, in the parasympathetic system these relative lengths are reversed: The preganglionic fibers are long, having to extend from their CNS origin all the way out to the peripherally-located ganglia; from the ganglia, it's a relatively short hop for the postganglionic fibers to get to their effector organ.

Speaking of the preganglionic parasympathetics heading to the pterygopalatine ganglion: After leaving the superior salivatory nucleus, they form a named nerve. What is its name? The greater petrosal nerve.

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name? The pterygoid canal (aka eponym canal).

The parasympathetics heading to the pterygopalatine ganglion originate in the superior salivatory nucleus. From what nucleus do the parasympathetics heading to the ciliary ganglion originate? The Edinger-Westphal nucleus.

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name? The pterygoid canal (aka eponym canal).

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name? The pterygoid canal (aka eponym canal).
In which quadrant of the orbit is the main lacrimal gland located? Superotemporal.

The gland resides in a fossa located in which orbital bone? The frontal.

The lacrimal gland is divided into two lobes—what are they called? The orbital and palpebral lobes.

What structure does the dividing? The lateral horn of the levator aponeurosis.

How many ducts does the lac gland have? Where do they let out? About 12. Into the conj fornix superior to the upper tarsus.

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Speaking of the preganglionic parasympathetics heading to the pterygopalatine ganglion: After leaving the superior salivatory nucleus, they form a named nerve. What is its name? The greater petrosal nerve.

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name? The pterygoid canal (aka Vidian’s canal).

From what nucleus do the parasympathetics heading to the ciliary ganglion originate? The Edinger-Westphal nucleus.

The pterygoid canal (aka Vidian’s canal) runs all the way from the sympathetic chain to their distant effector organ. Because parasympathetic ganglia are located near the effector organ, not the CNS, in the parasympathetic system these relative lengths are reversed: The preganglionic fibers are long, having to extend from their CNS origin all the way out to the peripherally-located ganglia; from the ganglia, it's a relatively short hop for the postganglionic fibers to get to their effector organ.
In which quadrant of the orbit is the main lacrimal gland located?
Superotemporal

The gland resides in a fossa located in which orbital bone?
The frontal

The lacrimal gland is divided into two lobes—what are they called?
The orbital and palpebral lobes

What structure does the dividing?
The lateral horn of the levator aponeurosis

How many ducts does the lac gland have? Where do they let out?
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Speaking of the preganglionic parasympathetics heading to the pterygopalatine ganglion: After leaving the superior salivatory nucleus, they form a named nerve. What is its name? The greater petrosal nerve

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name? The pterygoid canal (aka Vidian’s canal)

Two: The pterygopalatine ganglion and pterygopalatine ganglion, respectively. What is the name of the named nerve that exits the skull (and enters the pterygopalatine fossa) via a named canal? The greater petrosal nerve

From what nucleus do the parasympathetics heading to the ciliary ganglion originate?
The Edinger-Westphal nucleus

Returning as promised: What comprises the deep petrosal nerve?
In which quadrant of the orbit is the main lacrimal gland located?
Superotemporal

The gland resides in a fossa located in which orbital bone?
The frontal

The lacrimal gland is divided into two lobes—what are they called?
The orbital and palpebral lobes

What structure does the dividing?
The lateral horn of the levator aponeurosis

How many ducts does the lac gland have? Where do they let out?
About 12. Into the conj fornix superior to the upper tarsus.

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The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name? The pterygoid canal (aka Vidian’s canal)

Two: The parasympathetics heading to the ciliary ganglion originate in the superior salivatory nucleus. From what nucleus do the parasympathetics heading to the ciliary ganglion originate?
The Edinger-Westphal nucleus

Speaking of the preganglionic parasympathetics heading to the pterygopalatine ganglion: After leaving the superior salivatory nucleus, they form a named nerve. What is its name? The greater petrosal nerve

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name? The pterygoid canal (aka Vidian’s canal)

From what nucleus do the parasympathetics heading to the ciliary ganglion originate?
The Edinger-Westphal nucleus

Returning as promised: What comprises the deep petrosal nerve?
Postganglionic sympathetic nerves heading to the lacrimal gland located ganglia; from the ganglia, it's a relatively short hop for the postganglionic fibers to get to their effector organ.
In which quadrant of the orbit is the main lacrimal gland located?
Superotemporal

The gland resides in a fossa located in which orbital bone?
The frontal

The lacrimal gland is divided into two lobes—what are they called?
The orbital and palpebral lobes

What structure does the dividing?
The lateral horn of the levator aponeurosis

How many ducts does the lac gland have? Where do they let out?
About 12. Into the conj fornix superior to the upper tarsus.

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The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name? The pterygoid canal (aka Vidian’s canal)

Two: the pterygopalatine ganglion and pterygopalatine ganglion.

From what nucleus do the parasympathetics heading to the ciliary ganglion originate?
The Edinger-Westphal nucleus

Speaking of the preganglionic parasympathetics heading to the pterygopalatine ganglion: After leaving the superior salivatory nucleus, they form a named nerve. What is its name? The greater petrosal nerve

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name? The pterygoid canal (aka Vidian’s canal)

Returning as promised: What comprises the deep petrosal nerve?
Postganglionic sympathetic heading to the lacrimal gland. The fibers will pass through the pterygopalatine ganglion but will not synapse there (as stated, they’re post-ganglionic).

located ganglia; from the ganglia, it's a relatively short hop for the postganglionic fibers to get to their effector organ.
In which quadrant of the orbit is the main lacrimal gland located?
Superotemporal

The gland resides in a fossa located in which orbital bone?
The frontal

The lacrimal gland is divided into two lobes—what are they called?
The orbital and palpebral lobes

What structure does the dividing?
The lateral horn of the levator aponeurosis

How many ducts does the lac gland have? Where do they let out?
About 12. Into the conj fornix superior to the upper tarsus.

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Speaking of the preganglionic parasympathetics heading to the pterygopalatine ganglion: After leaving the superior salivatory nucleus, they form a named nerve. What is its name?
The greater petrosal nerve

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name?
The pterygoid canal (aka Vidian’s canal)

Two:

1. From what nucleus do the parasympathetics heading to the ciliary ganglion originate?
The Edinger-Westphal nucleus

2. The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name?
The greater petrosal nerve

3. The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name?
The pterygoid canal (aka Vidian’s canal)

Returning as promised: What comprises the deep petrosal nerve? Postganglionic sympathetic heading to the lacrimal gland. The fibers will pass through the pterygopalatine ganglion but will not synapse there (as stated, they’re post-ganglionic).

The deep petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name?
In which quadrant of the orbit is the main lacrimal gland located?
Superotemporal

The gland resides in a fossa located in which orbital bone?
The frontal

The lacrimal gland is divided into two lobes—what are they called?
The orbital and palpebral lobes

What structure does the dividing?
The lateral horn of the levator aponeurosis

How many ducts does the lac gland have? Where do they let out?
About 12. Into the conj fornix superior to the upper tarsus.

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Big L and the LFU

Speaking of the preganglionic parasympathetics heading to the pterygopalatine ganglion: After leaving the superior salivatory nucleus, they form a named nerve. What is its name? The greater petrosal nerve

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name? The pterygoid canal (aka Vidian’s canal)

From what nucleus do the parasympathetics heading to the ciliary ganglion originate? The Edinger-Westphal nucleus

Speaking of the preganglionic parasympathetics heading to the pterygopalatine ganglion: After leaving the superior salivatory nucleus, they form a named nerve. What is its name? The greater petrosal nerve

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name? The pterygoid canal (aka Vidian’s canal)

Returning as promised: What comprises the deep petrosal nerve? Postganglionic sympathetic heading to the lacrimal gland. The fibers will pass through the pterygopalatine ganglion but will not synapse there (as stated, they’re post-ganglionic).

The deep petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name? The pterygoid canal (aka Vidian’s canal)

located ganglia; from the ganglia, it's a relatively short hop for the postganglionic fibers to get to their effector organ.
In which quadrant of the orbit is the main lacrimal gland located? Superotemporal.

The gland resides in a fossa located in which orbital bone? The frontal.

The lacrimal gland is divided into two lobes—what are they called? The orbital and palpebral lobes.

What structure does the dividing? The lateral horn of the levator aponeurosis.

How many ducts does the lac gland have? About 12. Into the conj fornix superior to the upper tarsus.

What is the lacrimal functional unit (LFU)? The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film.

Let's sidebar on the parasympathetics for a moment. We conceptualize the peripheral parasympathetic pathway as consisting of two portions—what are they? The preganglionic portion (fibers) and the postganglionic portion (fibers).

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Speaking of the preganglionic parasympathetics heading to the pterygopalatine ganglion: After leaving the superior salivatory nucleus, they form a named nerve. What is it? The greater petrosal nerve.

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is the name? The pterygoid canal (aka Vidian’s canal).

Two: from what nucleus do the parasympathetics heading to the ciliary ganglion originate? The Edinger-Westphal nucleus.

Speaking of the preganglionic parasympathetics heading to the pterygopalatine ganglion: After leaving the superior salivatory nucleus, they form a named nerve. What is its name? The greater petrosal nerve.

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name? The pterygoid canal (aka Vidian’s canal).

Returning as promised: What comprises the deep petrosal nerve? Postganglionic sympathetics heading to the lacrimal gland. The fibers will pass through the pterygopalatine ganglion but will not synapse there (as stated, they’re post-ganglionic).

The deep petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name? The pterygoid canal (aka Vidian’s canal).
In which quadrant of the orbit is the main lacrimal gland located?

Superotemporal

The gland resides in a fossa located in which orbital bone?

The frontal

The lacrimal gland is divided into two lobes—what are they called?

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What structure does the dividing?

The lateral horn of the levator aponeurosis

How many ducts does the lac gland have? Where do they let out?

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What is the lacrimal functional unit (LFU)?

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Big L and the LFU

The LFU

CNS

Sensory limb

Motor limb

Speaking of the preganglionic parasympathetics heading to the pterygopalatine ganglion: After leaving the superior salivatory nucleus, they form a named nerve. What is it?

The greater petrosal nerve

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is the name?

The pterygoid canal (aka Vidian’s canal)

Two:

1. The pterygopalatine ganglion
2. The greater petrosal nerve

From what nucleus do the parasympathetics heading to the ciliary ganglion originate?

The Edinger-Westphal nucleus

Speaking of the preganglionic parasympathetics heading to the pterygopalatine ganglion: After leaving the superior salivatory nucleus, they form a named nerve. What is its name?

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The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name?

The pterygoid canal (aka Vidian’s canal)

Returning as promised: What comprises the deep petrosal nerve?

Postganglionic sympathetics heading to the lacrimal gland. The fibers will pass through the pterygopalatine ganglion but will not synapse there (as stated, they’re post-ganglionic).

The deep petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name?

The pterygoid canal (aka Vidian’s canal)
In which quadrant of the orbit is the main lacrimal gland located? 
Superotemporal

The gland resides in a fossa located in which orbital bone?
The frontal

The lacrimal gland is divided into two lobes—what are they called?
The orbital and palpebral lobes

What structure does the dividing?
The lateral horn of the levator aponeurosis

How many ducts does the lacrimal gland have? Where do they let out?
About 12. Into the conjunctival fornix superior to the upper tarsus.

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Let's sidebar on the parasympathetics for a moment.
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Speaking of the preganglionic parasympathetics heading to the pterygopalatine ganglion: After leaving the superior salivatory nucleus, they form a named nerve. What is it?
The greater petrosal nerve

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name?
The pterygoid canal (aka Vidian’s canal)

Returning as promised: What comprises the deep petrosal nerve?
Postganglionic sympathetic heading to the lacrimal gland. The fibers will pass through the pterygopalatine ganglion but will not synapse there (as stated, they’re post-ganglionic).

The deep petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name?
The pterygoid canal (aka Vidian’s canal)
In which quadrant of the orbit is the main lacrimal gland located?
Superotemporal

The gland resides in a fossa located in which orbital bone?
The frontal

The lacrimal gland is divided into two lobes—what are they called?
The orbital and palpebral lobes

What structure does the dividing?
The lateral horn of the levator aponeurosis

How many ducts does the lacr gland have? Where do they let out?
About 12. Into the conj fornix superior to the upper tarsus.

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Big L and the LFU

The LFU

CNS

Speaking of the preganglionic parasympathetics heading to the pterygopalatine ganglion: After leaving the superior salivatory nucleus, they form a named nerve. What is it?
The greater petrosal nerve

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name?
The pterygoid canal (aka Vidian’s canal)

Two:

The pterygoid canal (aka Vidian’s canal)

So the preganglionic parasympathetics headed to the pterygopalatine ganglion and the postganglionic sympathetic heading to the pterygopalatine ganglion travel together through the pterygoid (aka Vidian’s) canal. As they traverse this canal, the two nerves are considered to be joined, forming one nerve. By what name is this nerve known?
The nerve of the pterygoid canal (aka Vidian’s nerve)

Returning as promised: What comprises the deep petrosal nerve?
Postganglionic sympathetic heading to the lacrimal gland. The fibers will pass through the pterygopalatine ganglion but will not synapse there (as stated, they’re post-ganglionic).

The deep petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name?
The pterygoid canal (aka Vidian’s canal)

located ganglia; from the ganglia, it’s a relatively short hop for the postganglionic fibers to get to their effector organ.
In which quadrant of the orbit is the main lacrimal gland located?
Superotemporal

The gland resides in a fossa located in which orbital bone?
The frontal

The lacrimal gland is divided into two lobes—what are they called?
The orbital and palpebral lobes

What structure does the dividing?
The lateral horn of the levator aponeurosis

How many ducts does the lac gland have? Where do they let out?
About 12. Into the conj fornix superior to the upper tarsus.

What is the lacrimal functional unit (LFU)?
The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film.

Sensory limb Motor limb
CNS integration center

Sensory receptors Afferent nerves
Branches of V1 and V2
Brainstem
--CN5 nucleus
--CN7 nucleus
--Superior salivatory nucleus
--Glands
----Lacrimal
----M'bomian
----Goblet
--Orbicularis

The LFU

Let's sidebar on the parasympathetics for a moment.
We conceptualize the peripheral parasympathetic pathway as consisting of two portions—what are they?
The preganglionic portion (fibers) and the postganglionic portion (fibers)

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Speaking of the preganglionic parasympathetics heading to the pterygopalatine ganglion: After leaving the superior salivatory nucleus, they form a named nerve. What is it?
The greater petrosal nerve

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name?
The pterygoid canal (aka Vidian’s canal)

Two:

The pterygoid canal (aka Vidian’s canal)
The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name?
The greater petrosal nerve

Returning as promised: What comprises the deep petrosal nerve?
Postganglionic sympathetic heading to the lacrimal gland. The fibers will pass through the pterygopalatine ganglion but will not synapse there (as stated, they’re post-ganglionic).

The deep petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name?
The pterygoid canal (aka Vidian’s canal)

So the preganglionic parasympathetics headed to the pterygopalatine ganglion and the postganglionic sympathetics heading to the pterygopalatine ganglion travel together through the pterygoid (aka Vidian’s) canal. As they traverse this canal, the two nerves are considered to be joined, forming one nerve. By what name is this nerve known?
The nerve of the pterygoid canal (aka Vidian’s nerve)
In which quadrant of the orbit is the main lacrimal gland located?

Superotemporal

The gland resides in a fossa located in which orbital bone?

Frontal

The lacrimal gland is divided into two lobes—what are they called?

Orbital and palpebral lobes

What structure does the dividing?

The lateral horn of the levator aponeurosis

How many ducts does the lacrimal gland have? Where do they let out?

About 12. Into the conjunctival fornix superior to the upper tarsus.

What is the lacrimal functional unit (LFU)?

The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film.

Big L and the LFU

The LFU

CNS

Sensory limb

Motor limb

Receptors

Motor neurons

Efferent fibers

Effectors

Brainstem

--- CN 5 nucleus

--- CN 7 nucleus

--- Superior salivatory nucleus

--- Glands

--- Lacrimal

--- M'bonian

--- Goblet

--- Orbicularis

Let’s sidebar on the parasympathetics for a moment.

We conceptualize the peripheral parasympathetic pathway as consisting of two portions—what are they?

The preganglionic portion (fibers) and the postganglionic portion (fibers)

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In the sympathetic system, the preganglionic fibers are relatively short, having to extend only from the spinal cord to the sympathetic ganglia located in the sympathetic chain just outside the vertebral column.

In contrast, postganglionic sympathetic fibers are long, as they have to run all the way from the sympathetic chain to their distant effector organ. Because parasympathetic ganglia are located near the effector organ, not the CNS, in the parasympathetic system these relative lengths are reversed: The preganglionic fibers are long, having to extend from their CNS origin all the way out to the peripherally-located ganglia; from the ganglia, it's a relatively short hop for the postganglionic fibers to get to their effector organ.

Speaking of parasympathetics…How many are associated with the cranial nerves in general?

Five

Of the five, how many are of direct concern to us eye dentists?

What are their names? Where is each located? Each ganglia 'belongs' to specific cranial nerves. To which nerve do the ciliary and pterygopalatine ganglia belong?

Two:

--- The ciliary ganglion is located near the orbital apex. It belongs to cranial nerve 5 (specifically V1, aka the oculomotor nerve).

--- The pterygopalatine ganglion is located in the pterygopalatine fossa. It belongs to cranial nerve 7.

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name?

Greater petrosal nerve

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name?

Pterygoid canal (aka Vidian’s canal)

From what nucleus do the parasympathetics heading to the ciliary ganglion originate?

Edinger-Westphal nucleus

Returning as promised: What comprises the deep petrosal nerve?

Postganglionic sympathetics heading to the lacrimal gland. The fibers will pass through the pterygopalatine ganglion but will not synapsize there (as stated, they’re post-ganglionic).

The deep petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name?

Pterygoid canal (aka Vidian’s canal)

Located ganglia; from the ganglia, it’s a relatively short hop for the postganglionic fibers to get to their effector organ.
In which quadrant of the orbit is the main lacrimal gland located?

Superotemporal

The gland resides in a fossa located in which orbital bone?
The frontal

The lacrimal gland is divided into two lobes—what are they called?
The orbital and palpebral lobes

What structure does the dividing?
The lateral horn of the levator aponeurosis

How many ducts does the lac gland have? Where do they let out?
About 12. Into the conjunctiva superior to the upper tarsus.

What is the lacrimal functional unit (LFU)?
The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film.

 Speaking of the preganglionic parasympathetics heading to the pterygopalatine ganglion: How will the postganglionic sympathetics and (now) postganglionic parasympathetics get to the lacrimal gland after exiting the pterygopalatine ganglion?

They will pass through the inferior orbital fissure to join the lacrimal nerve on its way to the gland.

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name?
The pterygoid canal (aka Vidian’s canal)

Two: 
- Postganglionic sympathetic heading to the lacrimal gland. The fibers will pass through the pterygopalatine ganglion but will not synapse there (as stated, they’re post-ganglionic).
- Sympathetics heading to the pterygopalatine ganglion travel together through the pterygoid (aka Vidian’s) canal. As they traverse this canal, the two nerves are considered to be joined, forming one nerve. By what name is this nerve known?
The nerve of the pterygoid canal (aka Vidian’s nerve)

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The pterygoid canal (aka Vidian’s canal)

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Let's sidebar on the parasympathetics for a moment.

We conceptualize the peripheral parasympathetic pathway as consisting of two portions—what are they?
The preganglionic portion (fibers) and the postganglionic portion (fibers)

With its central, preganglionic and postganglionic fibers, the sympathetic pathway is conceptualized in a similar manner. That said, in one sense the sympathetics and parasympathetics are organized in diametrically opposing fashions. What sense is that?
In the sympathetic system, the pre-ganglionic fibers are relatively short, having to extend only from the spinal cord to the sympathetic ganglia located in the sympathetic chain just outside the vertebral column. In contrast, post-ganglionic sympathetic fibers are long, as they have to run all the way from the sympathetic chain to their distant effector organ. Because parasympathetic ganglia are located near the effector organ, not the CNS, in the parasympathetic system these relative lengths are reversed: The pre-ganglionic fibers are long, having to extend from their CNS origin all the way out to the peripherally-located ganglia; from the ganglia, it's a relatively short hop for the postganglionic fibers to get to their effector organ.
In which quadrant of the orbit is the main lacrimal gland located? Superotemporal

The gland resides in a fossa located in which orbital bone? The frontal

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What structure does the dividing? The lateral horn of the levator aponeurosis

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Speaking of the preganglionic parasympathetic heading to the pterygopalatine ganglion…How many are associated with the cranial nerves in general? Five Of the five, how many are of direct concern to us eye dentists? Two: The ciliary ganglion is located near the orbital apex. It belongs to cranial nerve 5 (specifically V1, aka the oculomotor nerve). The pterygopalatine ganglion is located in the pterygopalatine fossa. It belongs to cranial nerve 7.

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name? The pterygoid canal (aka Vidian’s canal)

And pterygopalatine ganglion? Two: The pterygoid canal (aka Vidian’s canal) and pterygopalatine ganglion

From what nucleus do the parasympathetics heading to the ciliary ganglion originate? The Edinger-Westphal nucleus

Speaking of the preganglionic parasympathetics heading to the pterygopalatine ganglion: After leaving the superior salivatory nucleus, they form a named nerve. What is its name? The greater petrosal nerve

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name? The pterygoid canal (aka Vidian’s canal)

Returning as promised: What comprises the deep petrosal nerve? Postganglionic sympa-thetics heading to the lacrimal gland. The fibers will pass through the pterygopalatine ganglion but will not synap-se there (as stated, they’re post-ganglionic).

The deep petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name? The pterygoid canal (aka Vidian’s canal)

Located ganglia; from the ganglia, it's a relatively short hop for the postganglionic fibers to get to their effector organ.
In which quadrant of the orbit is the main lacrimal gland located? Superotemporal

The gland resides in a fossa located in which orbital bone? The frontal

The lacrimal gland is divided into two lobes—what are they called? The orbital and palpebral lobes

What structure does the dividing? The lateral horn of the levator aponeurosis

How many ducts does the lacrimal gland have? Where do they let out? About 12. Into the conjunctiva superior to the upper tarsus.

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Of the five, how many are of direct concern to us eye dentists? Two: --The ciliary ganglion is located near the orbital apex. It belongs to cranial nerve 5 (specifically V1, aka the oculomotor nerve).

--The pterygopalatine ganglion is located in the pterygopalatine fossa. It belongs to cranial nerve 7.

Finally, for completeness’ sake: What comprises the aforementioned lesser petrosal nerve? Preganglionic parasympathetics belonging to cranial nerve 9 (the glossopharyngeal nerve). Its postganglionic fibers innervate the parotid gland.

How will the postganglionic sympathetics and (now) postganglionic parasympathetics get to the lacrimal gland after exiting the pterygopalatine ganglion? They will pass through the inferior orbital fissure to join the lacrimal nerve on its way to the gland.

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name? The pterygoid canal (aka Vidian’s canal)

Returning as promised: What comprises the deep petrosal nerve? Postganglionic sympathetic fibers heading to the lacrimal gland. The fibers will pass through the pterygopalatine ganglion but will not synapse there (as stated, they’re post-ganglionic).

The deep petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name? The pterygoid canal (aka Vidian’s canal)

For the regulation,
In which quadrant of the orbit is the main lacrimal gland located?

Superotemporal

The gland resides in a fossa located in which orbital bone?

The frontal

The lacrimal gland is divided into two lobes—what are they called?

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About 12. Into the conjunctival fornix superior to the upper tarsus.

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The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film.

Big L and the LFU

Sensory limb
Motor limb
CNS integration center
Sensory receptors
Afferent nerves
Efferent nerves
Effectors
Ocular-surface nociceptors
Branches of V1 and V2
Brainstem
--CN5 nucleus
--CN7 nucleus
--Superior salivatory nucleus
--Glands
----Lacrimal
----M'bonian
----Goblet
--Orbicularis

Let's sidebar on the parasympathetics for a moment.

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In the sympathetic system, the preganglionic fibers are relatively short, having to extend only from the spinal cord to the sympathetic ganglia located in the sympathetic chain just outside the vertebral column.

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Speaking of parasympathetic ganglia…How many are associated with the cranial nerves in general?

Five

Of the five, how many are of direct concern to us eye dentists? What are their names? Where is each located? Each ganglia ‘belongs’ to specific cranial nerves. To which nerve do the ciliary and pterygopalatine ganglia belong?

Two:
--The ciliary ganglion is located near the orbital apex. It belongs to cranial nerve 5 (specifically V1, aka the oculomotor nerve).
--The pterygopalatine ganglion is located in the pterygopalatine fossa. It belongs to cranial nerve 7.

P'sympathetics

You know (because we just covered it) that parasympathetics heading to the pterygopalatine ganglion originate in the superior salivatory nucleus. From what nucleus do the parasympathetics heading to the ciliary ganglion originate?

The Edinger-Westphal nucleus

Speaking of the preganglionic parasympathetics heading to the pterygopalatine ganglion: After leaving the superior salivatory nucleus, they form a named nerve. What is its name?

The greater petrosal nerve

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name?

The pterygoid canal (aka Vidian's canal)

Returning as promised: What comprises the deep petrosal nerve? Preganglionic parasympathetics belonging to cranial nerve 7 (the superior salivatory nucleus) are considered to be postganglionic. The fibers will pass through the pterygopalatine ganglion but will not synapse there (as stated, they're post-ganglionic).

Finally, for completeness' sake: What comprises the aforementioned lesser petrosal nerve? Preganglionic parasympathetics belonging to cranial nerve 9 (the glossopharyngeal nerve). Its postganglionic fibers innervate the parotid gland.

How will the postganglionic sympathetics and (now) postganglionic parasympathetics get to the lacrimal gland after exiting the pterygopalatine ganglion?

They will pass through the inferior orbital fissure to join the lacrimal nerve on its way to the gland.
In which quadrant of the orbit is the main lacrimal gland located?
Superotemporal

The gland resides in a fossa located in which orbital bone?
The frontal

The lacrimal gland is divided into two lobes—what are they called?
The orbital and palpebral lobes

What structure does the dividing?
The lateral horn of the levator aponeurosis

How many ducts does the lac gland have? Where do they let out?
About 12. Into the conj fornix superior to the upper tarsus.

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What are their names? Where is each located? Each ganglia ‘belongs’ to specific cranial nerves. To which nerve do the ciliary and pterygopalatine ganglia belong?
Two:
The ciliary ganglion is located near the orbital apex. It belongs to cranial nerve 5 (specifically V1, aka the oculomotor nerve).
The pterygopalatine ganglion is located in the pterygopalatine fossa. It belongs to cranial nerve 7.

Finally, for completeness’ sake: What comprises the aforementioned lesser petrosal nerve? Preganglionic parasympathetics belonging to cranial nerve 9 (the glossopharyngeal nerve)

How will the postganglionic sympathetics and (now) postganglionic parasympathetics get to the lacrimal gland after exiting the pterygopalatine ganglion?
They will pass through the inferior orbital fissure to join the lacrimal nerve on its way to the gland.

The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name?
The greater petrosal nerve exits the skull (and enters the pterygopalatine fossa) via the pterygoid canal (aka Vidian’s canal). As they traverse this canal, the two nerves are considered to be joined, forming one nerve. By what name is this nerve known?
The nerve of the pterygoid canal (aka Vidian’s nerve)

Returning as promised: What comprises the deep petrosal nerve?
Postganglionic sympathetics heading to the lacrimal gland. The fibers will pass through the pterygopalatine ganglion but will not synapse there (as stated, they’re post-ganglionic).

The deep petrosal nerve exits the skull (and enters the pterygopalatine fossa) via a named canal. What is its name?
The pterygoid canal (aka Vidian’s canal)

Located ganglia; from the ganglia, it’s a relatively short hop for the postganglionic fibers to get to their effector organ.

Big L and the LFU
In which quadrant of the orbit is the main lacrimal gland located? Superotemporal.

The gland resides in a fossa located in which orbital bone? The frontal.

The lacrimal gland is divided into two lobes—what are they called? The orbital and palpebral lobes.

What structure does the dividing? The lateral horn of the levator aponeurosis.

How many ducts does the lac gland have? About 12. Where do they let out? Into the conjunctiva superior to the upper tarsus.

What is the lacrimal functional unit (LFU)? The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film.

Let's sidebar on the parasympathetics for a moment. We conceptualize the peripheral parasympathetic pathway as consisting of two portions—what are they? The preganglionic portion (fibers) and the postganglionic portion (fibers).

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Speaking of the preganglionic parasympathetics heading to the pterygoplatine fossa, How will the postganglionic sympathetics and (now) postganglionic parasympathetics get to the lacrimal gland after exiting the pterygoplatine ganglion? They will pass through the inferior orbital fissure to join the lacrimal nerve on its way to the gland.

The greater petrosal nerve exits the skull (and enters the pterygoplatine fossa) via a named canal. What is its name? The pterygoid canal (aka Vidian’s canal).

Finally, for completeness’ sake: What comprises the aforementioned lesser petrosal nerve? Preganglionic parasympathetics belonging to cranial nerve 9 (the glossopharyngeal nerve). Its postganglionic fibers innervate the gland.

Returning as promised: What comprises the deep petrosal nerve? Postganglionic sympathetic heading to the lacrimal gland. The fibers will pass through the pterygoplatine ganglion but will not synapose there (as stated, they’re post-ganglionic).

The deep petrosal nerve exits the skull (and enters the pterygoplatine fossa) via a named canal. What is its name? The pterygoid canal (aka Vidian’s canal).

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In which quadrant of the orbit is the main lacrimal gland located? Superotemporal The gland resides in a fossa located in which orbital bone? The frontal The lacrimal gland is divided into two lobes—what are they called? The orbital and palpebral lobes What structure does the dividing? The lateral horn of the levator aponeurosis How many ducts does the lac gland have? Where do they let out? About 12. Into the conjunctiva superior to the upper tarsus. What is the lacrimal functional unit (LFU)? The LFU is the complex, integrated system responsible for the regulation, production, and health of the tear film. Big L and the LFU

The LFU

CNS

Sensory limb
Motor limb

Speaking of the preganglionic parasympathetics heading to the pterygopalatine ganglion… How will the postganglionic sympathetics and (now) postganglionic parasympathetics get to the lacrimal gland after exiting the pterygopalatine ganglion? They will pass through the inferior orbital fissure to join the lacrimal nerve on its way to the gland. The greater petrosal nerve exits the skull (and enters the pterygopatine fossa) via a named canal. What is its name? The pterygoid canal (aka Vidian’s canal) Finally, for completeness’ sake: What comprises the aforementioned lesser petrosal nerve? Preganglionic parasympathetics belonging to cranial nerve 9 (the glossopharyngeal nerve). Its postganglionic fibers innervate the parotid gland. Returning as promised: What comprises the deep petrosal nerve? Postganglionic sympatheticcs heading to the lacrimal gland. The fibers will pass through the pterygopatine ganglion but will not synapese there (as stated, they’re post-ganglionic). The deep petrosal nerve exits the skull (and enters the pterygopatine fossa) via a named canal. What is its name? The pterygoid canal (aka Vidian’s canal) located ganglia; from the ganglia, it’s a relatively short hop for the postganglionic fibers to get to their effector organ.