

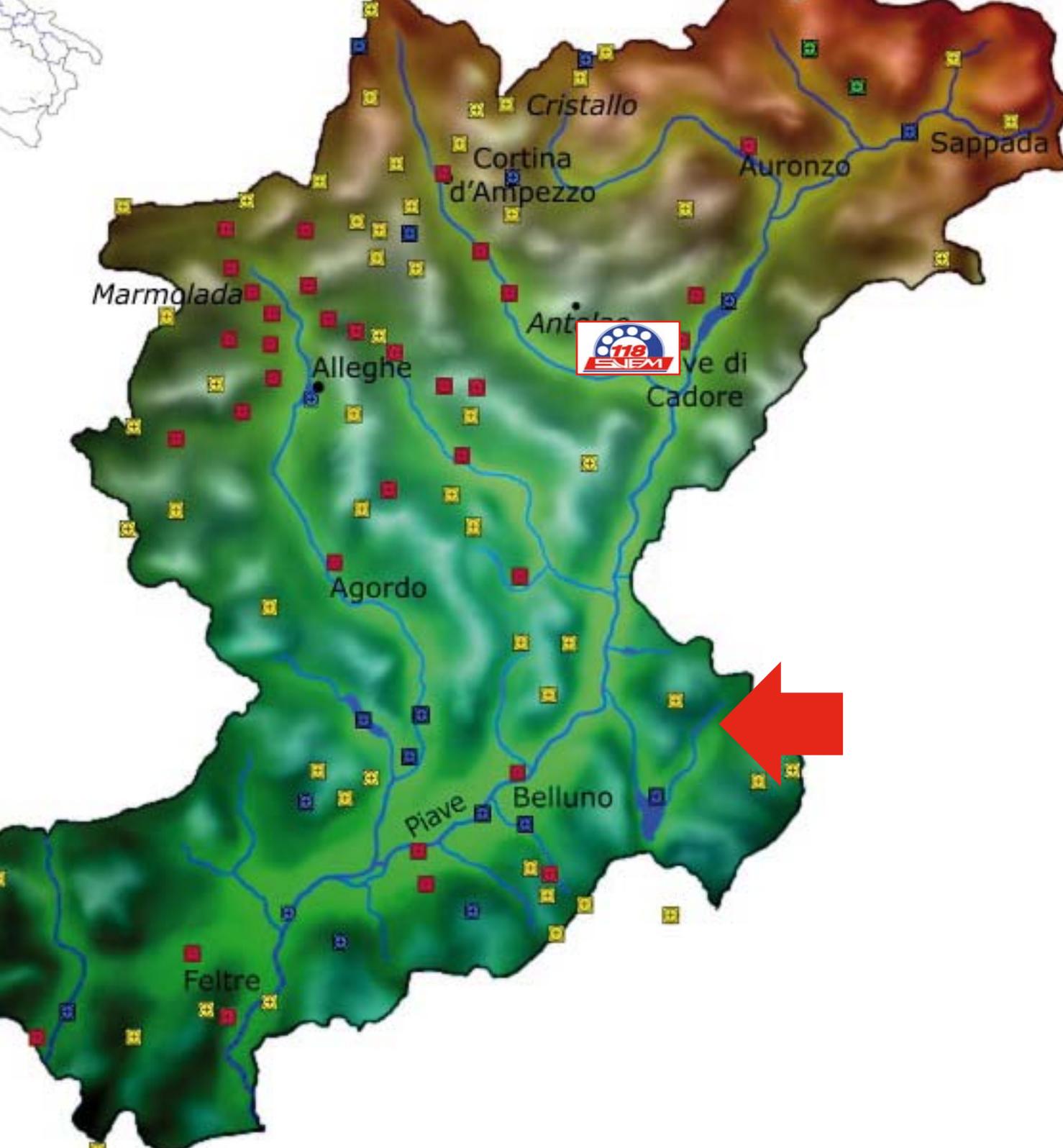


SUEM 118 della provincia di Belluno



***Survival after 2 and a half hours under avalanche***

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**230.000 inhabitants**

**3600 square kilometers  
area**

**About 70% of  
mountains are  
Veneto region**

or an avalanche that has buried two skiers in Alpage zone.

Emergency management software interface showing a list of incidents and a detailed patient form.

Località - Comune	Indirizzo	Evento	Mezzo	Fase	Icone
COMUNO D'AMPEZZO	IL CODIVILLA	01000515	FALCO	D1 09:31	Helicopter icon
ARONE	CASA DI RIPOSO	01000516			
BELLUNO		01000518	BRAVO6	CA 10:19	Ambulance icon

Form fields and options:

- Base Traumatico Non traumatico G.Medica Sintesi
- Pazienti: Età ANNI Sesso M F
- Circolo:  Pallore e/o sudorazione algida  Cianosi  Emorragia  Ritmo alterato
- Vede paziente:  SI  NO
- Vede accaduto:  SI  NO
- Respira:  SI  NO  NON SO  MALE
- Cosciente:  SI  NO  NON SO  CONFUSO
- Giudizio di sintesi: Luogo Patologia Criticità

Bottom status bar: BELLUNO CAMAROTTO 04/12/2001 10:39



# The avalanche zone



Monte Forcella

F.lla Palantina Ba

F.lla Palantina Alta

Helicopter takes-off  
from HEMS base  
in 10 min.: helicopter  
arrival in operative area



mechanic and rescue dog get off



# traumatic injuries



# transport of others rescue alpine teams with helicopters



# Work of rescue teams continues using different techniques (ARVA, RECCO, drilling)



CPR

presence of air pocket, gasping, bradycardia, T° 21 C°)



# Plastic Surgery Dpt. of Treviso Hospital.



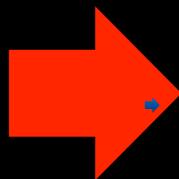
5 helicopters of different Agencies  
50 volunteers of Alpine rescue  
3 emergency physicians  
3 rescue dogs



7-2-2010

Asystole - CPR on going

h 15.40



Ph: 6.85, PaCO<sub>2</sub> 61, PaO<sub>2</sub> 61, HCO<sub>3</sub> 7,7 BE – 24,7 Latt 13  
K<sup>+</sup> 5,0 meq/l Hb 13, Glic 508



h 16.00

Femoral arterious venous ECMO (extracorporeal membrane oxygenation). Rewarming rate of 1 degree for hour

At 32 celsious degree, after 10 hour from starting ecmo

DAY 1

After performing a TEE the ECMO was successfully weaning with moderate dose of dopamine.

h 11.30

GCS: E1VtM1

The EEG showed a non convulsive status epilepticus

An intravenous sedation with midazolam and propofol was started  
The patient was also subjected to an anti edema treatment with mannitol.

The patient was submitted to:

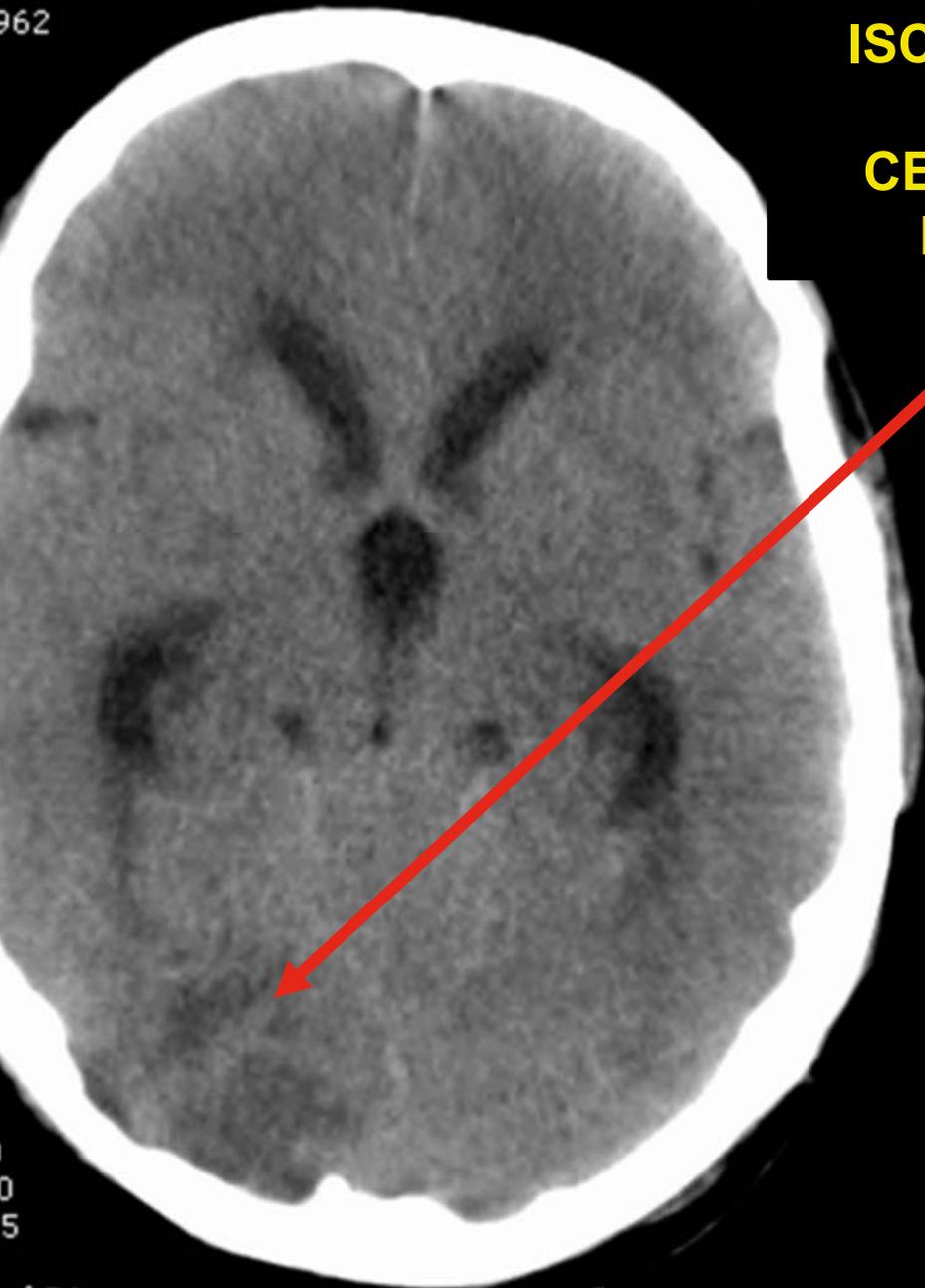
Total CT scan

Brain: posterior cerebral fossa ischemia + brain edema

Thorax: sternum fracture

Abdominal: minimal liver and kidney shedding.

**ISCHEMIA IN  
POST.  
CEREBRAL  
FOSSA**

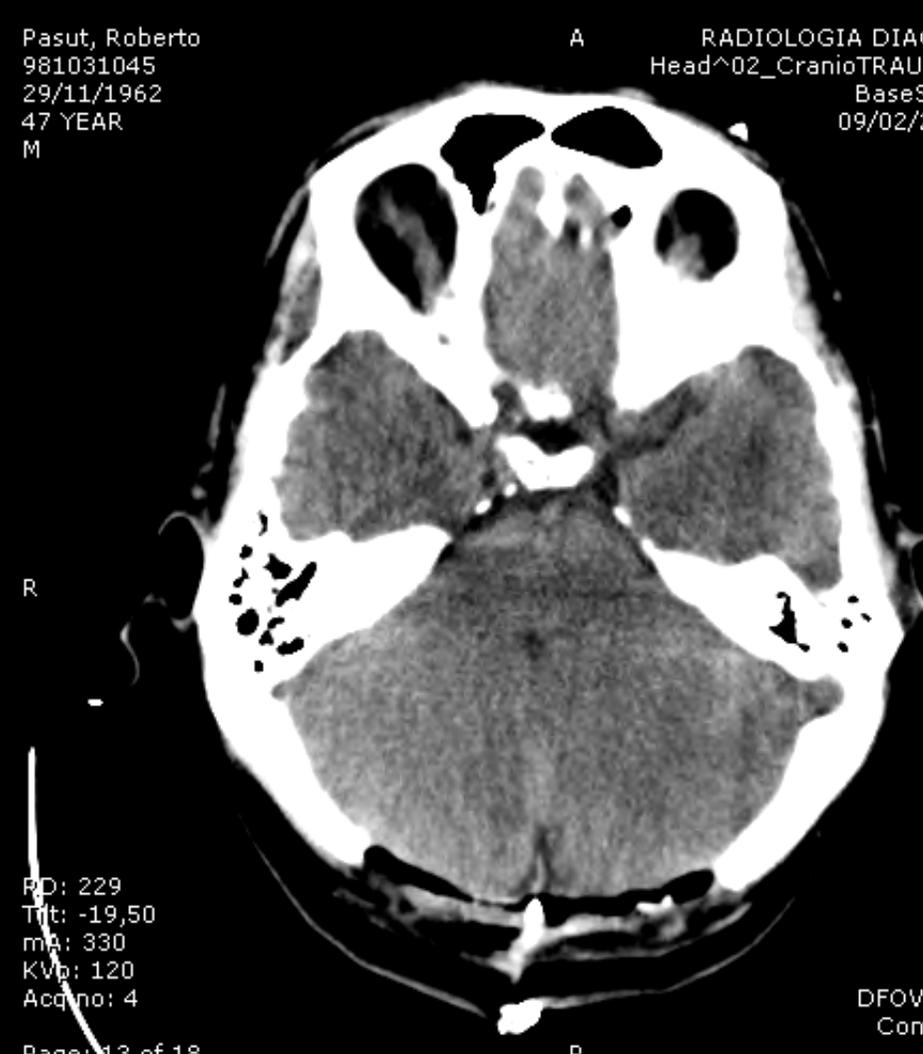


RD: 213  
Tilt: -20  
mA: 330  
KVp: 120  
Acq no: 4



2 EVD was performed also to have a ICP monitoring  
00

h 22.00 Decompressive craniotomy w  
left hemispheric cerebellum  
removal because of necrosis.



Day 8  
h 10.00

Good vital signs - GCS: E1VtM1

Neurophysiological evaluation to explore the Central Nervous System Function

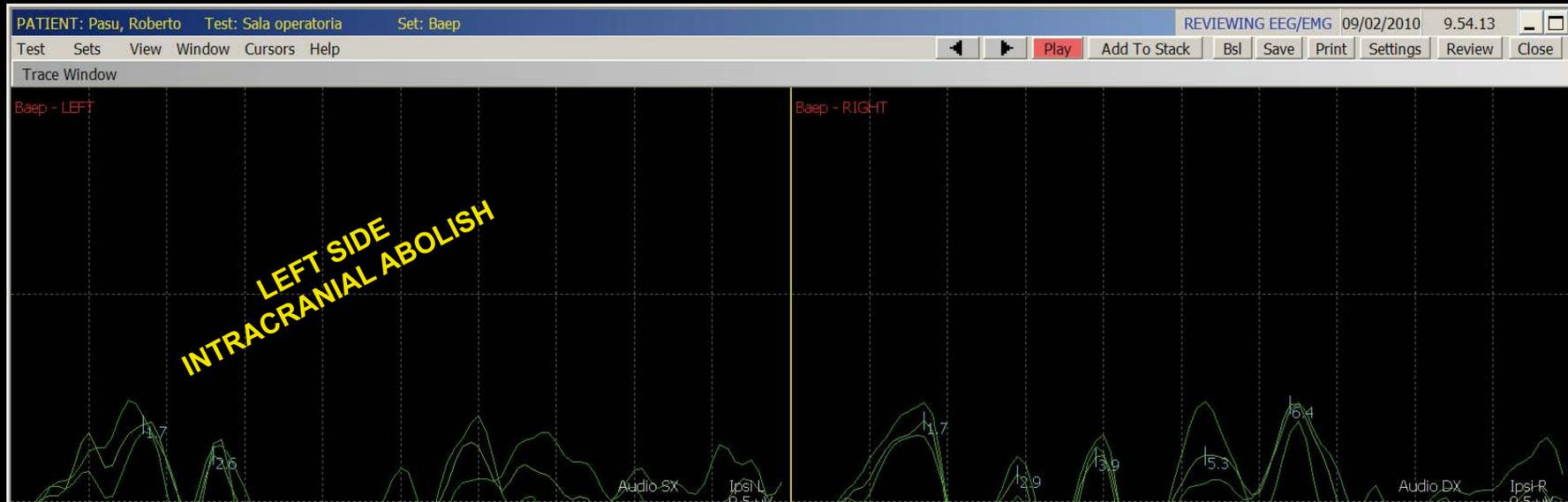
### EEG

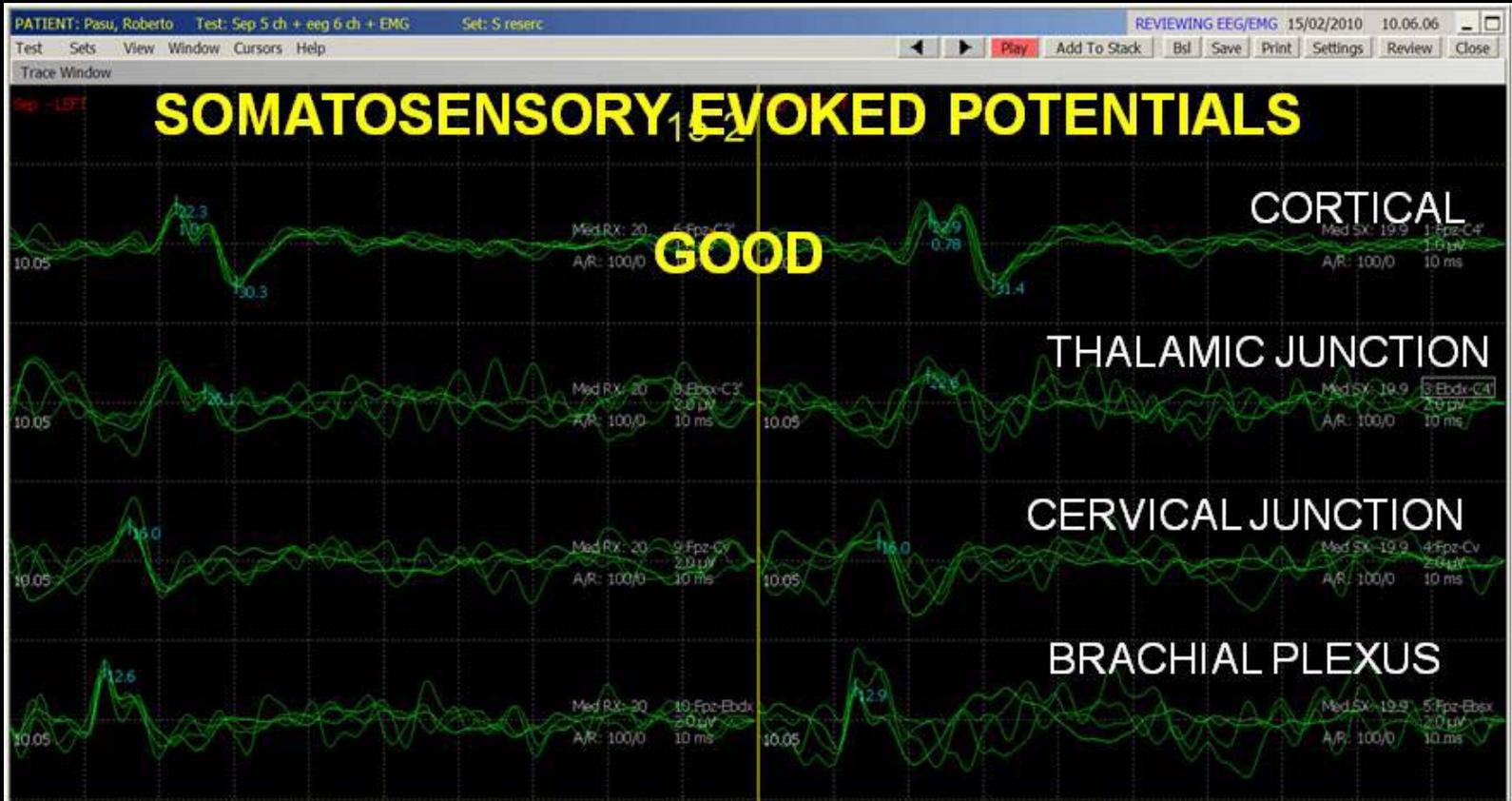


### MOTOR EVOKE POTENTIALS

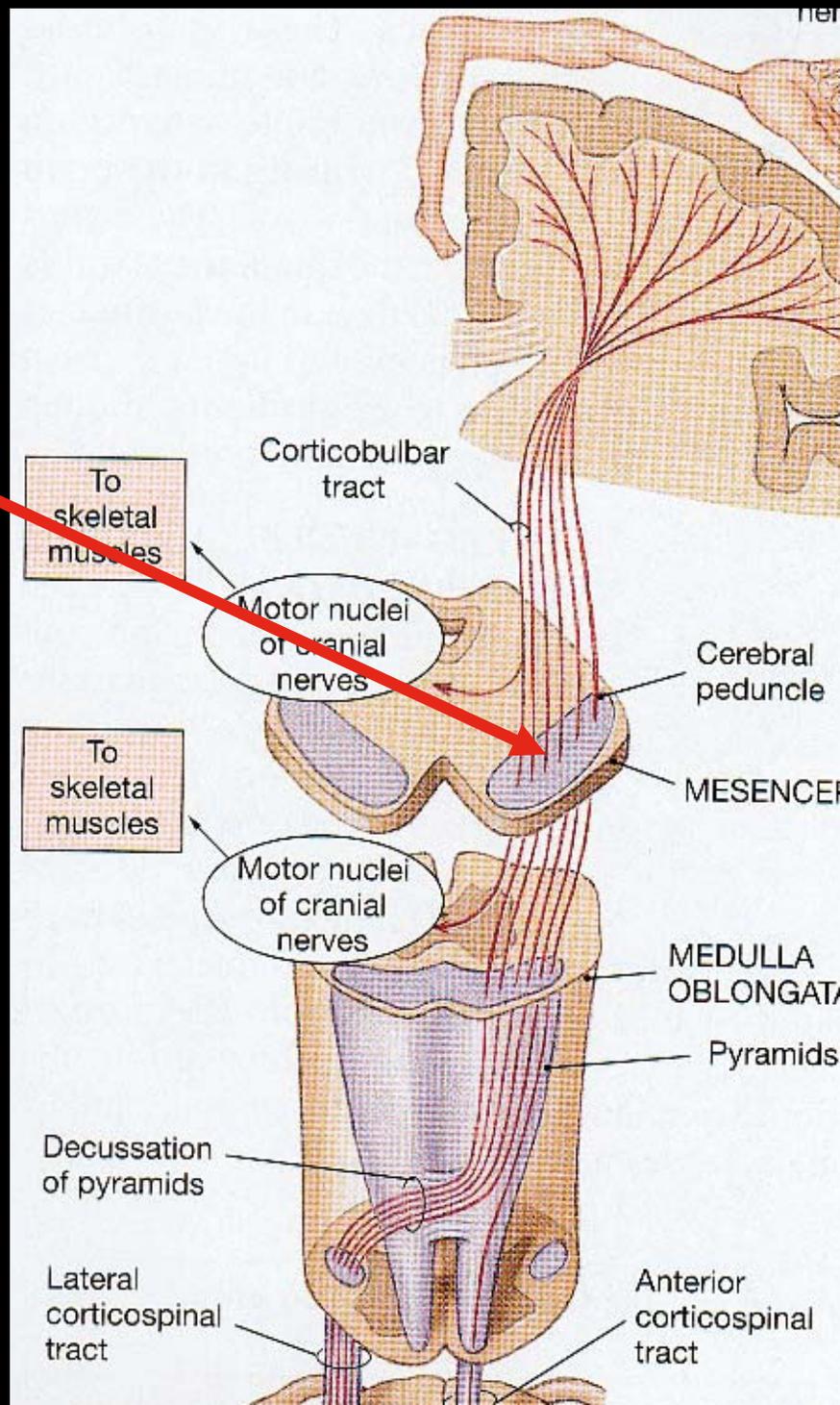
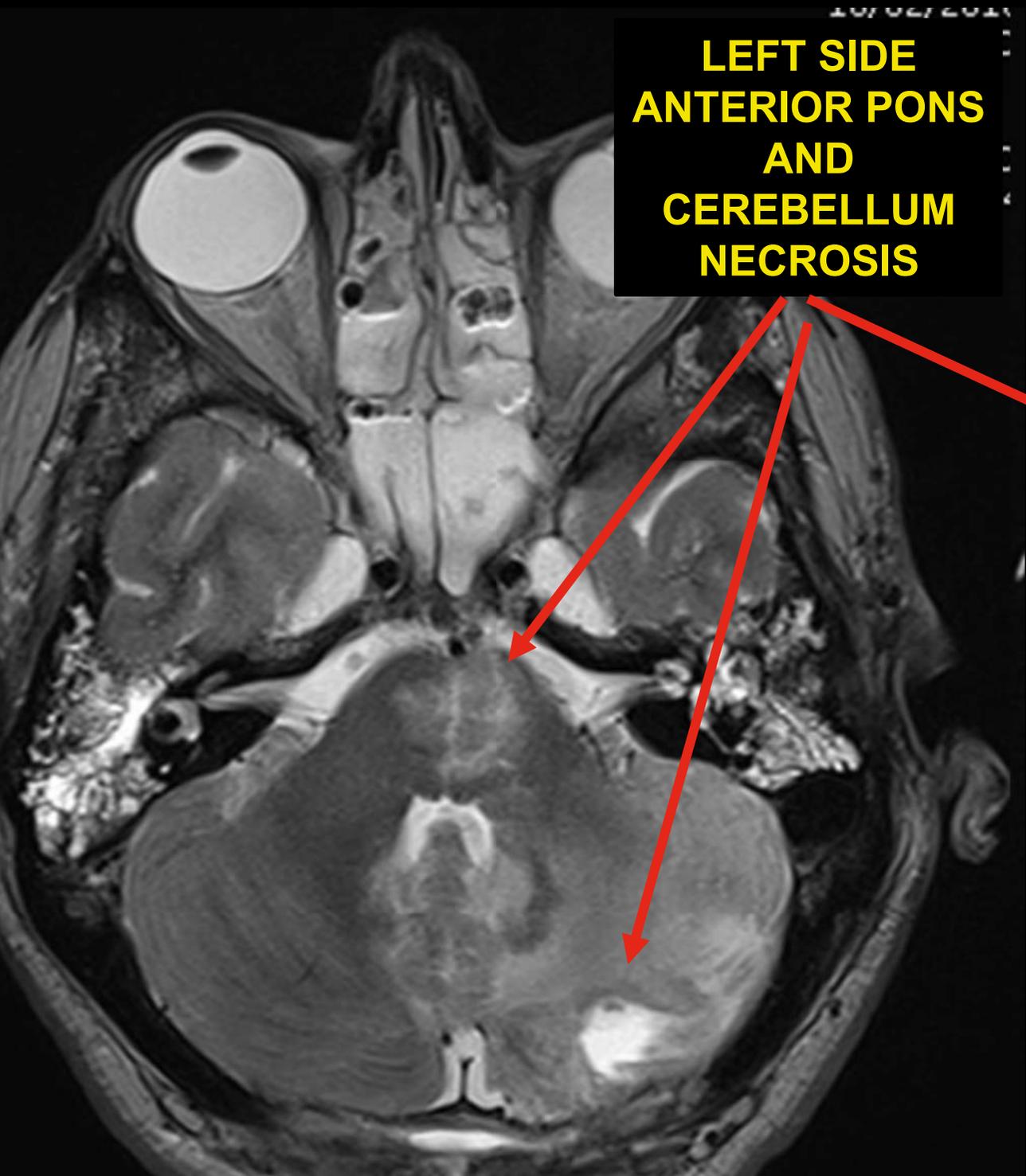


### BRAIN ACOUSTIC EVOKED POTENTIALS





**LEFT SIDE  
ANTERIOR PONS  
AND  
CEREBELLUM  
NECROSIS**



DAY 31 Surgical closure of a dural fistula

DAY 40 Hospital discharge to a Physical Rehabilitation Hospital

GCS: E4 Vt M3,

Pupils light reactivity.

At painfull stimulation upper arm flexion

EEG: NCSE, trated increasing the dosage of depakin.

MONTH 4

Patient regains consciousness, moves the left arm and leg, with paraparesis of the right side. He also has a deficit of short term memory.

MAY, 2011

Now he is conscious, he breaths normally with tracheotomy, he has good motor function on the left side while an hemiparesis on the right side. He speaks fluently, He has an excellent long term memory and a good capacity of controlling the sphincters. He is not

Lower Temperature reached: 19.5°C

Duration Time: 2.5 h

pH = 7.35  
pCO<sub>2</sub> = 5 mEq/l

Long rewarming ECMO (17 hours)

Anterior brain ischemia agrees with the body position in the avalanche with head lower than the body and the neck flexed on the left side (increase of ischemic perfusion injury during rewarming)

Neuro intensive care treatment with external ventricular derivation and intracranial pressure monitoring.

Early Neurophysiological data agrees with the neurological recovery of consciousness and left side motor function.

Difficulty to treat NCSE due to brain stem reticular formation ischemia who is responsible of the late recovery of consciousness.

*saw the avalanche coming, I run off, the avalanche reached  
me and run me over, I was immobilized, I was'nt able to  
move my hands. I thought: my life is gone, ...*

*With my tongue I opened an air pocked in front on my mouth,  
I thought to my self ..., "you must remain awake".*

*I heard the sound of the helicopter, I felled the rescue drill on  
my chest, I heard the dog barking and the shouts of the  
rescuers saying ... " we have found him !!" ...*

*than someone has open my mouth ..... I sow the helicopter  
..... and I didn't remember nothing else.*