- For each statement, identify the associated phakomatosis(es)
- (1) Comes in a *central* and *peripheral* variety:

- For each statement, identify the associated phakomatosis(es)
- (1) Comes in a central and peripheral variety: NF

- For each statement, identify the associated phakomatosis(es)
- (1) Comes in a central and peripheral variety: NF
- May present with ataxia

4

- For each statement, identify the associated phakomatosis(es)
- (1) Comes in a central and peripheral variety: NF
- (2) May present with ataxia AT, NF2

- For each statement, identify the associated phakomatosis(es)
- (1) Comes in a central and peripheral variety: NF
- (2) May present with ataxia AT, NF2
- (1) Only syndrome without skin findings:

A

TS: Tuberous sclerosis SWS: Sturge-Weber syndrome vH-L: von Hippel-Lindau IP: Incontinentia pigmenti NF: Neurofibromatosis RA: Racemose angioma AT: Ataxia-telangiectasia KTS Klippel-Trénaunay syndrome

- For each statement, identify the associated phakomatosis(es)
- (1) Comes in a central and peripheral variety: NF
- (2) May present with ataxia AT, NF2
- (1) Only syndrome without skin findings: vH-L

- For each statement, identify the associated phakomatosis(es)
- (1) Comes in a central and peripheral variety: NF
- (2) May present with ataxia AT, NF2
- (1) Only syndrome without skin findings: vH-L
- (2) Increased risk of pheo, renal malignancies:

A

TS: Tuberous sclerosis SWS: Sturge-Weber syndrome vH-L: von Hippel-Lindau IP: Incontinentia pigmenti NF: Neurofibromatosis RA: Racemose angioma AT: Ataxia-telangiectasia KTS Klippel-Trénaunay syndrome

- For each statement, identify the associated phakomatosis(es)
- (1) Comes in a central and peripheral variety: NF
- (2) May present with ataxia AT, NF2
- (1) Only syndrome without skin findings: vH-L
- Increased risk of pheo, renal malignancies: NF1, vH-L

- For each statement, identify the associated phakomatosis(es)
- (1) Comes in a central and peripheral variety: NF
- May present with ataxia AT, NF2
- Only syndrome without skin findings: vH-L **(1)**
- Increased risk of pheo, renal malignancies: NF1, vH-L **(2)**
- Number of answers Associated with thymus hypoplasia → T-cell immune system abnormalities:

- For each statement, identify the associated phakomatosis(es)
- (1) Comes in a central and peripheral variety: NF
- May present with ataxia AT, NF2
- Only syndrome without skin findings: vH-L **(1)**
- Increased risk of pheo, renal malignancies: NF1, vH-L **(2)**
- Number of answers Associated with thymus hypoplasia → T-cell immune system abnormalities: AT

- For each statement, identify the associated phakomatosis(es)
- (1) Comes in a central and peripheral variety: NF
- May present with ataxia AT, NF2
- Only syndrome without skin findings: vH-L
- Increased risk of pheo, renal malignancies: NF1, vH-L **(2)**
- Number of answers Associated with thymus hypoplasia → T-cell immune system abnormalities: AT
 - Manifests in females *almost* exclusively:

- For each statement, identify the associated phakomatosis(es)
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- May present with ataxia AT, NF2
- Only syndrome without skin findings: vH-L
- Increased risk of pheo, renal malignancies: NF1, vH-L **(2)**
- Number of answers Associated with thymus hypoplasia → T-cell immune system abnormalities: AT
 - Manifests in females *almost* exclusively: IP

- For each statement, identify the associated phakomatosis(es)
- (1) Comes in a central and peripheral variety: NF
- May present with ataxia AT, NF2
- Only syndrome without skin findings: vH-L
- Increased risk of pheo, renal malignancies: NF1, vH-L (2)
- Number of answers Associated with thymus hypoplasia → T-cell immune system abnormalities: AT
 - Manifests in females *almost* exclusively: IP
 - (2) Associated with Lisch nodules:

- For each statement, identify the associated phakomatosis(es)
- (1) Comes in a central and peripheral variety: NF
- May present with ataxia AT, NF2
- Only syndrome without skin findings: vH-L
- Increased risk of pheo, renal malignancies: NF1, vH-L (2)
- Number of answers Associated with thymus hypoplasia → T-cell immune system abnormalities: AT
 - Manifests in females *almost* exclusively: IP
 - (2) Associated with Lisch nodules: NF1, NF2 (uncommon; not expected)

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- Increased risk of pheo, renal ma (1) Associated with thymus hypoplas system abnormalities: AT (1) Manifests in females *almost* excl (2) Associated with Lisch nodules: No. (2) Associated with port-wine stain: 1) Associated with thymus hypoplasia >T-cell immune
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- For each statement, identify the associated phakomatosis(es)
- (1) Comes in a central and peripheral variety: NF
- May present with ataxia AT, NF2
- Only syndrome without skin findings: vH-L
- Increased risk of pheo, renal malignancies: NF1, vH-L
- (2) Increased risk of pheo, renal malignancies:

 Associated with thymus hypoplasia→T-cell is system abnormalities: AT

 Manifests in females almost exclusively: IP

 (2) Associated with Lisch nodules: NF1, NF2 (under the context of 1) Associated with thymus hypoplasia >T-cell immune

 - (2) Associated with Lisch nodules: NF1, NF2 (uncommon; not expected)

- For each statement, identify the associated phakomatosis(es)
- (1) Comes in a central and peripheral variety: NF
- May present with ataxia AT, NF2
- Only syndrome without skin findings: vH-L
- Increased risk of pheo, renal malignancies: NF1, vH-L
- Number of answers
 (5)
 (1)
 (1)
 (2) 1) Associated with thymus hypoplasia >T-cell immune system abnormalities: AT
 - Manifests in females *almost* exclusively: IP
 - (2) Associated with Lisch nodules: NF1, NF2 (uncommon; not expected)
 - Associated with port-wine stain: SWS, KTS
 - Sporadic inheritance *only*:

- For each statement, identify the associated phakomatosis(es)
- (1) Comes in a central and peripheral variety: NF
- May present with ataxia AT, NF2
- Only syndrome without skin findings: vH-L
- Increased risk of pheo, renal malignancies: NF1, vH-L
- Number of answers 1) Associated with thymus hypoplasia >T-cell immune system abnormalities: AT
 - Manifests in females almost exclusively: IP
- (2) Associated with Lisch nodules: NF1, NF2 (uncommon; not expected)
- Associated with port-wine stain: SWS, KTS
 - Sporadic inheritance only: SWS, RA

- For each statement, identify the associated phakomatosis(es)
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- Increased risk of pheo, renal malignancies: NF1, vH-L
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 - Manifests in females *almost* exclusively: IP
 - (2) Associated with Lisch nodules: NF1, NF2 (uncommon; not expected)
 - Associated with port-wine stain: SWS, KTS
 - Sporadic inheritance only: SWS, RA
 - Classic skin lesion description is 'splashed paint:'

- For each statement, identify the associated phakomatosis(es)
- (1) Comes in a central and peripheral variety: NF
- May present with ataxia AT, NF2
- Only syndrome without skin findings: vH-L
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- Number of answers 1) Associated with thymus hypoplasia >T-cell immune system abnormalities: AT
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- Associated with port-wine stain: SWS, KTS
 - Sporadic inheritance only: SWS, RA
 - Classic skin lesion description is 'splashed paint:' IP
 - Complain of decreased hearing and/or tinnitus:

- For each statement, identify the associated phakomatosis(es)
- (1) Comes in a central and peripheral variety: NF
- May present with ataxia AT, NF2
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 - Associated with port-wine stain: SWS, KTS
 - Sporadic inheritance only: SWS, RA
 - Classic skin lesion description is 'splashed paint:' IP
 - Complain of decreased hearing and/or tinnitus: NF2
 - Strongly associated with seizures:

- For each statement, identify the associated phakomatosis(es)
- (1) Comes in a central and peripheral variety: NF
- May present with ataxia AT, NF2
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 - Sporadic inheritance only: SWS, RA
 - Classic skin lesion description is 'splashed paint:' IP
 - Complain of decreased hearing and/or tinnitus: NF2
 - Strongly associated with seizures: TS, SWS

- For each statement, identify the associated phakomatosis(es)
- (1) Comes in a central and peripheral variety: NF
- May present with ataxia AT, NF2
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- Increased risk of pheo, renal malignancies: NF1, vH-L
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 - Associated with port-wine stain: SWS, KTS
 - Sporadic inheritance only: SWS, RA
 - Classic skin lesion description is 'splashed paint:' IP
 - Complain of decreased hearing and/or tinnitus: NF2
 - Strongly associated with seizures: TS, SWS
 - Diagnostic criteria includes family history:

- For each statement, identify the associated phakomatosis(es)
- (1) Comes in a central and peripheral variety: NF
- May present with ataxia AT, NF2
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- Increased risk of pheo, renal malignancies: NF1, vH-L
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(1)● Presents with hypertrophy of a single limb:

Is the involved limb usually an arm, or a leg?



Is the involved limb usually an arm, or a leg? It is almost always (>90%) a leg



- 31
- (1) Presents with hypertrophy of a single limb: KTS
- (2) Associated with intracranial AVM:

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Presents with hypertrophy of a single limb: KTS **(1)**

Associated with intracranial AVM: SWS, RA



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- 33
- (1) Presents with hypertrophy of a single limb: KTS
- (2) Associated with intracranial AVM: SWS, RA

How do the intracranial AVM differ in SWS vs RA?

--

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- 34
- (1) Presents with hypertrophy of a single limb: KTS
- (2) Associated with intracranial AVM: SWS, RA

How do the intracranial AVM differ in SWS vs RA?
--AVM are location in SWS but location in RA

- Presents with hypertrophy of a single limb: KTS
- Associated with intracranial AVM: SWS, RA



How do the intracranial AVM differ in SWS vs RA? --AVM are meningeal in SWS but parenchymal in RA Q

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- (1) Presents with hypertrophy of a single limb: KTS
- (2) Associated with intracranial AVM: SWS, RA



How do the intracranial AVM differ in SWS vs RA?

--AVM are **meningeal** in SWS but **parenchymal** in RA

--They are prone to bleeding in the but not in the other but not in the o

- Presents with hypertrophy of a single limb: KTS
- Associated with intracranial AVM: SWS, RA



How do the intracranial AVM differ in SWS vs RA?

- --AVM are meningeal in SWS but parenchymal in RA
- --They are prone to bleeding in RA, but not in SWS

- (1) Presents with hypertrophy of a single limb: KTS
- (2) Associated with intracranial AVM: SWS, RA
- (1) Retinal lesion is an astrocytic hamartoma:



39

A

Number of answers

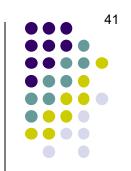
- (1) Presents with hypertrophy of a single limb: KTS
- (2) Associated with intracranial AVM: SWS, RA
- (1) Retinal lesion is an astrocytic hamartoma: TS

Number of answers

- 40
- (1) Presents with hypertrophy of a single limb: KTS
- (2) Associated with intracranial AVM: SWS, RA
- (1) Retinal lesion is an astrocytic hamartoma: TS
- (2) Only ones without a retinal lesion:



- (1) Presents with hypertrophy of a single limb: KTS
- (2) Associated with intracranial AVM: SWS, RA
- (1) Retinal lesion is an astrocytic hamartoma: TS
- (2) Only ones without a retinal lesion: SWS, KTS



Q

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42

- (1) Presents with hypertrophy of a single limb: KTS
- (2) Associated with intracranial AVM: SWS, RA
- (1) Retinal lesion is an astrocytic hamartoma: TS
- (2) Only ones without a retinal lesion: SWS, KTS

Wait a minute--what about the hemangioma in SWS?

The hemangioma is a *choroidal*, not retinal lesion



- (1) Presents with hypertrophy of a single limb: KTS
- (2) Associated with intracranial AVM: SWS, RA
- (1) Retinal lesion is an astrocytic hamartoma: TS
- (2) Only ones without a retinal lesion: SWS, KTS

Wait a minute--what about the hemangioma in SWS? The hemangioma is a choroidal, not retinal lesion



- 44
- (1) Presents with hypertrophy of a single limb: KTS
- (2) Associated with intracranial AVM: SWS, RA
- (1) Retinal lesion is an astrocytic hamartoma: TS
- (2) Only ones without a retinal lesion: SWS, KTS

Wait a minute--what about the hemangioma in SWS?
The hemangioma is a choroidal, not retinal lesion

Is choroidal hemangioma a feature of KTS?

A

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- 45
- (1) Presents with hypertrophy of a single limb: KTS
- (2) Associated with intracranial AVM: SWS, RA
- (1) Retinal lesion is an astrocytic hamartoma: TS
- (2) Only ones without a retinal lesion: SWS, KTS

Wait a minute--what about the hemangioma in SWS?
The hemangioma is a choroidal, not retinal lesion

Is choroidal hemangioma a feature of KTS?

No, and this (along with limb hypertrophy) is one of the key points of differentiation between them

- (1) Presents with hypertrophy of a single limb: KTS
- (2) Associated with intracranial AVM: SWS, RA
- (1) Retinal lesion is an astrocytic hamartoma: TS
- (2) Only ones without a retinal lesion: SWS, KTS

Wait a minute--what about the hemangioma in SWS? The hemangioma is a choroidal, not retinal lesion

Number of answers

Just because SWS pts don't have a retinal lesion doesn't mean they don't have retinal issues. What significant retinal problem can arise secondary to the diffuse choroidal hemangioma?

A

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Number of answers

Just because SWS pts don't have a retinal lesion doesn't mean they don't have retinal issues. What significant retinal problem can arise secondary to the diffuse choroidal hemangioma? **Exudative RD**

- Presents with hypertrophy of a single limb: KTS
- Associated with intracranial AVM: SWS, RA
- Retinal lesion is an astrocytic hamartoma: TS
- Only ones without a retinal lesion: SWS, KTS

Wait a minute--what about the hemangioma in SWS?

The hemangioma is a *choroidal*, not retinal lesion

Number of answers Just because SWS pts don't have a retinal lesion doesn't mean they don't have retinal issues. What significant retinal problem can arise secondary to the diffuse choroidal hemangioma? **Exudative RD**

How common is exudative RD in Sturge-Weber?

- (1) Presents with hypertrophy of a single limb: KTS
- (2) Associated with intracranial AVM: SWS, RA
- (1) Retinal lesion is an astrocytic hamartoma: TS
- (2) Only ones without a retinal lesion: SWS, KTS

Wait a minute--what about the hemangioma in SWS? The hemangioma is a choroidal, not retinal lesion

Just because SWS pts don't have a retinal lesion doesn't mean they don't have retinal issues. What significant retinal problem can arise secondary to the diffuse choroidal hemangioma? **Exudative RD**

How common is exudative RD in Sturge-Weber?

About 50% of patients with a diffuse choroidal hemangioma will develop one

- Number of answers

- 50
- (1) Presents with hypertrophy of a single limb: KTS
- (2) Associated with intracranial AVM: SWS, RA
- (1) Retinal lesion is an astrocytic hamartoma: TS
- (2) Only ones without a retinal lesion: SWS, KTS
- (4) Associated with intracranial tumors:

 •

- 51
- Presents with hypertrophy of a single limb: KTS
- Associated with intracranial AVM: SWS, RA
- Retinal lesion is an astrocytic hamartoma: TS **(1)**
- Only ones without a retinal lesion: SWS, KTS (2)
- Associated with intracranial tumors: NF2, NF1, TS, vH-L Number of answers **(4)**

- 52
- (1) Presents with hypertrophy of a single limb: KTS
- (2) Associated with intracranial AVM: SWS, RA
- (1) Retinal lesion is an astrocytic hamartoma: TS
- (2) Only ones without a retinal lesion: SWS, KTS
- R₍₄₎ Associated with intracranial tumors: NF2, NF1, TS, vH-L
- (4) Associated with intracrania Associated with glaucoma:

- Presents with hypertrophy of a single limb: KTS
- Associated with intracranial AVM: SWS, RA
- Retinal lesion is an astrocytic hamartoma: TS
- Only ones without a retinal lesion: SWS, KTS (2)
- Associated with intracranial tumors: NF2, NF1, TS, vH-L Number of answers **(4)**
 - Associated with glaucoma: SWS, NF1, RA, KTS



- (1) Presents with hypertrophy of a single limb: KTS
- (2) Associated with intracranial AVM: SWS, RA
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- (2) Only ones without a retinal lesion: SWS, KTS
- (4) Associated with intracranial tumors: NF2, NF1, TS, vH-L
- (4) Associated with glaucoma: SWS, NF1, RA, KTS

What is the glaucoma mechanism for each of these?
--SWS:
--NF1:
--RA:
--KTS:

- 55
- (1) Presents with hypertrophy of a single limb: KTS
- (2) Associated with intracranial AVM: SWS, RA
- (1) Retinal lesion is an astrocytic hamartoma: TS
- (2) Only ones without a retinal lesion: SWS, KTS
- (4) Associated with intracranial tumors: NF2, NF1, TS, vH-L
- (4) Associated with glaucoma: SWS, NF1, RA, KTS

What is the glaucoma mechanism for each of these?

- --**SWS**: ↑ EVP; ↑ ciliary-body perfusion; developmental angle anomalies
- --NF1: mechanism unclear
- --RA: intraretinal hemorrhage → neo → NVI → NVA → NVG
- --KTS: Similar to SWS

- Presents with hypertrophy of a single limb: KTS
- Associated with intracranial AVM: SWS, RA
- Retinal lesion is an astrocytic hamartoma: TS
- Only ones without a retinal lesion: SWS, KTS
- Associated with intracranial tumors: NF2, NF1, TS, vH-L **(4)**
- Number of answers Associated with glaucoma: SWS, NF1, RA, KTS
 - Retinal findings look like ROP:

- Presents with hypertrophy of a single limb: KTS
- Associated with intracranial AVM: SWS, RA
- Retinal lesion is an astrocytic hamartoma: TS
- Only ones without a retinal lesion: SWS, KTS
- Associated with intracranial tumors: NF2, NF1, TS, vH-L Number of answers **(4)**
 - Associated with glaucoma: SWS, NF1, RA, KTS
 - Retinal findings look like ROP: IP

- Presents with hypertrophy of a single limb: KTS
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- Number of answers Retinal findings look like ROP: IP
 - Lid involvement→increased risk of glaucoma:

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- Associated with intracranial AVM: SWS, RA
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- Associated with intracranial tumors: NF2, NF1, TS, vH-L Number of answers **(4)**
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- Number of answers (5) (7) (7) (8) (1) (1) (1) (2) Retinal findings look like ROP: IP
 - Lid involvement→increased risk of glaucoma: NF1, SWS
 - Has a classic conjunctival finding:

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- **Number of answers** Retinal findings look like ROP: IP
 - Lid involvement→increased risk of glaucoma: NF1, SWS
 - Has a classic conjunctival finding: AT, SWS

What is the conj finding in:

--*AT*?

--SWS?

- Presents with hypertrophy of a single limb: KTS
- Associated with intracranial AVM: SWS, RA
- Retinal lesion is an astrocytic hamartoma: TS
- Only ones without a retinal lesion: SWS, KTS
- Number of answers
 (1)
 (2)
 (2) Associated with intracranial tumors: NF2, NF1, TS, vH-L
 - Associated with glaucoma: SWS, NF1, RA, KTS
 - Retinal findings look like ROP: IP
 - Lid involvement → increased risk of glaucoma: NF1, SWS
 - Has a classic conjunctival finding: AT, SWS

What is the conj finding in:

- --AT? Telangiectasias
- --SWS? Increased vascularity → 'pink eye' appearance

- 64
- Presents with hypertrophy of a single limb: KTS
- Associated with intracranial AVM: SWS, RA
- Retinal lesion is an astrocytic hamartoma: TS
- Only ones without a retinal lesion: SWS, KTS
- Associated with intracranial tumors: NF2, NF1, TS, vH-L
- Associated with glaucoma: SWS, NF1, RA, KTS
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 - Lid involvement→increased risk of glaucoma: NF1, SWS
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 - 'Classic triad' mnemonic is epiloia:

- 65
- Presents with hypertrophy of a single limb: KTS
- Associated with intracranial AVM: SWS, RA
- Retinal lesion is an astrocytic hamartoma: TS
- Only ones without a retinal lesion: SWS, KTS
- Associated with intracranial tumors: NF2, NF1, TS, vH-L
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What does epiloia stand for?

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--Epi

--Lo i

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What does epiloia stand for?

- --**Epi**lepsy
- --Low intelligence
- --Angiomas

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