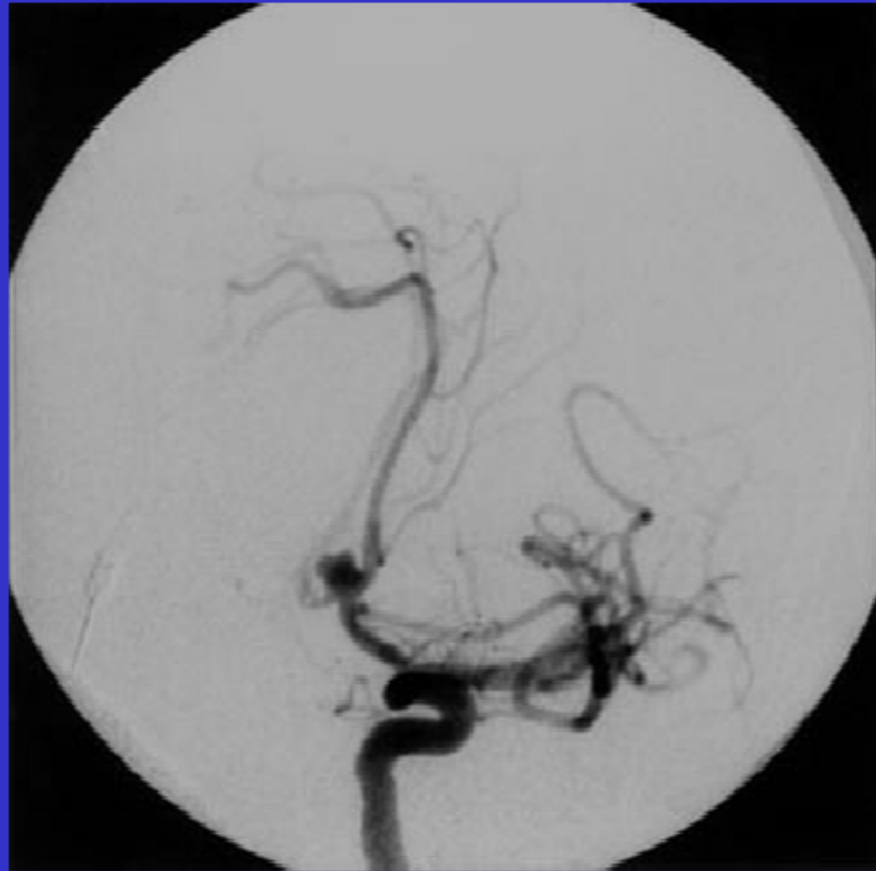


Aneurysm Rupture During Coiling:  
Utility of Neurophysiologic  
Monitoring and Early  
Ventriculostomy Placement

Michael Horowitz, M.D

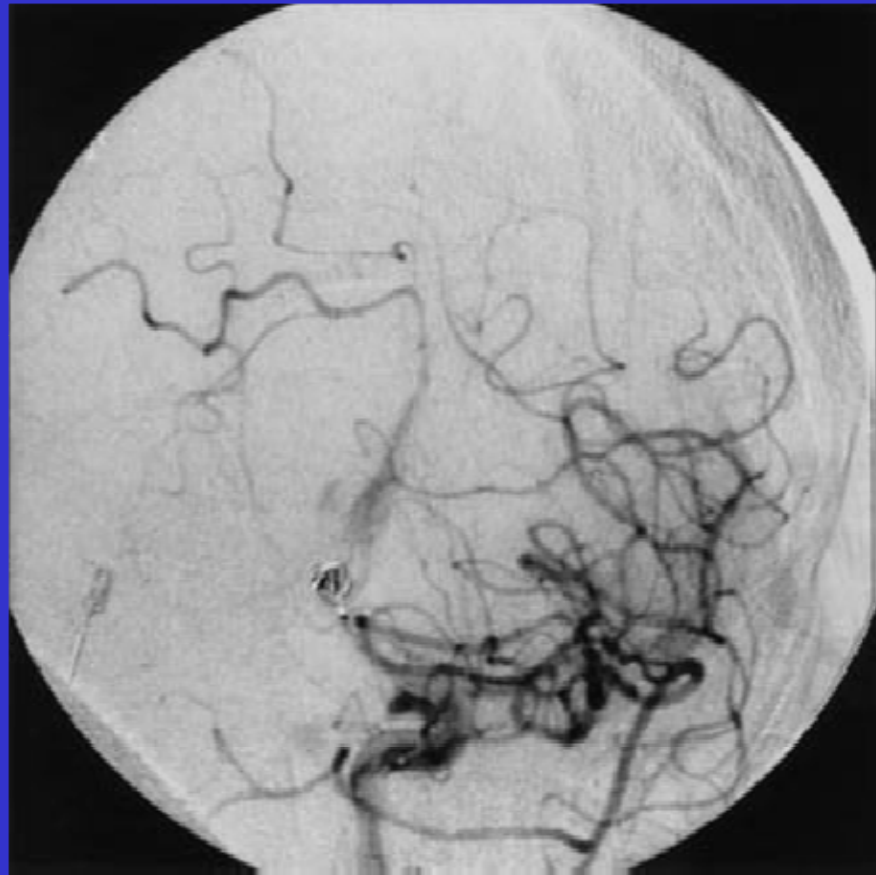
# Case Report

- 42 year old man with SAH
- Hunt and Hess I
- Fisher I
- 6 mm Acomm. aneurysm



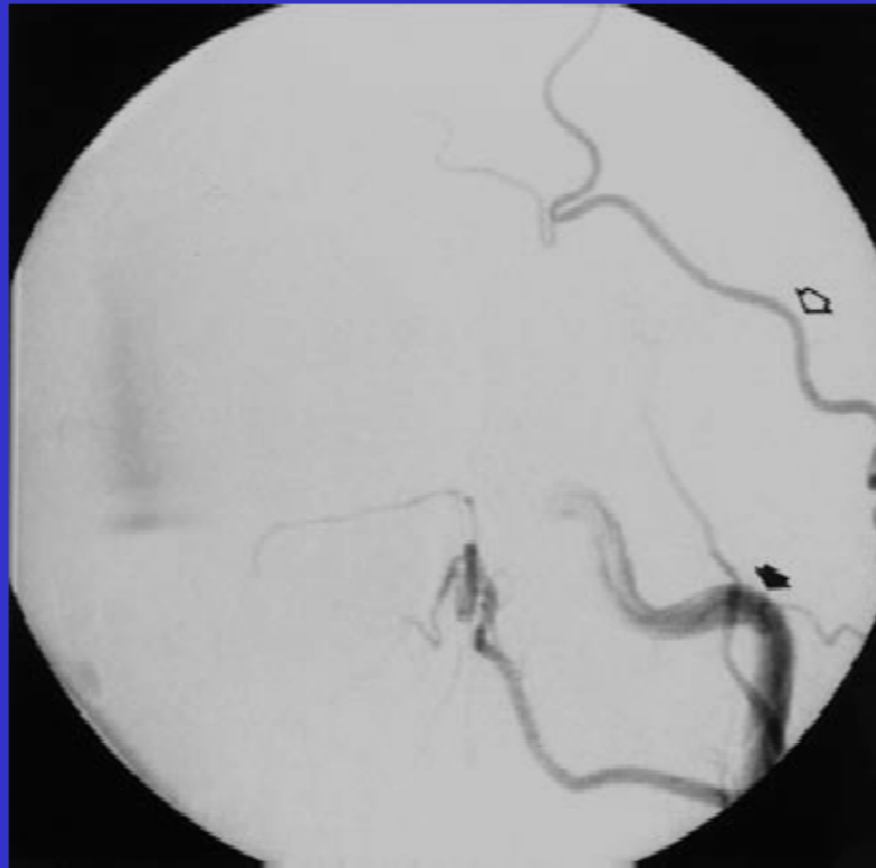
# Relevant Data

- Patient intubated
- SBP maintained 90-100 mm Hg
- Baseline images showed 0.34 second transit time from ICA to A2 opacification
- Heparinized 3000 units
- T10 5 mm x 10 cm coil deposited
- Aneurysm fundus breached by coil



# Relevant Data

- 100 mg Proteamine administered
- Coil drawn into aneurysm and deposited
- Arteriogram shows extravasation with 1.67s transit time
- SBP rises 33 mm Hg
- EEG flattens within 5s of rupture
- Median and posterior tibial SSEP begin to flatten within 30s of rupture and are lost within 2.5 minutes of rupture



# Relevant Data

- 23 minutes after documented rupture and loss of all EEG and SSEP activity a ventriculostomy was inserted in the angiogram suite
- OP 700 mm water
- Repeat ICA angiogram shows transit time  $<0.05s$
- The patient awoke with a normal examination and was discharged 14 days later

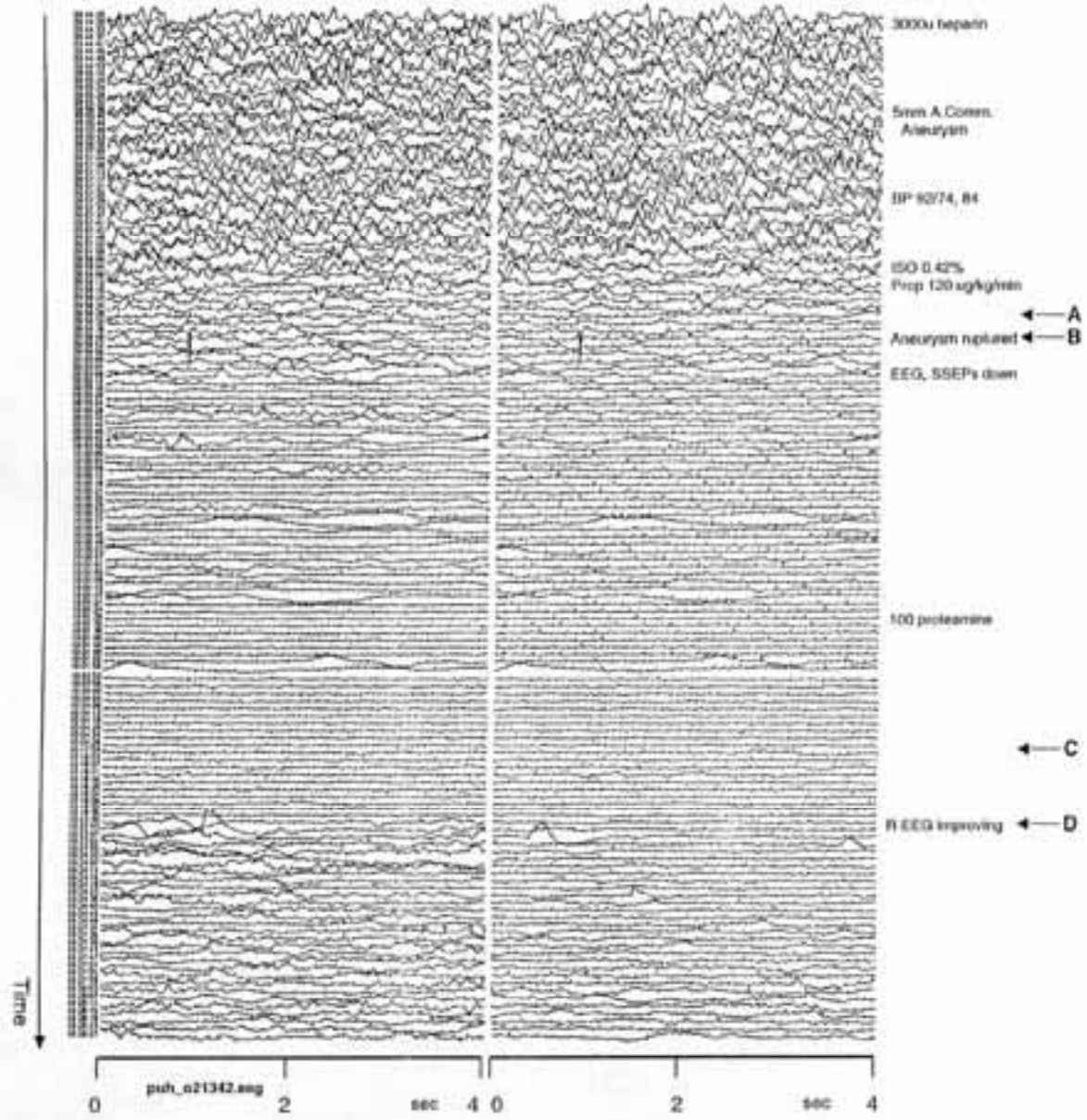




# A. Comm. Aneurysm - EEG

Right Cortex (P4/F4)

Left cortex (P3/F3)



### A. Comm. Aneurysm – LE SSEPs

Midline Parietal Cortex (Pz/Fz)

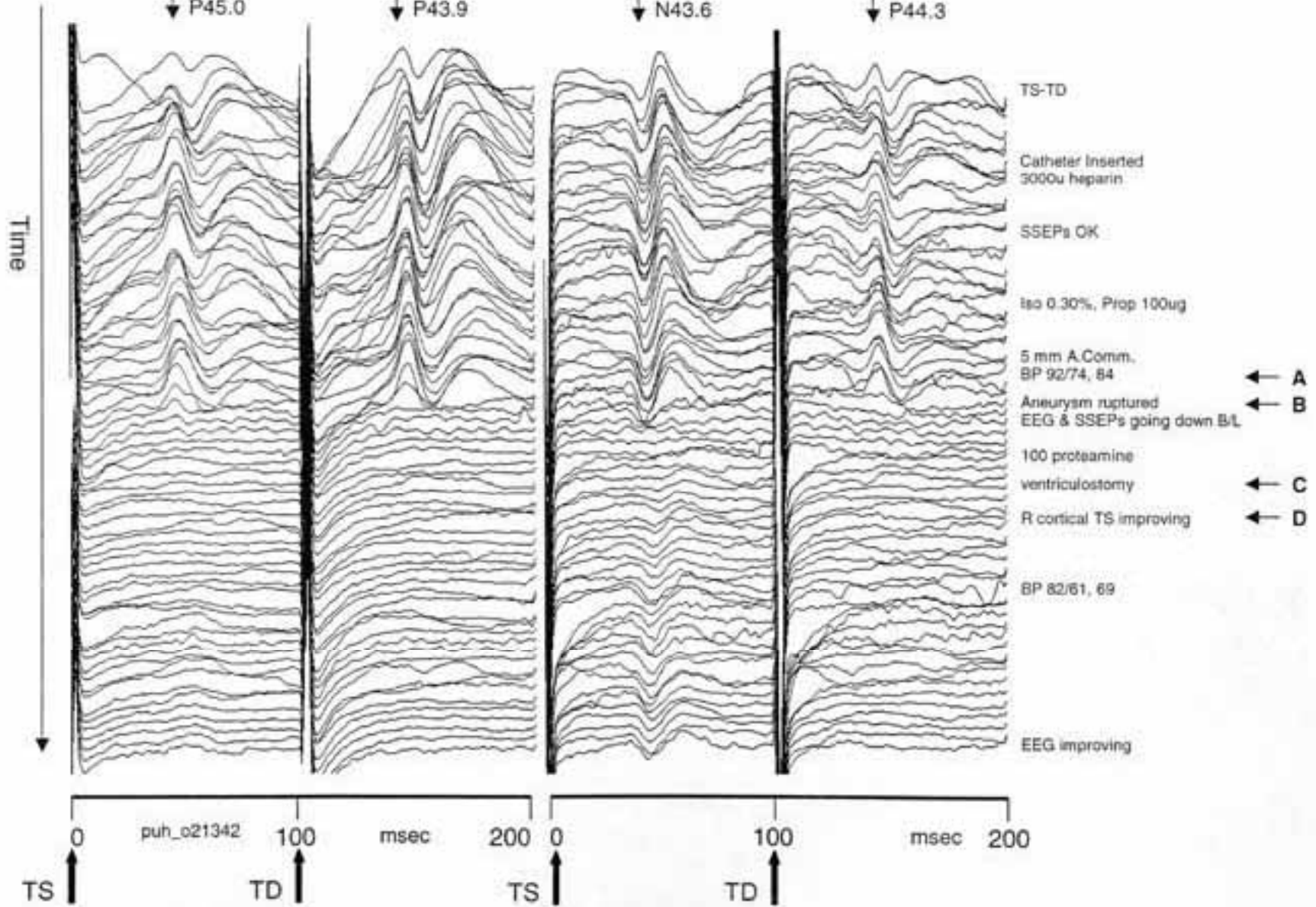
Bilateral Parietal Cortex (P3/P4)

↓ P45.0

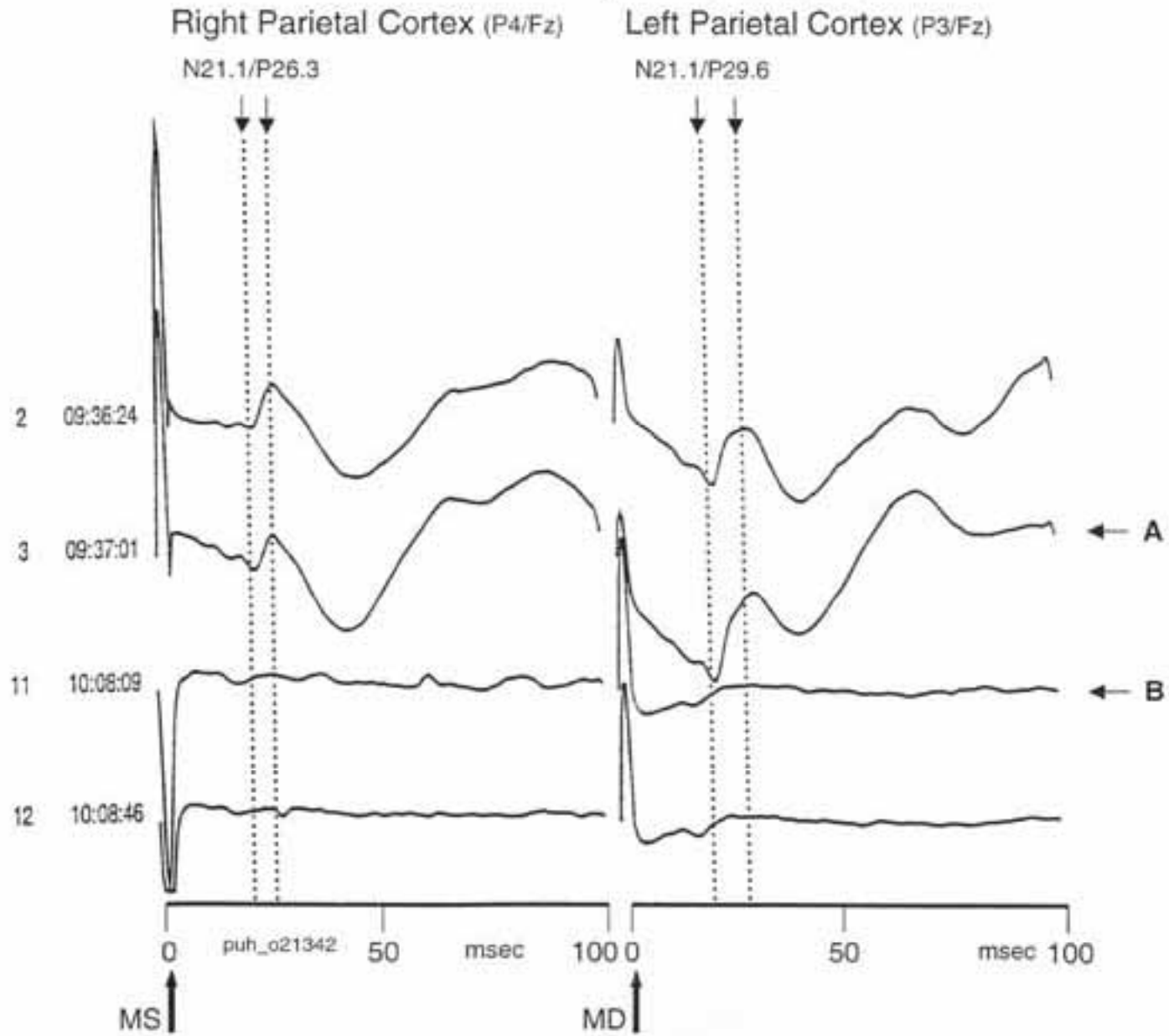
↓ P43.9

↓ N43.6

↓ P44.3



### A. Comm. Aneurysm – UE SSEPs



# Ruptures

- UPMC and UTSW: 274 consecutive patients reviewed
- 6 intra-procedural ruptures (2%)
- 5/6 presented with SAH
- Literature rate is 2-4%

– Levy E, Koebe CJ, Horowitz M, Jungreis CL, Purdy PD, *et al.* Neurosurgery 49(4): October 2001

**TABLE 2. Patient Management and Clinical Outcomes<sup>a</sup>**

Patient No.	Coiling (Postbleed Day)	Rupture Etiology	Management	Hunt-Hess Grade	GOS at Discharge	GOS at Last Follow-up	Follow-up (mo)
1	3	Catheter before detachment of last coil	Detach last coil, supportive care	II	4	5	1
2	1	Last coil	Reposition, detach last coil	IV	3	2	25
3	Unruptured	First coil	Reverse heparin, clipping 10 d later	0	1	1	12
4	1	Last coil	Reposition, detach last coil	V	5	5	0
5	0	Last coil	Right vertebral artery sacrifice	IV	3	2	2
6	0	3rd of 4 coils	Insert 1 more coil	III	3	1	7

<sup>a</sup> GOS, Glasgow Outcome Scale score.