

## Interesting cases

원광대학교 산본병원 신경과

이 성 익

69/여자

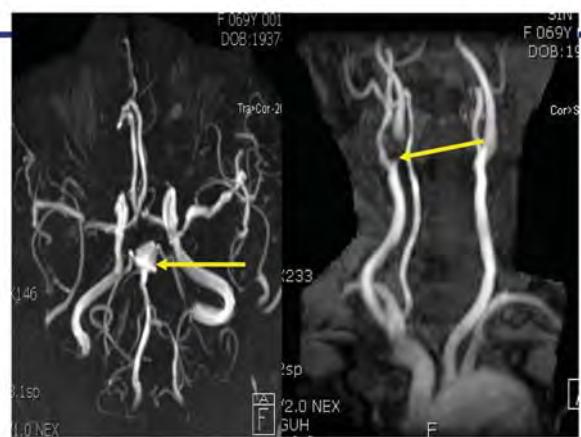
잠깐 왼쪽 팔에 힘이 빠졌어요

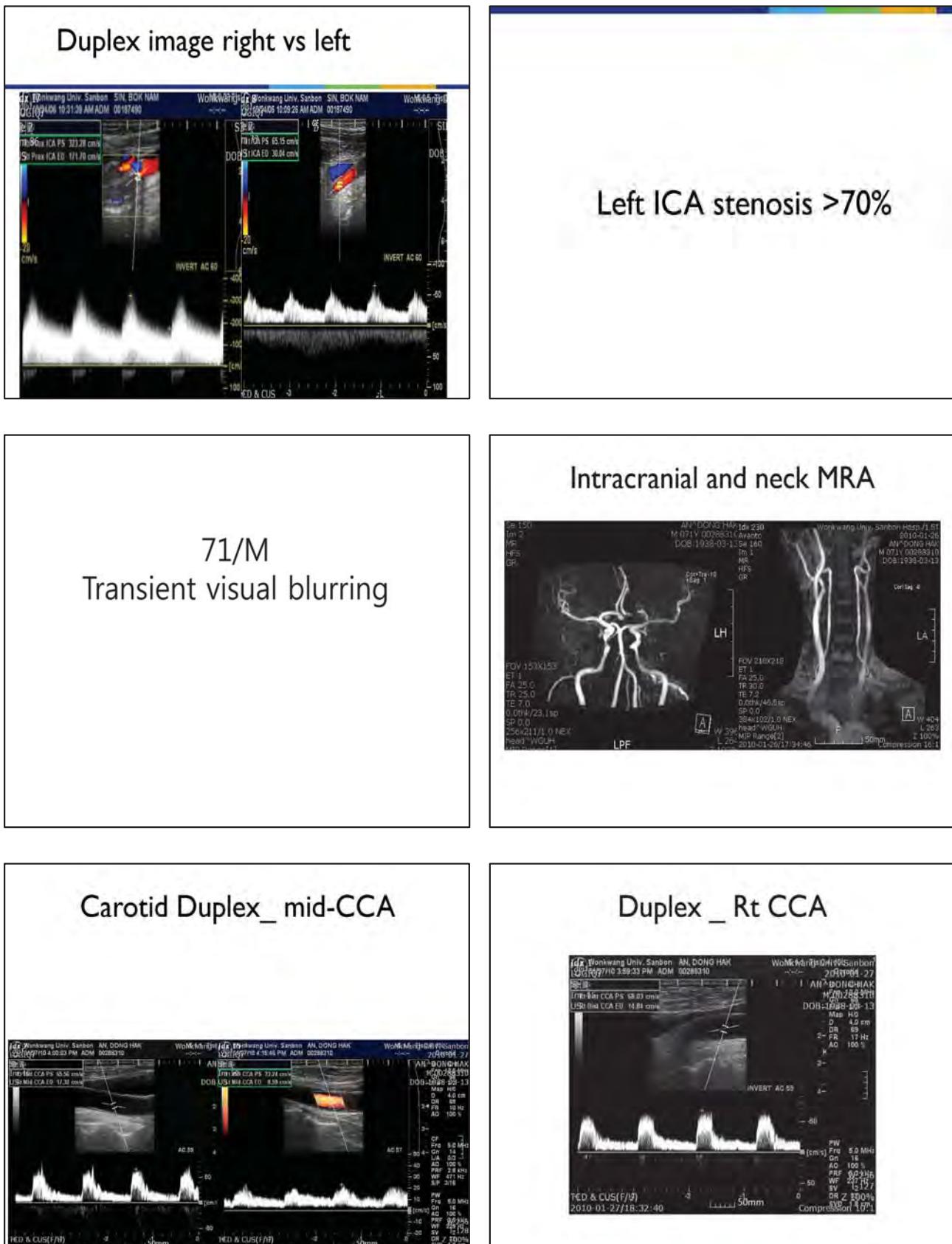


## Right ICA



MRA





## Duplex \_ Lt distal CCA



## Lt Proximal ICA



## ICA/CCA PSV ratio

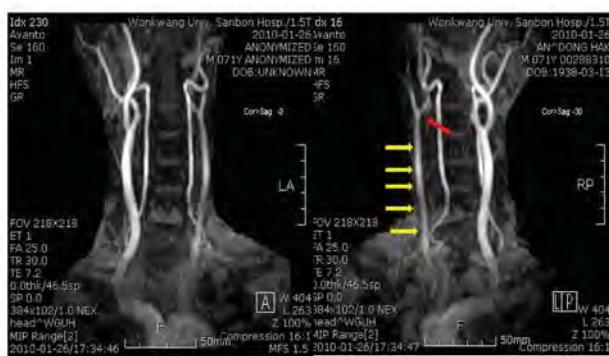
■ ICA/CCA ratio = 105/28  
= 2.4 : 5.0-6.9

## Stenosis grading – PSV &gt; ICA/CCA PSV ratio

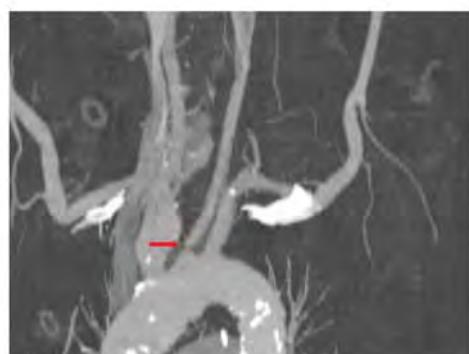
Stenosis range	ICA FSV	ICA/CCA PSV ratio	ICA EDV	Plaque
Normal	<125cm/s	<2.0	<40 cm/s	None
<50%	<125cm/s	<2.0	<40 cm/s	<50% diameter reduction
50-69%	125-230cm/s	2.0-4.0	40-100 cm/s	>50% diameter reduction
70-near occlusion	>230cm/s	>4.0	>100 cm/s	>50% diameter reduction
Near occlusion	May be low or undetectable	variable	variable	Significant, detectable lumen
Occlusion	undetectable	Not applicable	Not applicable	Significant, no detectable

[2003 Radiology]

## MRA \_ neck

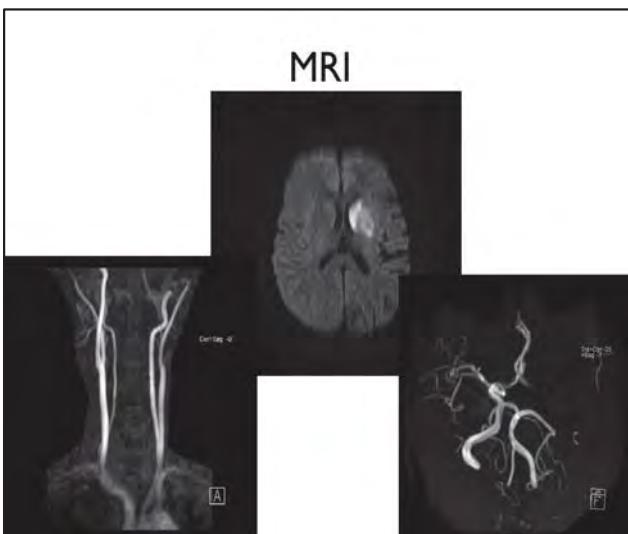


## CT angiography



- ▣ Left Proximal CCA stenosis + ICA 50-69% stenosis
- ▣ MRI : equivocal finding

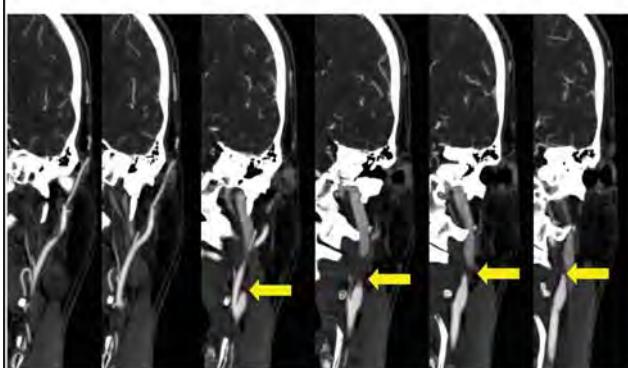
46/M  
aphasia/right side weakness



#### Lt ICA \_ occlusion\_ stump flow



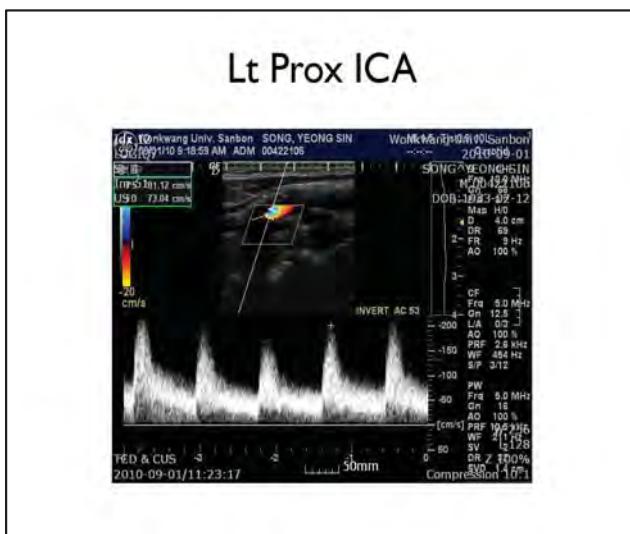
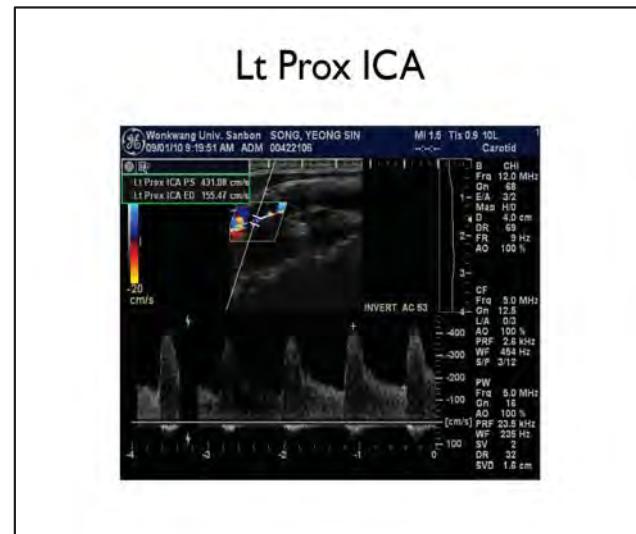
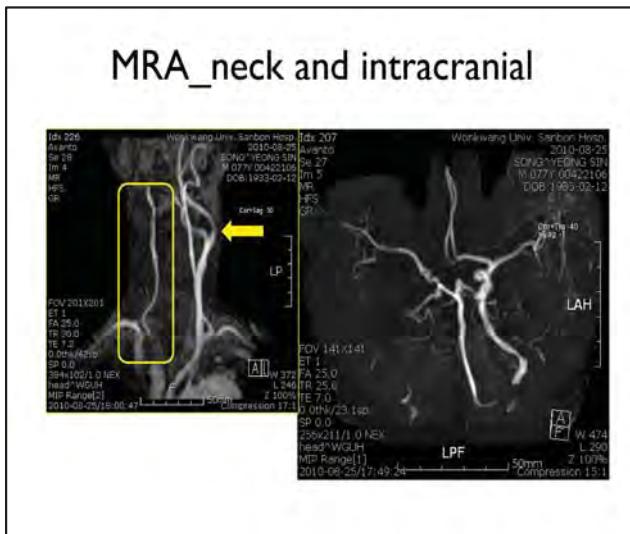
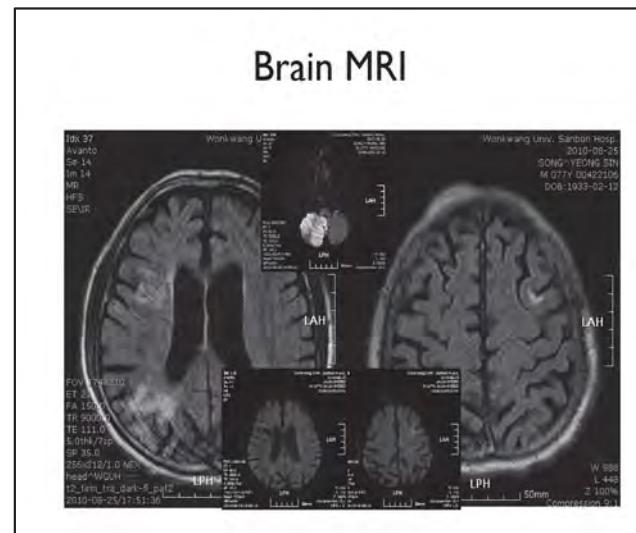
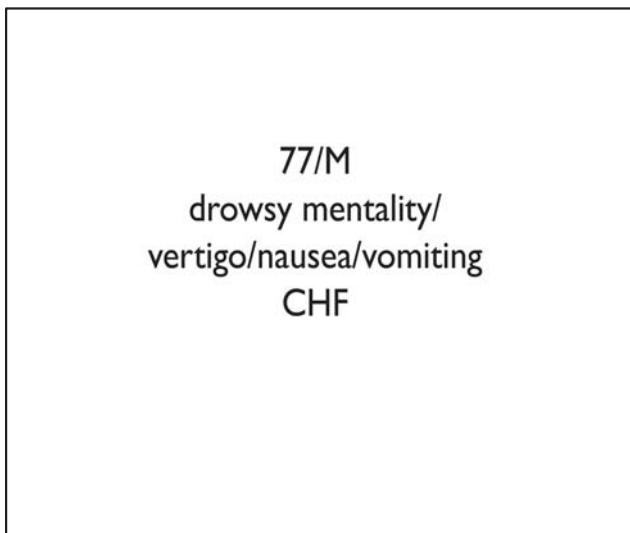
#### CT angiography



#### Neurosonologic findings in Dissection

- ▣ Less atherosclerotic plaque
- ▣ Direct sign(rare ): Intimal flap double lumen, intimal flap, and resolution of stenosis on follow-up angiography
- ▣ Indirect sign: string sign, pearl and string sign, tapered narrowing,
- ▣ Sn?
- ▣ Sp?

[ 2008 Radiographics]



### Lt ICA, distal to stenosis



### Lt VA



### Rt CCA\_video



### Right CCA

### Right ICA



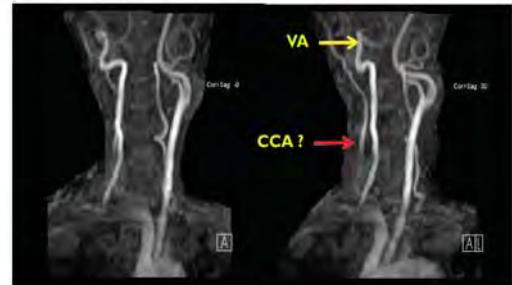
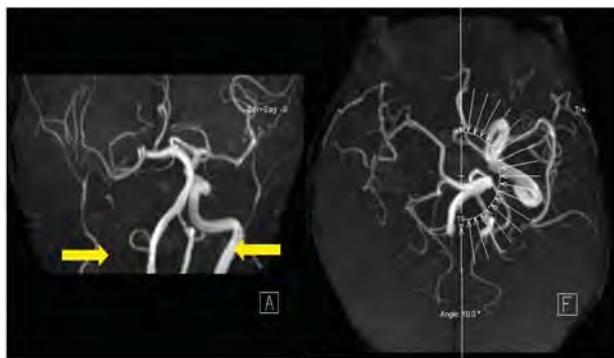
Cardio-embolic stroke ?  
Rt CCA occlusion  
and proximal stenosis  
(>70% or 50-69%)

> recurrent ischemic stroke

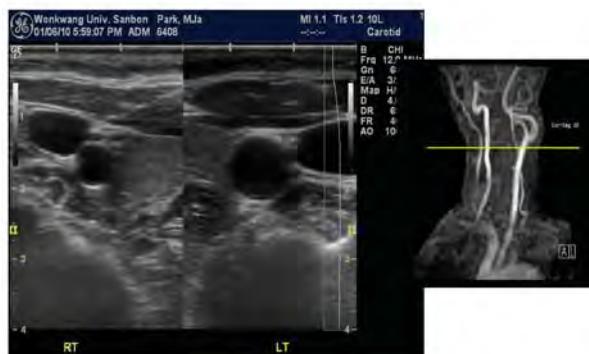
66 / F



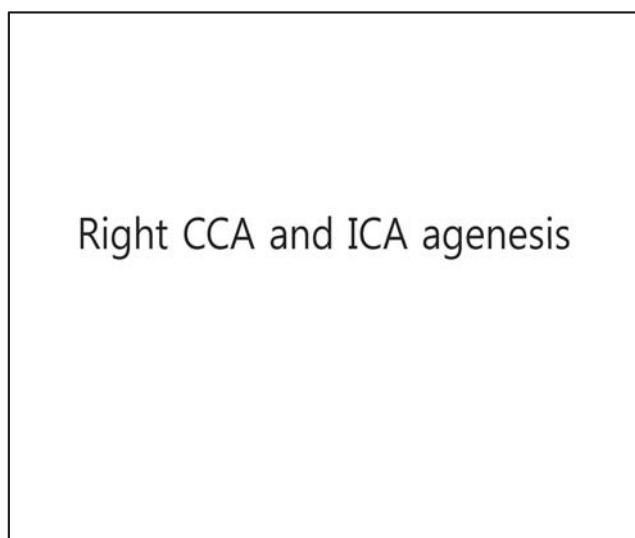
## Absent Left ICA signal ?

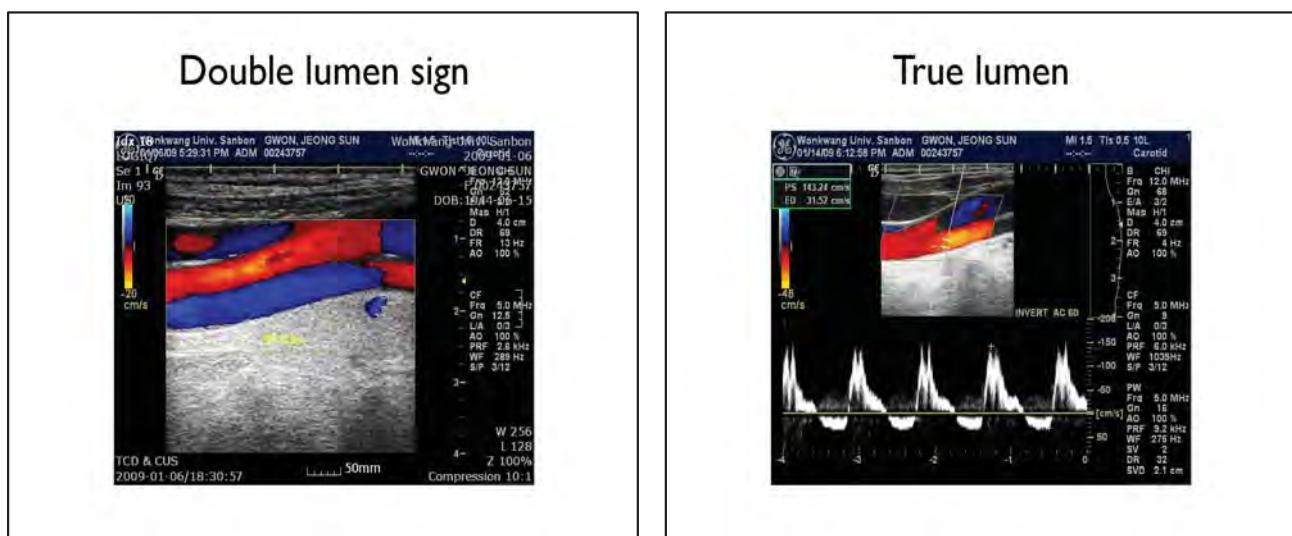
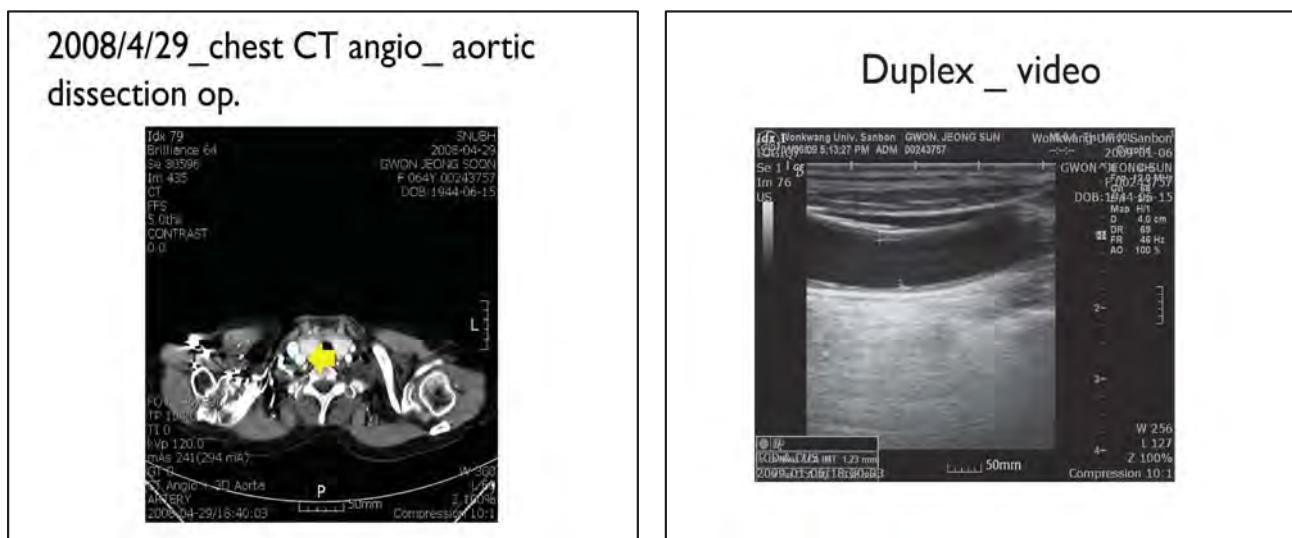
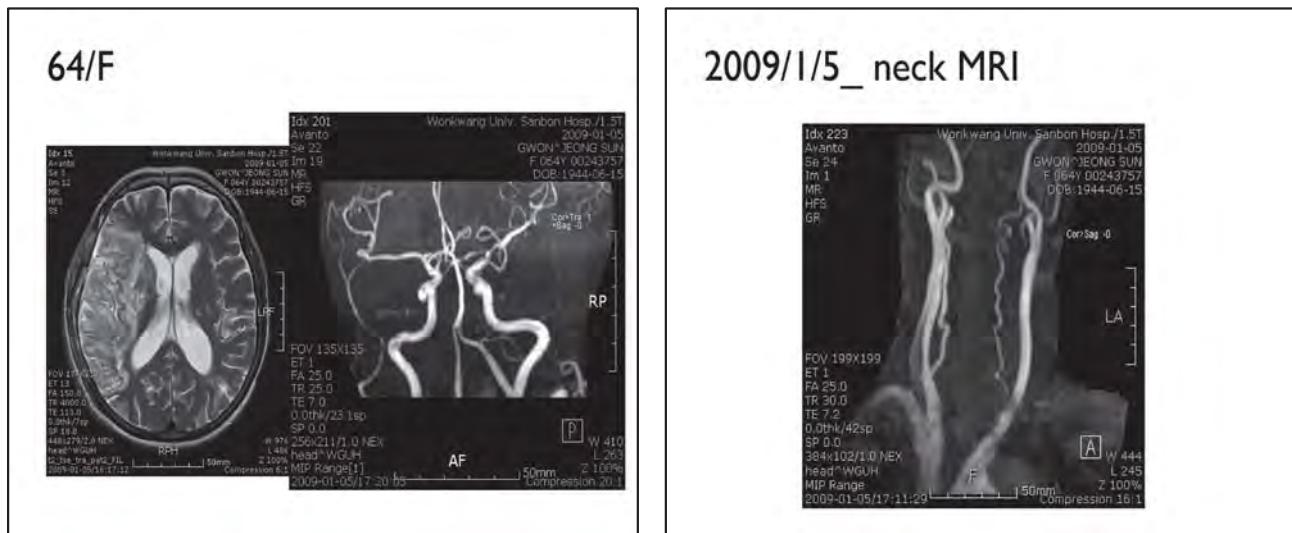


## CCA – transverse view



Right CCA and ICA agenesis





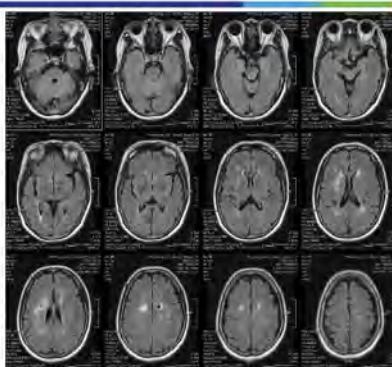
## False lumen



66/F

좌측으로 마비가 오는 느낌  
R/O TIA

## MRI



## MRA

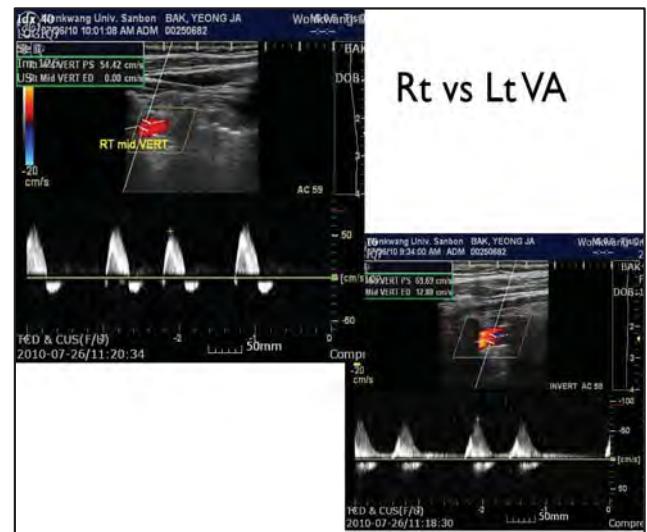


Rt vs

Lt VA



Rt vs Lt VA



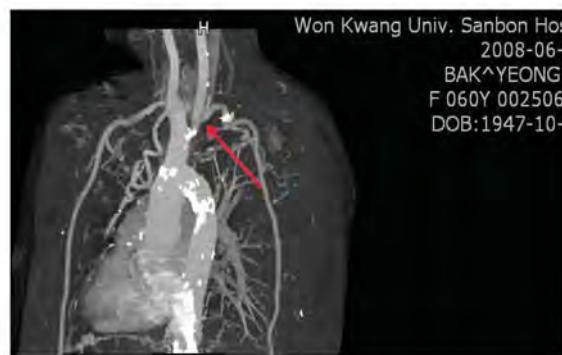
CT angiography\_3D reconstruction



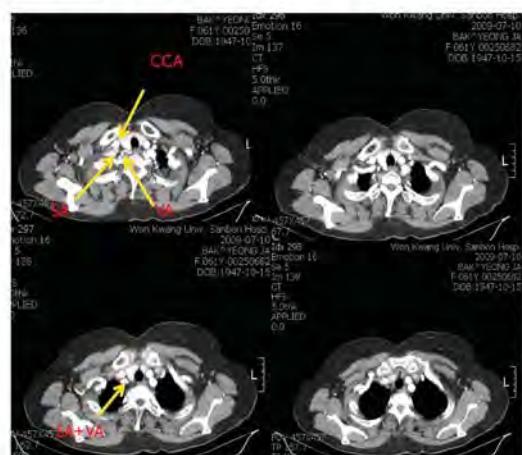
CT angiography\_3D reconstruction



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DOB:1947-10-



CT Angio\_Source image



Right subclavian steal phenomenon

- Focal stenosis at the origin site of right subclavian artery probably due to focal ASO
- Asymptomatic

Latent Steal Phenomenon\_VA



## Latent Steal Phenomenon Compression test



## Latent Steal Phenomenon compression test\_Baseline



## Latent Steal Phenomenon Decompression



## Verterbal artery doppler waveform changes indication subclavian steal physiology, [2000 AJR]

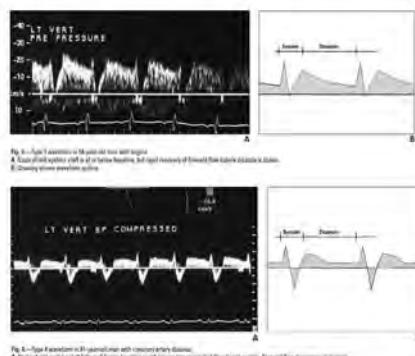
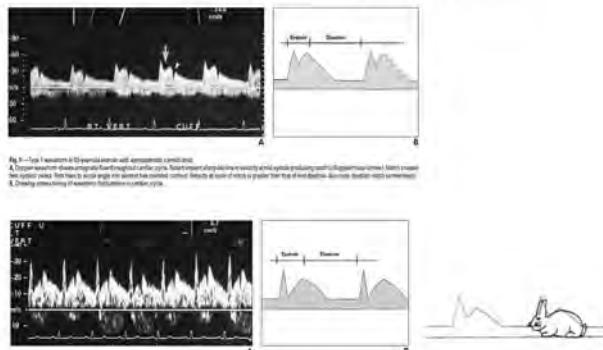
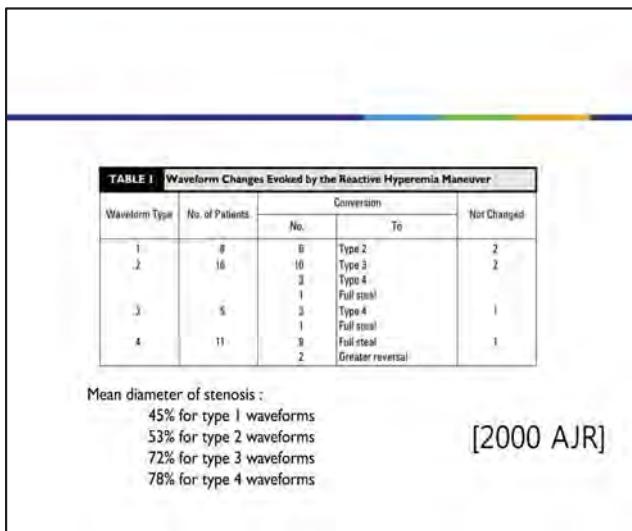


TABLE I Waveform Changes Evoked by the Reactive Hyperemia Maneuver

Waveform Type	No. of Patients	Conversion		Not Changed
		No.	To	
1	8	6	Type 2	2
2	16	10	Type 3	2
		3	Type 4	
		1	Full steal	
3	5	3	Type 4	1
		1	Full steal	
4	11	8	Greater reversal	1
		2		

90% : change + vs control :  
0 % type change

[2000 AJR]



## Subclavian Steal Syndrome

A 68-year-old man with hypertension, dyslipidemia, and diabetes mellitus presented with dizziness, presyncope, and blurring of vision that occurred when he used his left hand while gardening. He reported no history of coronary or vascular disease. A physical examination was notable for blood pressures of 150/70 mm Hg in the right arm and 80/60 mm Hg in the left arm, with weak brachial and radial pulses on the left side. The cardiac examination revealed an audible S<sub>4</sub>, a bruit in the right carotid artery, and a thrill and bruit over the left subclavian artery. Angiography showed a severe proximal left subclavian stenosis (arrow), with retrograde flow in the left vertebral artery (see video, available at NEJM.org). This pattern of flow, and the resulting clinical symptoms, is known as the subclavian steal syndrome. The patient underwent successful stenting of the subclavian stenosis. He began receiving medical therapy for his peripheral vascular disease, consisting of aspirin, a high-dose statin, and an angiotensin-converting-enzyme inhibitor. At a follow-up visit 3 months later, there was clinically significant improvement in symptoms, including a difference of 15 mm Hg in systolic blood pressure between the two arms and no subclavian bruit.

## 41/M left SCA cbll infarction

