

SALETTE

28 OTTOBRE 2008

I^a Giornata

SESSIONI INTERATTIVE

SALA GIADA

Le problematiche in cardio-anestesia

Responsabile esecutivo: **Emanuele Catena**

Il neuromonitoraggio in cardio-anestesia

Moderatori: Luca Lorini – Angelo Bandera

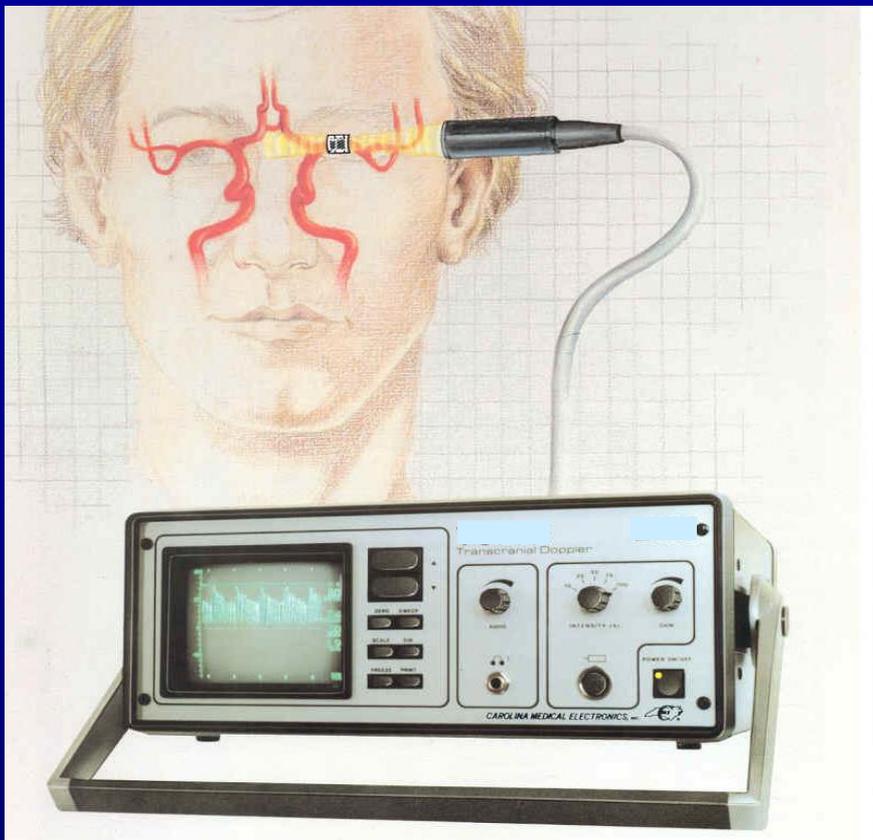
Francesco Lusenti – Il ruolo degli ultrasuoni nel neuro monitoraggio

**II° CONGRESSO NAZIONALE DI
ECOCARDIO
CHIRURGIA**

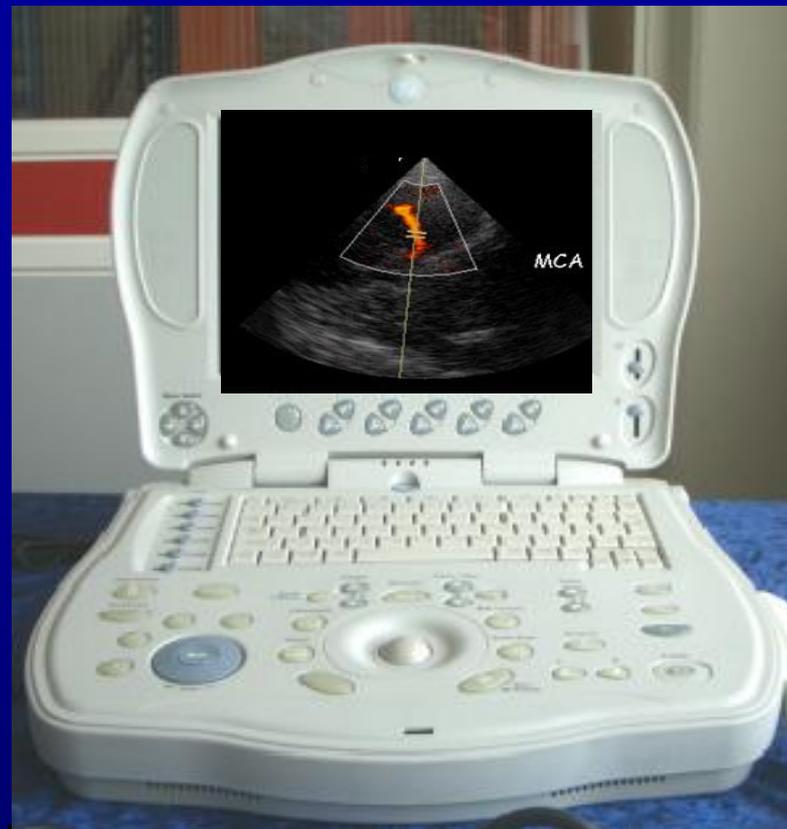
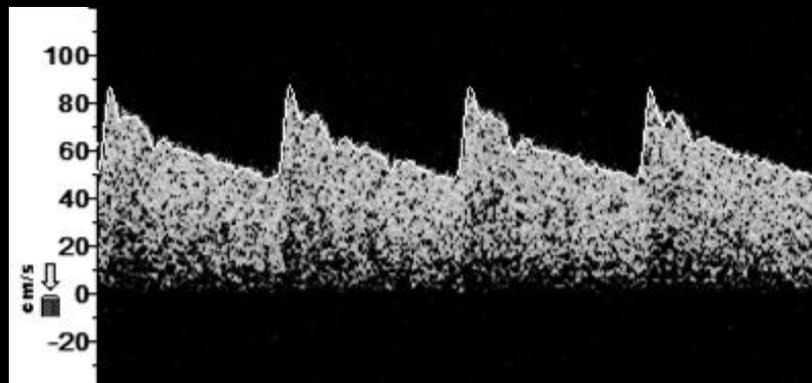
MILANO 27-29 OTTOBRE 2008

IL RUOLO DEGLI ULTRASUONI NEL NEUROMONITORAGGIO

Francesco Lusenti - Lecco

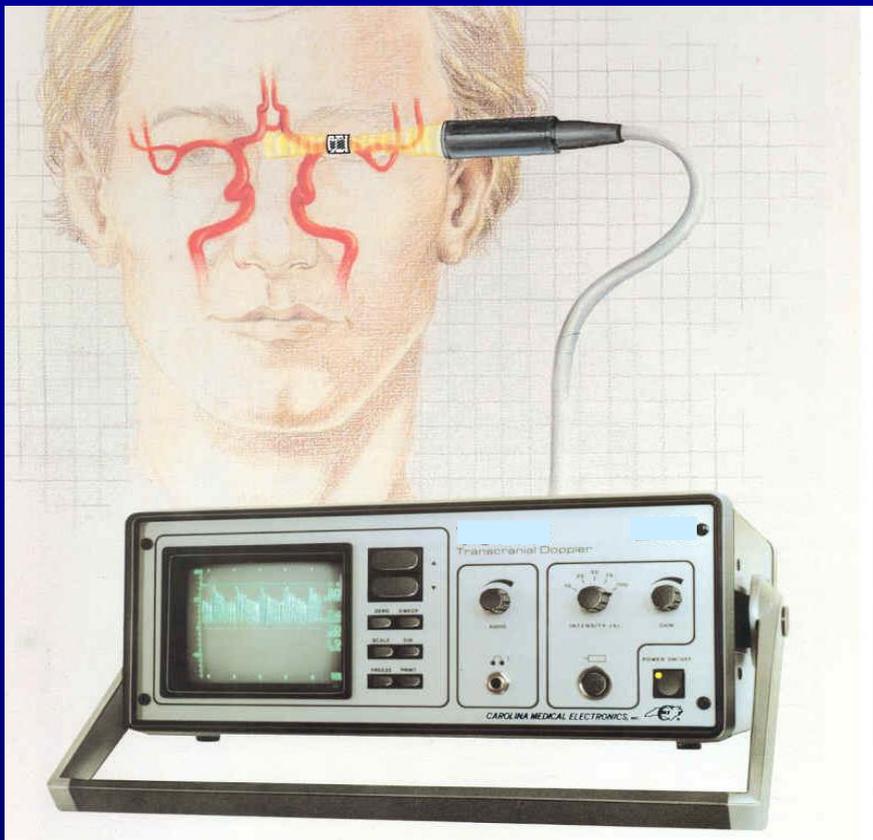


Doppler transcranico

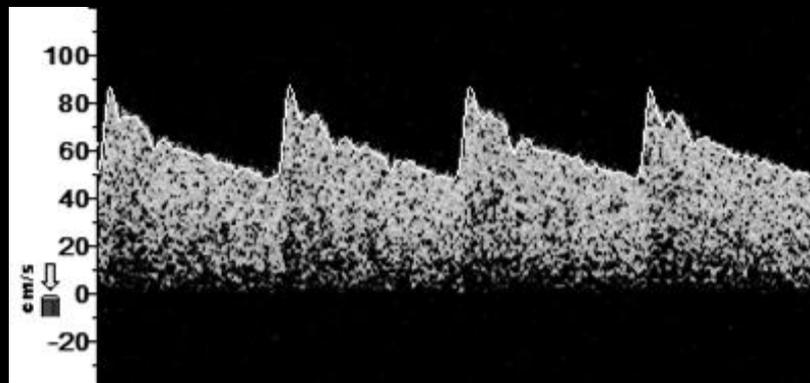


ecocolor transcranico

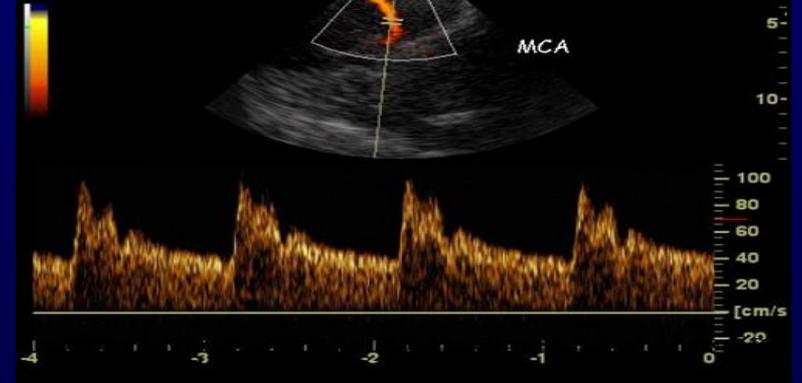


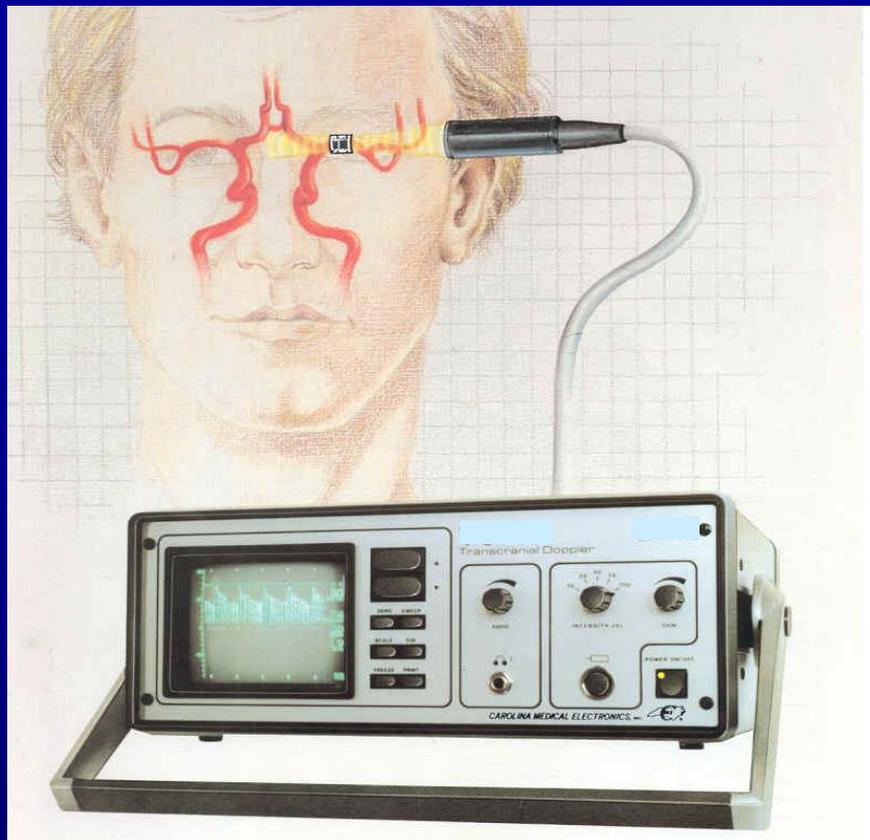


Doppler transcranico

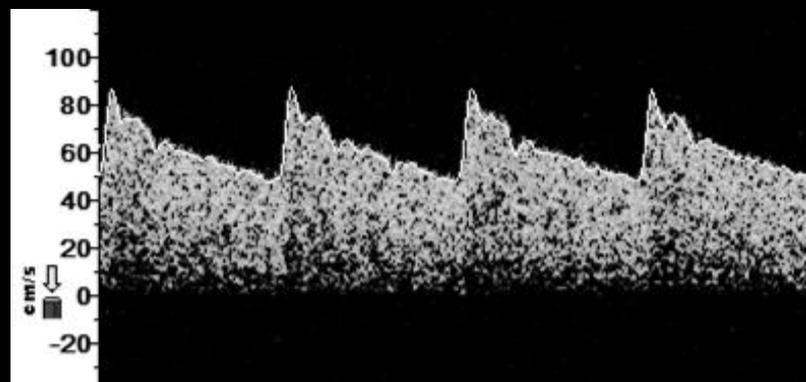


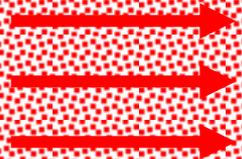
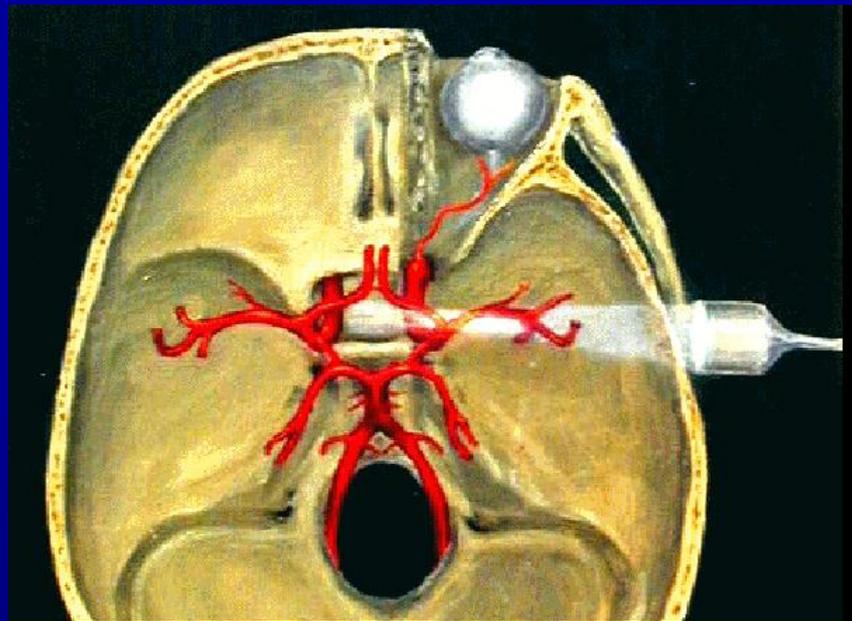
ecocolor Doppler transcranico



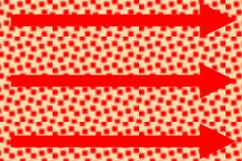
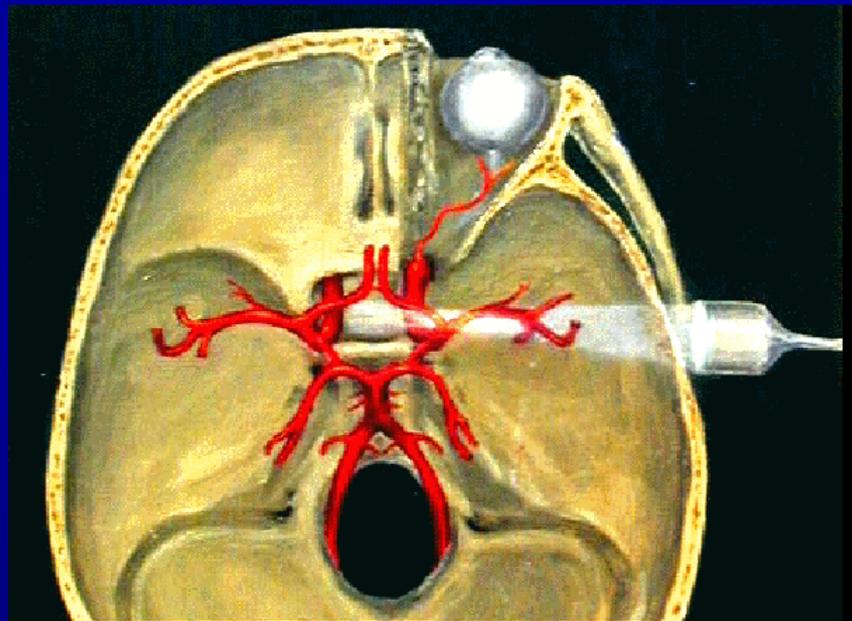


Doppler transcranico

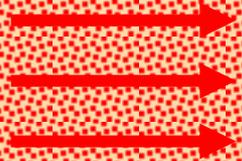
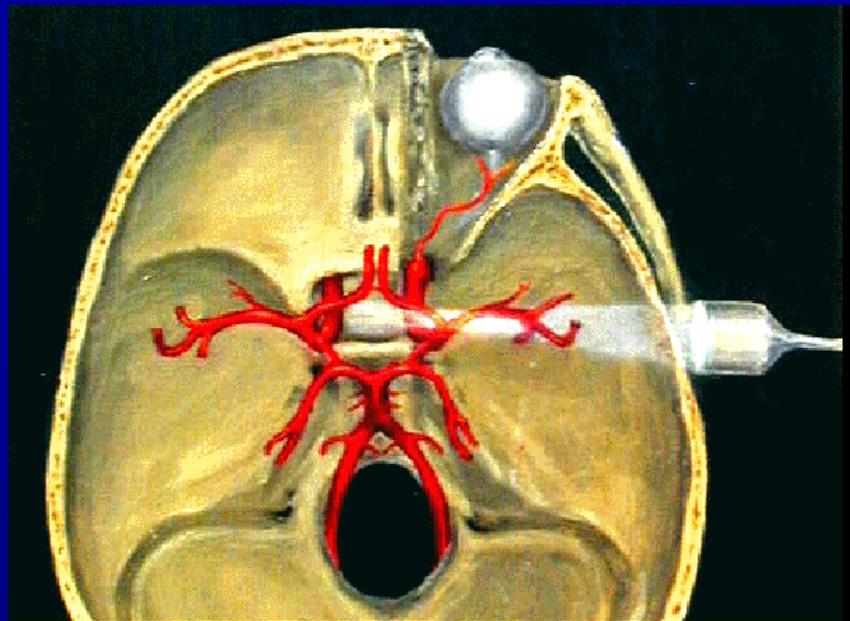




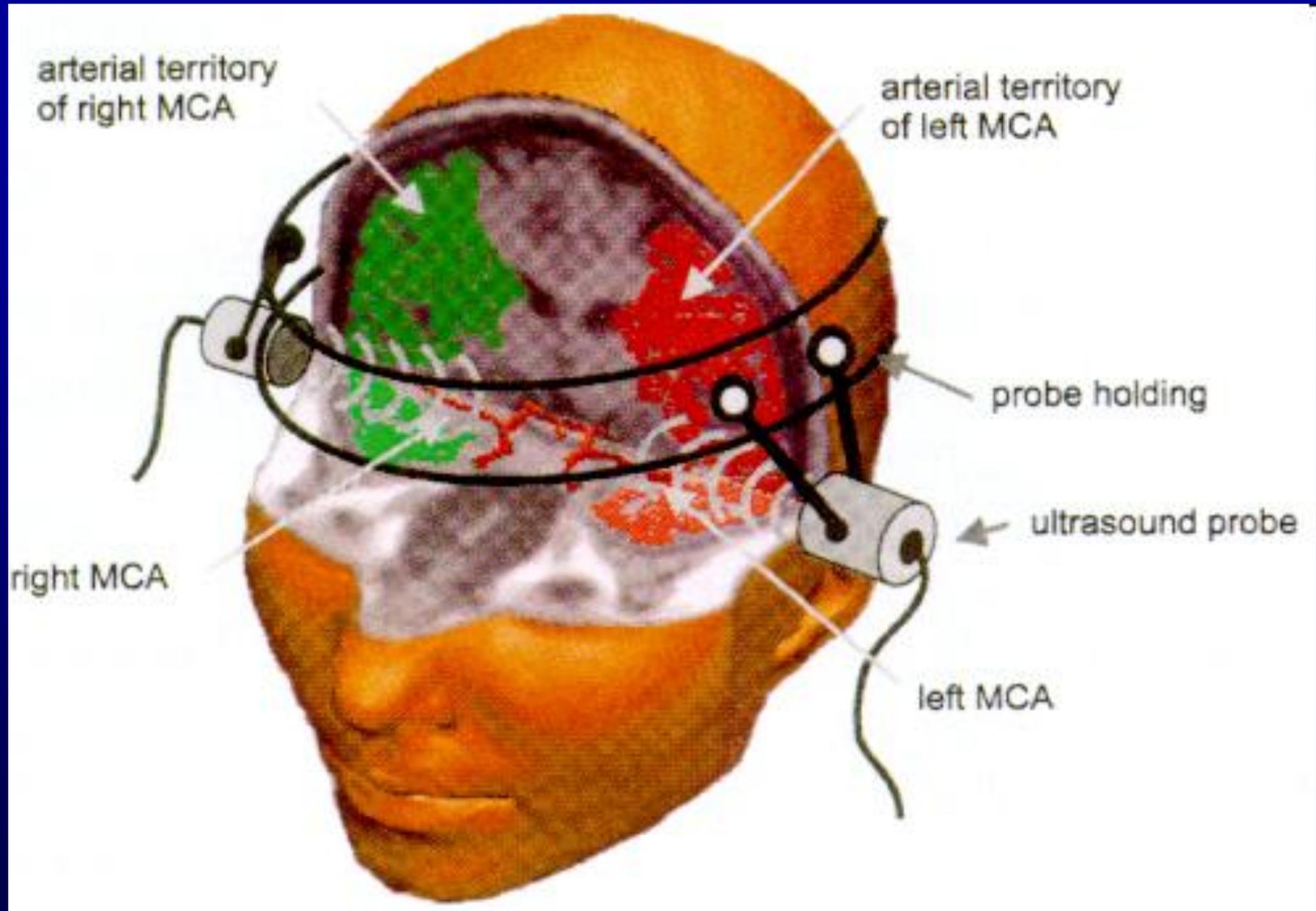
$$V = F / A$$



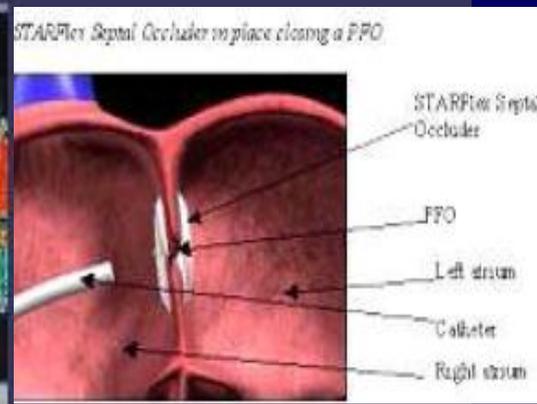
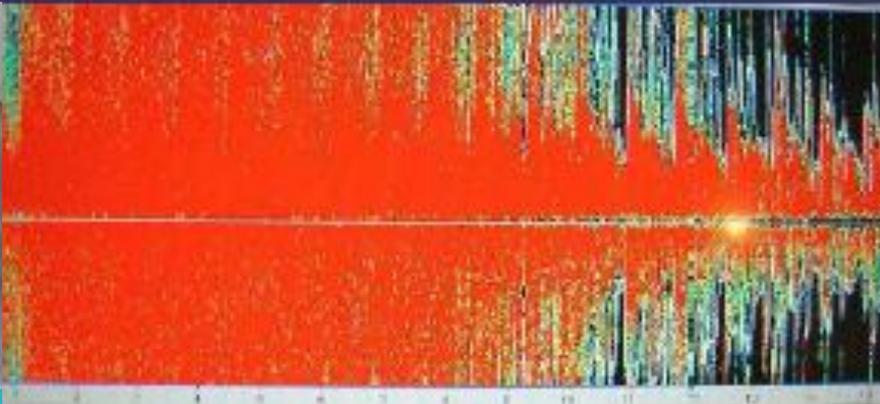
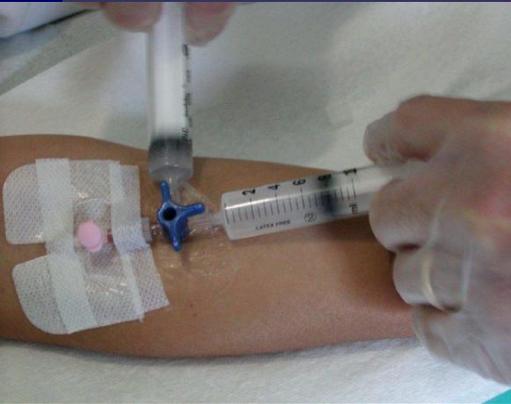
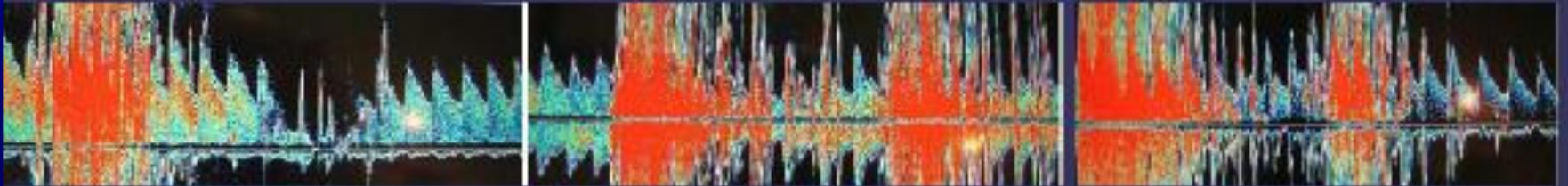
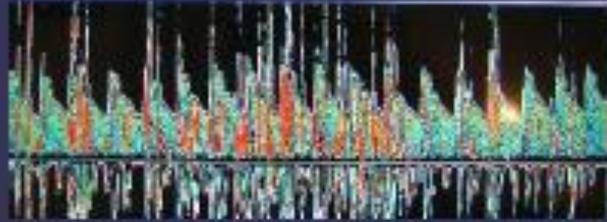
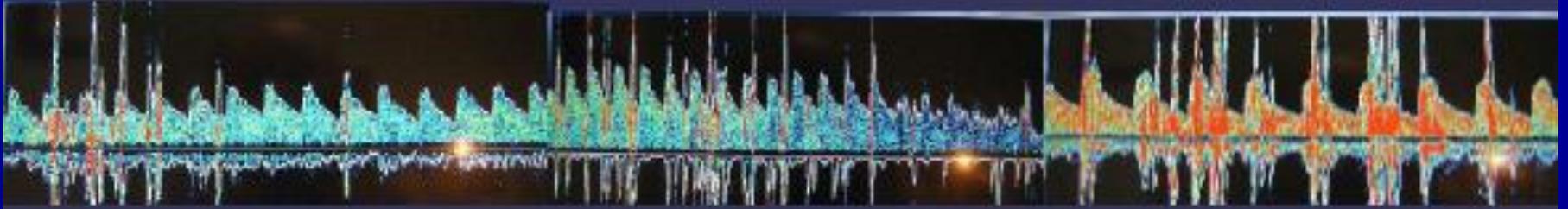
$$\frac{1}{2} V = \frac{1}{2} F / A$$



$$2V = 2F/A$$

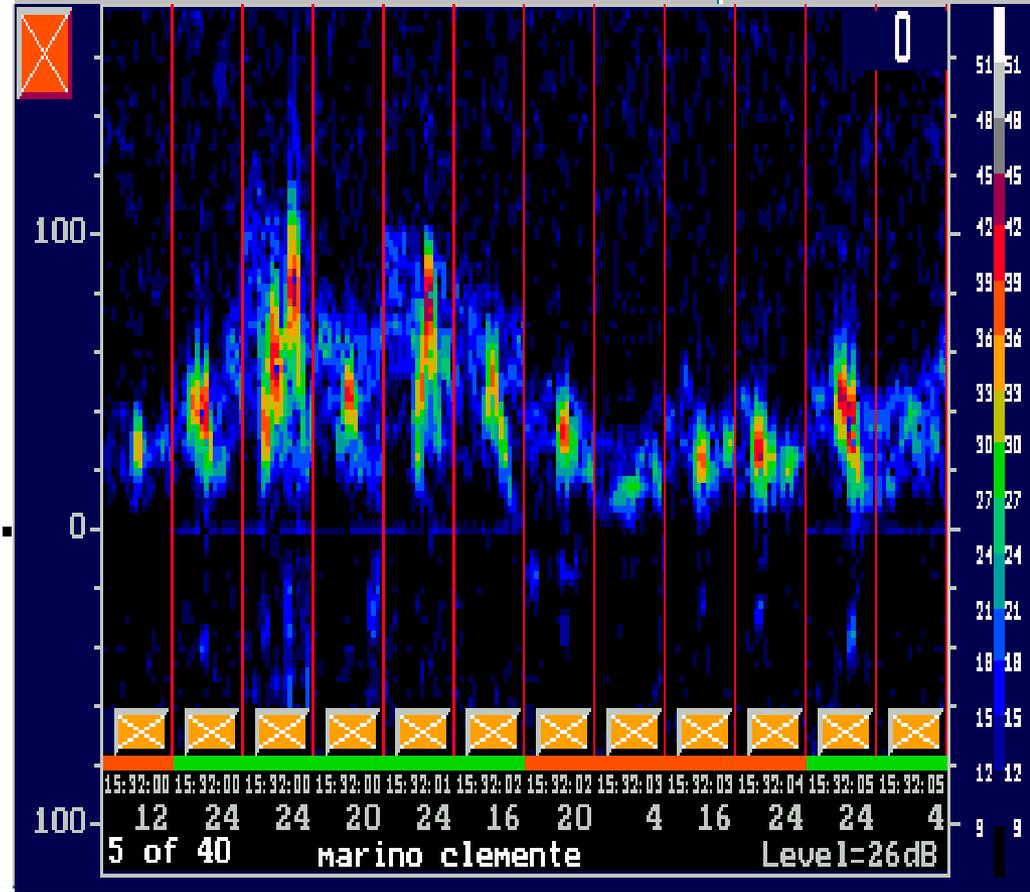






DIAGNOSI DI M.E.S.

- Durata < 300 msec.
- Ampiezza > 3 dB
- Unidirezionalità
- Suono tipico
- Monitoraggio prolungato



(*Consensus Committee, Stroke'95
and '98*)

MCA L

CO2 et

60

50

40

30

20

10

Min 0

1

2

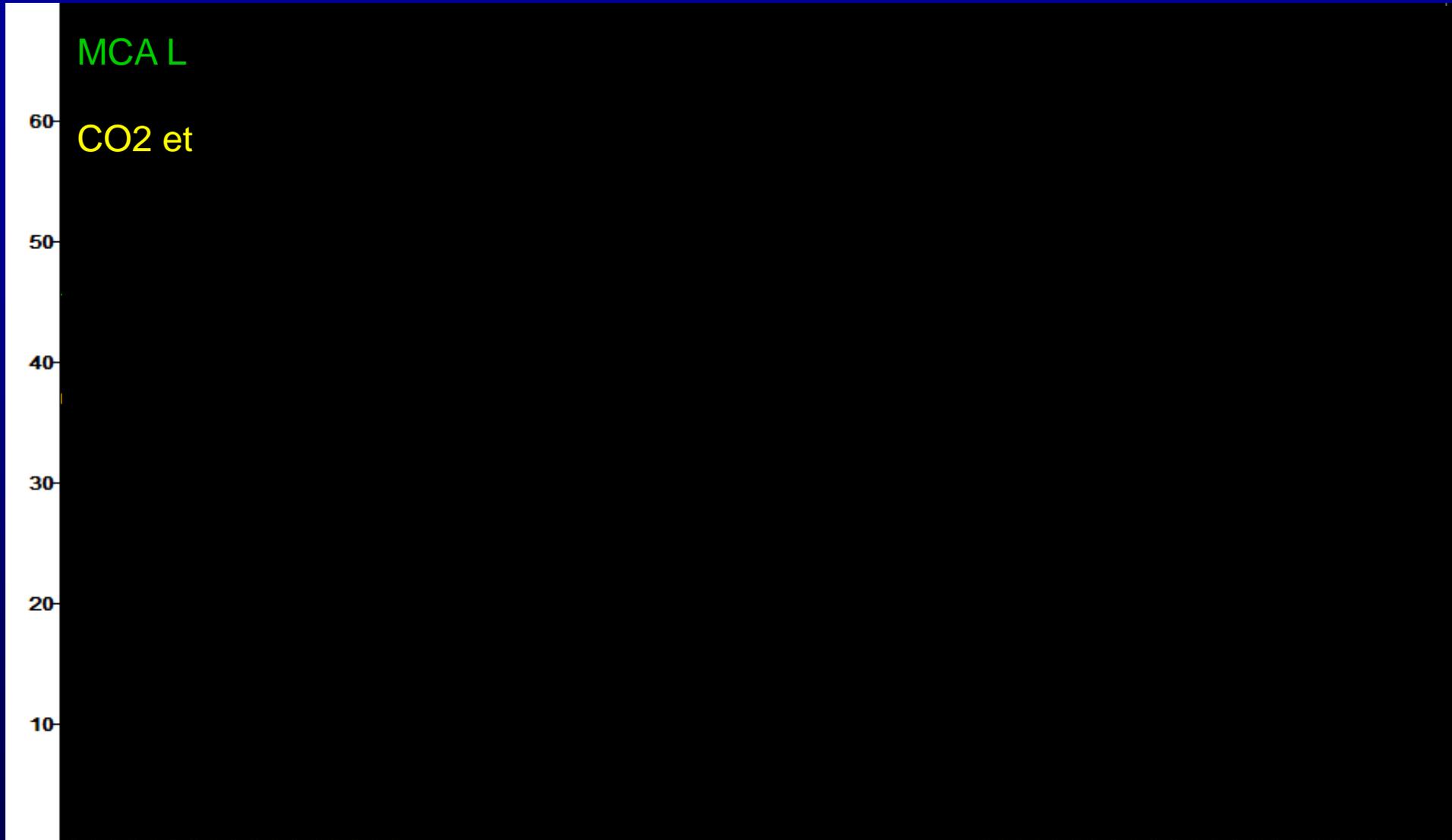
3

4

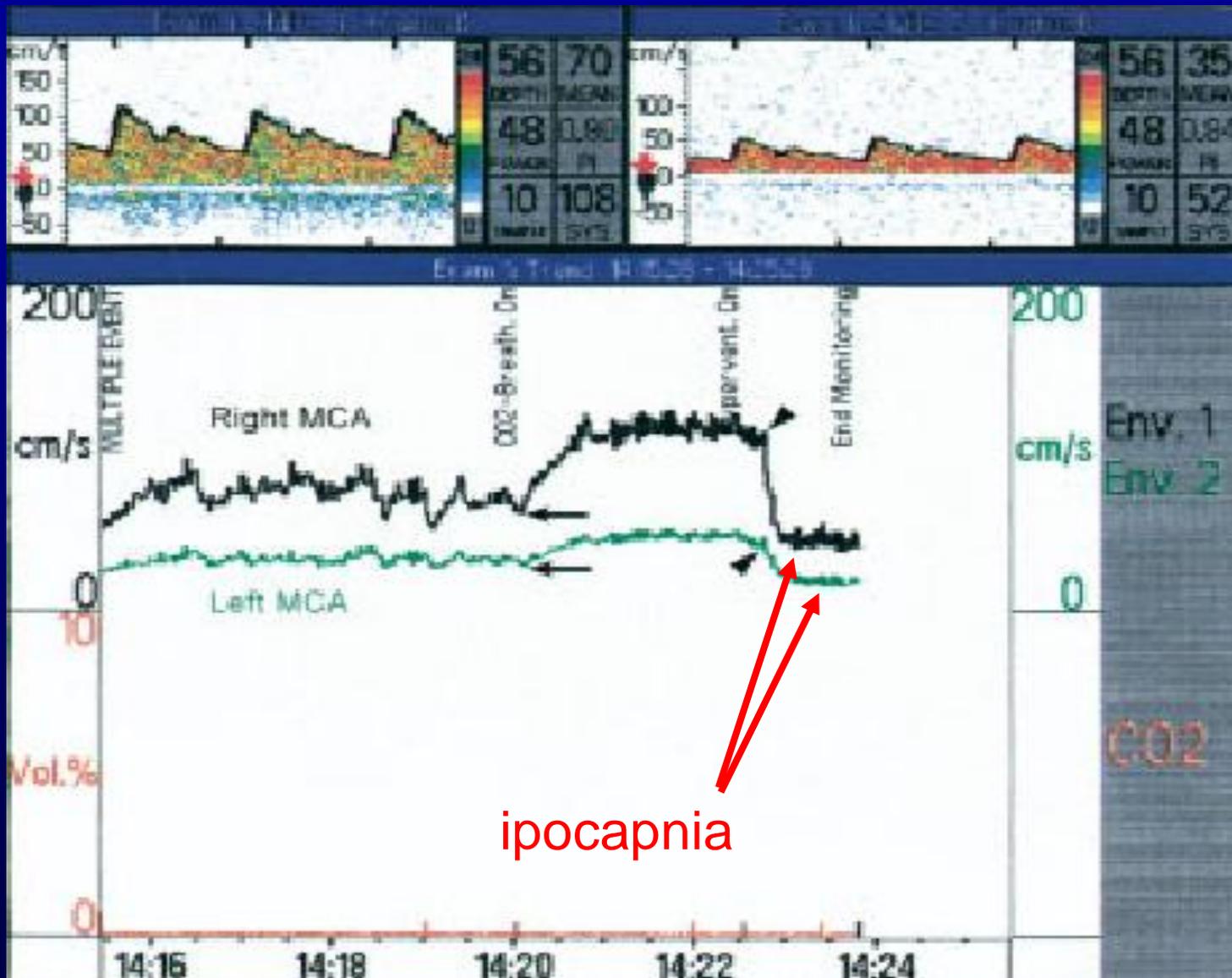
5

6

7



REATTIVITA' ALLA CO₂



140
130
120
110
100
90
80
70
60
50
40
30
20
10
0

MCA L

ABP

ICP

pCO₂

Min 0

5

10

15

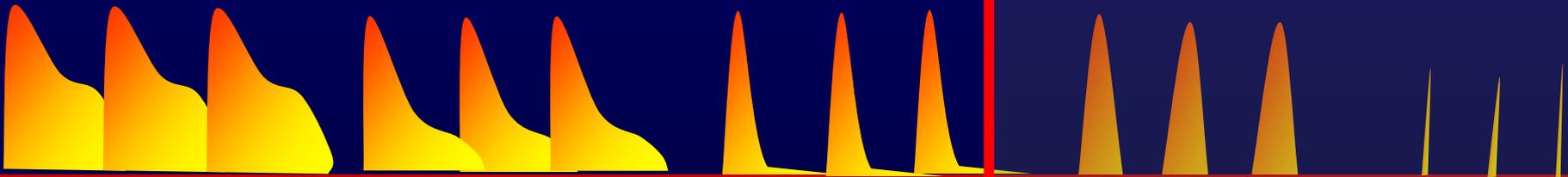
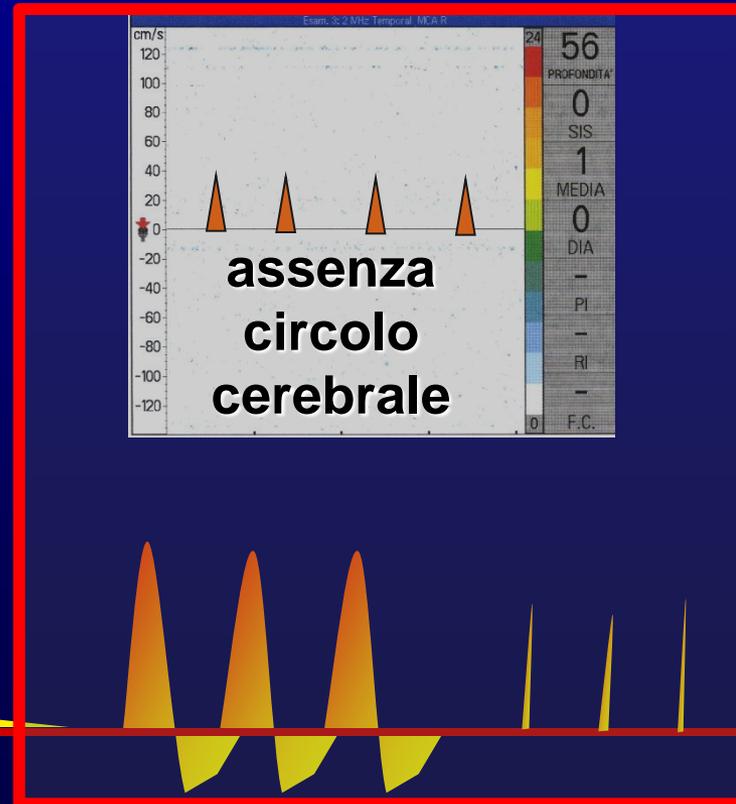
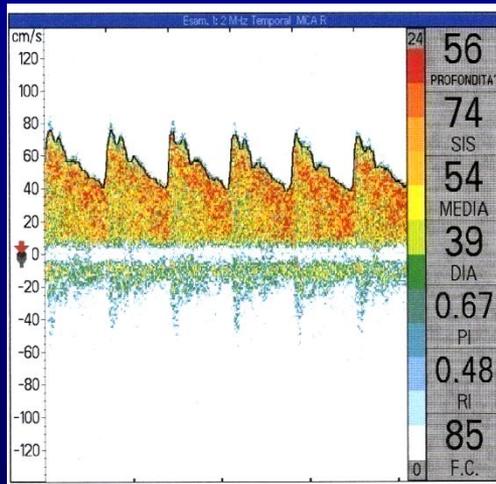
20

25

30

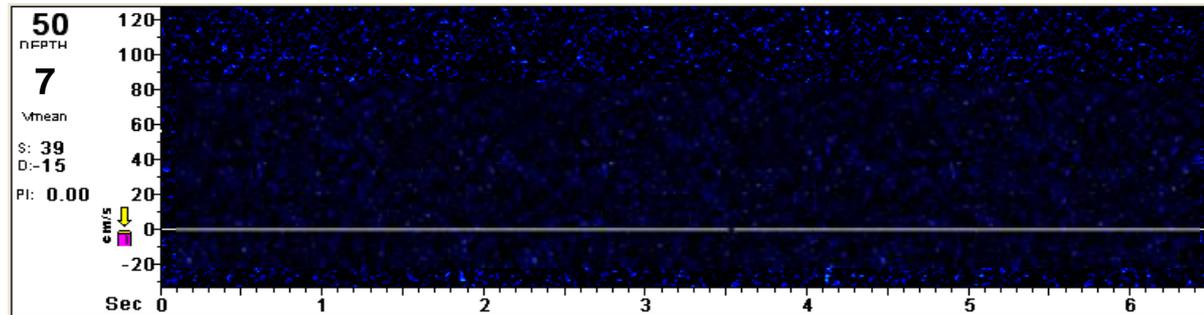
IL DOPPLER TRANSCRANICO PER DIMOSTRARE L'ASSENZA DI FLUSSO EMATICO CEREBRALE D.M. 11-4-2008

PAB = ICP

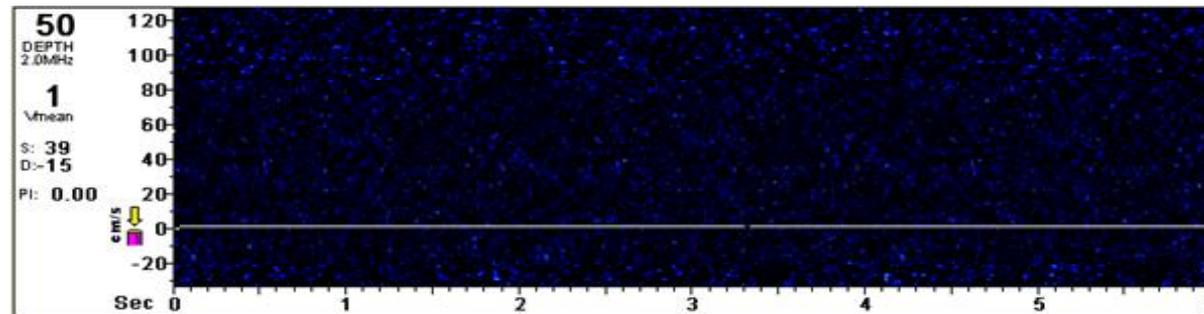


Pattern probatori di assenza di circolo

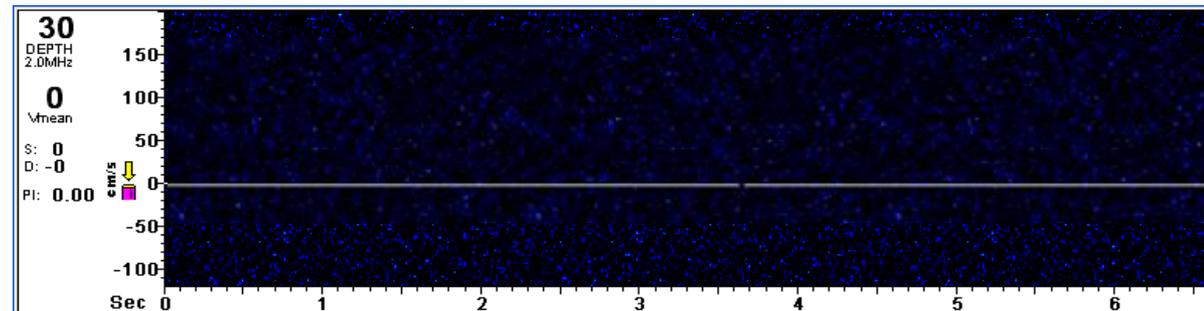
A) inversione del senso del segnale in diastole rispetto alla sistole
("reflusso diastolico" "segnale riverberante")



B) presenza di "spikes sistolici", caratterizzati da velocimetria e durata molto ridotte, senza alcun segnale diastolico



C) assenza di segnale sia durante la sistole che durante la diastole, solo nei **due casi seguenti**:



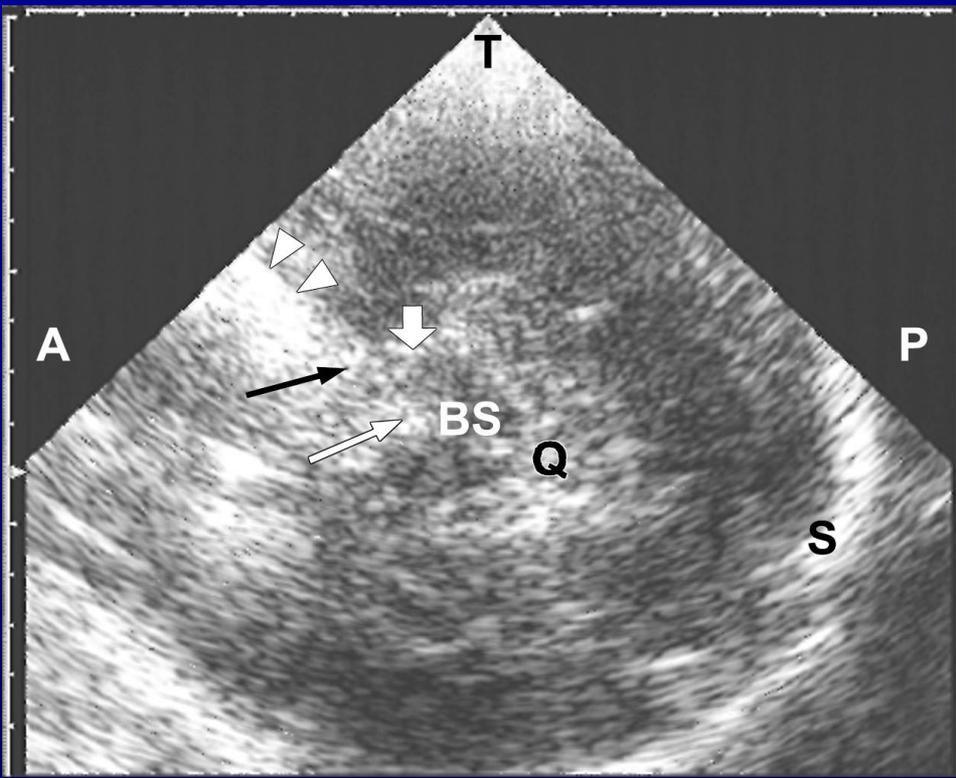
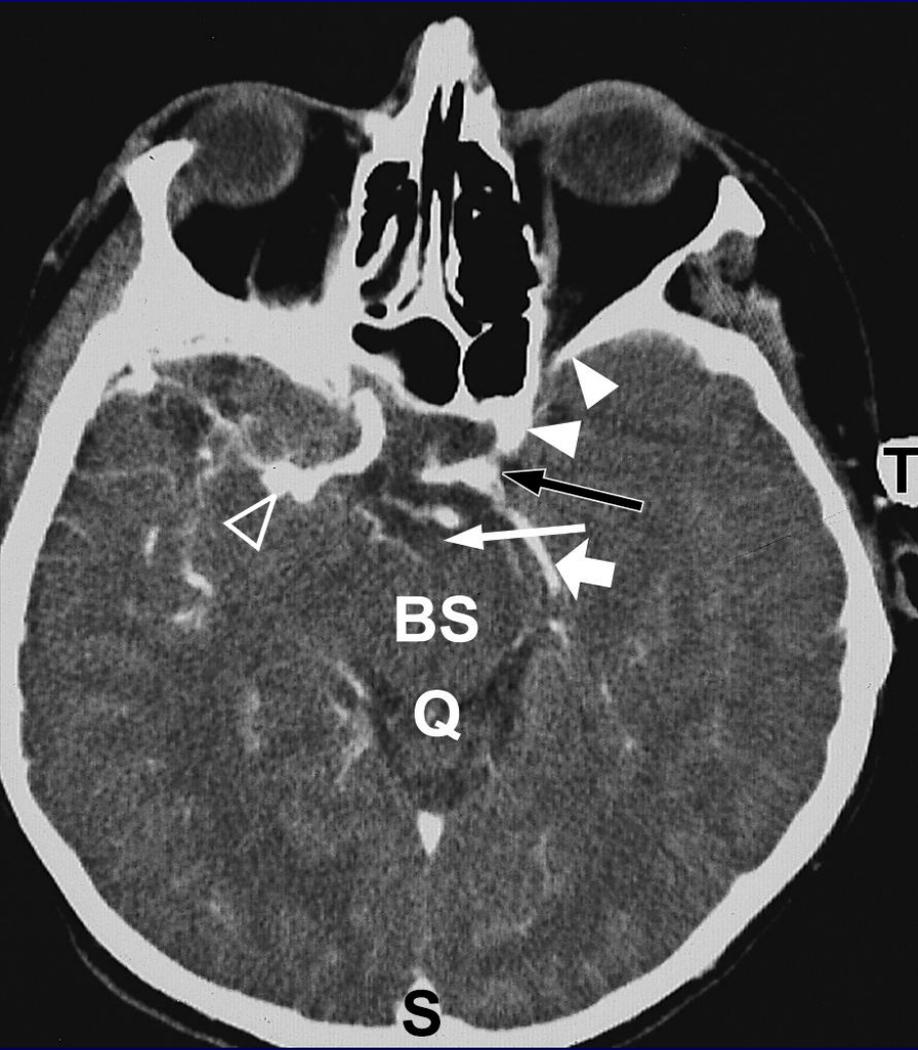
IL DOPPLER TRANSCRANICO PER L'ACCERTAMENTO DI ASSENZA DI FLUSSO

- ❑ Quando attraverso un precedente esame eseguito dallo stesso operatore sullo stesso paziente sia stata dimostrata la pervietà delle finestre ossee, con uno dei quadri descritti in **A** e **B** in modo che sia dimostrata la pervietà delle tre finestre stesse.
- ❑ Quando attraverso ognuna delle tre finestre ossee (temporale sinistra, temporale destra, occipitale) venga evidenziato il segnale di almeno un vaso, in modo che sia dimostrata la pervietà delle tre finestre stesse.



ecocolor Doppler transcranico





$\frac{RH + LH}{2}$

2

Left

Third ventricle

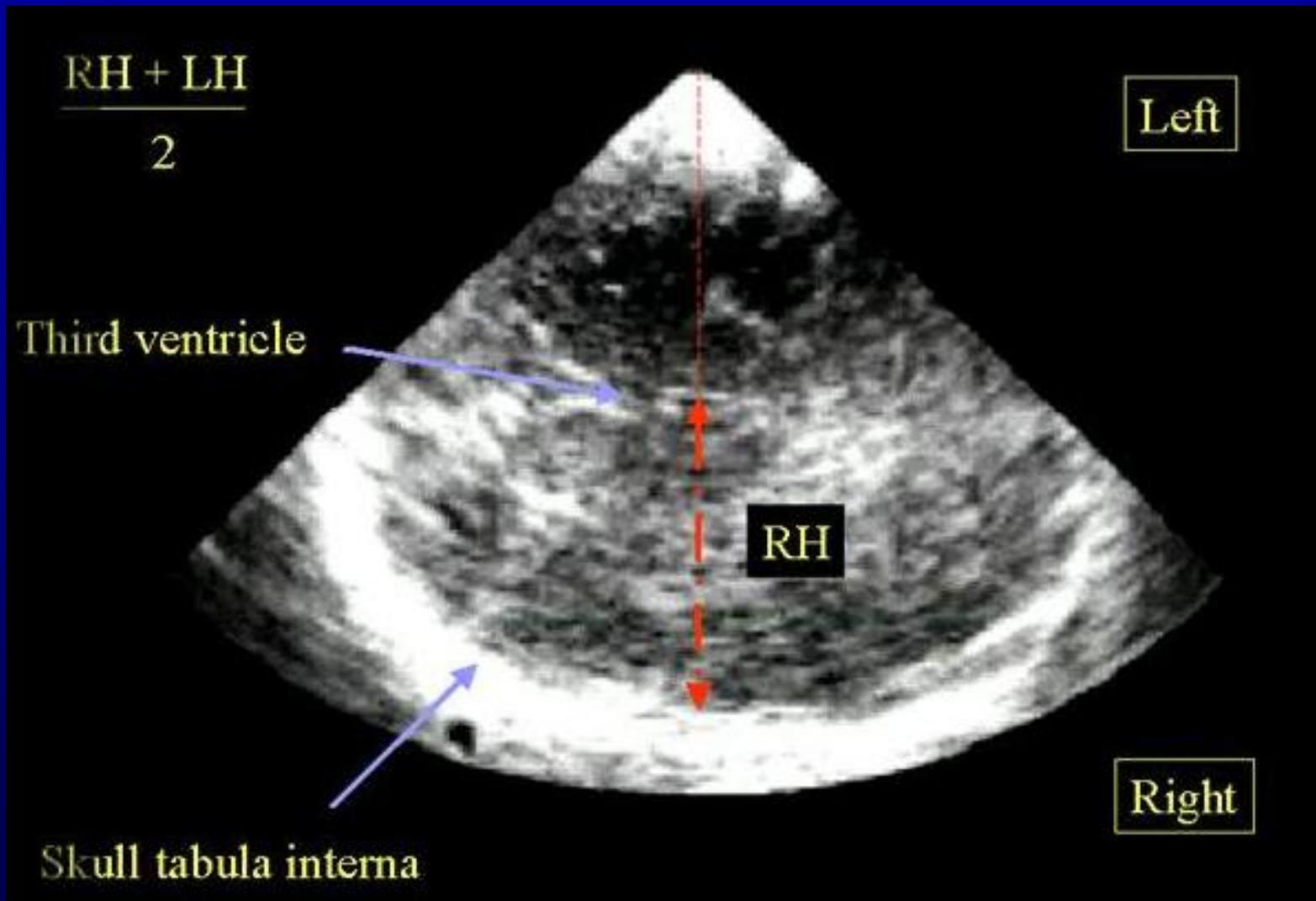


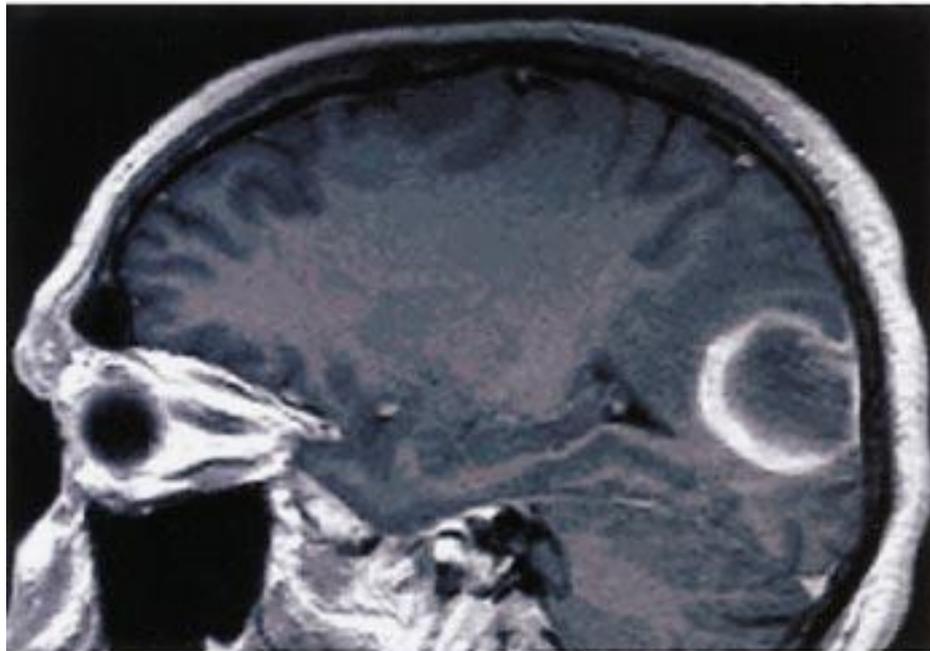
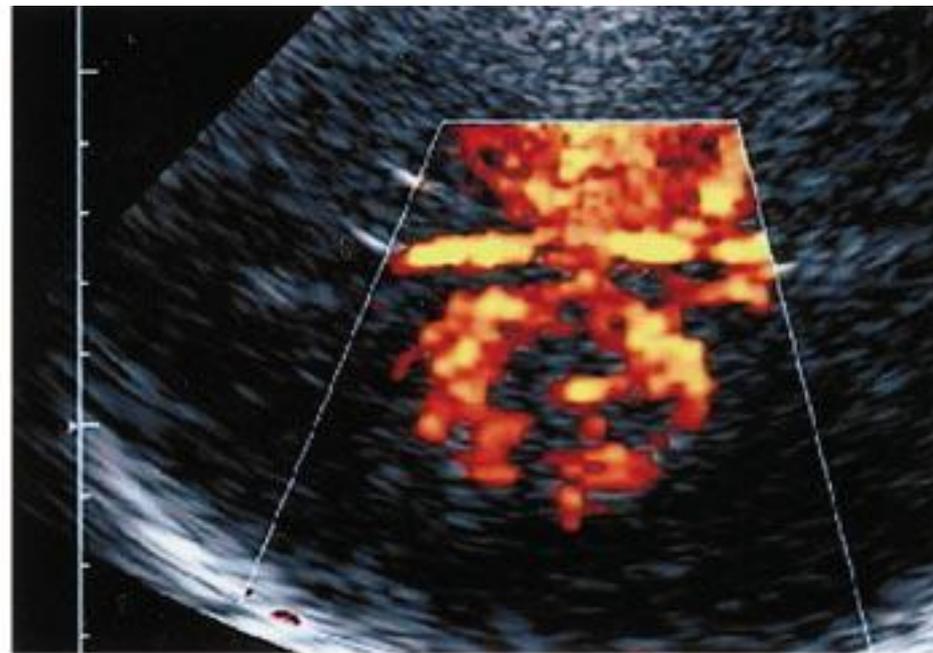
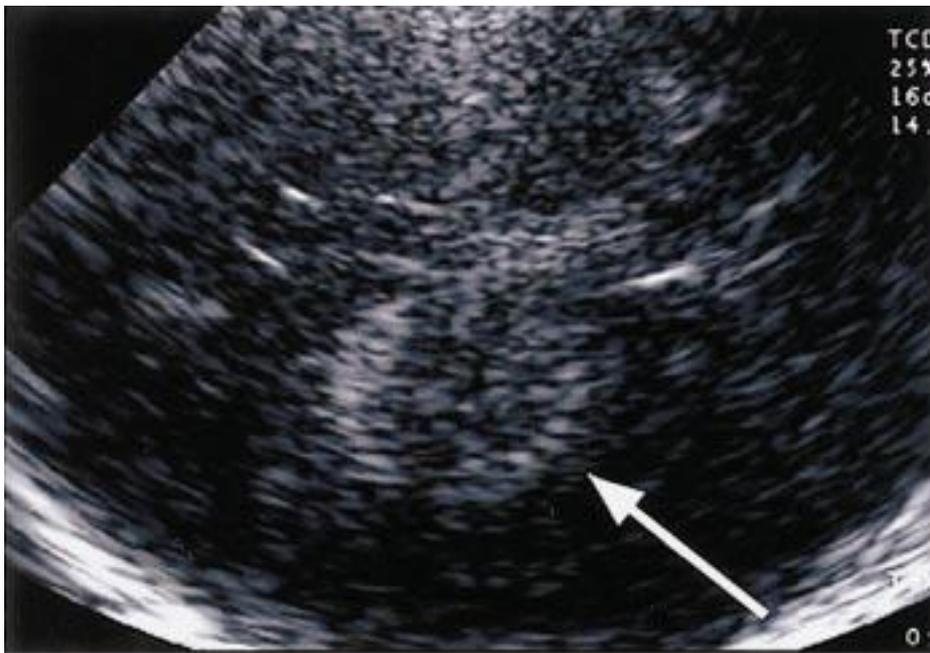
RH



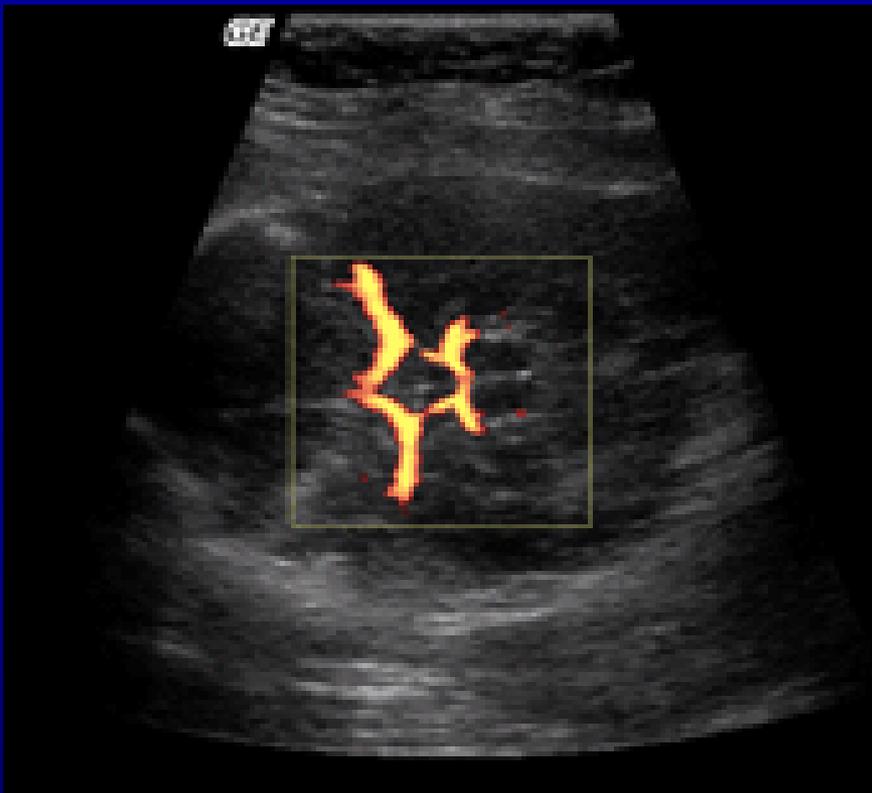
Right

Skull tabula interna



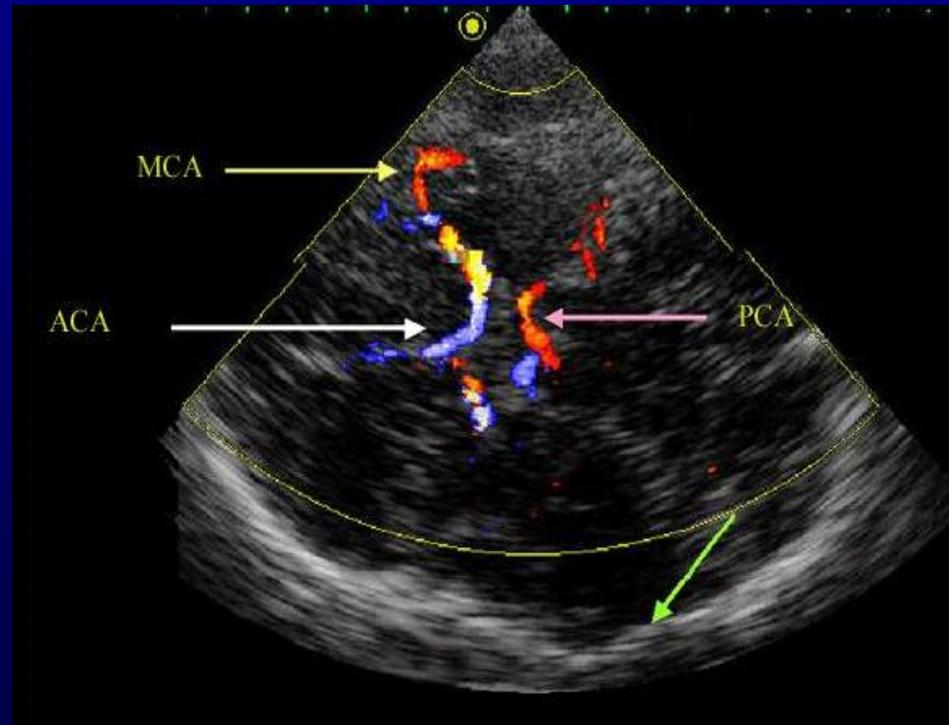


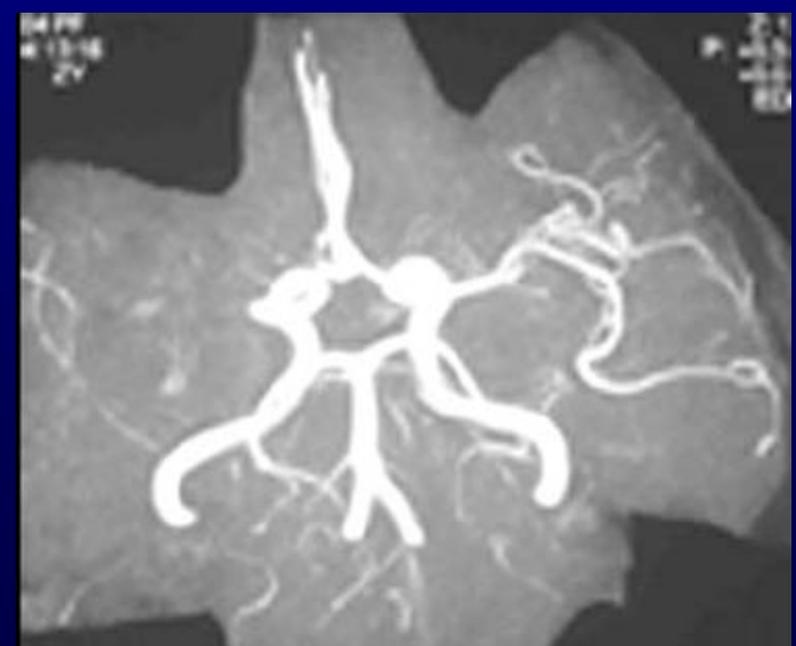
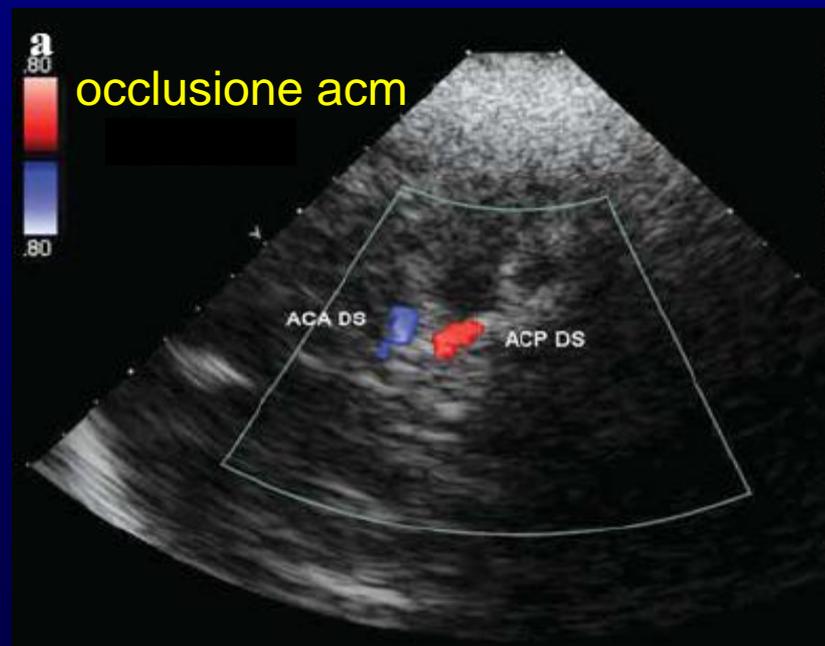
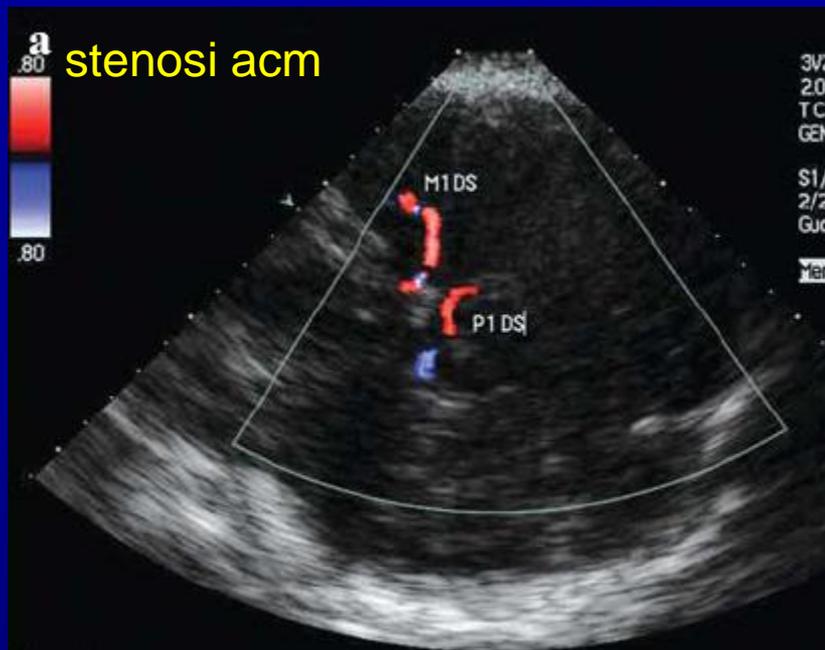
glioblastoma
multiforme

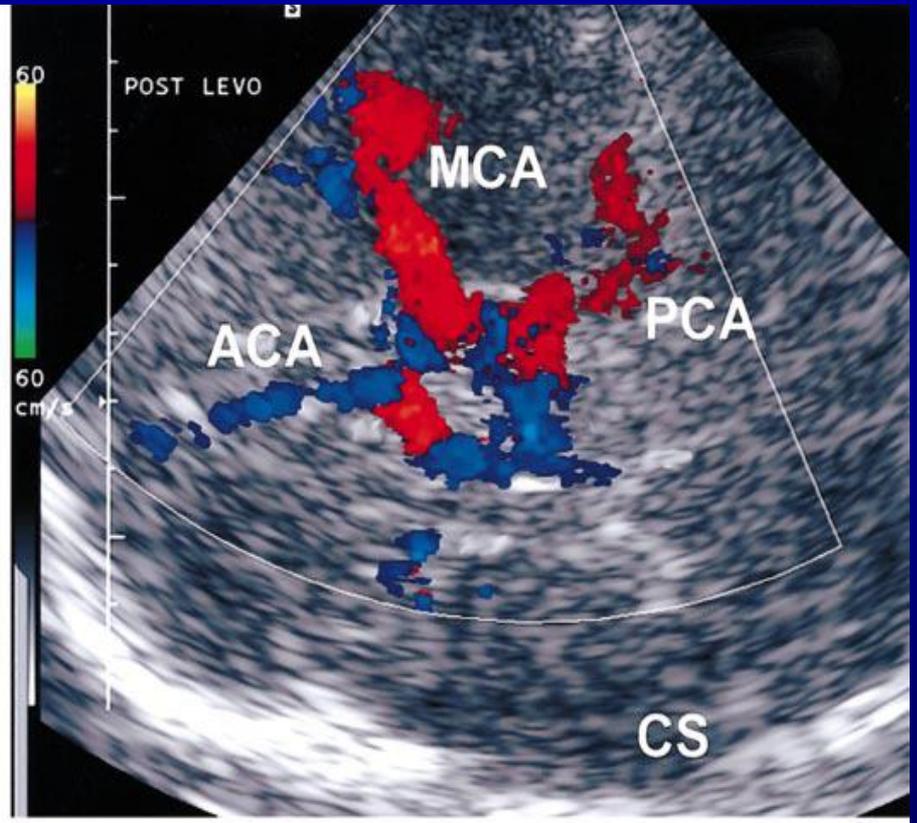
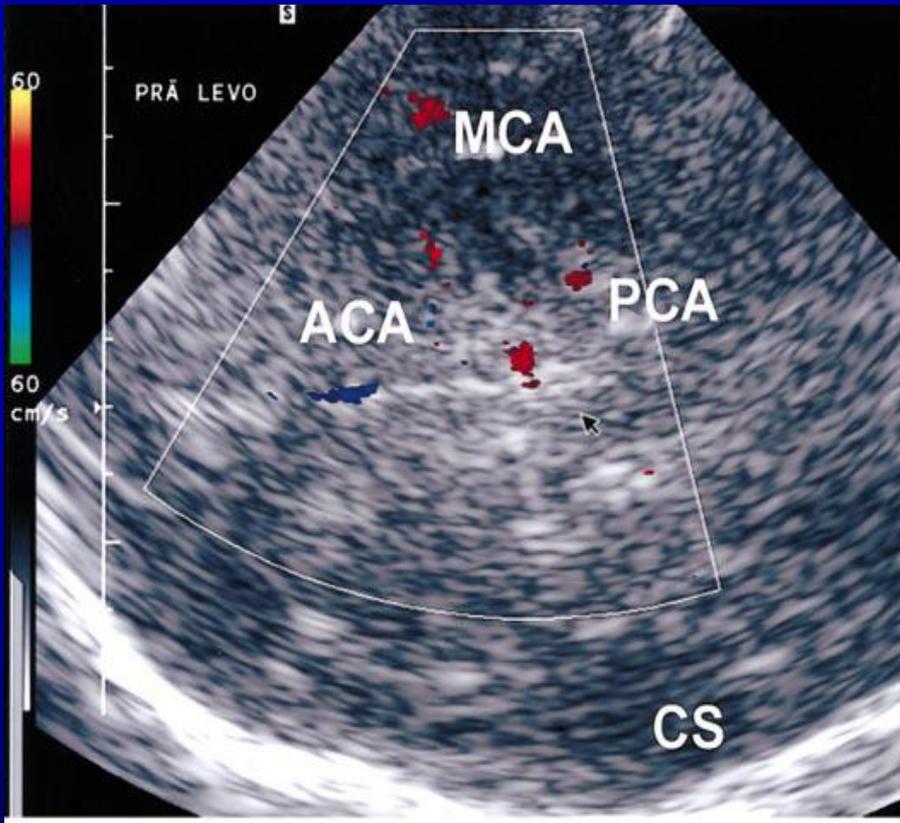


power Doppler

ecocolor Doppler



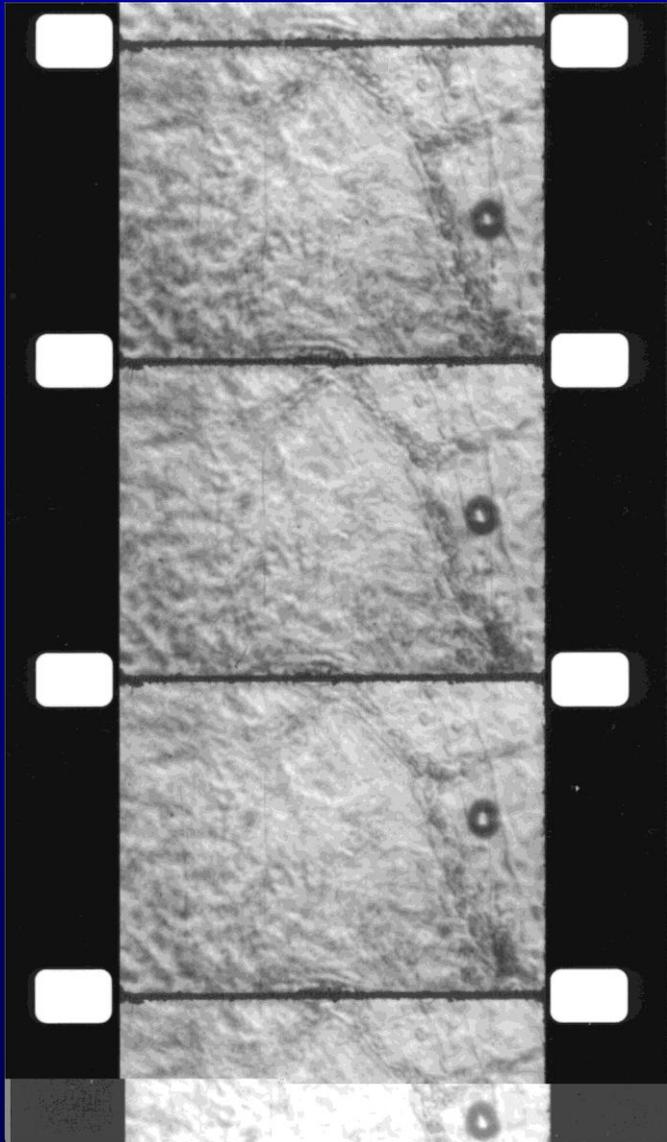




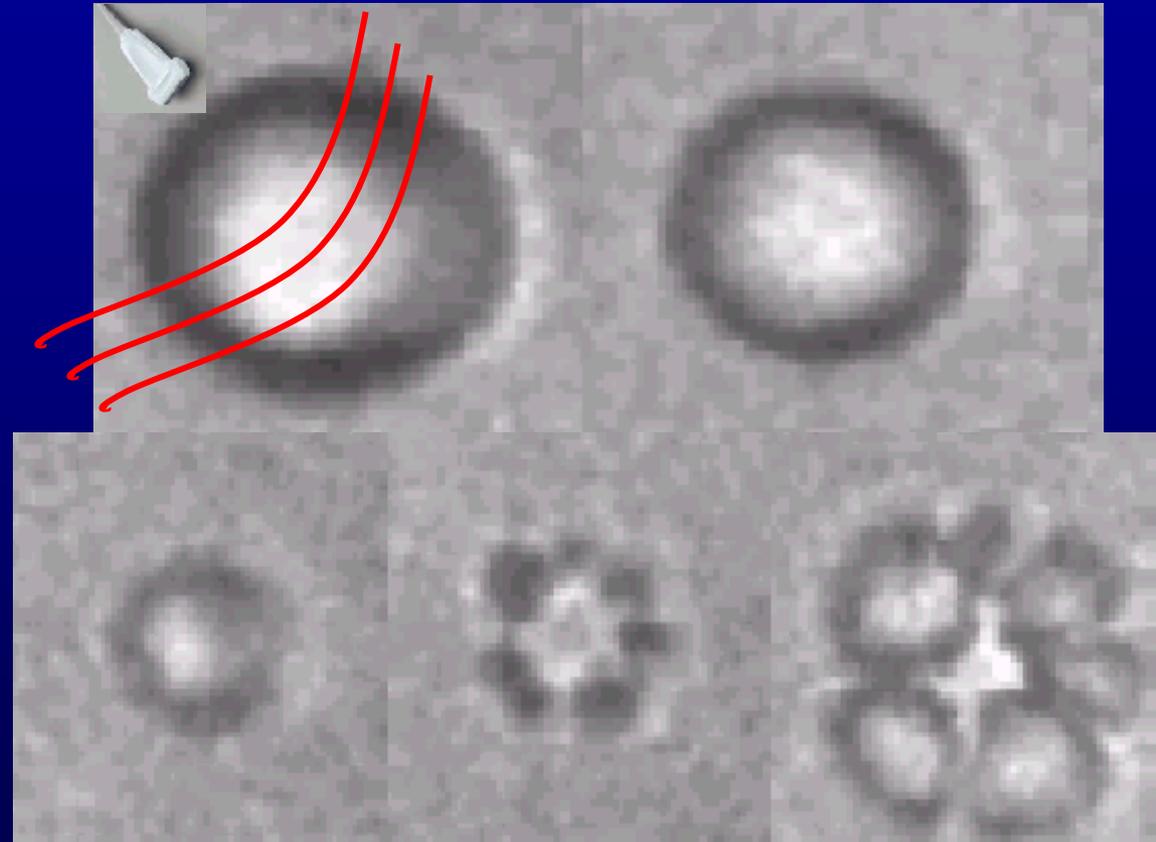
senza contrasto

con contrasto

Eco-Contrasti



Le bolle nei capillari



La rottura delle bolle



Gwyneth

EXAM #09 : 1

01-10-0

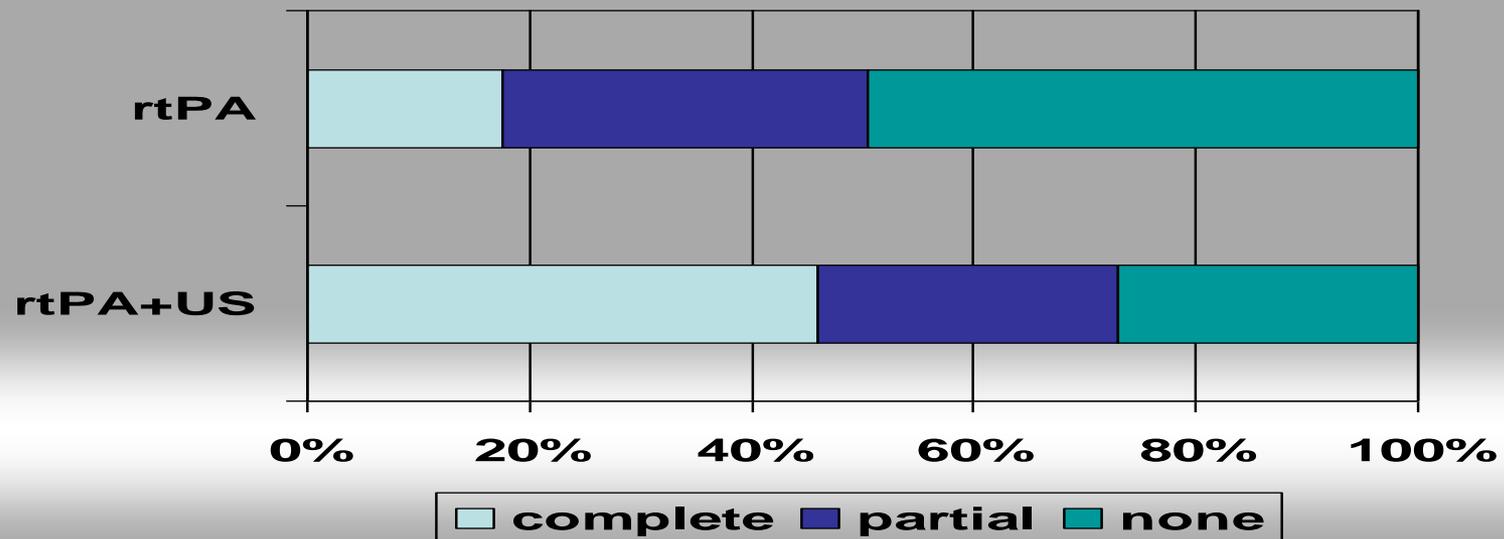
08:58:0



CLOTBUST

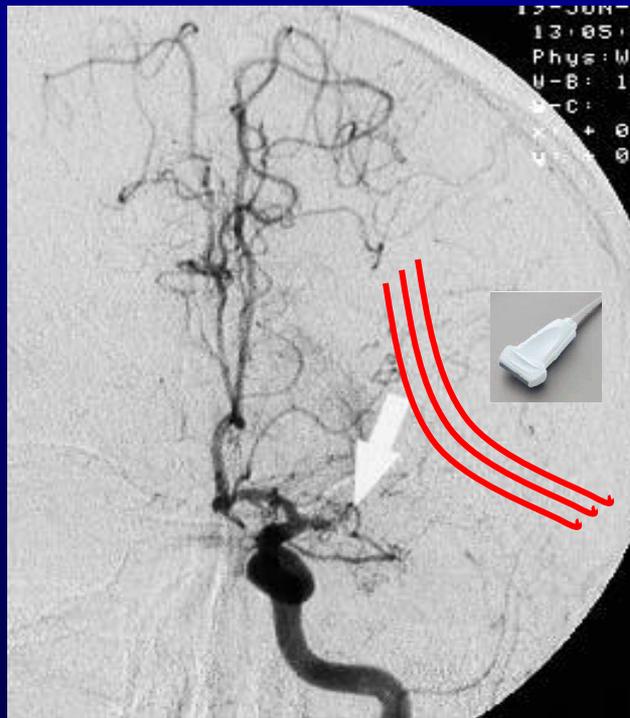
29 International Stroke Conference
San Diego Febbraio, 2004

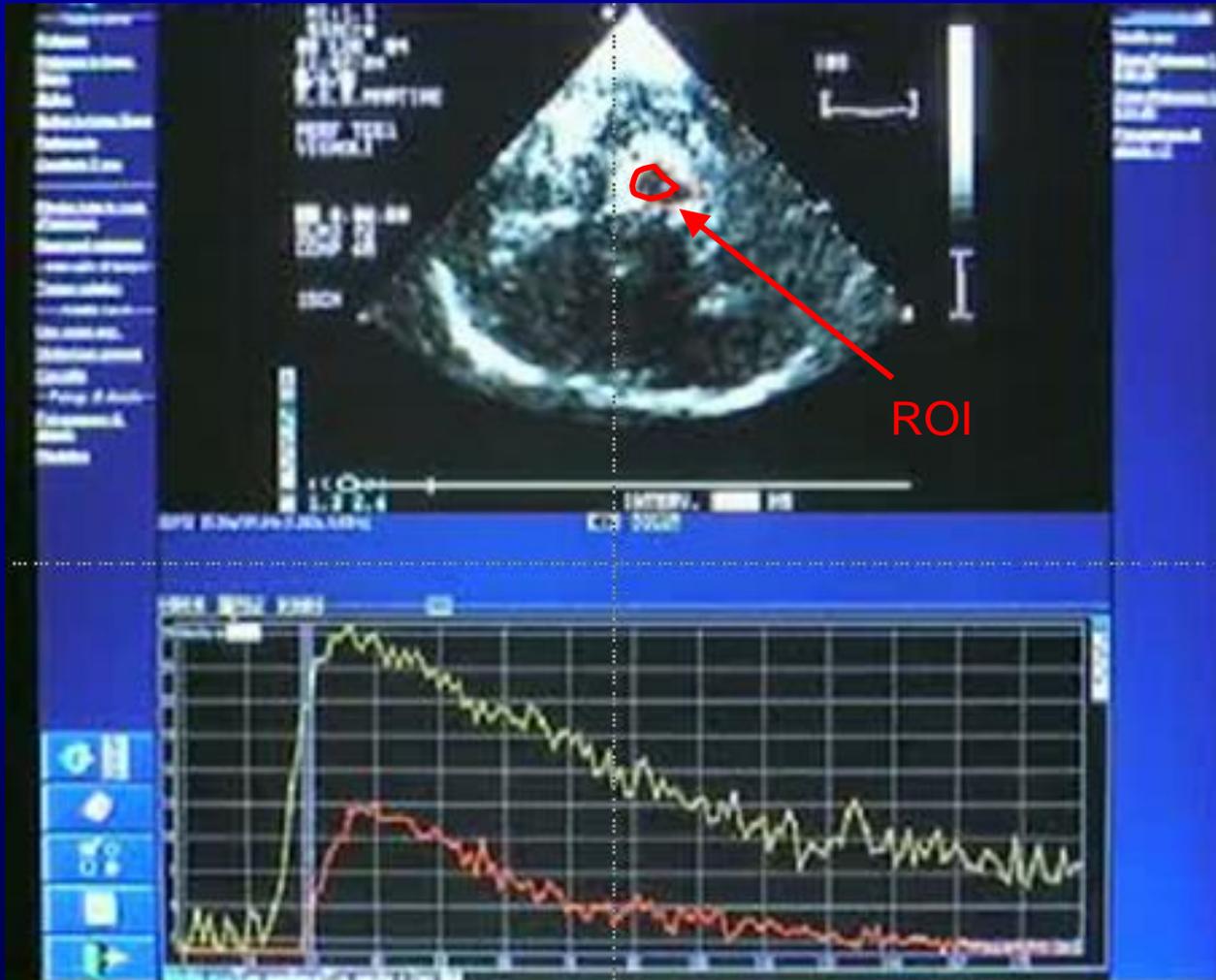
	rtPA + Ultrasuoni (63 p)	rtPA solo (63 p)
Ricanalizzazione totale	46%	17.5%
Ricanalizzazione parziale	27%	33%
Ricanalizzazione	73%	50.5%
Complicanze emorragiche	4.8%	4.8%

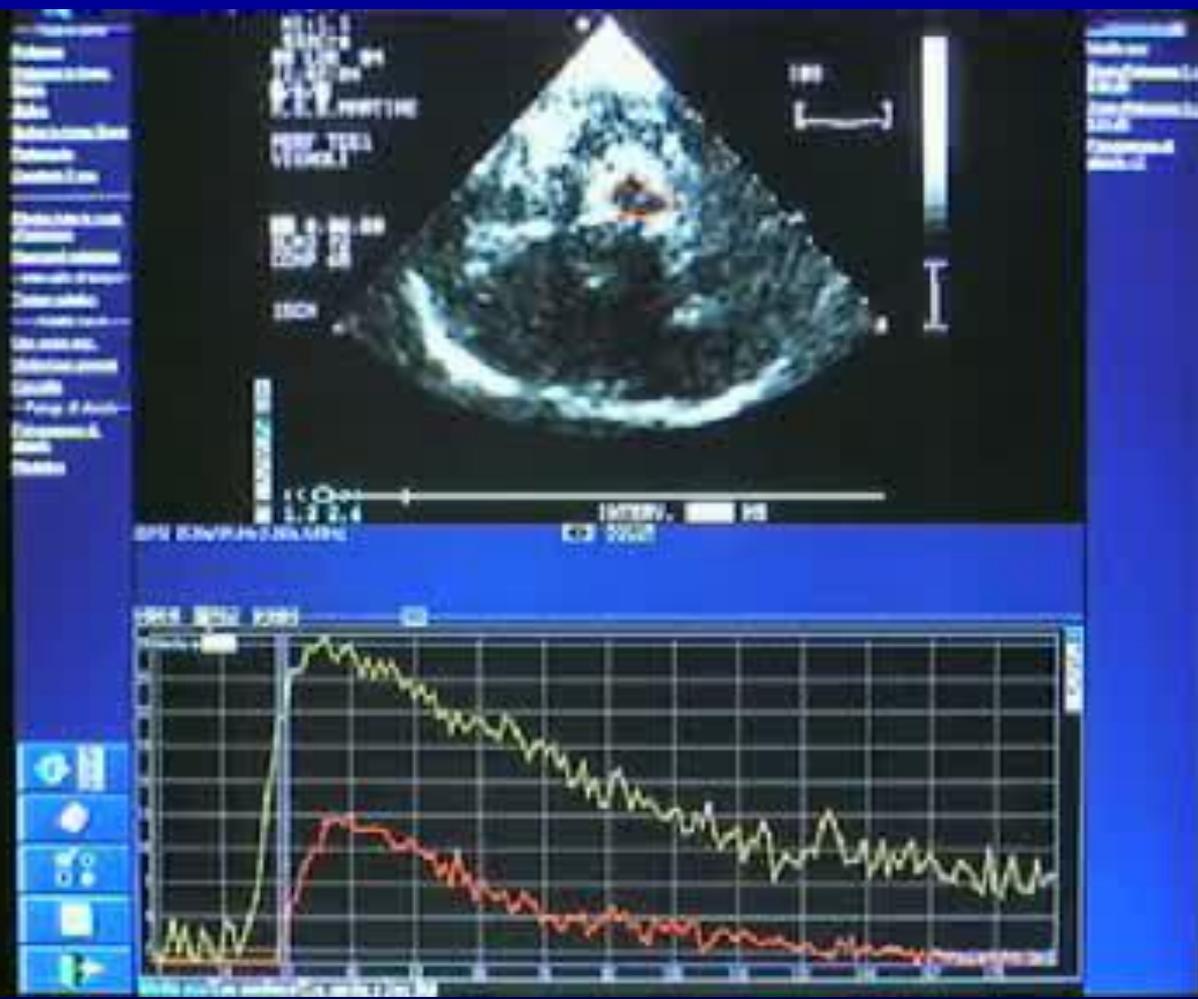


Sonothrombolysis in acute ischemic stroke for patients ineligible for rt-PA

Eggers et al., Neurology 2005

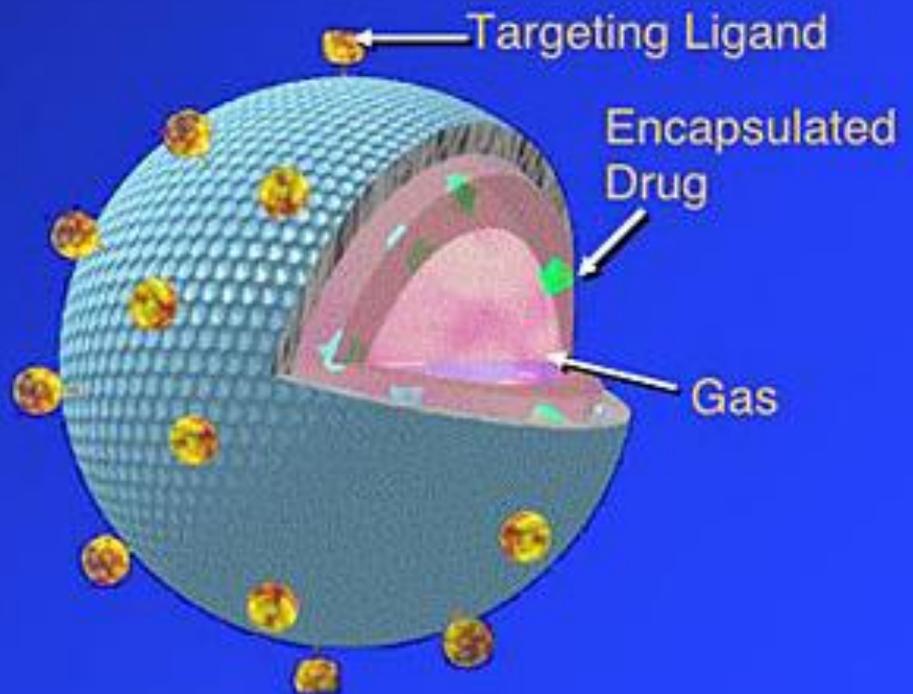






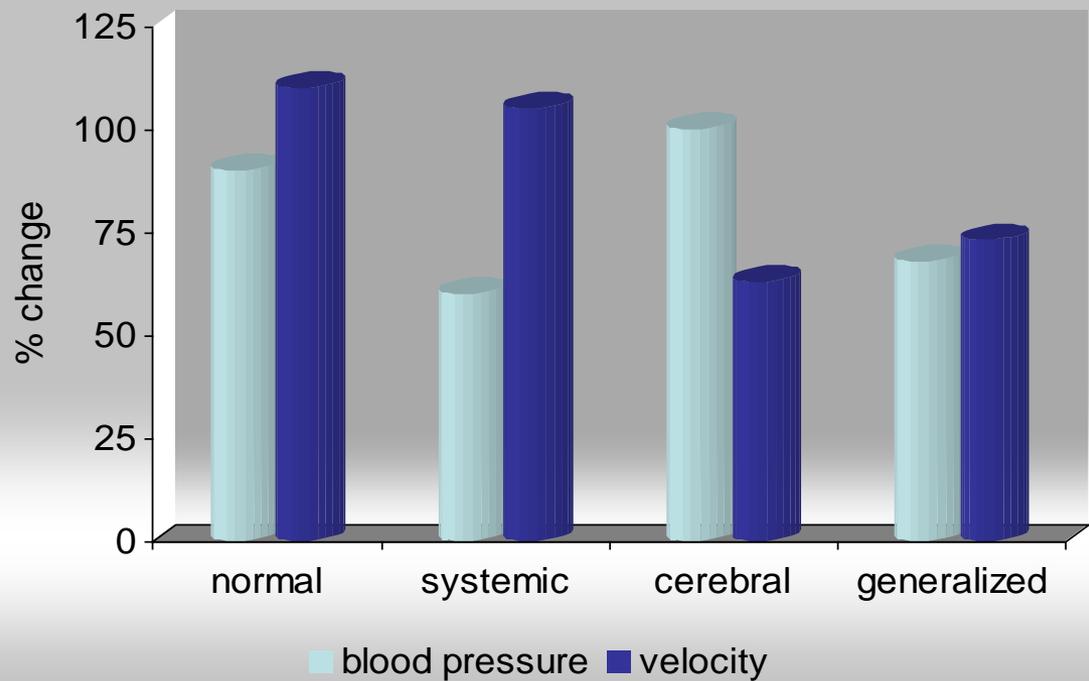
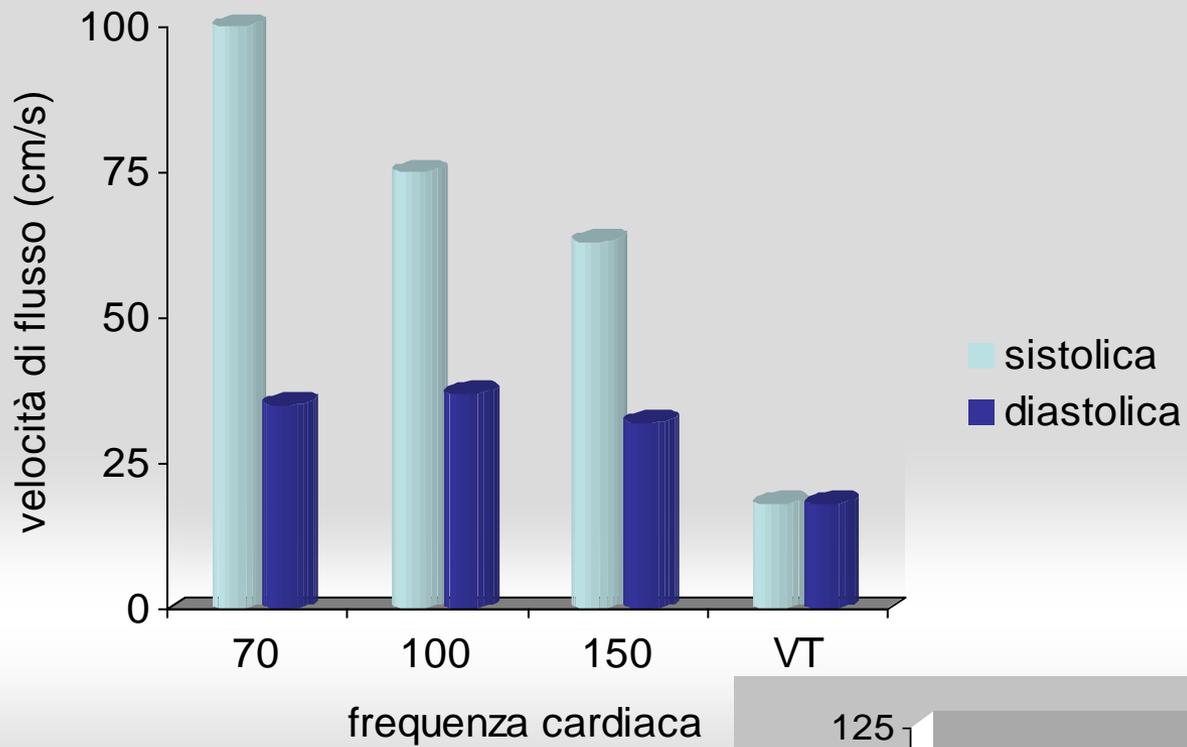
Schematic of Targeted Microbubble

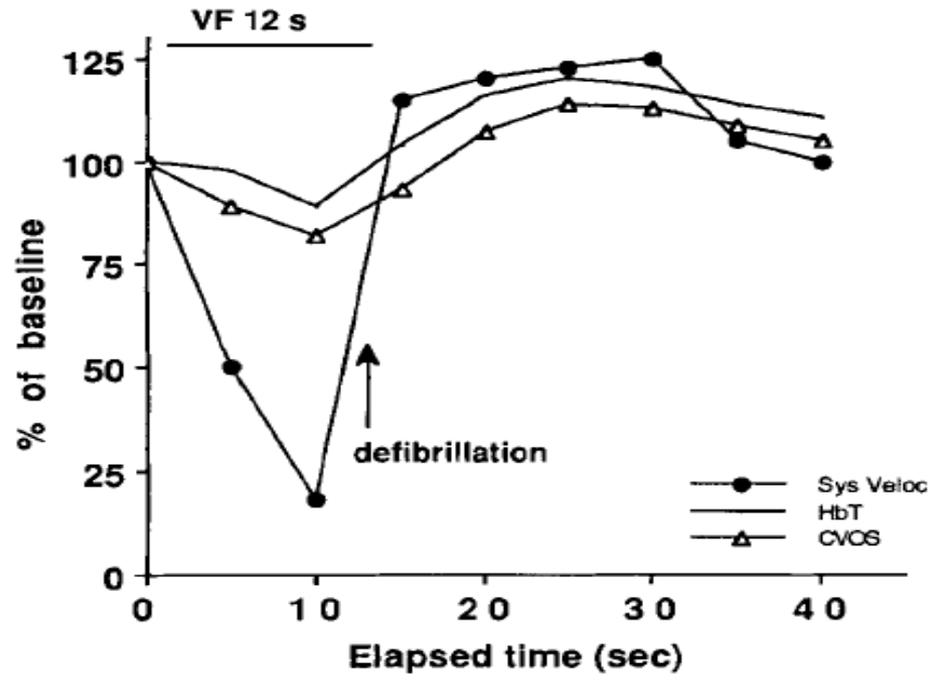
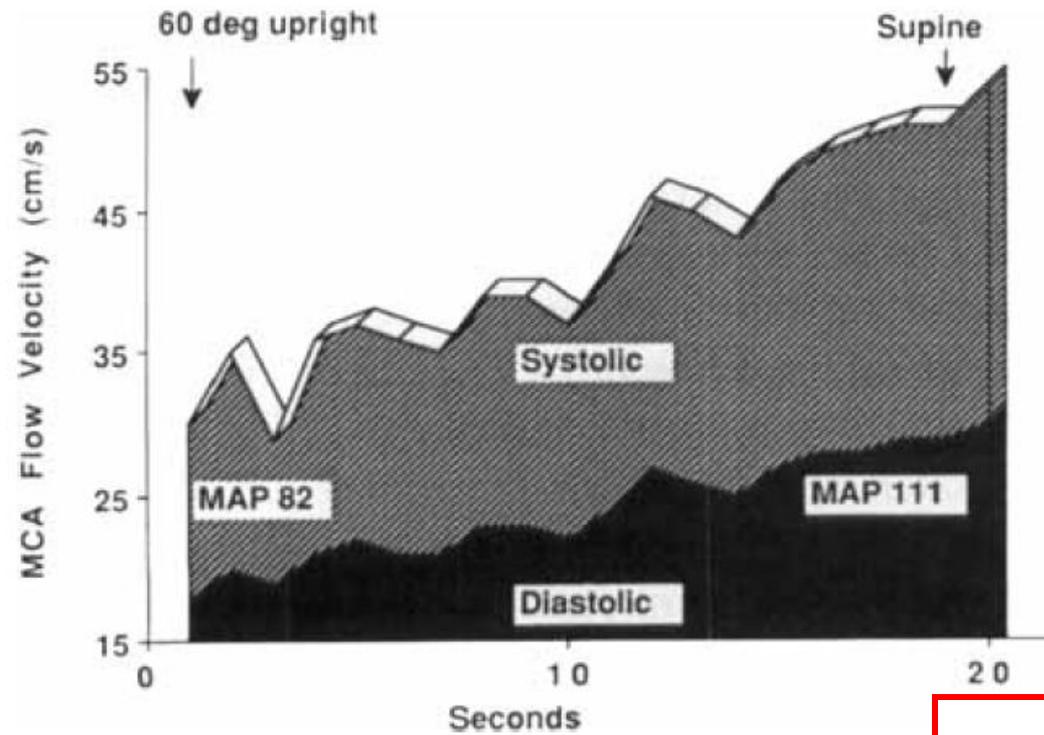
- Microbubbles with ligands to bind to selected targets
- Potential targets:
 - platelets and/or fibrin for thrombosis
 - integrins and selectins for endothelial cells (e.g., in angiogenesis and vascular disease)
 - extracellular matrix proteins (e.g., in cancer or inflammation)
 - white blood cells for Infection and inflammation
 - cell specific epitopes (e.g., in cancer)
- Combination of diagnostic and therapeutic agents for activation with ultrasound



IL RUOLO DEGLI ULTRASUONI NEL NEUROMONITORAGGIO

Francesco Lusenti - Lecco





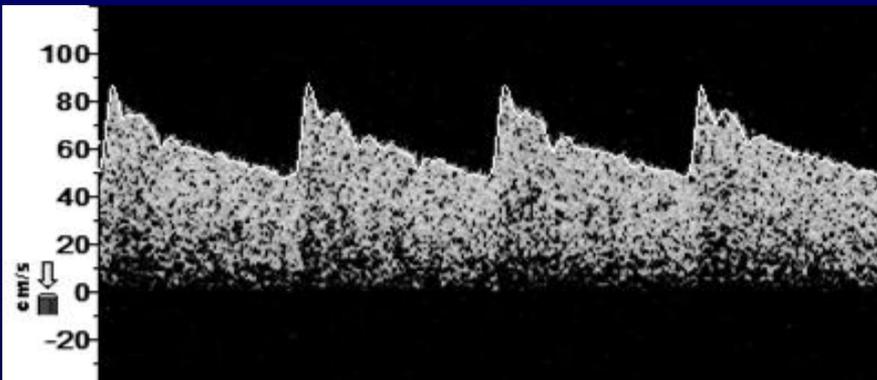
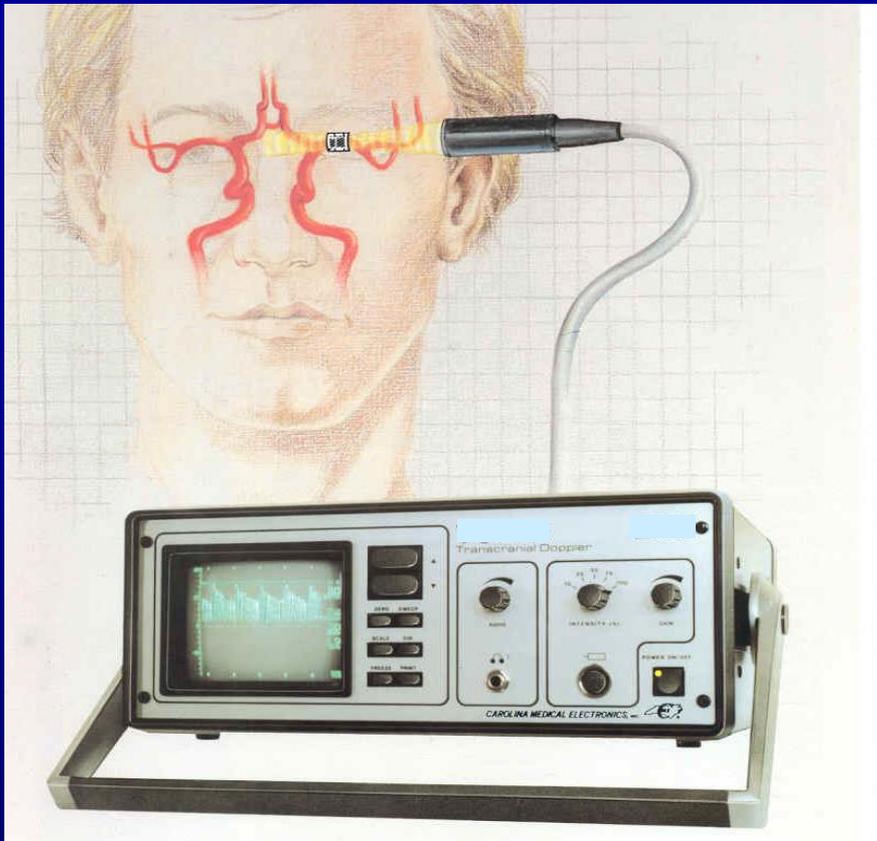


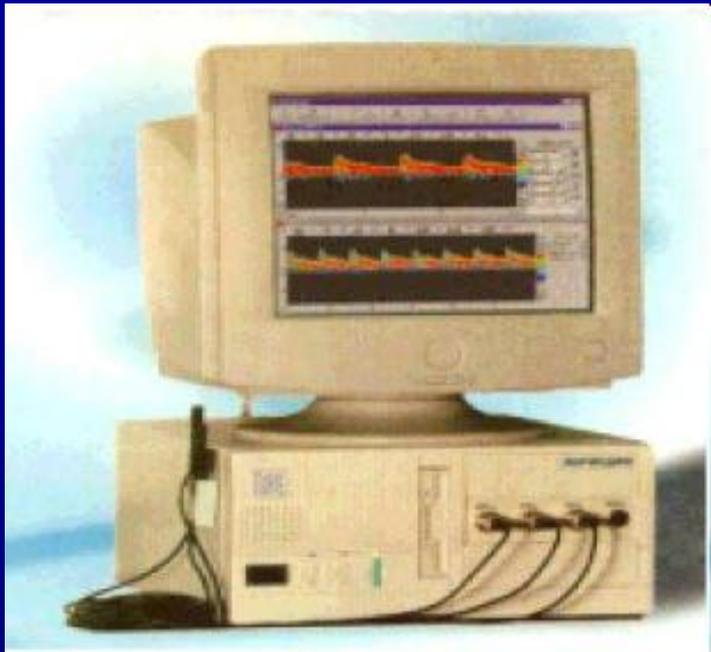
IL RUOLO DEGLI ULTRASUONI NEL NEUROMONITORAGGIO

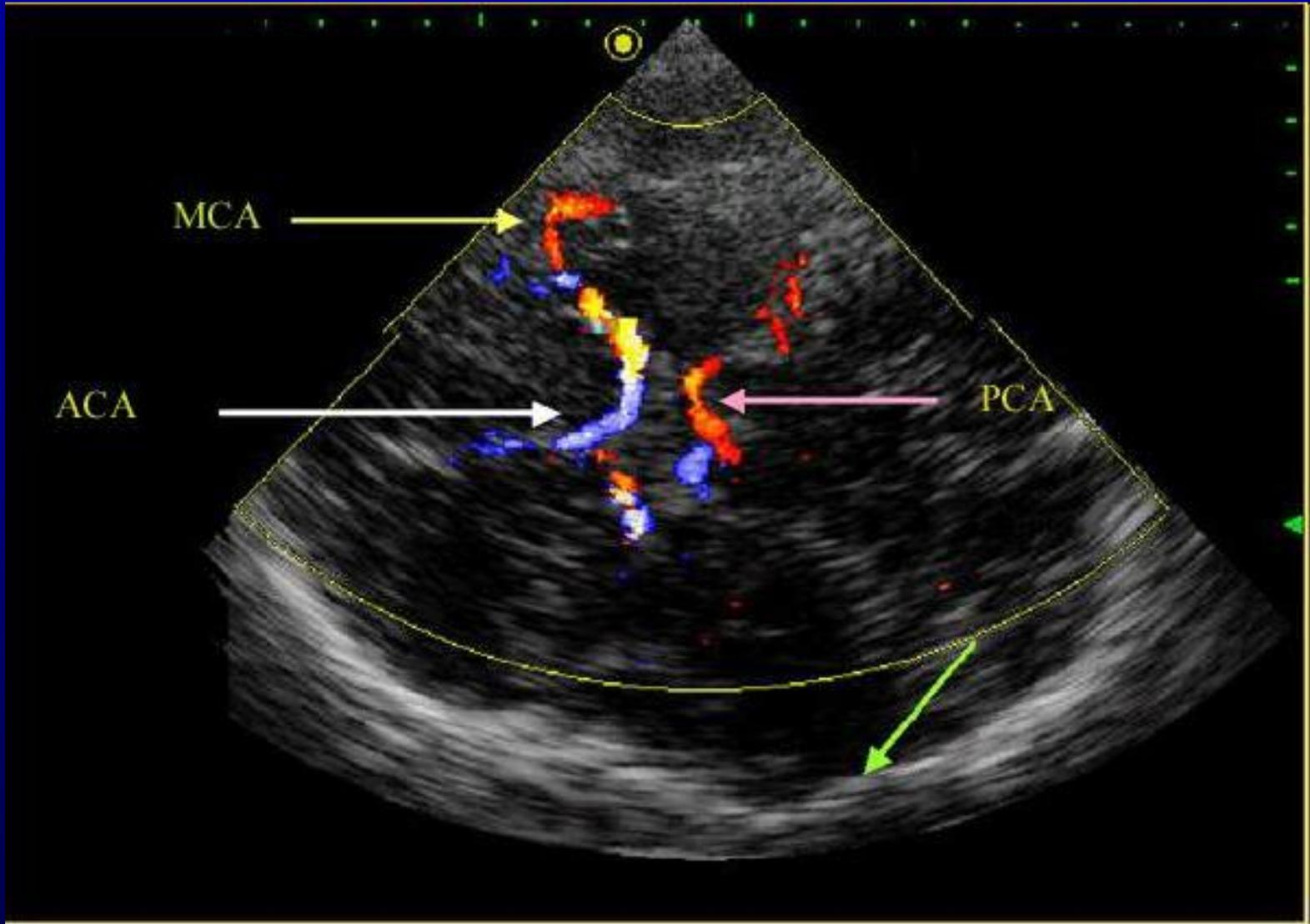
Francesco Lusenti

-Lecco -

**CHIRURGIA
MILANO 27-29 OTTOBRE 2008**







+1.98/0.10

S2.50
3HZ

MCA R

D.72



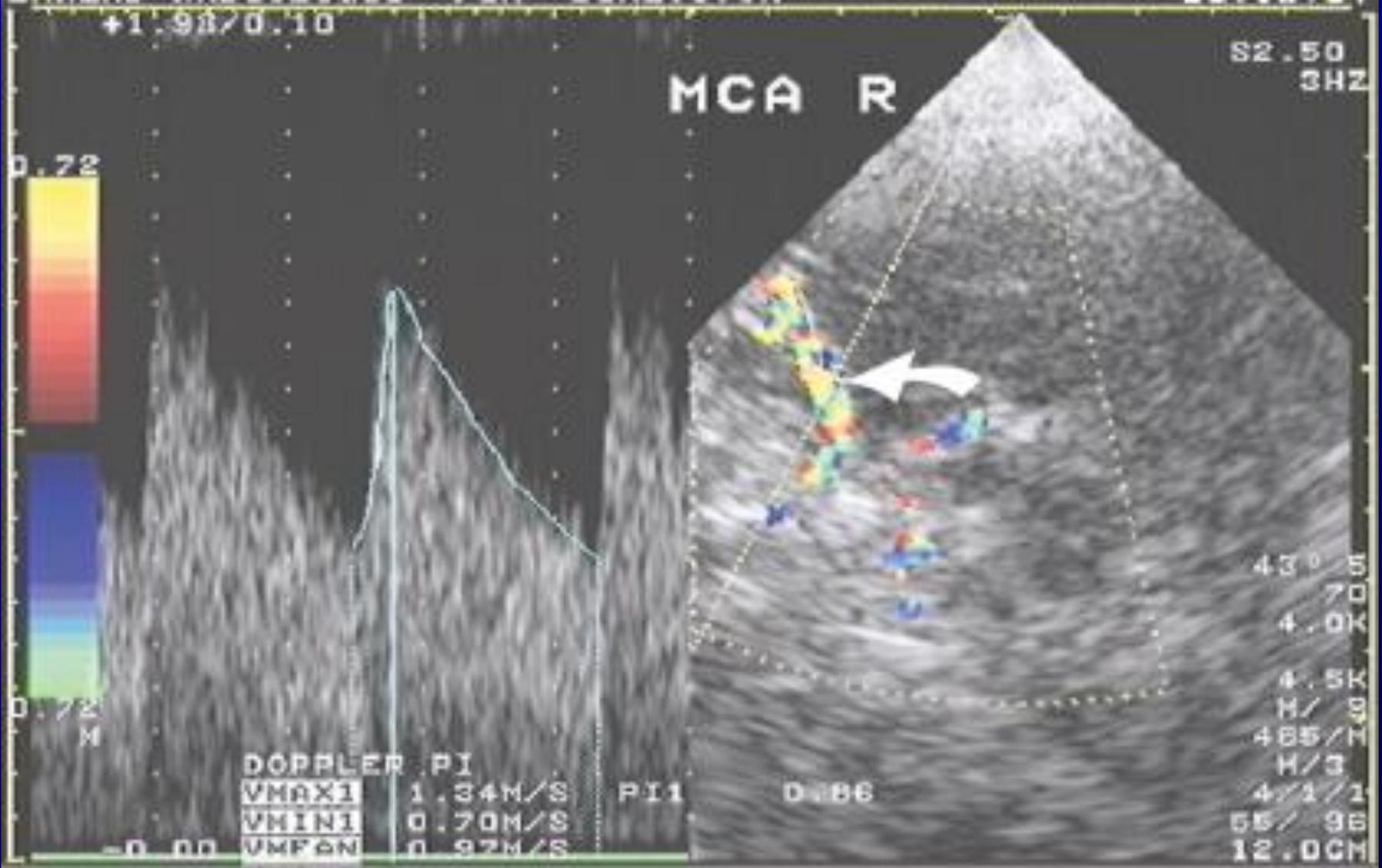
D.72

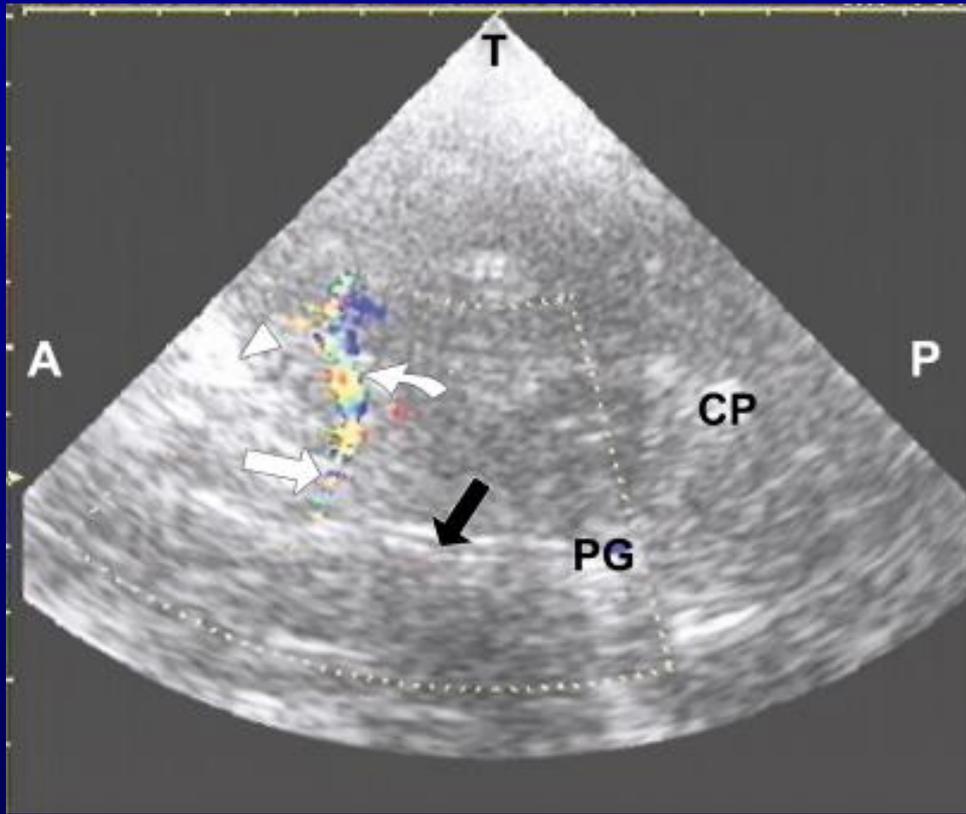
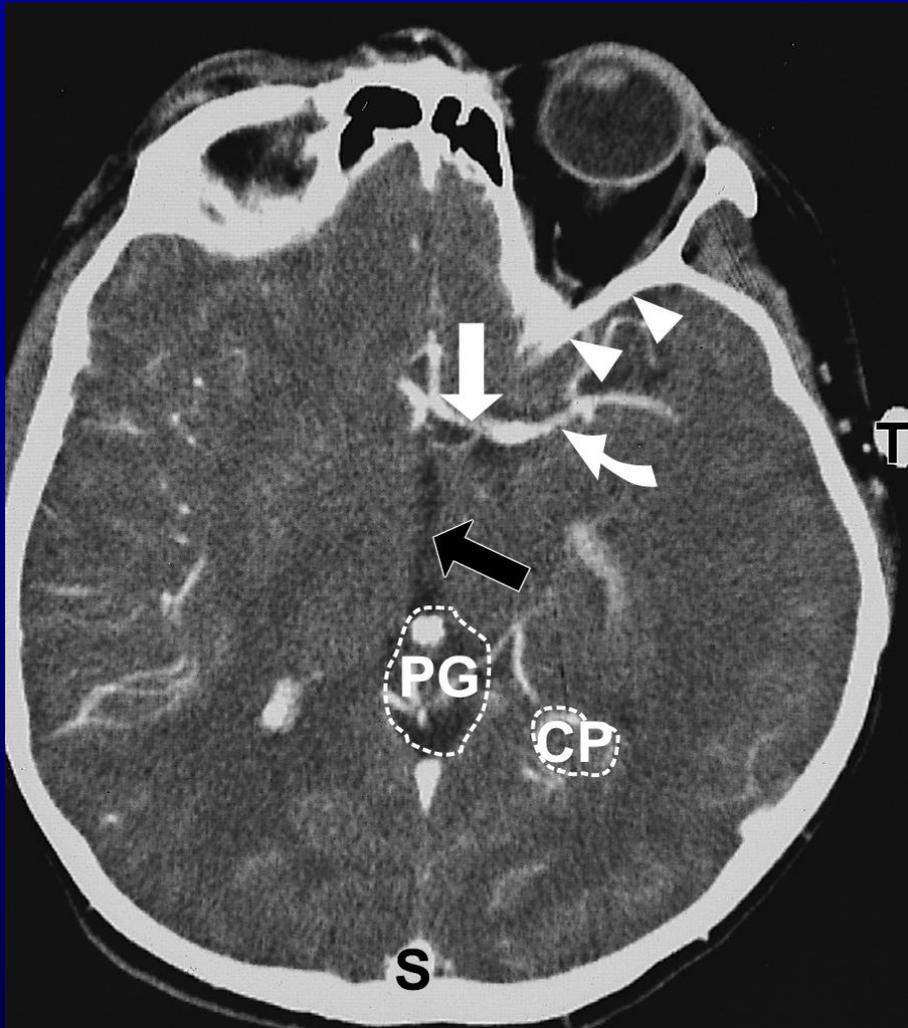
M

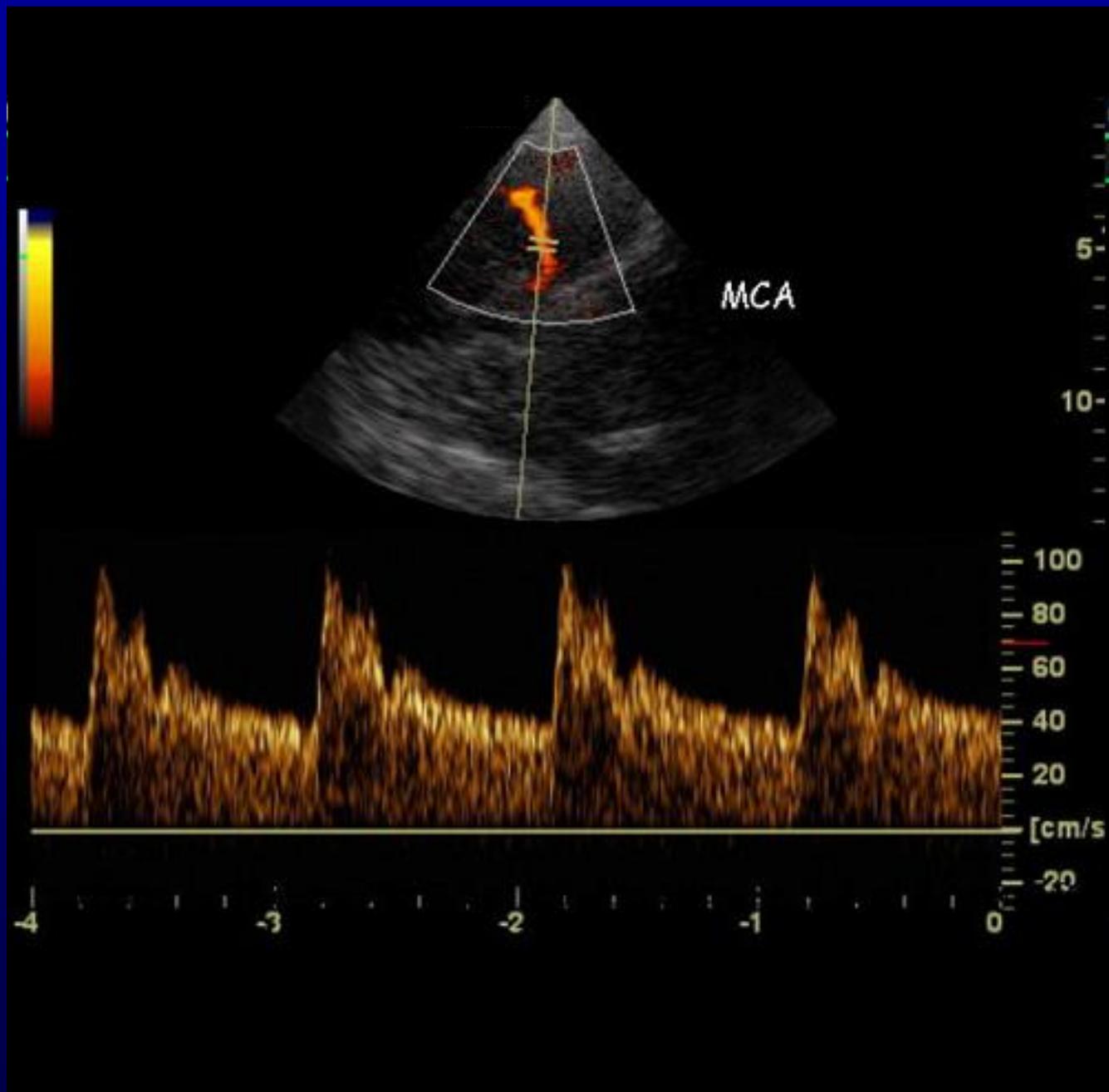
DOPPLER	PI	
VMAX1	1.34M/S	PI1
VMIN1	0.70M/S	
VMFAN	0.97M/S	

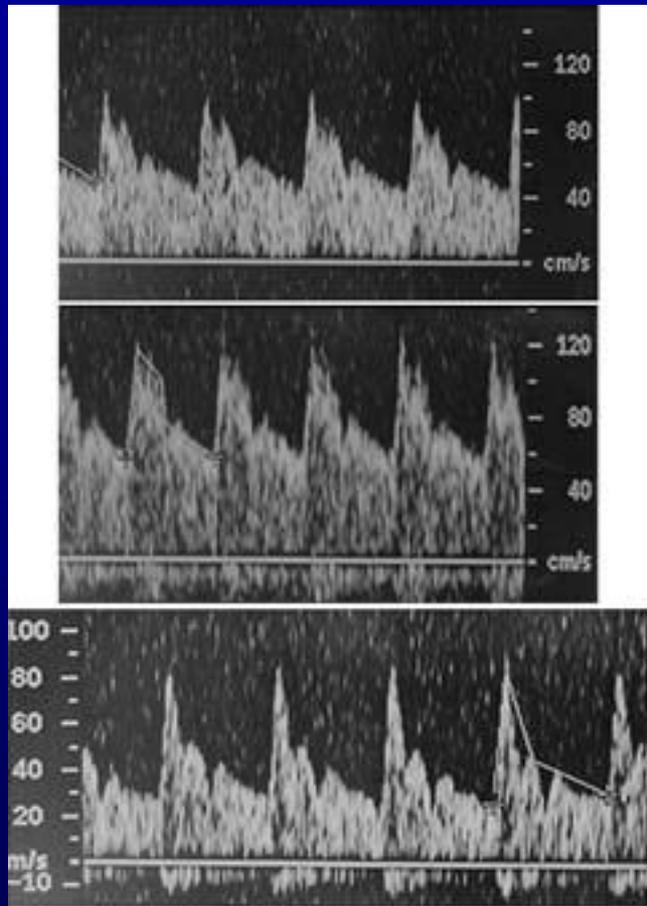
D.86

43° 5
70
4.0K
4.5K
M/3
485/M
H/3
4/1/1
55/36
12.0CM

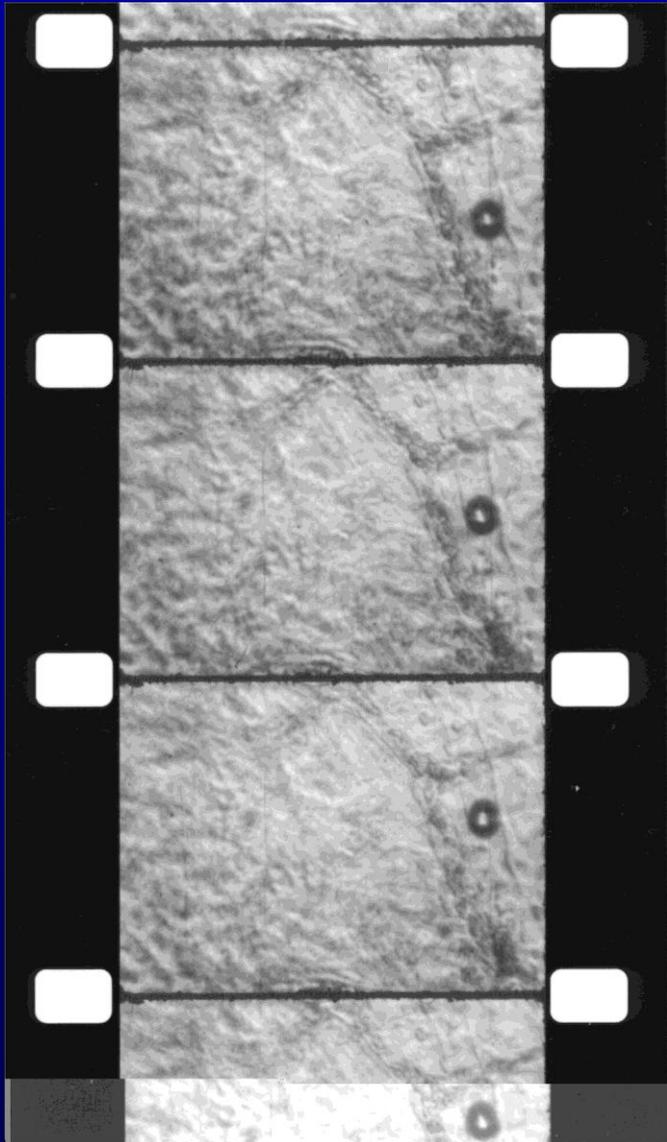




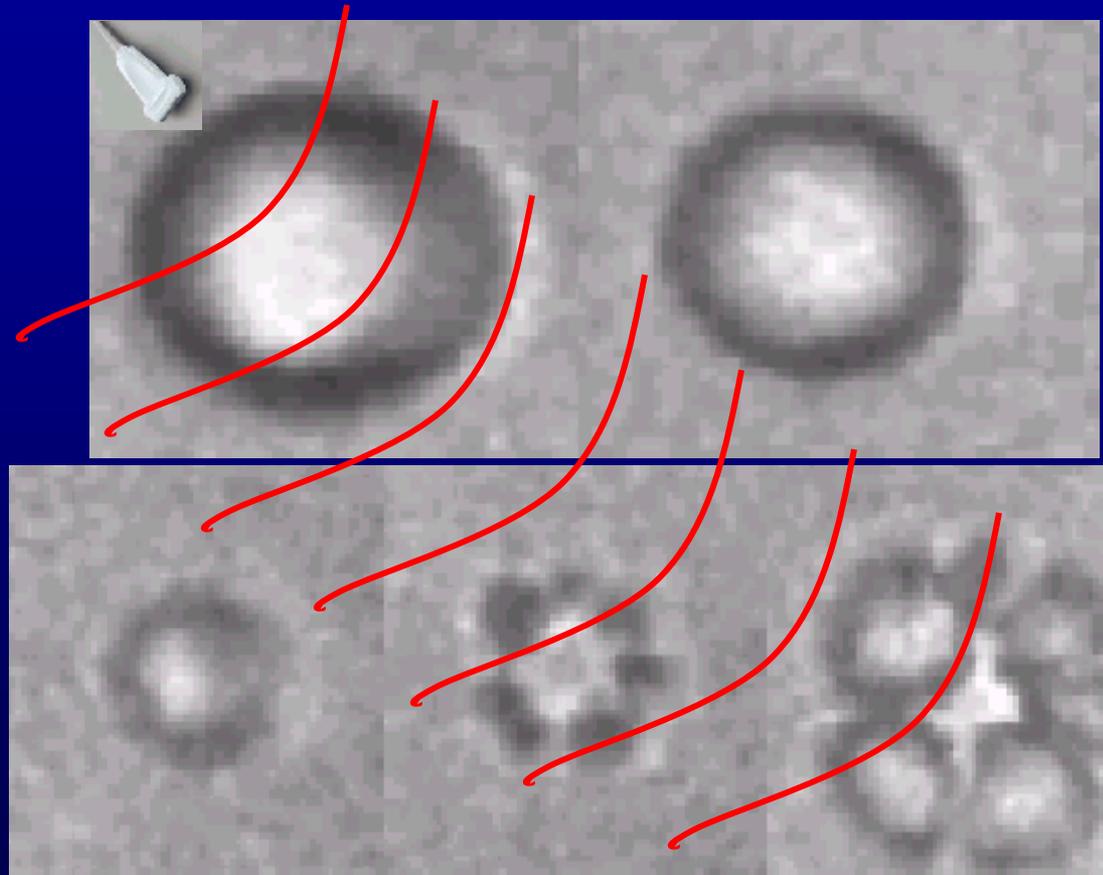




Eco-Contrasti



Le bolle nei capillari



La rottura delle bolle

