ECOG Based Epilepsy Surgery
Our experience

B Pant

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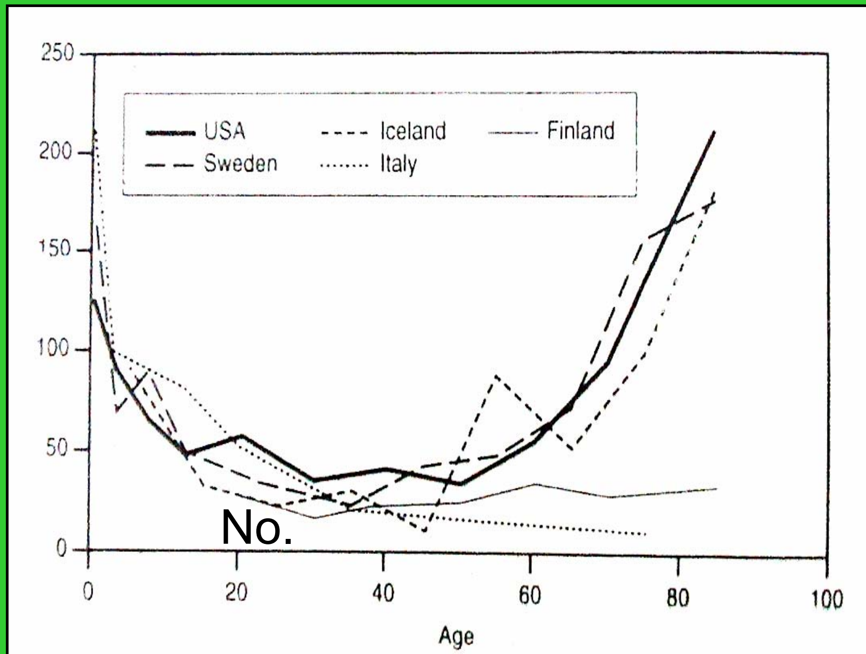
7th AINC

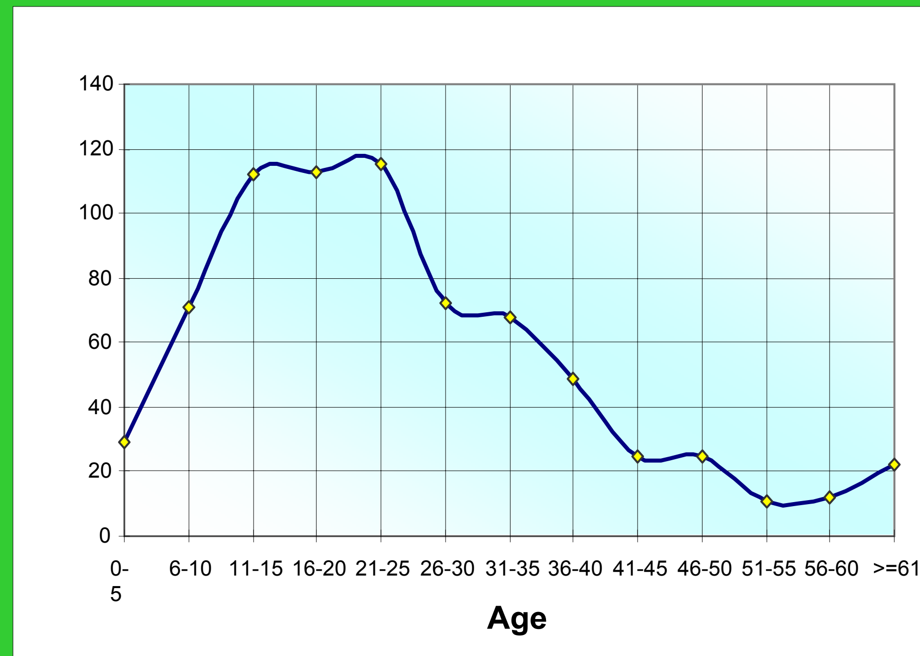
Incidence of Epilepsy in Western Countries



Allen et al, 1997

Age distribution of seizure in KMH

Sample Size-724, Jan 00 – Dec 04



Pant et al 05

Investigation

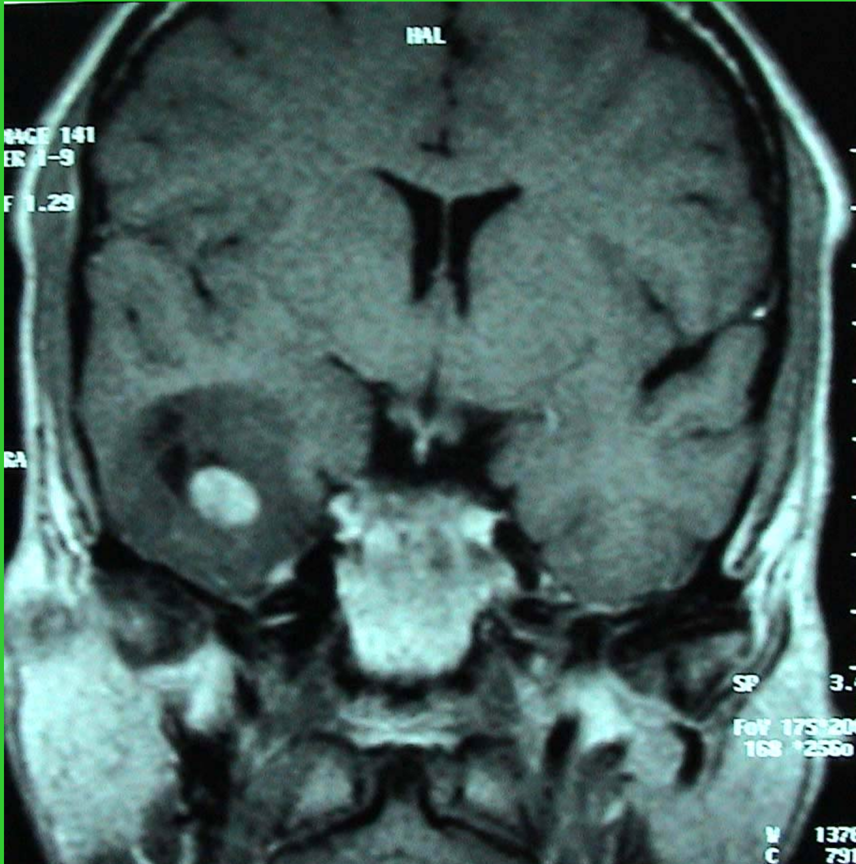
Done:

- MRI T2, FLAIR
- Scalp EEG
- video telemetry
- Wada's test
- Invasive EEG
- Intraoperative EEG
- Cortical mapping: awake anesthesia

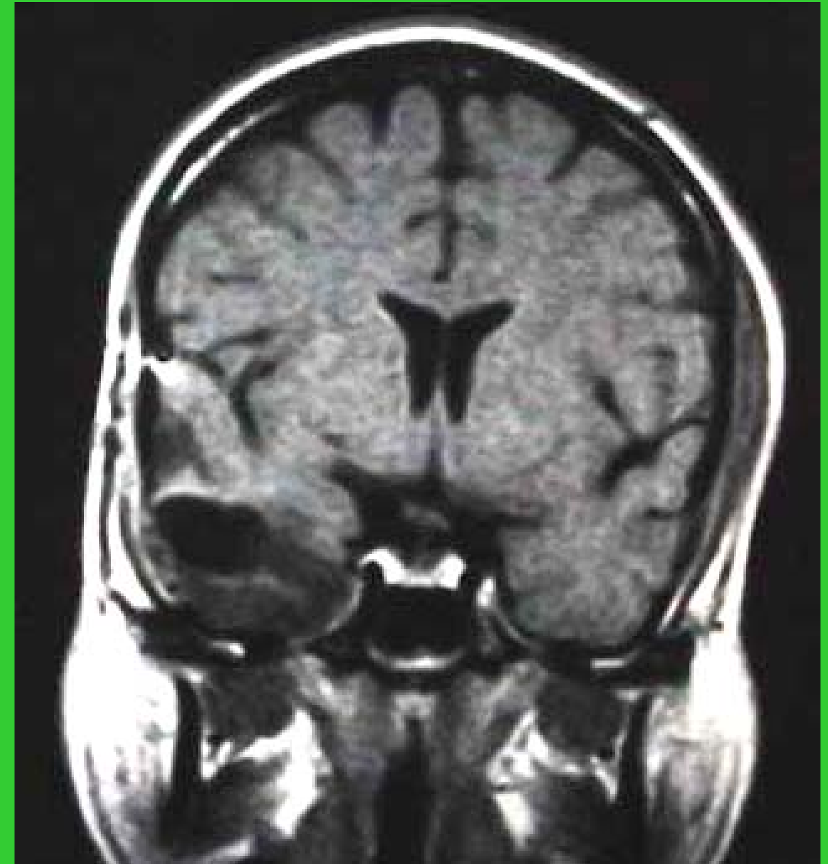
Not done:

- Magnetic encephalography (MEG)
- Functional MRI (fMRI)
- SPECT, PET

Ganglioglioma

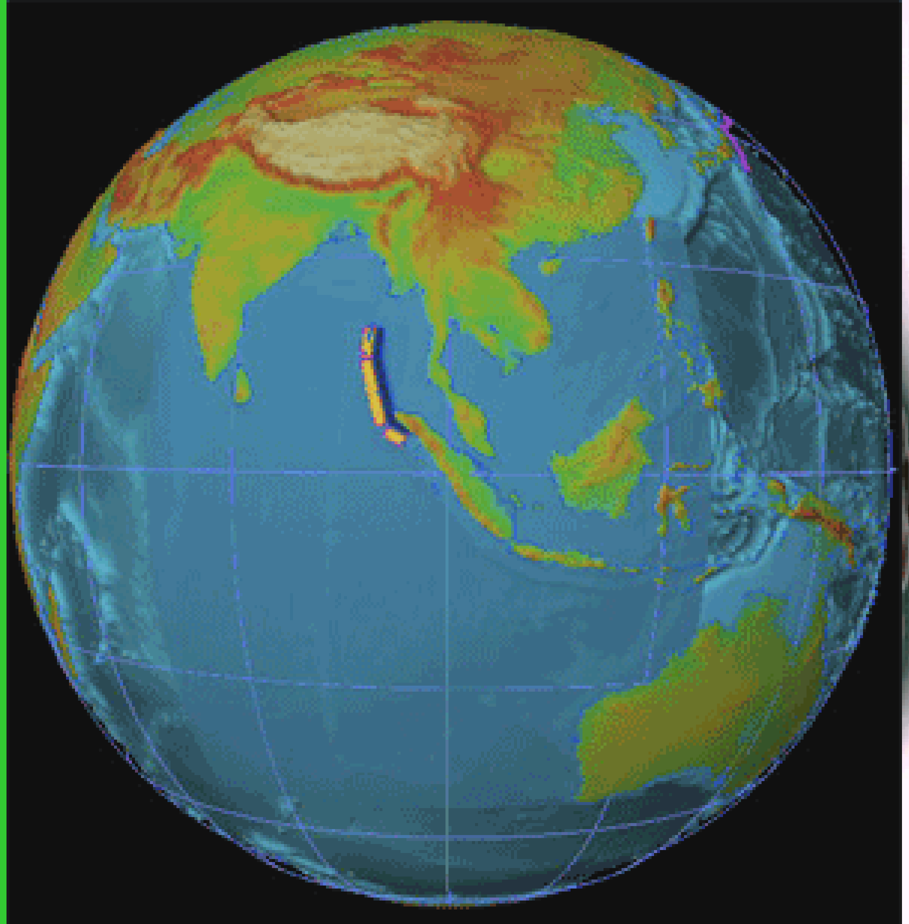


Intractable CPS



Post Op persistent seizure

Ictal onset zone
epicenter of tsunami



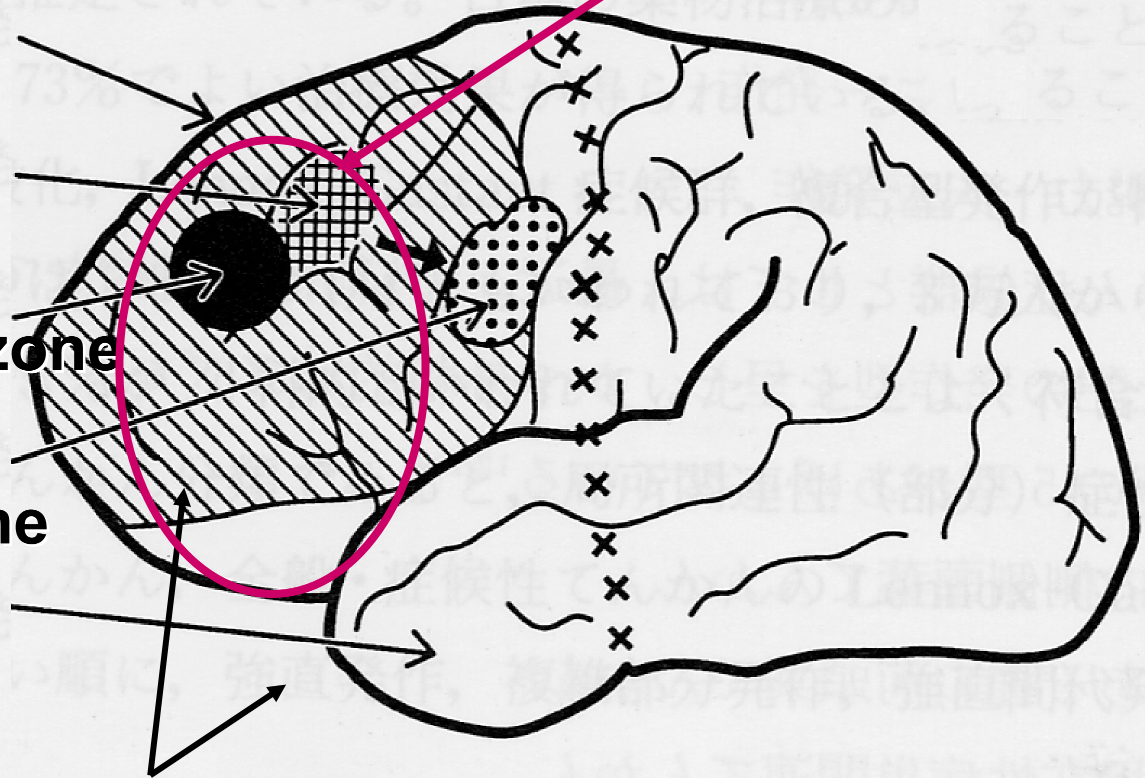
EEG abnormal zone
(interictal epileptic zone)

Ictal onset zone
on EEG

Lesion (MRI, CT)

Symptomatogenic zone

Functional deficit zone



Where is epileptogenic zone ?

Dysfunctioning area
(SPECT, PET)

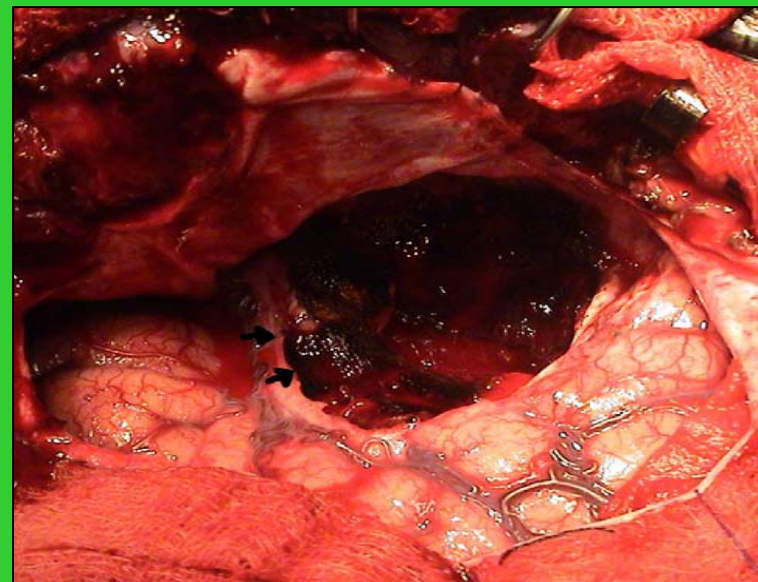
March 02   Rt ATL

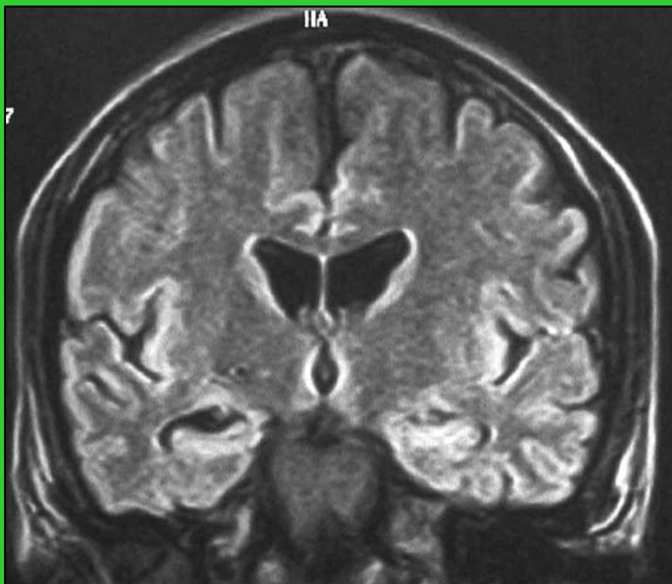
KT 26M

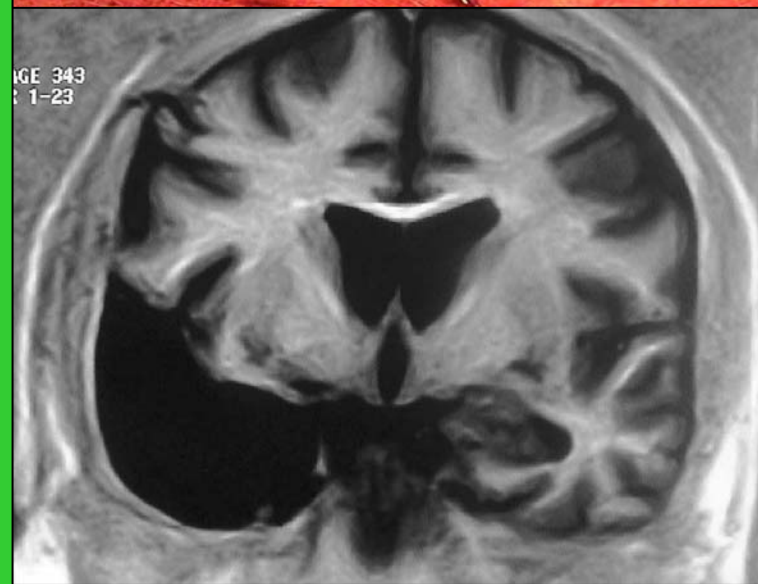
- 13yr Hx of CPS 3-4/wk
- Socially incapacitating
- CBZ 1,200 mg/D
  SV 1,000 mg/D

Classical ATL

KT 26M





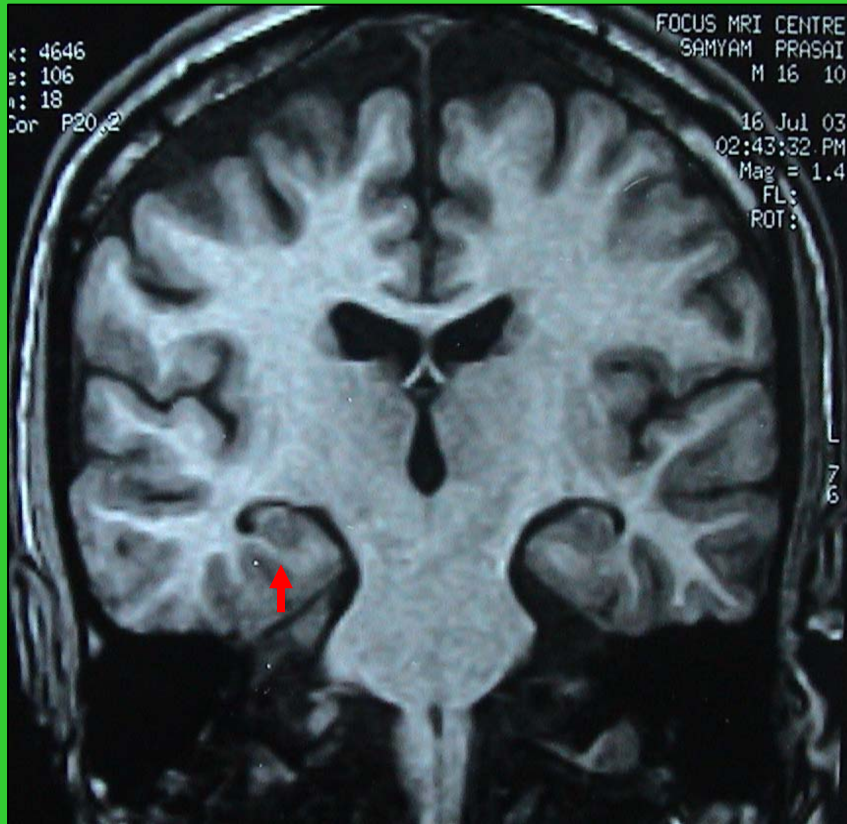


SP 16M

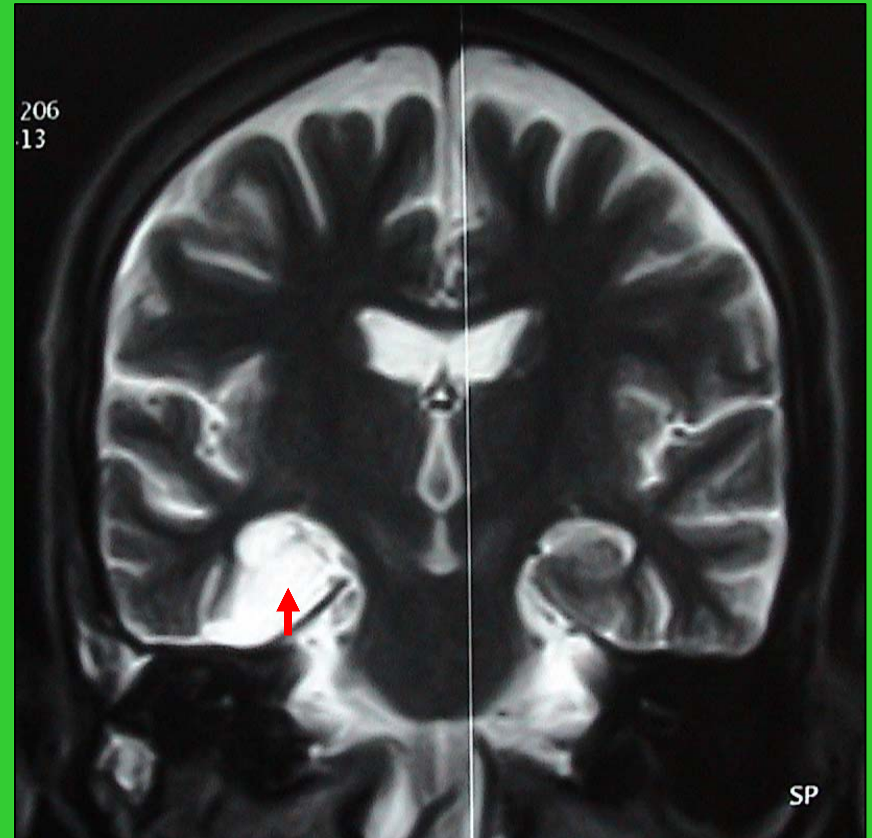
- 11yr Hx of CPS in cluster every 3 months lasting 2-3 days
- SV 1,750mg/D
Phenobarb 120mg/D
Phenytoin 400mg/D
Clobazam 20mg/D
Lamotrigine 25mg/D
- Jan 04 Rt SAH

Selective Amygdalohippocampectomy

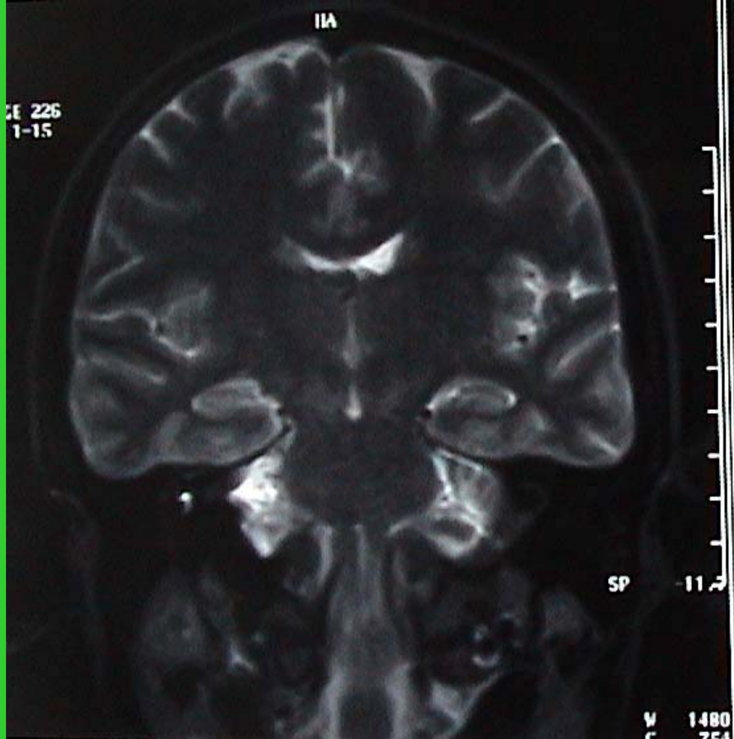
SP 16M

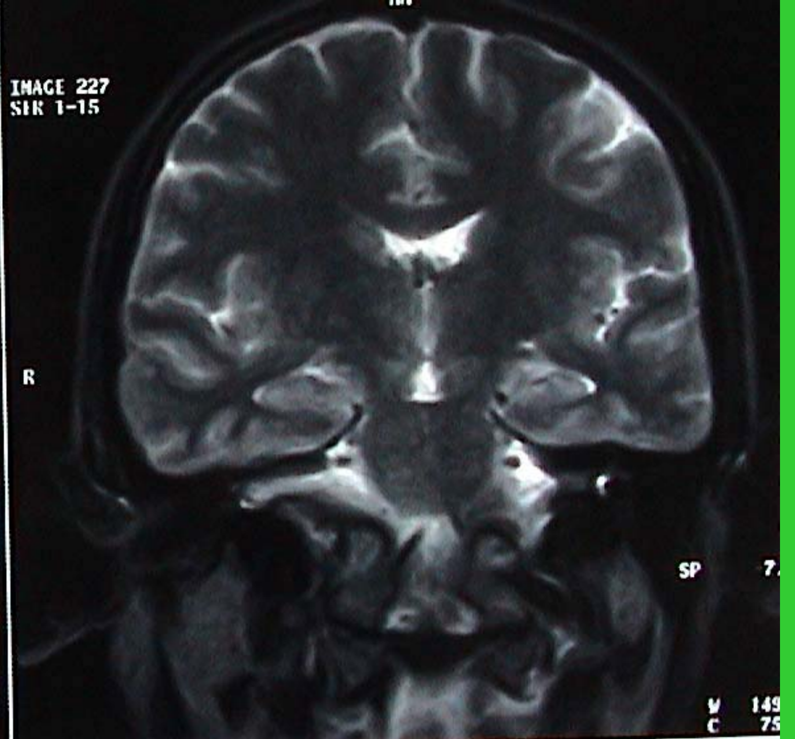


Preop

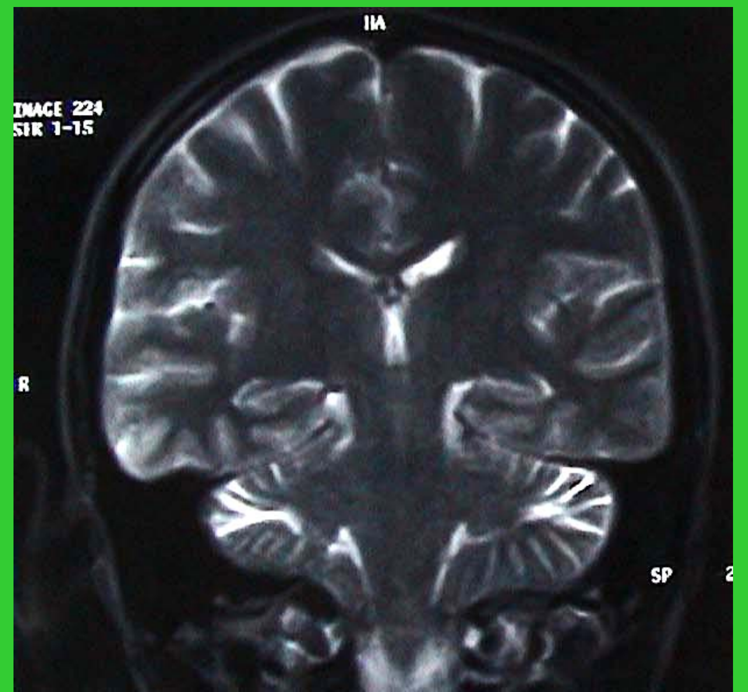


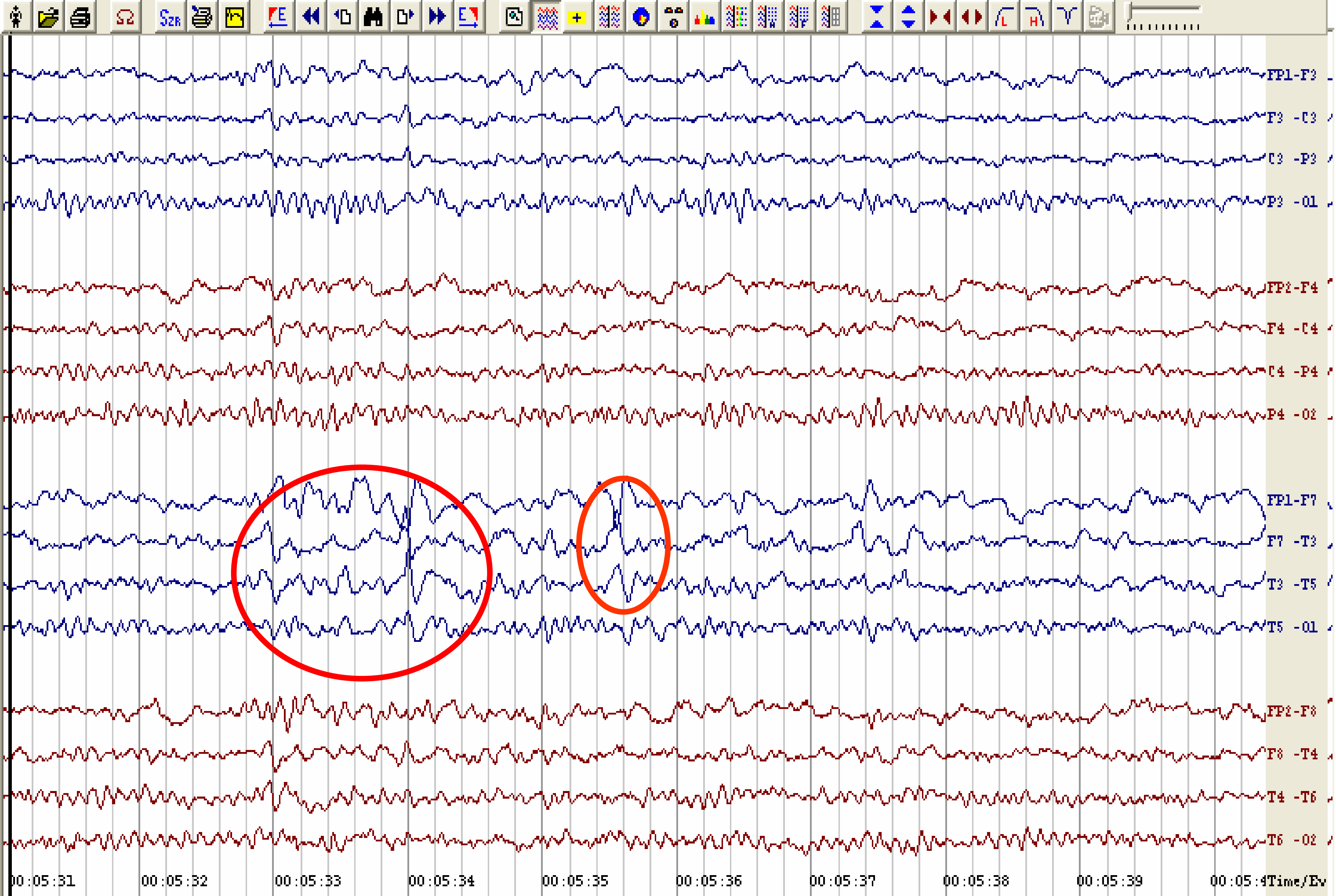
Postop



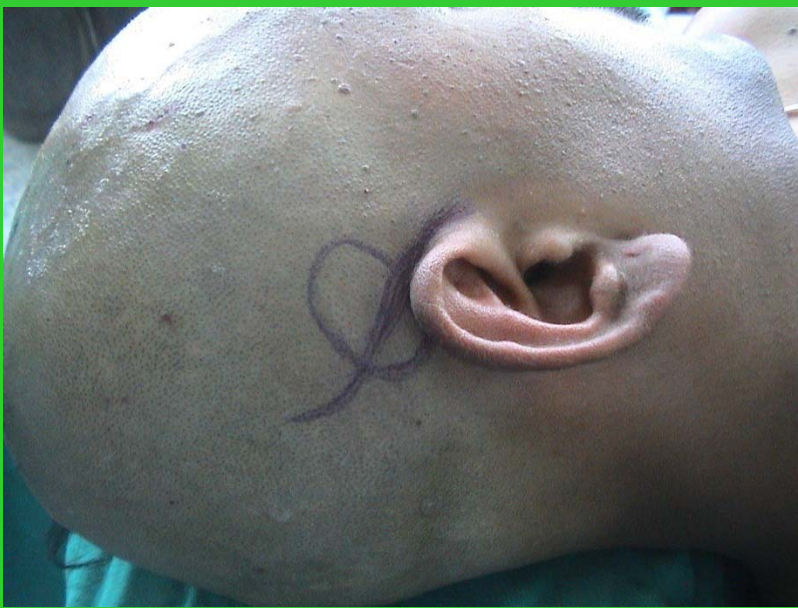


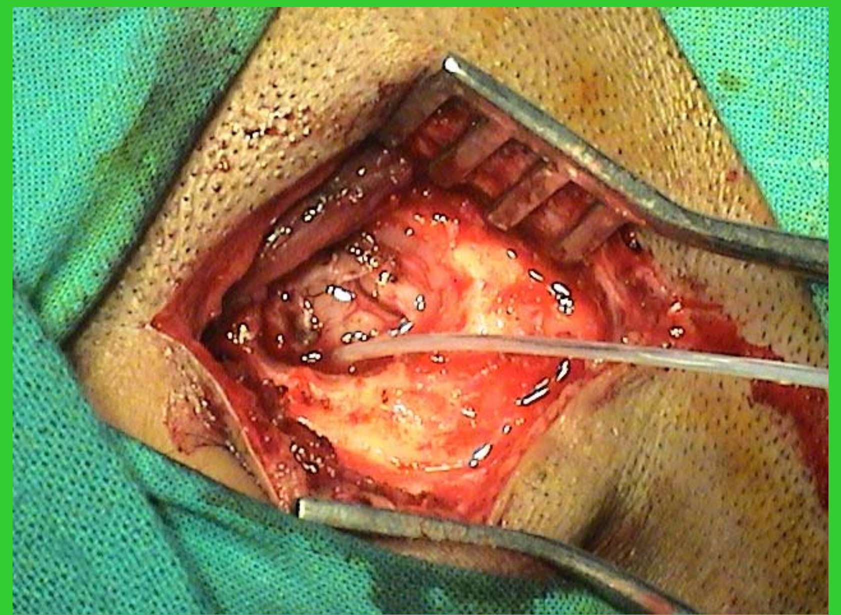
Intractable CPS suggesting of Lt origin
MRI normal
EEG laterlizing to Lt



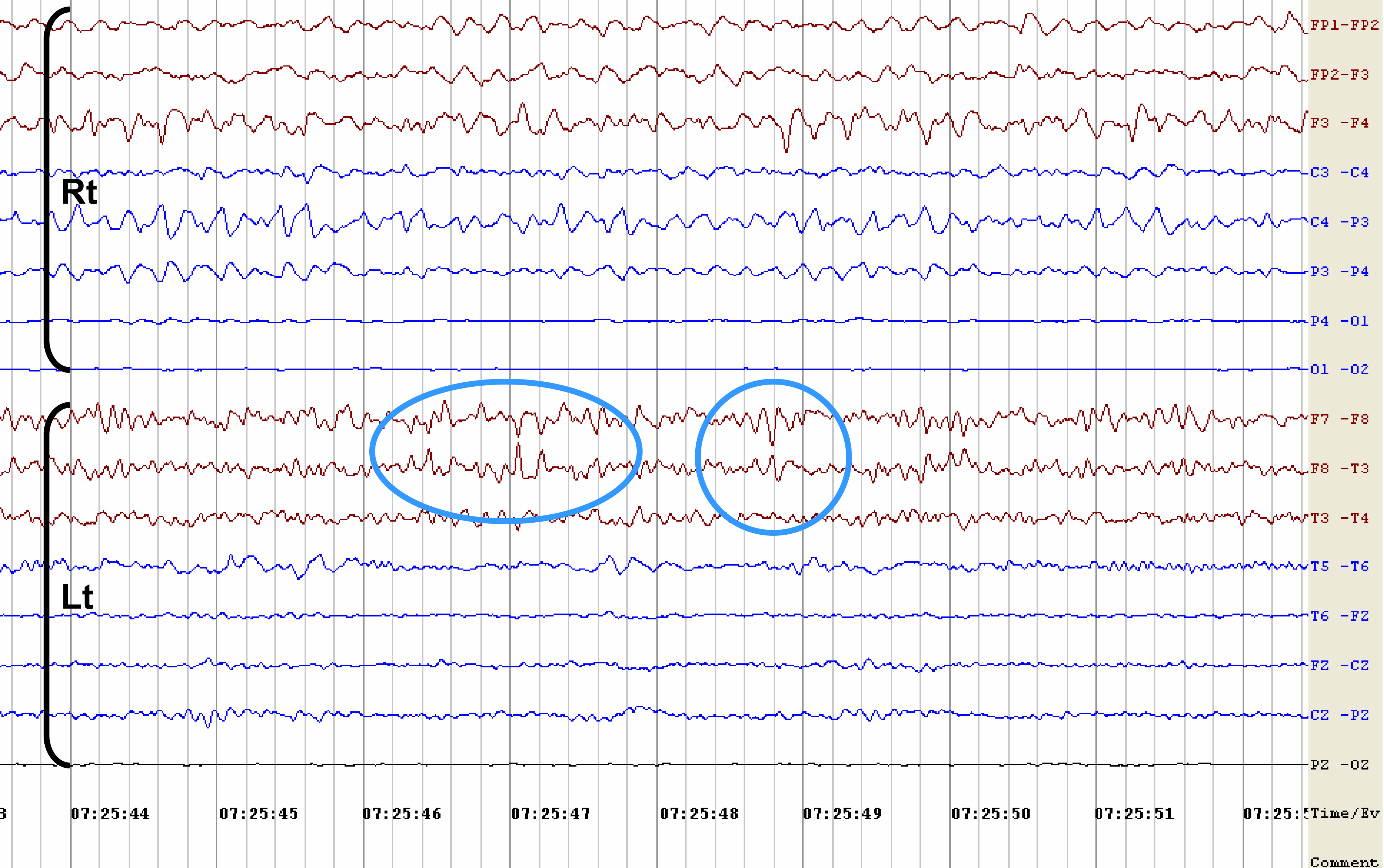


Anand Nepal 32 yrs/M EEG showing abnormal wave at Lt frontal and temporal region

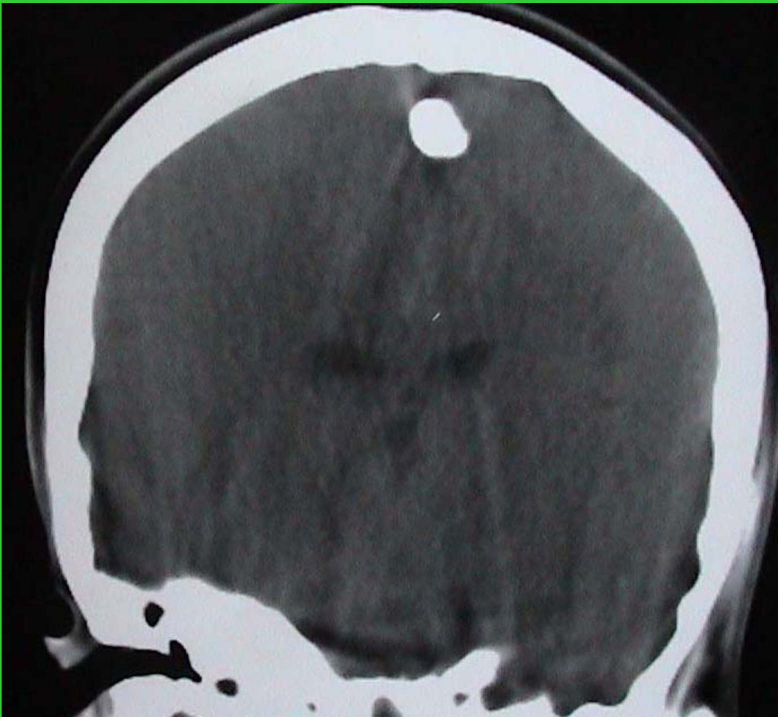




Bilateral overnight subtemporal grid & hippocampal depth electode

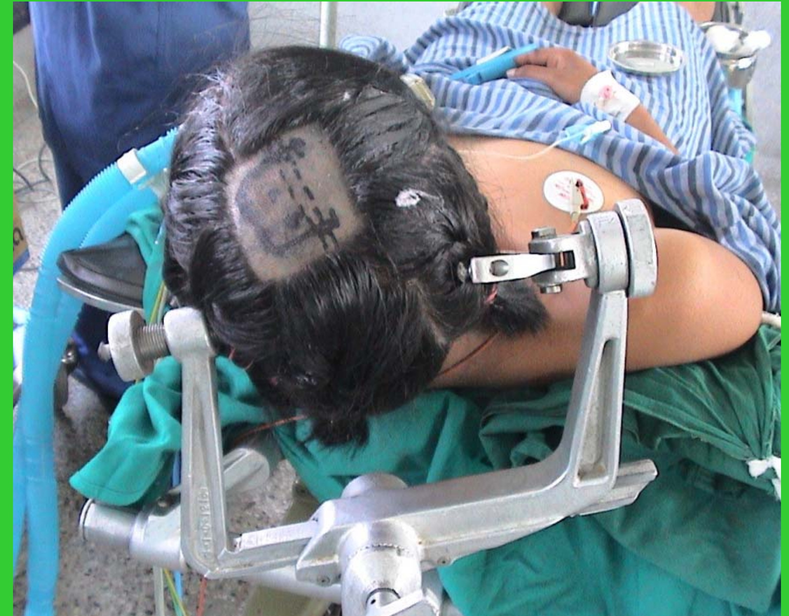


Overnight ECoG

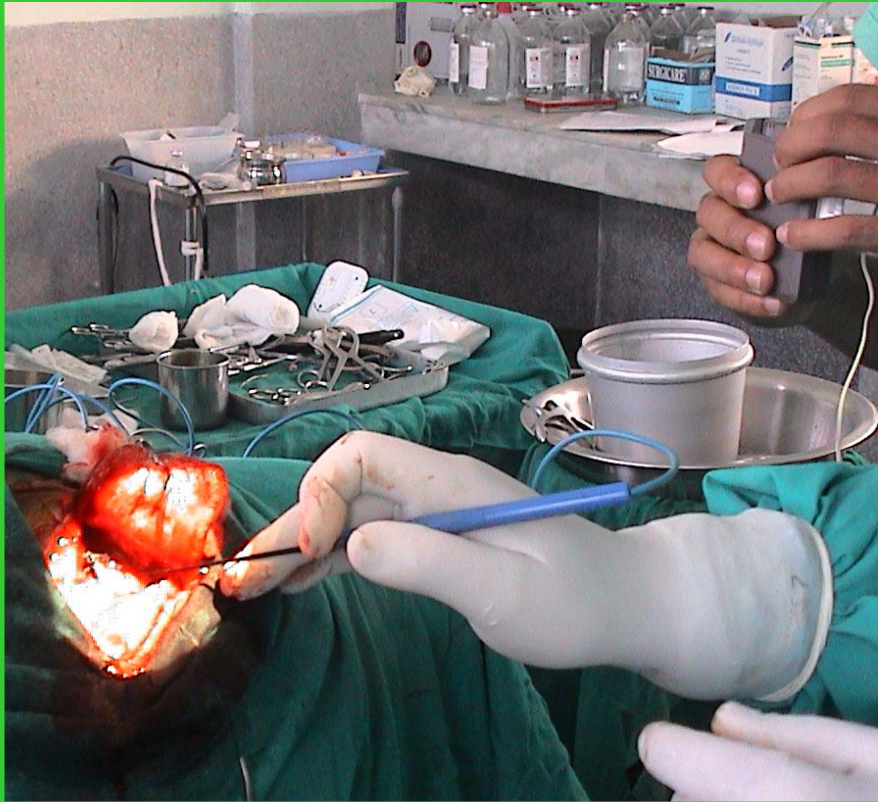


BA 20Y F

Focal seizure confined to leg
> than 5 yrs
Mostly in cluster
Status partialis continua up to 11 days
Failed medical management

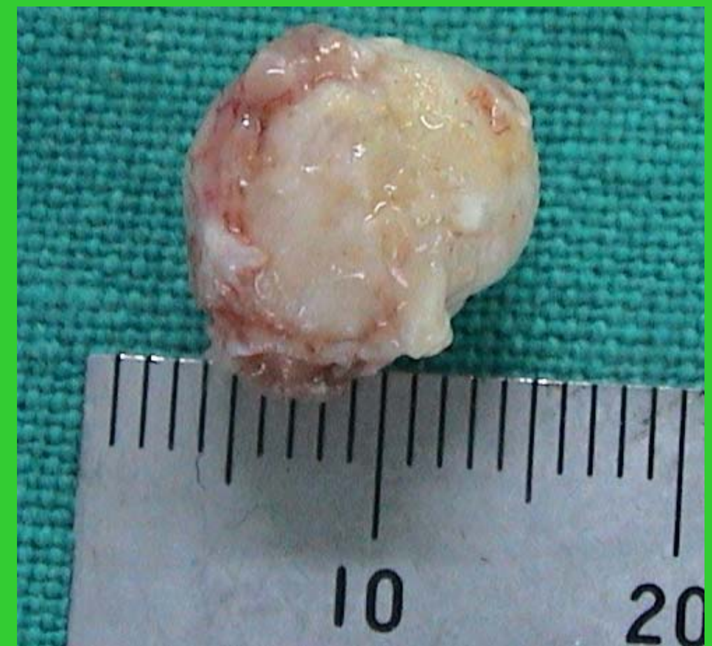


BA 20Y F



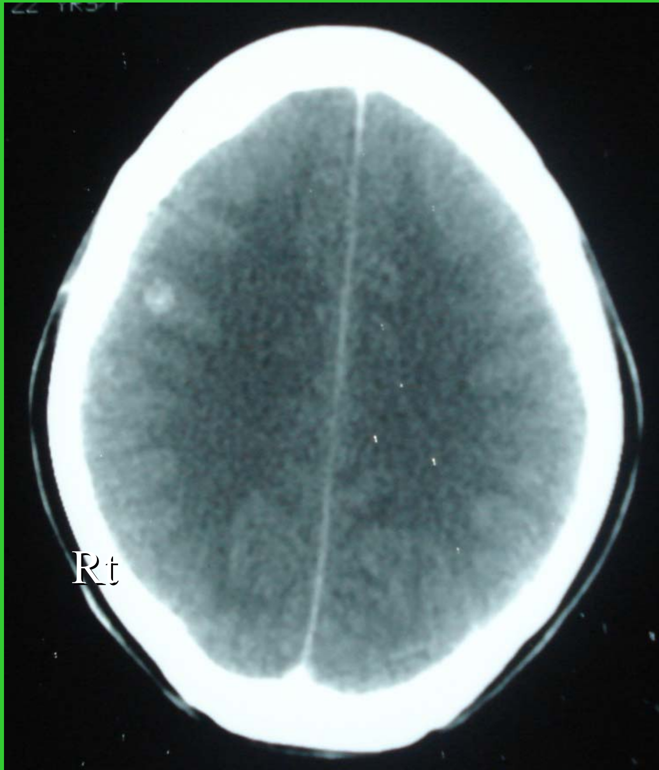
Anasthesia without muscle relaxant
Cortical mapping to identify motor cortex
But no EEG information of the surrounding brain, so it was electrically a blind procedure.

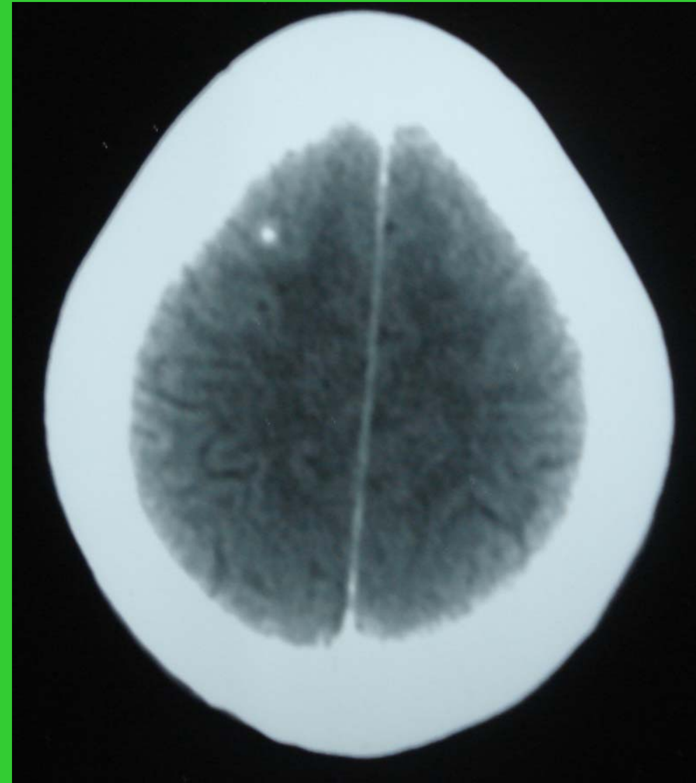
Excision of the lesion with surrounding gliotic brain.
Pt became completely seizure free following surgery

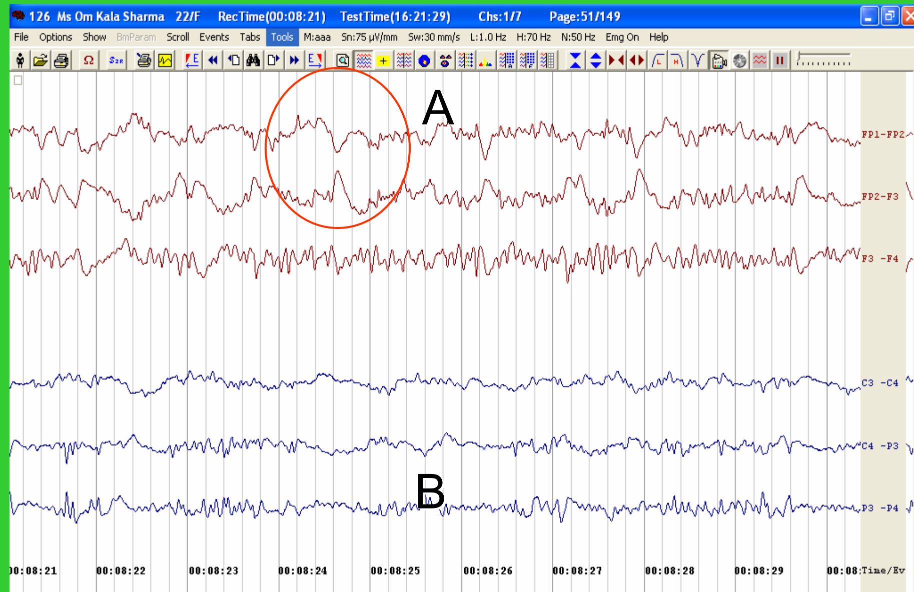


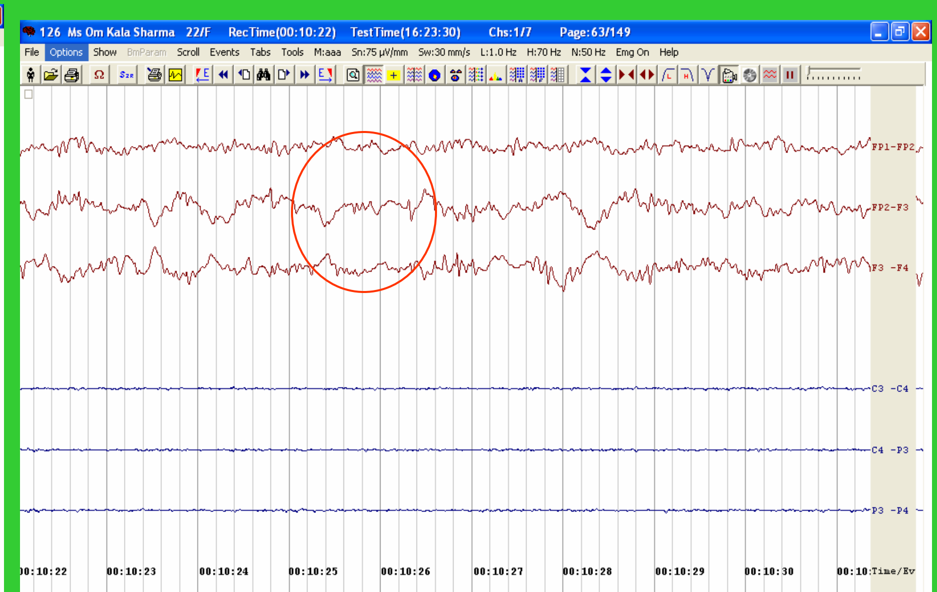
OKS 22Y F

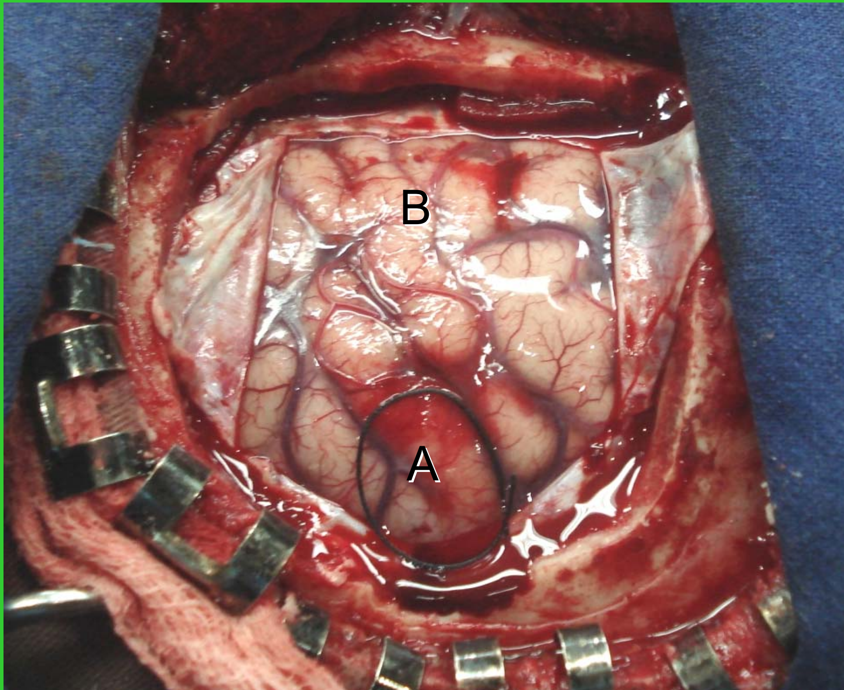
Lt focal seizure
Many times in a day
At one time came in
status partialis continua

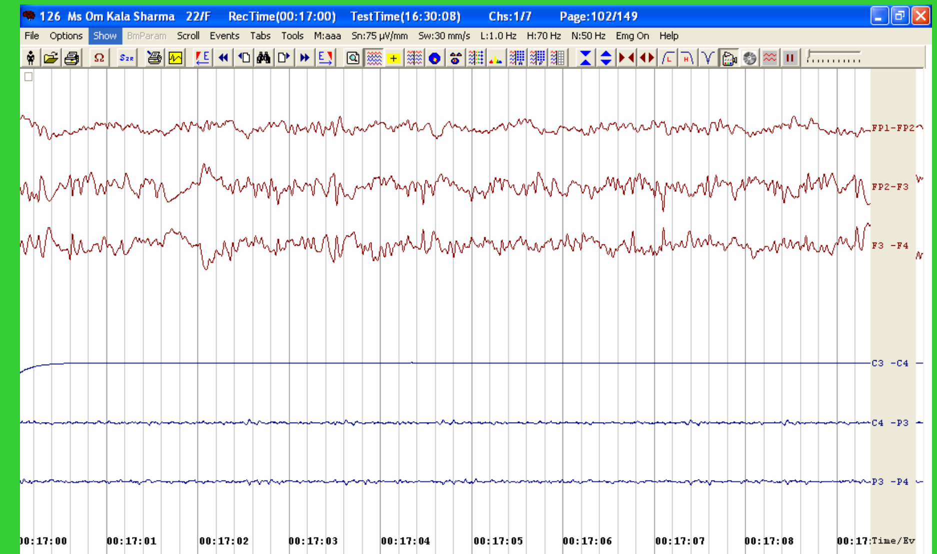




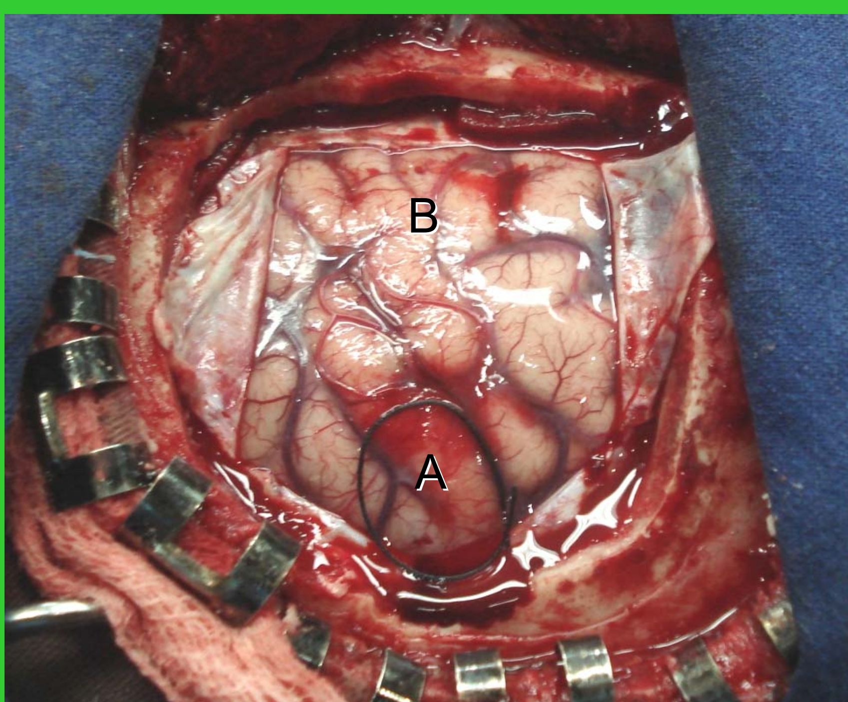


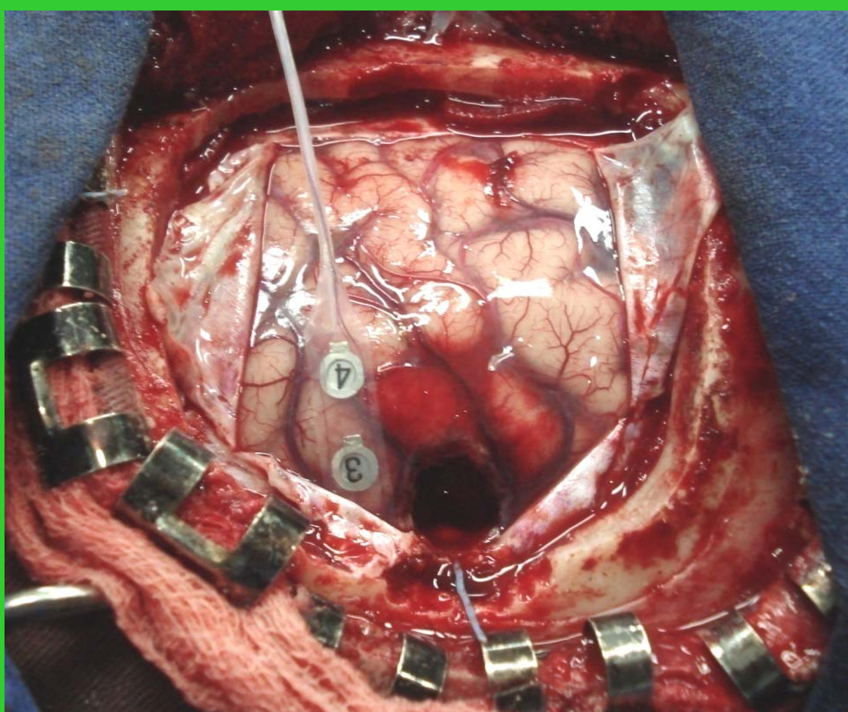


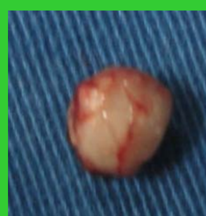




Post-op



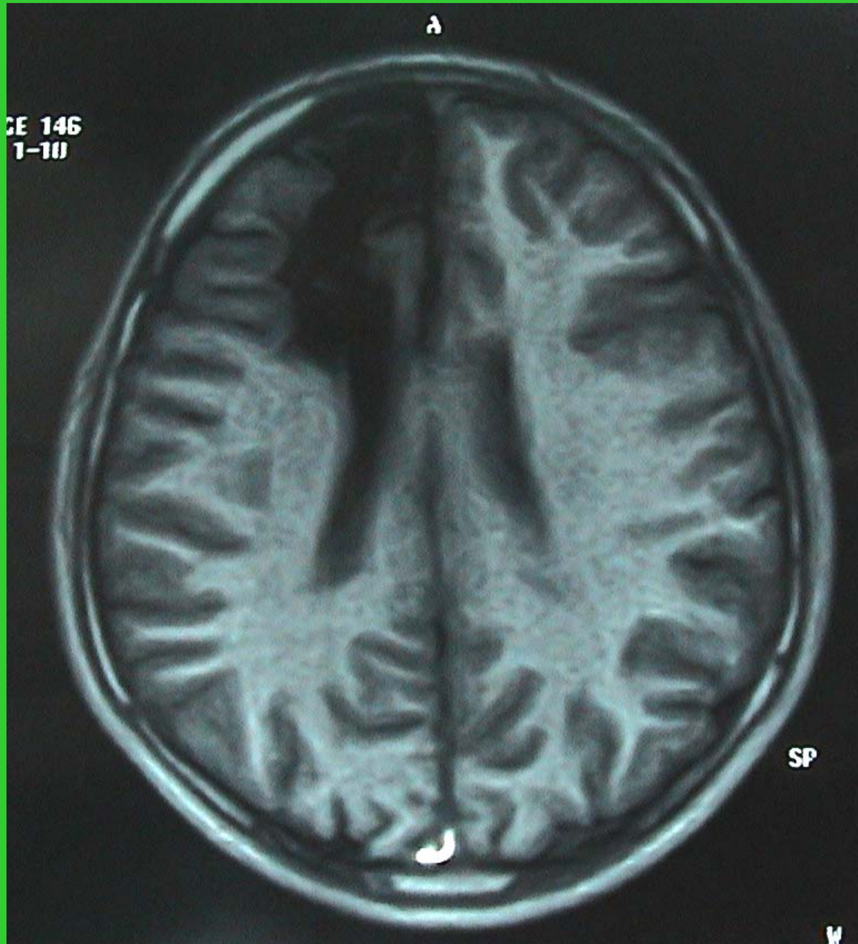


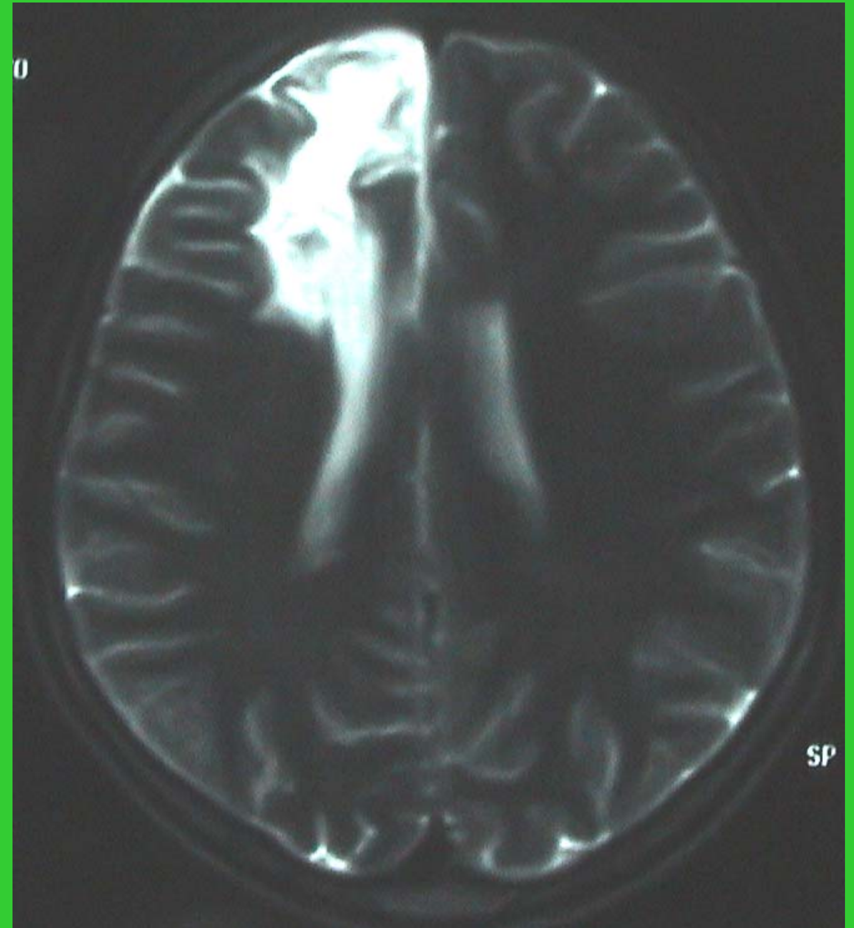


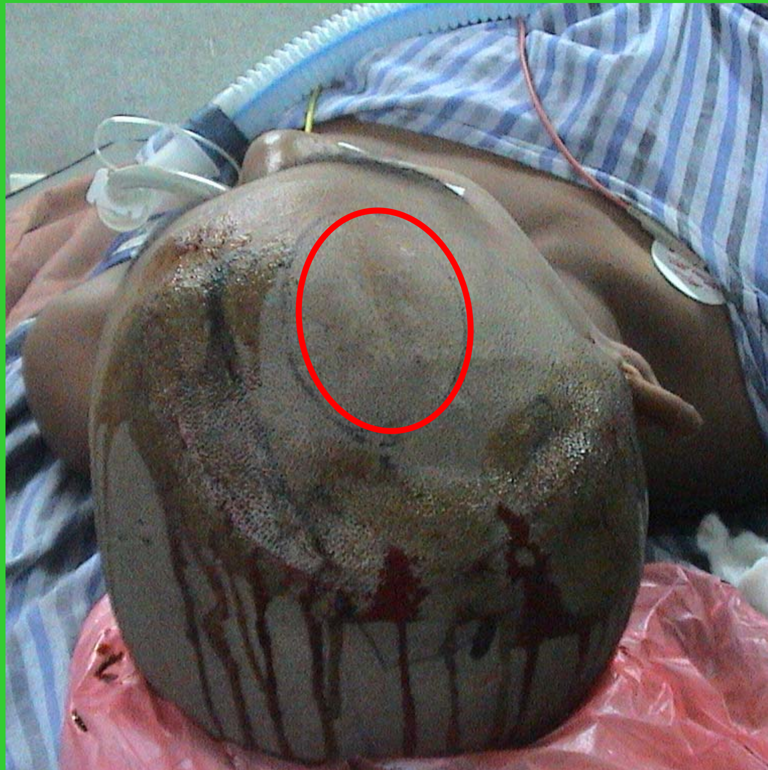
OKS 22 Y F

DT 13Y:M

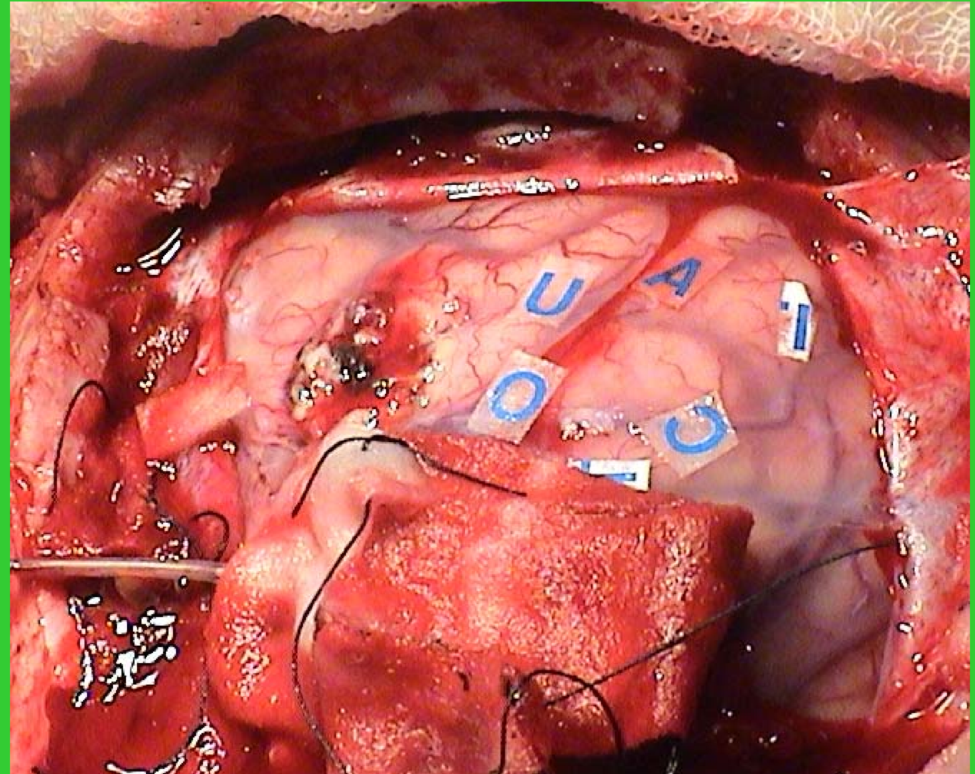
Brain abscess 15 mths
Lt focal with 2nd GTCS 8 yrs
5-6/wk, status epilepticus once
Left school after class 4
SV 800mg CBZ 600 mg Clonaz 0.5 mg







Large flap centered at
the traumatic porencephaly



Epileptic zone was inferior-anterior
to the lesion

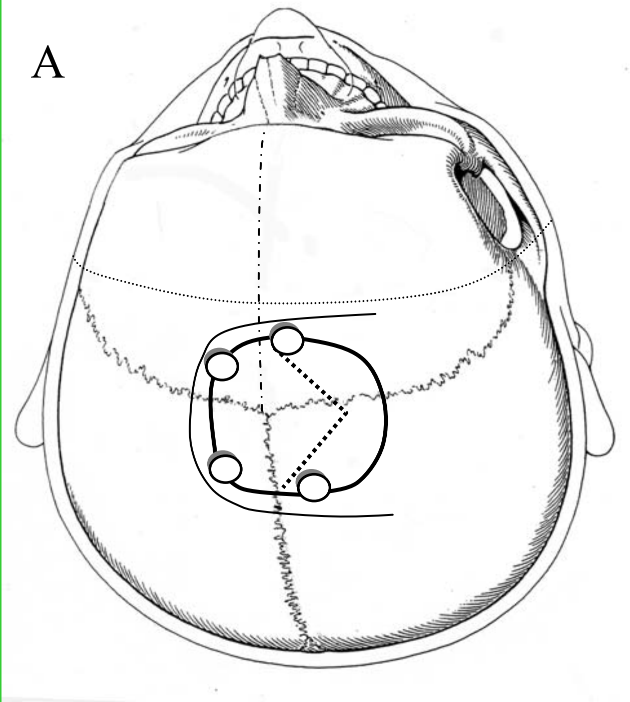
- AC 9Y/F
- Seizure 4 yrs.
- Initially responded to phenobarb. But later became intractable.
- Multiple injuries on the face due to fall.
- Average 2-4/day, had up to 40/day.

Drop attack

- AR 14Y/F
- Lt focal seizure for many years with occasional generalization.
- Since 16 months developed drop attack.
- Not responding to SV, CBZ.
- Multiple injuries due to fall.
- Average 30/day.

Operating technique of CC

A



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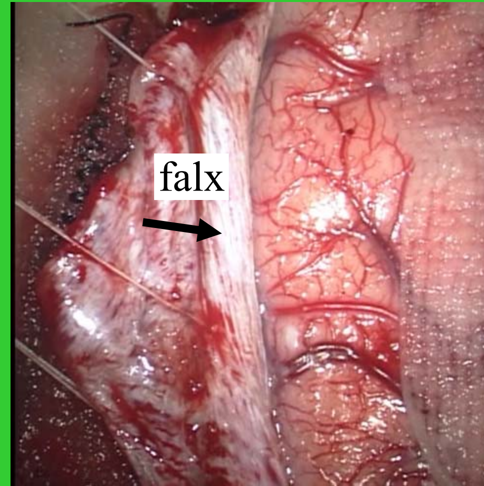

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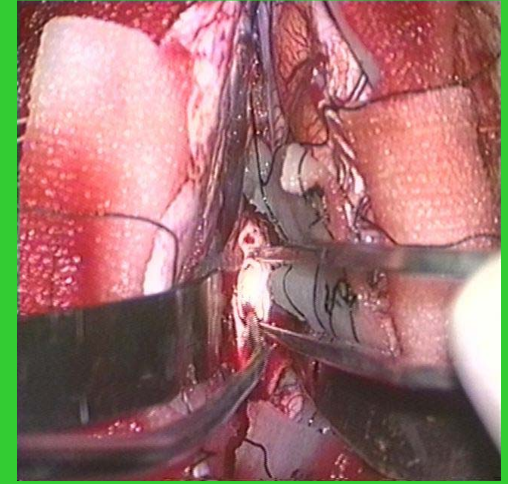

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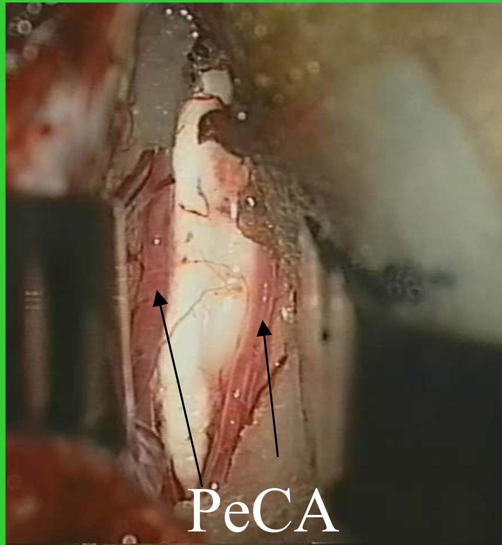
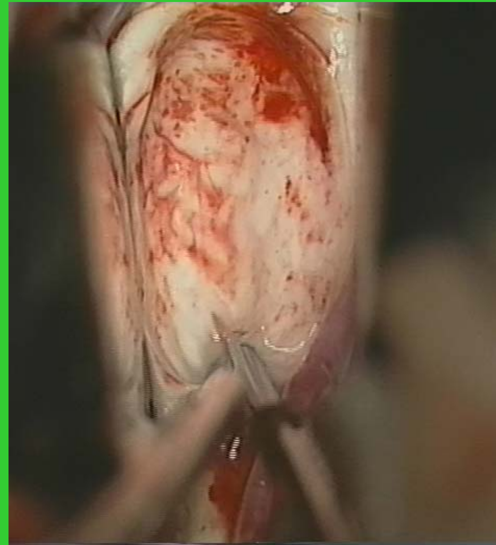


E



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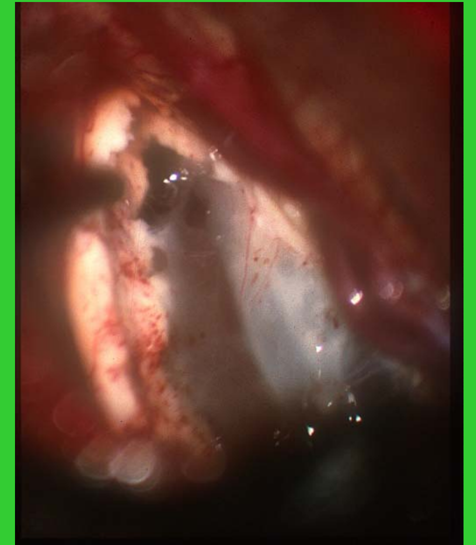


Material & Methods

Total 145 intractable seizure

31 CPS

34 FS

62 GS

6 DA

12 others

Surgery was decided

24 cases (17%)

When semiology, MRI & EEG were concordant

Material & Methods

Total 24 cases   Follow up 7 m – 8 y.

ATL: 14,
Corpus callosotomy: 2
Extrastemporal resection 8

ECOG based surgery 10
Awake craniotomy & cortical mapping 4

AED was used for 2 years post surgery

Results

Engel class I	15	
Engel class II	4	86%
Engel class III	3	14%
Mortality	1	

1 SAH Frequent seizure : re-surgery

No long term morbidity

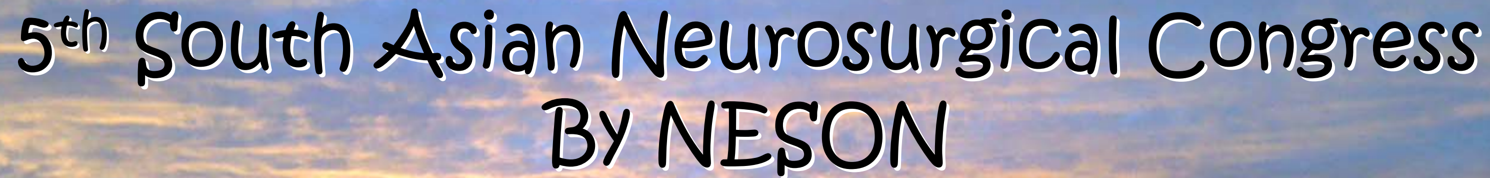
Conclusions

Epilepsy surgery is possible even in simple setup

It is probably more meaningful in the developing countries

- To have epilepsy surgery accepted by medical community one must give good result so case selection is very vital

For good outcome in Epilepsy management
Neurologist & surgeon should work like this…



MARCH 11-13, 2012

Neurosurgery: The South Asian Prospectives

Kathmandu, Nepal