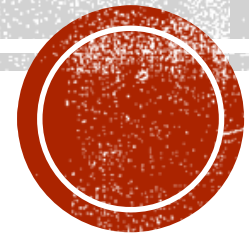


CASE VIGNETTE

**UC IRVINE
NEUROMUSCULAR COLLOQUIUM**



**Paul Sampognaro, MD
UCSF Neuromuscular Fellow**

NO DISCLOSURES



Clinical Case

- 61 year-old man
 - PMH: **hypertension** and **vision loss** (bilateral non-arteritic ischemic optic neuropathies)
 - Developed slowly progressive **low back pain** and a **worsening gait**.
- Neurologic Exam:
 - Moderate **weakness of distal leg muscles** (tibialis anterior, gastrocnemius, intrinsic foot muscles)
 - **Reduced sensation** from the ankles downward
 - Absent Achilles reflexes.



EMG/NCS

Nerve Conduction Studies: 1) **intact SNAPs**, 2) an increase in left tibial minimum-F-wave latencies and 3) an absent right peroneal F-wave response.

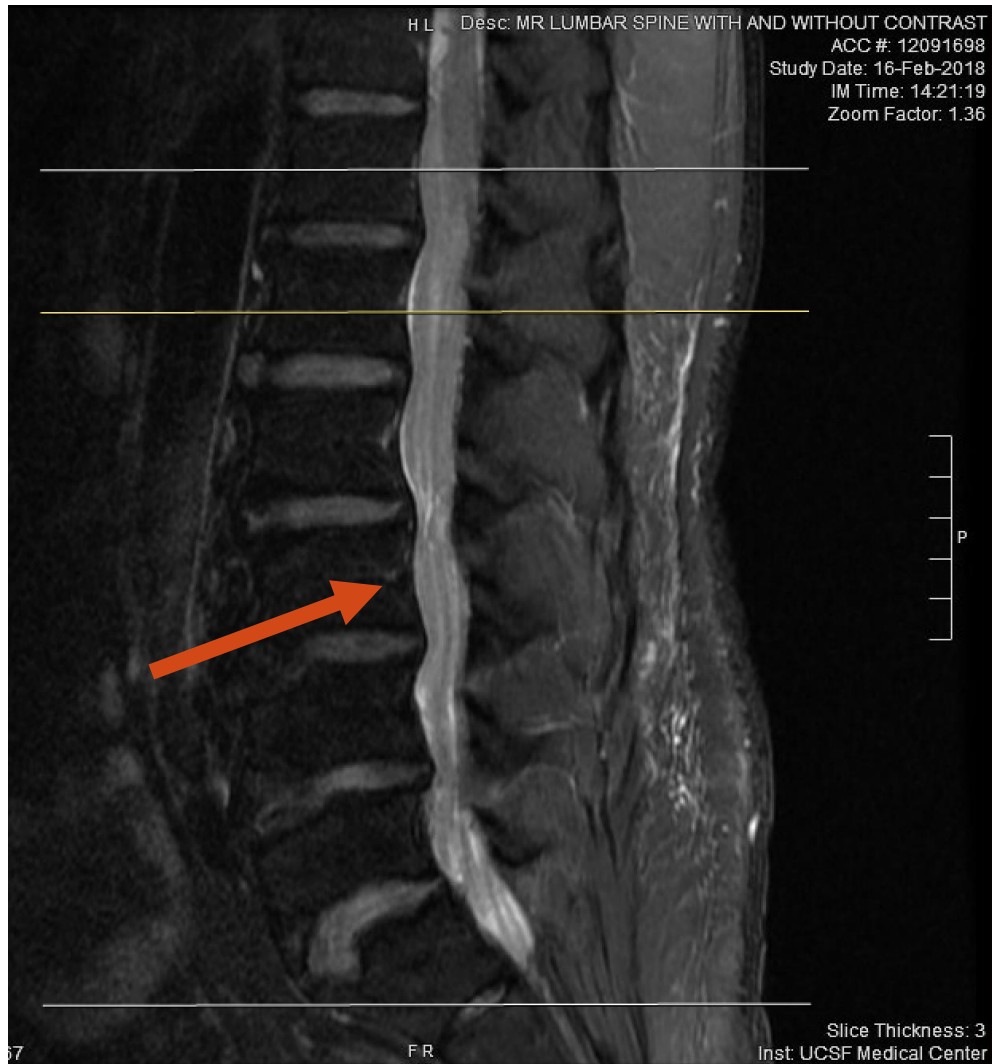
EMG Summary Table								
	Spontaneous		Volitional MUAPs				Max Vol Act	
Muscle	Fib/PSW	Fasc	Dur.	Amp	Poly	Recruit	Interference	Max Freq
R. Tibialis anterior	None	None	<u>14-20</u>	<u>1.0-2.0</u>	None	<u>Mod red</u>	<u>Mod dec</u>	40 Hz
R. Gastrocnemius (Medial head)	None	None	<u>14-20</u>	<u>1.0-2.0</u>	None	Normal	Full	40 Hz
R. Vastus medialis	None	None	8-12	0.6-1.6	None	Normal	Full	40 Hz
R. Tensor fasciae latae	None	None	<u>14-20</u>	<u>0.8-2.2</u>	None	<u>Mild red</u>	<u>Mild</u>	40 Hz
R. Gluteus maximus	None	None	<u>12-18</u>	<u>1.0-2.0</u>	<u>20%</u>	<u>Mild red</u>	<u>Mild</u>	40 Hz
L. Tibialis anterior	None	None	<u>14-20</u>	<u>0.6-1.6</u>	<u>100%</u>	<u>Sev red</u>	<u>Sev dec</u>	40 Hz
L. Gastrocnemius (Medial head)	None	None	<u>14-20</u>	<u>1.0-2.0</u>	None	<u>Mild red</u>	<u>Mild</u>	40 Hz
L. Vastus medialis	None	None	8-12	0.6-1.6	None	Normal	Full	40 Hz
L. Tensor fasciae latae	None	None	<u>14-20</u>	<u>1.0-2.0</u>	None	<u>Mild red</u>	<u>Mild</u>	40 Hz
L. Gluteus maximus	None	None	<u>14-20</u>	<u>1.0-2.0</u>	None	<u>Mild red</u>	<u>Mild</u>	40 Hz

IMPRESSION: bilateral chronic L5 and S1 radiculopathies

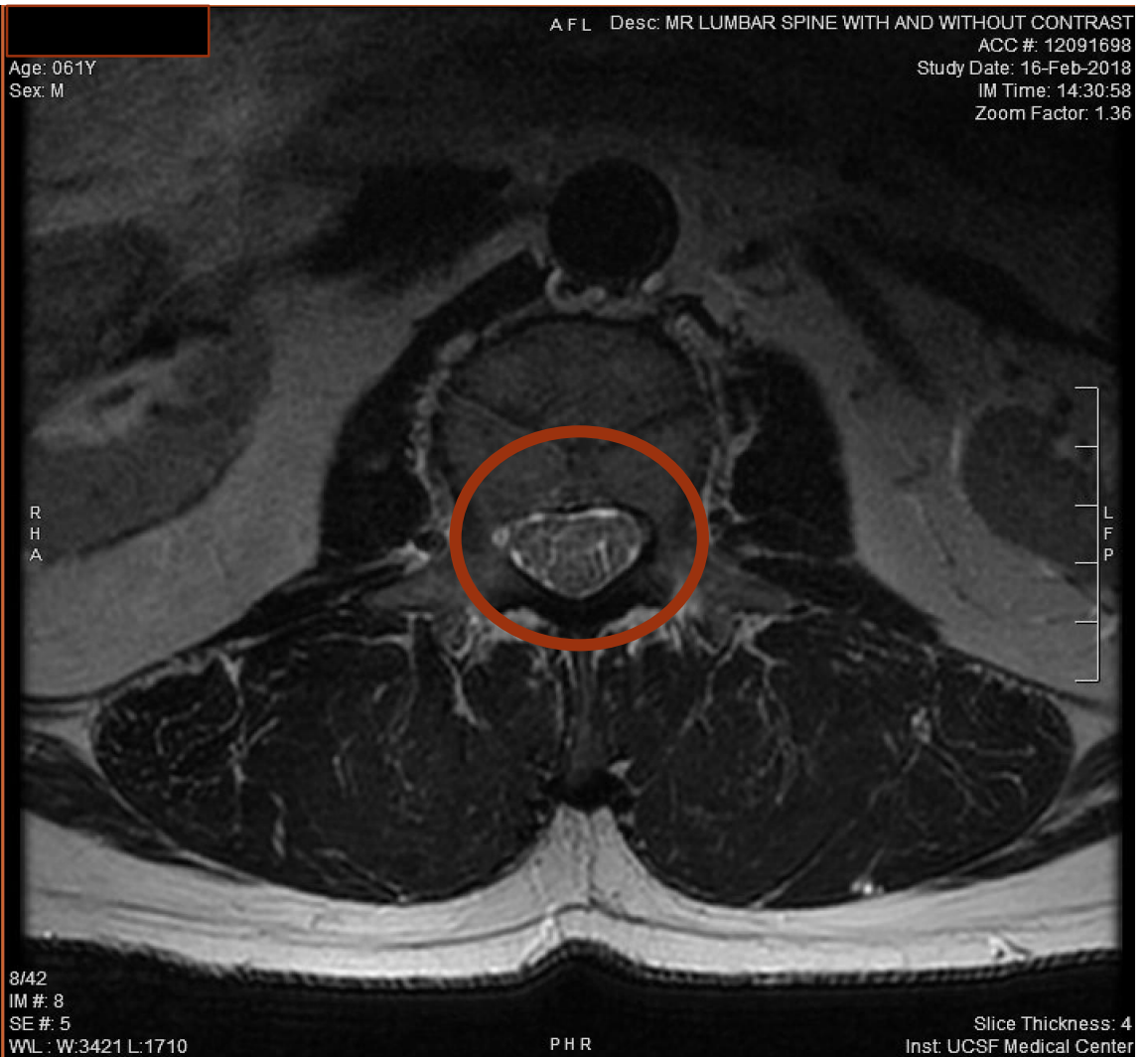


MRI of the Lumbar Spine

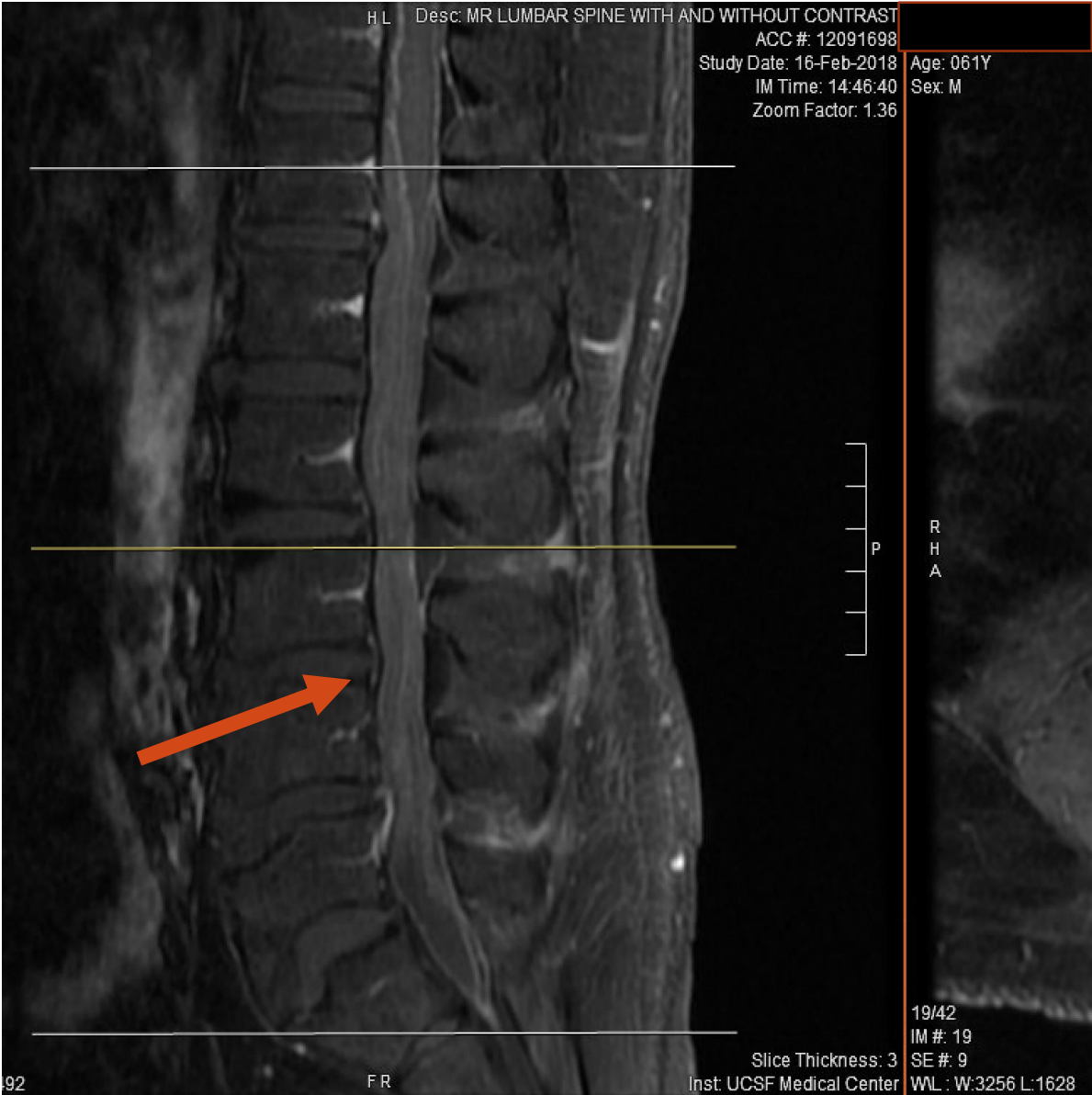
T2 Sagittal



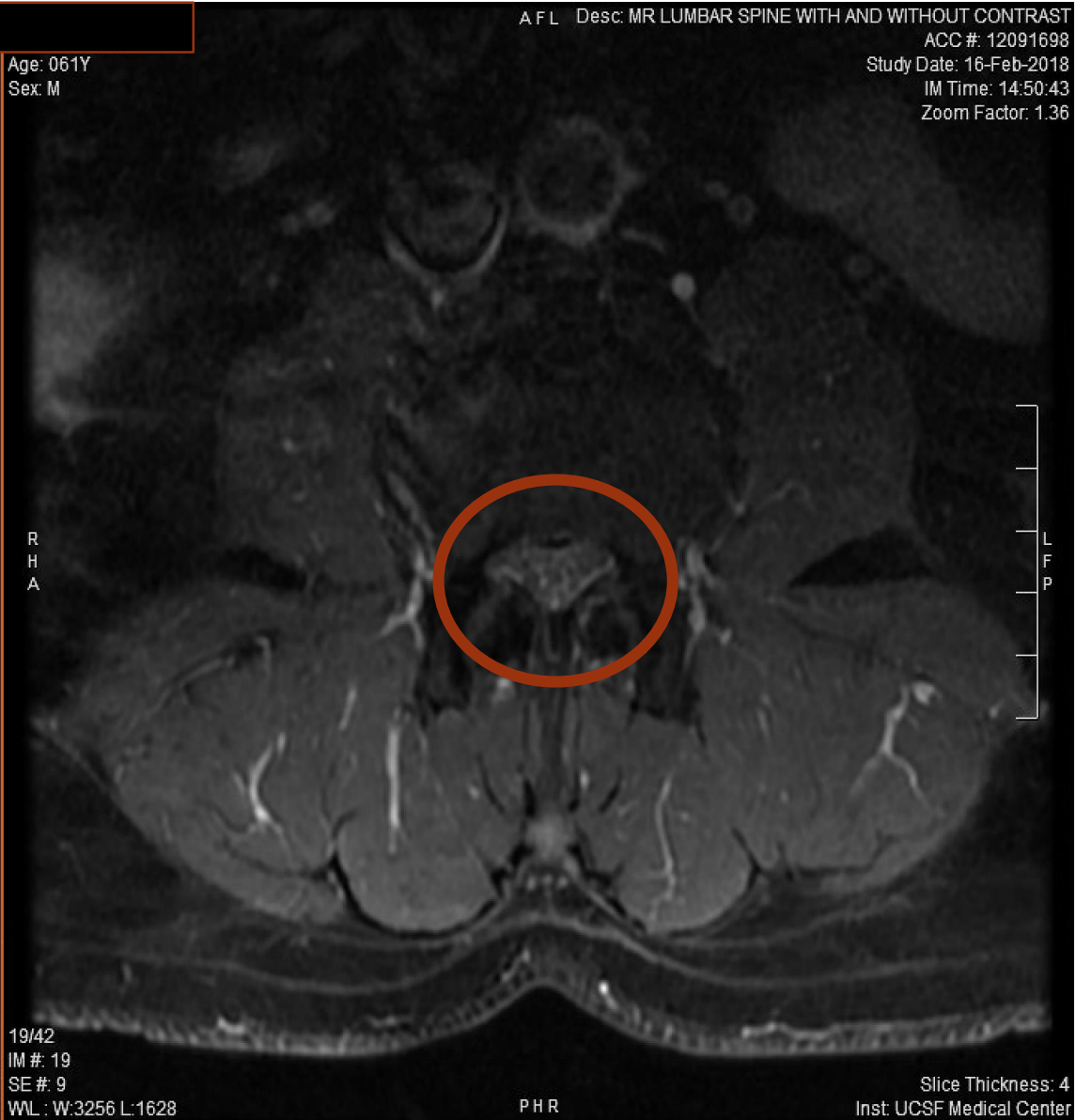
T2 Axial



T1 Post-Con Sagittal

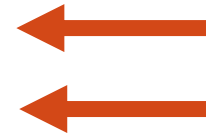


T1 Post-Con Axial



Lumbar Puncture

SPINAL FLUID		
Tube Number	1	
Appearance, CSF	Hazy	!
Add'l Info, CSF	A reference ran...	
Glucose, CSF	40	
IgG, CSF	84.7	▲
Albumin, CSF	875.0	▲
IgG Index	0.6	
Oligoclonal Bands ...	Quantity not su...	
Oligoclonal Bands ...	Quantity not su...	
Oligoclonal Bands,...	Quantity not su...	
Protein, Total, CSF	1,164	▲
Xanthochromia	Slight	!
WBCs, CSF	195	▲
RBCs, CSF	720	▲
CSF for MD Review	NO	
Neuts, CSF	2	!
Lymphs, CSF	61	
Mono, Histiocytes	37	
Conc Smear,CSF; # ...	100	



Differential diagnosis: malignancy, atypical infection, or atypical variant of chronic inflammatory demyelinating neuropathy (CIDP).



Upon further history taking, the patient revealed:

- history of **intrathecal stem cell infusions** to treat his vision loss.
- 2 clinics – one in China and one in Russia.
- In China, he also received intravenous and subcutaneous (above the eyes) stem cell infusions.

He experienced no improvement in his vision from these treatments.

6 months later, he developed his presenting neurologic symptoms.

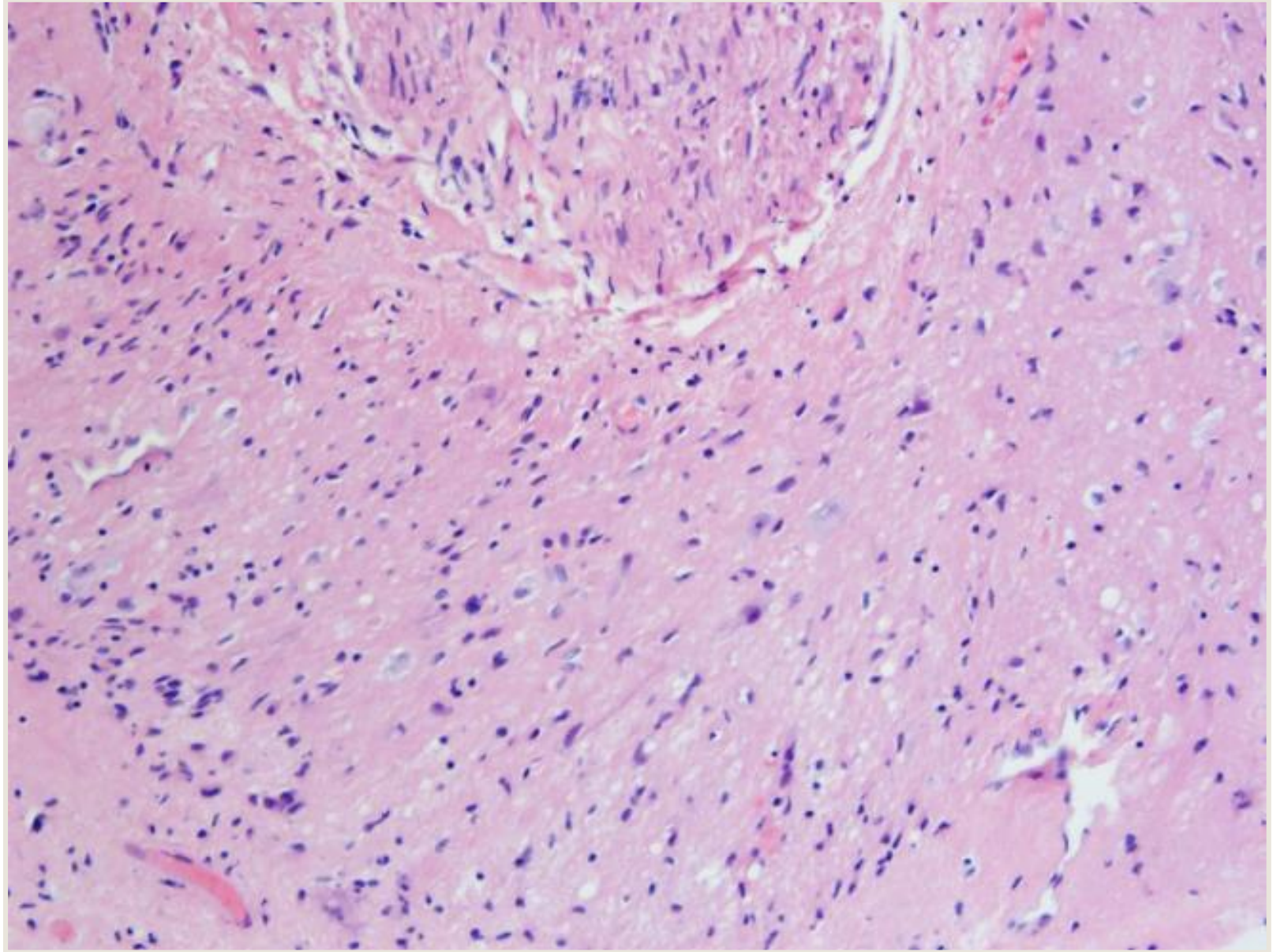


Nerve Biopsy: Histopathologic Findings

Right S1 Nerve Root

Hematoxylin & Eosin
(H&E) (200X):

spinal nerve root (top)
surrounded by **aberrant
glioneuronal tissue**, with
accompanying **chronic
inflammatory infiltrate**

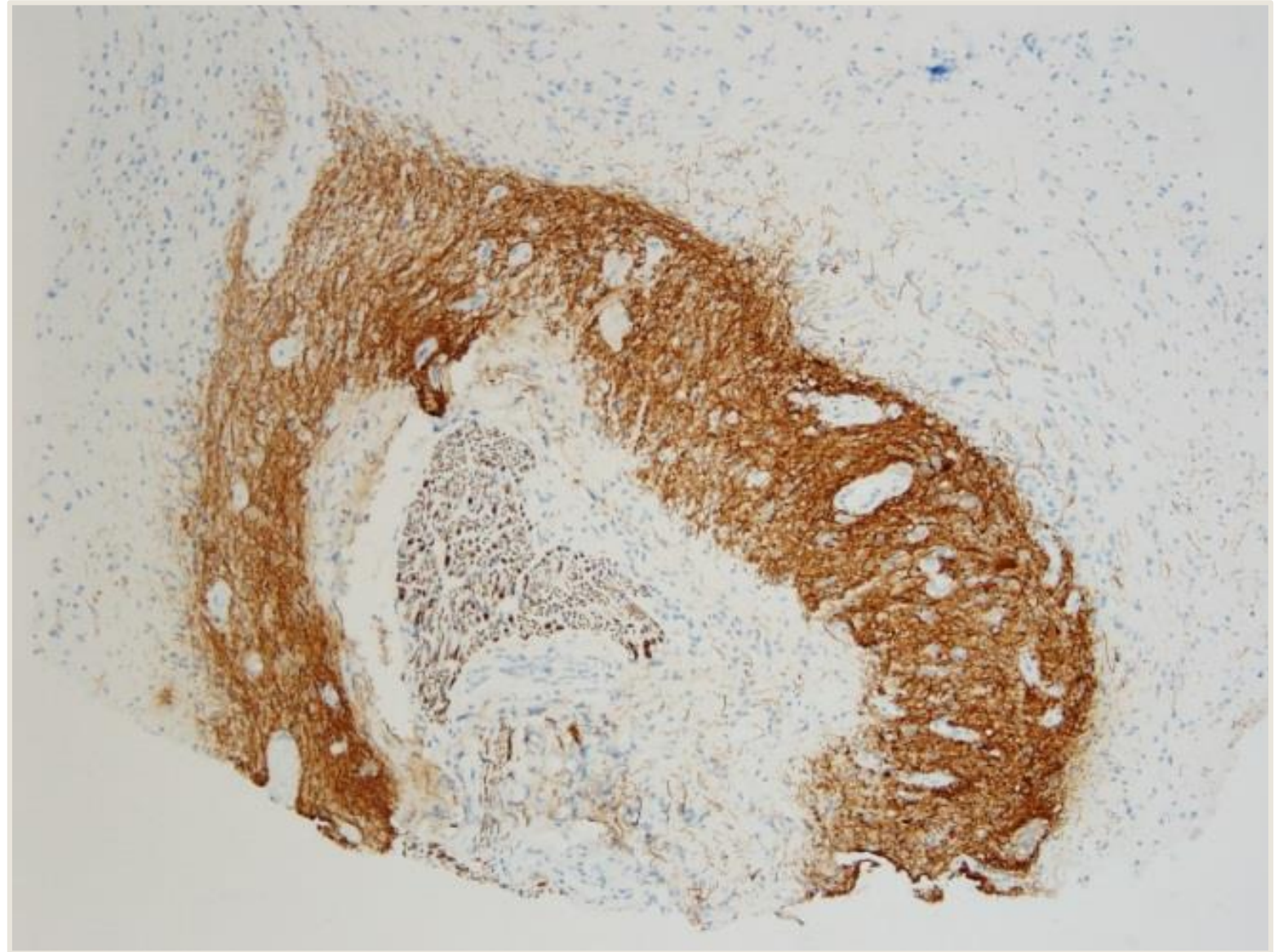


Histopathologic Findings

Right S1 Nerve Root

Immunohistochemical stain
(100X) for **neurofilament
protein (NFP)**

Nerve root (center) with
surrounding **aberrant
glioneuronal tissue**
with a bilayered
appearance

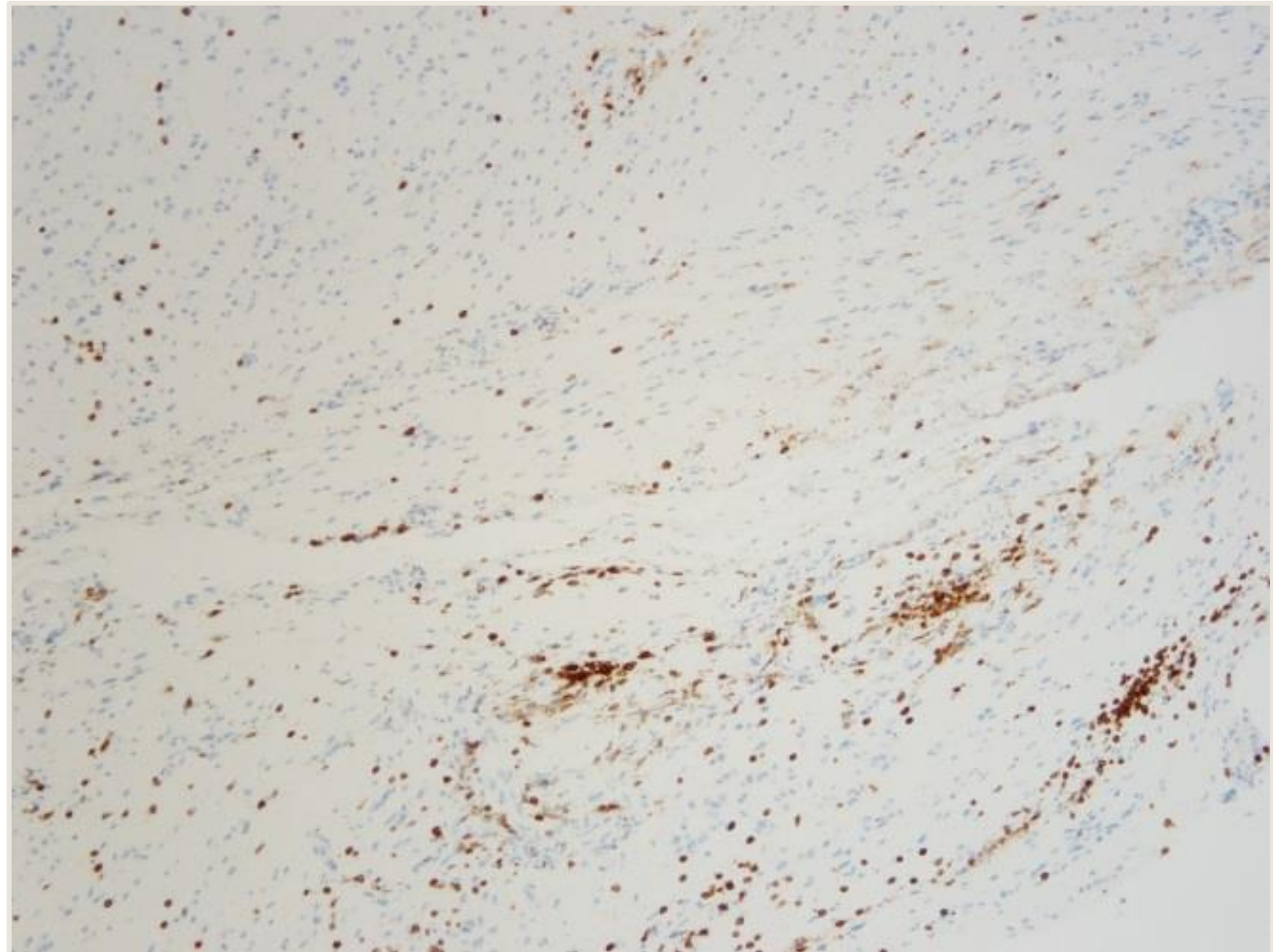


Histopathologic Findings

Right S1 Nerve Root

Immunohistochemical
stain for **CD3 (200x)**

Scattered T lymphocytes
within the aberrant
glioneuronal tissue



Pathology Report

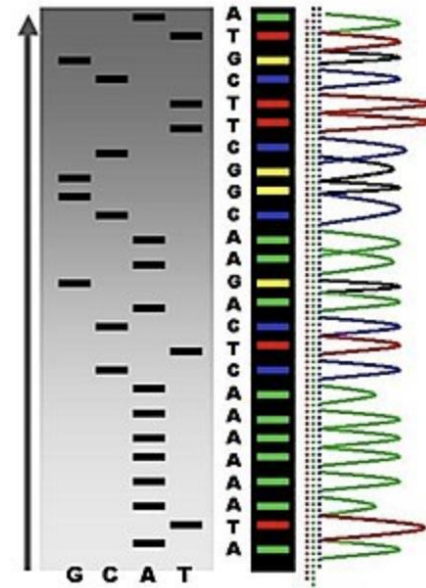
Major Finding: “aberrant glioneuronal tissue encasing the S1 sacral nerve root, with an accompanying T lymphocyte inflammatory infiltrate”

UCSF500 Next Generation Sequencing (Cancer Panel - sequences ~ 500 genes)

“This sequencing demonstrates ~ **90 nonsynonymous variants** present in the aberrant glioneuronal tissue but not in the patient sample.

These findings are consistent with the aberrant glioneuronal tissue being **derived from a foreign human donor**.

DNA sequencing of the CSF lymphocytes is pending ...



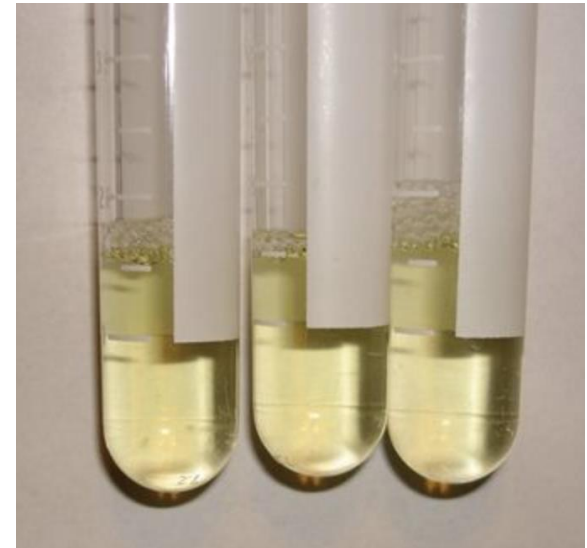
Conclusion: Smoldering Nerves from Stem Cell Tourism

Emerging complications from stem cell therapies are being increasingly reported. These include (but are not limited to) the development of fever, meningitis, glioproliferative masses, and death.

Our case → **host-versus-graft response to aberrant, differentiated glioneuronal tissue.**

Further characterization of the CSF lymphocytes is underway for confirmation and to guide management.

This complication should raise concerns for the stem cell field and should be recognized and addressed by both physicians and basic scientists alike.



Thanks!

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