Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

Supranuclear

Nuclear

Internuclear

Fascicular
Subarachnoid
Cavernous sinus
Orbital
Neuromuscular junction
Extraocular muscle

MLF

CN3 Nucleus
CN6 Nucleus
CN4 Nucleus

This slide encapsulates one way to think about the motility disorders. If it is unfamiliar, I strongly suggest you review the slide-set entitled ‘Motility disorders: Overview’ before proceeding. Now on with the show!
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

What does isolated mean in this context?

- Supranuclear
- Nuclear
- Internuclear
- Fascicular
- Subarachnoid
- Cavernous sinus
- Orbital
- Neuromuscular junction
- Extraocular muscle
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

What does *isolated* mean in this context? It means ‘absent nonocular CNS signs’

**Supranuclear**

**Nuclear**

**Internuclear**

**Infranuclear**

- Fascicular
- Subarachnoid
- Cavernous sinus
- Orbital
- Neuromuscular junction
- Extraocular muscle
Motility Disorders: Nontraumatic Isolated Unilateral CN6 Palsy

Supranuclear

What does ‘isolated and unilateral’ imply re etiology?

Internuclear

Nuclear

CN3 Nucleus

MLF

CN6 Nucleus

CN4 Nucleus

Infranuclear

Fascicular
Subarachnoid
Cavernous sinus
Orbital
Neuromuscular junction
Extraocular muscle

What does isolated mean in this context? It means ‘absent nonocular CNS signs’
Motility Disorders: Nontraumatic Isolated Unilateral CN6 Palsy

What does isolated mean in this context? It means ‘absent nonocular CNS signs’

What does ‘isolated and unilateral’ imply re etiology? It implies the lesion is infranuclear, somewhere along the path from the subarachnoid to the orbital portions.

Isolated Unilateral

Super-nuclear

Nuclear

Infranuclear

CN3 Nucleus

CN6 Nucleus

CN4 Nucleus

MLF

Motility Disorders: Nontraumatic Isolated Unilateral CN6 Palsy

Subarachnoid

Cavernous sinus

Orbital

Neuromuscular junction

Extraocular muscle

Facial

Infranuclear
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

Among the ocular motor nerves, where does CN6 rank in terms of becoming palsied?
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

Supranuclear

Nuclear

Internuclear

CN3 Nucleus

MLF

CN6 Nucleus

CN4 Nucleus

Fascicular
Subarachnoid
Cavernous sinus
Orbital
Neuromuscular junction
Extraocular muscle

Among the ocular motor nerves, where does CN6 rank in terms of becoming palsied?

#1
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

When thinking about CN6 palsies, you should consider them as falling into one of two categories. On what basis is this division made?
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

When thinking about CN6 palsies, you should consider them as falling into one of two categories. On what basis is this division made?

Pt age
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

The way you should divvy up CN6 palsies:

Pt age

What age is the dividing line between the two categories?
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

The way you should divvy up CN6 palsies:

Pt age

<50

50+

What age is the dividing line between the two categories?

50
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

Why divvy CN6 palsies up by pt age? That is, what attribute differentiates CN6 palsies in under-50 folk vs 50+ folk?
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

Why divvy CN6 palsies up by pt age? That is, what attribute differentiates CN6 palsies in under-50 folk vs 50+ folk?
The attribute is etiology. In folks 50+, the vast majority of CN6 palsies are ischemic, whereas those in folks <50 are not.
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

Why divvy CN6 palsies up by pt age? That is, what attribute differentiates CN6 palsies in under-50 folk vs 50+ folk? The attribute is etiology. In folks 50+, the vast majority of CN6 palsies are ischemic, whereas those in folks <50 are not ischemic.
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

What are the risk factors for a CN6 ischemic mononeuropathy?
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

What are the risk factors for a CN6 ischemic mononeuropathy?
The usual vasculopathic ones--DM, HTN and abnormal lipids
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

What are the risk factors for a CN6 ischemic mononeuropathy? The usual vasculopathic ones--DM, HTN and abnormal lipids

If a vasculopathic 50+ year old presents with an isolated CN6 palsy, what workup is indicated?
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

What are the risk factors for a CN6 ischemic mononeuropathy? The usual vasculopathic ones--DM, HTN and abnormal lipids

If a vasculopathic 50+ year old presents with an isolated CN6 palsy, what workup is indicated? Other than a complete eye exam and general medical assessment (ie, BP, BS and lipid evals), nothing
Motility Disorders: *Nontraumatic, Isolated, Unilateral CN6 Palsy*

What are the risk factors for a CN6 ischemic mononeuropathy? The usual vasculopathic ones—DM, HTN and abnormal lipids.

*If a vasculopathic 50+ year old presents with an isolated CN6 palsy, what workup is indicated?*
Other than a complete eye exam and general medical assessment (ie, BP, BS and lipid evals), nothing.

*What about imaging?*
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

What are the risk factors for a CN6 ischemic mononeuropathy?
The usual vasculopathic ones--DM, HTN and abnormal lipids

If a vasculopathic 50+ year old presents with an isolated CN6 palsy, what workup is indicated?
Other than a complete eye exam and general medical assessment (ie, BP, BS and lipid evals), nothing

What about imaging?
It is not indicated
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

What are the risk factors for a CN6 ischemic mononeuropathy?
The usual vasculopathic ones--DM, HTN and abnormal lipids

If a vasculopathic 50+ year old presents with an isolated CN6 palsy, what workup is indicated?
Other than a complete eye exam and general medical assessment (ie, BP, BS and lipid evals), nothing

What about imaging?
It is not indicated

What is the natural course of an ischemic 6th?
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

<50

What are the risk factors for a CN6 ischemic mononeuropathy?
The usual vasculopathic ones--DM, HTN and abnormal lipids

If a vasculopathic 50+ year old presents with an isolated CN6 palsy, what workup is indicated?
Other than a complete eye exam and general medical assessment (ie, BP, BS and lipid evals), nothing

What about imaging?
It is not indicated

50+

What is the natural course of an ischemic 6th?
It will resolve by 3 months
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

What are the risk factors for a CN6 ischemic mononeuropathy? The usual vasculopathic ones--DM, HTN and abnormal lipids

If a vasculopathic 50+ year old presents with an isolated CN6 palsy, what workup is indicated? Other than a complete eye exam and general medical assessment (ie, BP, BS and lipid evals), nothing

What about imaging? It is not indicated

What is the natural course of an ischemic 6th? It will resolve by 3 months

How should one proceed if a presumed ischemic 6th fails to largely resolve by 3 months?
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

What are the risk factors for a CN6 ischemic mononeuropathy?
The usual vasculopathic ones--DM, HTN and abnormal lipids

If a vasculopathic 50+ year old presents with an isolated CN6 palsy, what workup is indicated?
Other than a complete eye exam and general medical assessment (ie, BP, BS and lipid evals), nothing

What about imaging?
It is not indicated (unless it fails to resolve by 3 months)

What is the natural course of an ischemic 6th?
It will resolve by 3 months

How should one proceed if a presumed ischemic 6th fails to largely resolve by 3 months?
By obtaining expedited imaging for what apparently is not an ischemic 6th
Motility Disorders: *Nontraumatic, Isolated, Unilateral CN6 Palsy*

Finally: Two questions must be addressed before you assume a CN6 palsy in a 50+ vasculopathy is ‘merely’ ischemic, and therefore nothing to be concerned about:

--

--
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

Finally: Two questions must be addressed before you assume a CN6 palsy in a 50+ vasculopathy is ‘merely’ ischemic, and therefore nothing to be concerned about:
--Does the pt has a hx of one word present?
--Are signs/symptoms suggestive of abb. present?
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

Finally: Two questions must be addressed before you assume a CN6 palsy in a 50+ vasculopathy is ‘merely’ ischemic, and therefore nothing to be concerned about:

-- Does the pt have a hx of cancer?
-- Are signs/symptoms suggestive of GCA present?
When thinking about CN6 palsies in individuals <50, you should consider them as falling into one of three categories. On what basis are these divisions made?
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

When thinking about CN6 palsies in individuals <50, you should consider them as falling into one of three categories. On what basis are these divisions made? Pt ‘life stage’
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

When thinking about CN6 palsies in individuals <50, you should consider them as falling into one of three categories. On what basis are these divisions made?

Pt ‘life stage’

What are these three life stages?
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

When thinking about CN6 palsies in individuals <50, you should consider them as falling into one of three categories. On what basis are these divisions made?

Pt ‘life stage’

What are these three life stages?

Childhood, teen/young adulthood, and adult
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

Note: While not completely clear on this score, the BCSC Neuro book seems to suggest that all of these pts should be imaged forthwith.
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

- Child
- Teen - Young Adult
- Adult

What else should you consider about a ‘CN6 palsy’ (note the scare quotes) in individuals under 50?
Motility Disorders: *Nontraumatic, Isolated, Unilateral CN6 Palsy*

**<50**
- Child
- Teen - Young Adult
- Adult

**50+**

**Infranuclear**
- Fascicular
- Subarachnoid
- Cavernous sinus
- Orbital
- Neuromuscular junction
- Extraocular muscle

*What else should you consider about a ‘CN6 palsy’ (note the scare quotes) in individuals under 50?*
That it’s not a CN6 issue at all, but rather a manifestation of pathology at some other infranuclear location
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

- **<50**
  - Child
  - Teen - Young Adult
  - Adult
  - Infranuclear
    - Fascicular
    - Subarachnoid
    - Cavernous sinus
    - Orbital?
    - Neuromuscular junction?
    - Extraocular muscle?

- **50+**

What else should you consider about a ‘CN6 palsy’ (note the scare quotes) in individuals under 50? That it’s not a CN6 issue at all, but rather a manifestation of pathology at some other infranuclear location.

Which locations are particularly likely to be involved?

--

--
Motility Disorders: *Nontraumatic, Isolated, Unilateral CN6 Palsy*

- **<50**
  - Child
  - Teen - Young Adult
    - Fascicular
    - Subarachnoid
    - Cavernous sinus
    - Orbital
    - Neuromuscular junction
    - Extraocular muscle

- **50+**

*What else should you consider about a ‘CN6 palsy’ (note the scare quotes) in individuals under 50?*
That it’s not a CN6 issue at all, but rather a manifestation of pathology at some other infranuclear location.

*Which locations are particularly likely to be involved?*
- The orbit
- The neuromuscular junction
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

What else should you consider about a ‘CN6 palsy’ (note the scare quotes) in individuals under 50? That it’s not a CN6 issue at all, but rather a manifestation of pathology at some other infranuclear location.

Which locations are particularly likely to be involved?

--- The orbit

--- The neuromuscular junction

What sort of orbital process might be implicated?

A restrictive one, eg, thyroid eye dz. It does indeed tend to affect the MR, which is the point—the MR becomes restricted, giving the (false) impression of a LR palsy.
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

<50

Child

Teen - Young Adult

Adult

Infranuclear

Fascicular

Subarachnoid

Cavernous sinus

Orbital

Neuromuscular junction

Extraocular muscle

50+

What else should you consider about a ‘CN6 palsy’ (note the scare quotes) in individuals under 50? That it’s not a CN6 issue at all, but rather a manifestation of pathology at some other infranuclear location.

Which locations are particularly likely to be involved?

The orbit

The neuromuscular junction

What sort of orbital process might be implicated?

A restrictive one, eg, thyroid eye dz
Motility Disorders: *Nontraumatic, Isolated, Unilateral CN6 Palsy*

- **<50**
  - Child
  - Teen - Young Adult
  - Adult

- **50+**

**Infranuclear**
- Fascicular
- Subarachnoid
- Cavernous

**Orbital**
- The orbit
- Neuromuscular junction

What sort of orbital process might be implicated?
- A restrictive one, eg, thyroid eye dz

What else should you consider about a ‘CN6 palsy’ (note the scare quotes) in individuals under 50?
- That it’s not a CN6 issue at all, but rather a manifestation of pathology at some other infranuclear location

Which locations are particularly likely to be involved?
- The orbit

Thyroid eye dz? Doesn’t that tend to affect the medial rectus, not the lateral?
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

What else should you consider about a ‘CN6 palsy’ (note the scare quotes) in individuals under 50?
That it’s not a CN6 issue at all, but rather a manifestation of pathology at some other infranuclear location

Which locations are particularly likely to be involved?

--The orbit
--The neuromuscular junction

What sort of orbital process might be implicated?
A restrictive one, eg, thyroid eye dz

Thyroid eye dz? Doesn’t that tend to affect the medial rectus, not the lateral?
It does indeed tend to affect the MR, which is the point--the MR becomes restricted, giving the (false) impression of a LR palsy
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

<50
- Child
- Teen - Young Adult
- Adult

50+

Infranuclear
- Fascicular
- Subarachnoid
- Cavernous sinus
- Orbital

Neuromuscular junction
- Extraocular muscle

What else should you consider about a ‘CN6 palsy’ (note the scare quotes) in individuals under 50? That it’s not a CN6 issue at all, but rather a manifestation of pathology at some other infranuclear location.

Which locations are particularly likely to be involved?
-- The orbit
-- The neuromuscular junction

What pathology of the neuromuscular junction is most likely to mimic a CN6 palsy?
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

<50
- Child
- Teen - Young Adult
- Adult

50+

Infranuclear
- Fascicular
- Subarachnoid
- Cavernous sinus
- Orbital
- Neuromuscular junction
- Extraocular muscle

What else should you consider about a ‘CN6 palsy’ (note the scare quotes) in individuals under 50? That it’s not a CN6 issue at all, but rather a manifestation of pathology at some other infranuclear location.

Which locations are particularly likely to be involved?
- The orbit
- The neuromuscular junction

What pathology of the neuromuscular junction is most likely to mimic a CN6 palsy? Myasthenia gravis
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

Let’s start young...

Is congenital CN6 palsy common?
Motility Disorders: *Nontraumatic, Isolated, Unilateral CN6 Palsy*

Let's start young...

*Is congenital CN6 palsy common?*
No, it is very rare
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

Let's start young…

*Is congenital CN6 palsy common?*
No, it is very rare

*You see an infant purported to have a congenital 6th. More than likely, it is actually one of three other conditions. What are they?*
Let’s start young…

Is congenital CN6 palsy common?
No, it is very rare

You see an infant purported to have a congenital $6^{th}$. More than likely, it is actually one of three other conditions. What are they?
-- Transient CN6 palsy due to increased ICP secondary to the birth process
-- Congenital esotropia
-- Duane syndrome
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

Let’s start young…

Is congenital CN6 palsy common?
No, it is very rare

You see an infant purported to have a congenital 6th. More than likely, it is actually one of three other conditions. What are they?
--Transient CN6 palsy due to increased ICP 2ndry to the birth process
--Congenital esotropia
--Duane syndrome
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

Let's start young...

Is congenital CN6 palsy common?
No, it is very rare

What are the three primary features of Duane syndrome?
---
---
---

Duane syndrome
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

Let's start young...

Is congenital CN6 palsy common?
No, it is very rare.

What are the three primary features of Duane syndrome?
- Retraction of globe on attempted adduction
- At least some limitation of horizontal movement
- Up- or downshoot in adduction

Duane syndrome
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

Let’s start young...

Is congenital CN6 palsy common?
No, it is very rare

What are the three primary features of Duane syndrome?
-- Retraction of globe on attempted adduction
-- At least some limitation of horizontal movement
-- Up- or downshoot in adduction

Duane syndrome

Is congenital CN6 palsy common? More than likely, it is...
-- Transient CN6 palsy due to increased ICP secondary to the birth process
-- Congenital esotropia
-- Duane syndrome
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

Let’s start young…

Is congenital CN6 palsy common?
No, it is very rare

What are the three primary features of Duane syndrome?
-- Retraction of globe on attempted adduction
-- At least some limitation of horizontal movement
-- Up- or downshoot in adduction

Surely globe retraction is a dead giveaway that the infant has Duane’s and not a congenital CN6 palsy?
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

Let’s start young...

*Is congenital CN6 palsy common?*
No, it is very rare

*What are the three primary features of Duane syndrome?*
  -- Retraction of globe on attempted adduction
  -- At least some limitation of horizontal movement
  -- Up- or downshoot in adduction

*Surely globe retraction is a dead giveaway that the infant has Duane’s and not a congenital CN6 palsy?*
It would be if it were present, but typically retraction is only minimally present in Duane infants
Now, childhood…

What is the most common cause of isolated nontraumatic CN6 palsy in kids?
Now, childhood…

*What is the most common cause of isolated nontraumatic CN6 palsy in kids?*

An immunologic response to exposure to **viral** antigens
Now, childhood…

*What is the most common cause of isolated nontraumatic CN6 palsy in kids?*
An immunologic response to exposure to viral antigens
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

Now, childhood…

*What is the most common cause of isolated nontraumatic CN6 palsy in kids?*
An immunologic response to exposure to viral antigens

*Exposure takes one of two forms. What are they?*
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

Now, childhood…

What is the most common cause of isolated nontraumatic CN6 palsy in kids? An immunologic response to exposure to viral antigens

Exposure takes one of two forms. What are they?
--Post…
--Post…
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

<50

Child

Teen - Young Adult

Adult

50+

Now, childhood…

*What is the most common cause of isolated nontraumatic CN6 palsy in kids?*

An immunologic response to exposure to viral antigens

*Exposure takes one of two forms. What are they?*

--Post…infectious
--Post…vaccinal
Motility Disorders: *Nontraumatic, Isolated, Unilateral CN6 Palsy*

Now, childhood…

*What is the most common cause of isolated nontraumatic CN6 palsy in kids?*
An immunologic response to exposure to viral antigens

*Exposure takes one of two forms. What are they?*
--Post…infectious
--Post…vaccinal

*What is the clinical course of post-viral CN6 palsy?*
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

Now, childhood…

What is the most common cause of isolated nontraumatic CN6 palsy in kids?
An immunologic response to exposure to viral antigens

Exposure takes one of two forms. What are they?
--Post…infectious
--Post…vaccinal

What is the clinical course of post-viral CN6 palsy?
It resolves in weeks to months
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

Still childhood…

*After post-viral, what is the next most common cause of isolated nontraumatic CN6 palsy in kids?*
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

Still childhood…

After post-viral, what is the next most common cause of isolated nontraumatic CN6 palsy in kids?
Neoplasm
Still childhood…

*After post-viral, what is the next most common cause of isolated nontraumatic CN6 palsy in kids?*
*Neoplasm*

*What sort of neoplasm is the classic cause?*
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

Still childhood…

After post-viral, what is the next most common cause of isolated nontraumatic CN6 palsy in kids?
Neoplasm

What sort of neoplasm is the classic cause?
A brainstem glioma
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

After post-viral, what is the next most common cause of isolated nontraumatic CN6 palsy in kids?
Neoplasm

What sort of neoplasm is the classic cause?
A brainstem glioma

Note: Some experts contend that, absent a history of recent vaccination or viral illness, a nontraumatic CN6 palsy in a child is a tumor until proven otherwise.
Still childhood…

After post-viral, what is the next most common cause of isolated nontraumatic CN6 palsy in kids?
Neoplasm

What sort of neoplasm is the classic cause?
A brainstem glioma

Another sort of neoplasm must be considered. What is it?
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

After post-viral, what is the next most common cause of isolated nontraumatic CN6 palsy in kids?
Neoplasm

What sort of neoplasm is the classic cause?
A brainstem glioma

Another sort of neoplasm must be considered. What is it?
Leukemia
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

What condition should come to mind when a teen/young adult presents with an isolated unilateral CN6 palsy?
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

What condition should come to mind when a teen/young adult presents with an isolated unilateral CN6 palsy? Multiple sclerosis (MS)
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

In adults too old for MS but too young for ischemic dz, what condition is most likely to present in a manner consistent with an isolated unilateral CN6 palsy?
In adults too old for MS but too young for ischemic dz, what condition is most likely to present in a manner consistent with an isolated unilateral CN6 palsy? Myasthenia gravis (MG)
An uncommon cause of isolated CN6 palsy that occurs in adults has yet to be mentioned. What is it?
Motility Disorders: Nontraumatic, Isolated, Unilateral CN6 Palsy

An uncommon cause of isolated CN6 palsy that occurs in adults has yet to be mentioned. What is it?
Carotid-cavernous sinus fistula (CCF)
An uncommon cause of isolated CN6 palsy that occurs in adults has yet to be mentioned. What is it? Carotid-cavernous sinus fistula (CCF)

Huh? Everyone knows CCFs cause multiple simultaneous cranial nerve problems, possibly accompanied by a Horner syndrome. How could it cause an isolated CN6?
An uncommon cause of isolated CN6 palsy that occurs in adults has yet to be mentioned. What is it?

Carotid-cavernous sinus fistula (CCF)

Huh? Everyone knows CCFs cause multiple simultaneous cranial nerve problems, possibly accompanied by a Horner syndrome. How could it cause an isolated CN6? Recall that the cavernous sinuses drain into the internal jugular vein primarily via the sinus.
An uncommon cause of isolated CN6 palsy that occurs in adults has yet to be mentioned. What is it? Carotid-cavernous sinus fistula (CCF)

Huh? Everyone knows CCFs cause multiple simultaneous cranial nerve problems, possibly accompanied by a Horner syndrome. How could it cause an isolated CN6? Recall that the cavernous sinuses drain into the internal jugular vein primarily via the inferior petrosal sinus.
An uncommon cause of isolated CN6 palsy that occurs in adults has yet to be mentioned. What is it?
Carotid-cavernous sinus fistula (CCF)

Huh? Everyone knows CCFs cause multiple simultaneous cranial nerve problems, possibly accompanied by a Horner syndrome. How could it cause an isolated CN6?
Recall that the cavernous sinuses drain into the internal jugular vein primarily via the inferior petrosal sinus. The inferior petrosal sinus gets from the CS to the internal jugular by travelling within a structure called Dorello's canal.
An uncommon cause of isolated CN6 palsy that occurs in adults has yet to be mentioned. What is it? Carotid-cavernous sinus fistula (CCF)

*Huh? Everyone knows CCFs cause multiple simultaneous cranial nerve problems, possibly accompanied by a Horner syndrome. How could it cause an isolated CN6? Recall that the cavernous sinuses drain into the internal jugular vein primarily via the inferior petrosal sinus. The inferior petrosal sinus gets from the CS to the internal jugular by travelling within a structure called Dorello’s canal.*
An uncommon cause of isolated CN6 palsy that occurs in adults has yet to be mentioned. 
What is it?
Carotid-cavernous sinus fistula (CCF)

_Huh? Everyone knows CCFs cause multiple simultaneous cranial nerve problems, possibly accompanied by a Horner syndrome. How could it cause an isolated CN6?_

Recall that the cavernous sinuses drain into the internal jugular vein primarily via the inferior petrosal sinus. _The inferior petrosal sinus gets from the CS to the internal jugular by travelling within a structure called Dorello’s canal._ Recall also that CN6 gets to the CS by traversing…Dorello’s canal.
An uncommon cause of isolated CN6 palsy that occurs in adults has yet to be mentioned. What is it?
Carotid-cavernous sinus fistula (CCF)

Huh? Everyone knows CCFs cause multiple simultaneous cranial nerve problems, possibly accompanied by a Horner syndrome. How could it cause an isolated CN6? Recall that the cavernous sinuses drain into the internal jugular vein primarily via the inferior petrosal sinus. The inferior petrosal sinus gets from the CS to the internal jugular by travelling within a structure called Dorello’s canal. Recall also that CN6 gets to the CS by traversing...Dorello’s canal. Thus, increased pressure within the CS can lead to increased pressure within the inferior petrosal sinus, which in turn can bag CN6 as it passes through Dorello’s canal.
An uncommon cause of isolated CN6 palsy that occurs in adults has yet to be mentioned. What is it?

**Carotid-cavernous sinus fistula (CCF)**

What symptom might the pt report that should cause you to push CCF to the top of the DDx for a CN6 palsy?

Pulsatile tinnitus

---

Recall that the cavernous sinuses drain into the internal jugular vein primarily via the inferior petrosal sinus. The inferior petrosal sinus gets from the CS to the internal jugular vein by travelling within a structure called Dorello’s canal. Recall also that CN6 gets to the CS by traversing...Dorello’s canal. Thus, increased pressure within the CS can lead to increased pressure within the inferior petrosal sinus, which in turn can bag CN6 as it passes through Dorello’s canal.
An uncommon cause of isolated CN6 palsy that occurs in adults has yet to be mentioned. What is it?

**Carotid-cavernous sinus fistula (CCF)**

What symptom might the pt report that should cause you to push CCF to the top of the DDx for a CN6 palsy?

**Pulsatile tinnitus**