EPILEPSIA GENERALIDADES

DR. LUIS ERNESTO GONZÁLEZ SÁNCHEZ

NEUROLOGO

Jefe de Neurofisiología del Instituto de Neurociencias del Hospital de Diagnóstico

Objetivos

- **1. Definir y distinguir los seis componentes de áreas cerebrales en epilepsias parciales**

DEFINICION

- 1 de cada 10 personas tendrá una convulsión epiléptica en su vida pero solo un tercio desarrollara epilepsia, es el 1% de la población mundial comparable con la prevalencia de cáncer de mama en mujer o cáncer de pulmón en el hombre.
- Es una disfunción recurrente paroxística del cerebro con manifestaciones estereotipadas del comportamiento

CONCEPTOS

- **CONVULSIONES: FENOMENO CLINICO: TONICO, CLONICO, ATONICO, MIOCLONICO, AUSENCIA ETC**

CONCEPTOS

- **CONVULSION EPILEPTICA: DESORDEN NEURONAL (transitorio, excesivo y sincrónica) QUE SUBYACE SOBRE LA MANIFESTACION CONVULSIVA: puede la respuesta natural de un cerebro normal afectado transitoriamente y no necesariamente es epilepsia (provocadas, agudas o reactivas)**

CONCEPTOS

- **EPILESIA: propensión convulsiones epilépticas, crónicas, recurrentes, no provocadas, con afección social y/o psicobiológica**

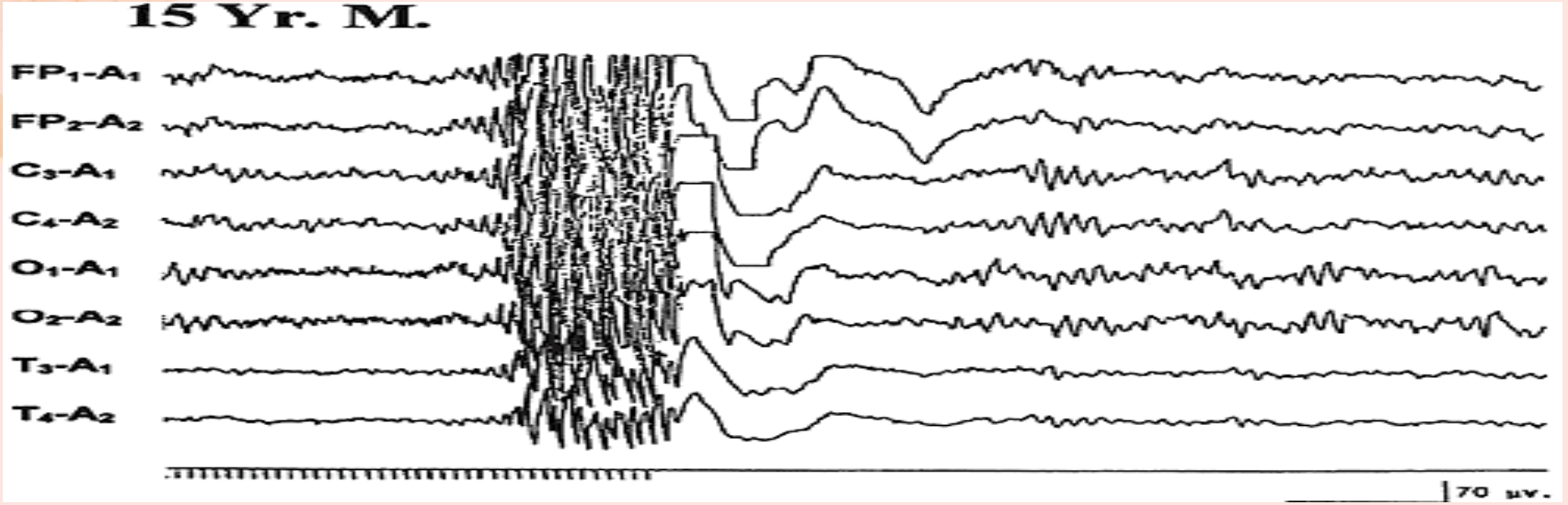
CONCEPTOS

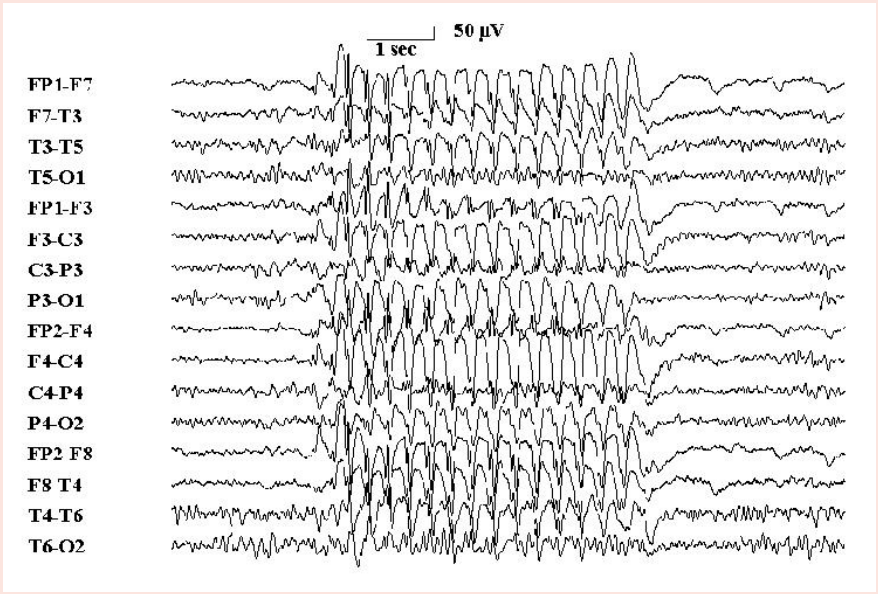
- **SINDROME EPILEPTICO: GRUPO DE DESORDENES CONVULSIVOS EPILEPTICOS AGRUPADOS POR EDAD, GENETICA O MANIFESTACIONES FAMILIARES, MANIFESTACIONES CLINICA, PATRON DE RECURRENCIA, EEG, PRONOSTICO**

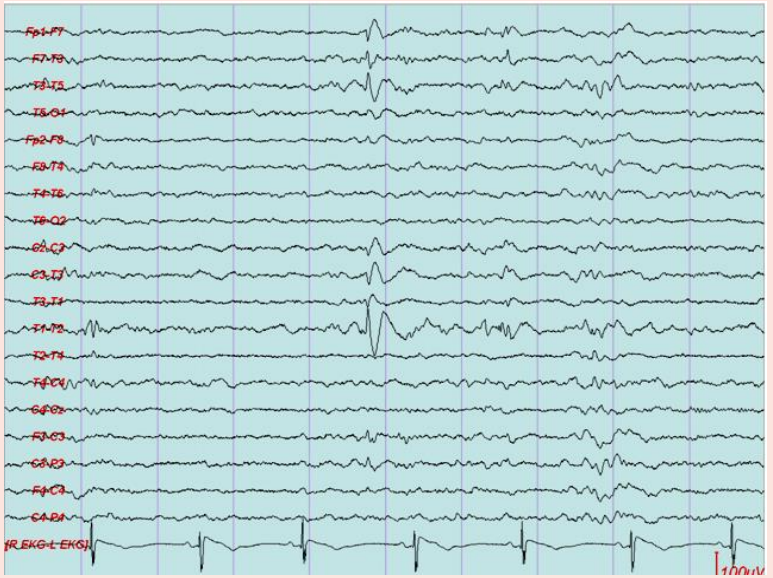
CONCEPTOS

- **SINDROMES EPILEPTICOS:**
  - **IDIOPATICOS: Benignos, sin anormalidades estructurales a parte del fenómeno eléctrico epiléptico, auto limitado y de fácil tx medico, genéticamente relacionado y dependiente de la edad**
  - **SINTOMATICOS: consecuencia de una afección cerebral estructural, física o metabólica demostrable**
  - **CRIPTOGENICO: son presumiblemente sintomáticas pero sin causa demostrable (probablemente sintomático)**

ZONA IRRITATIVA

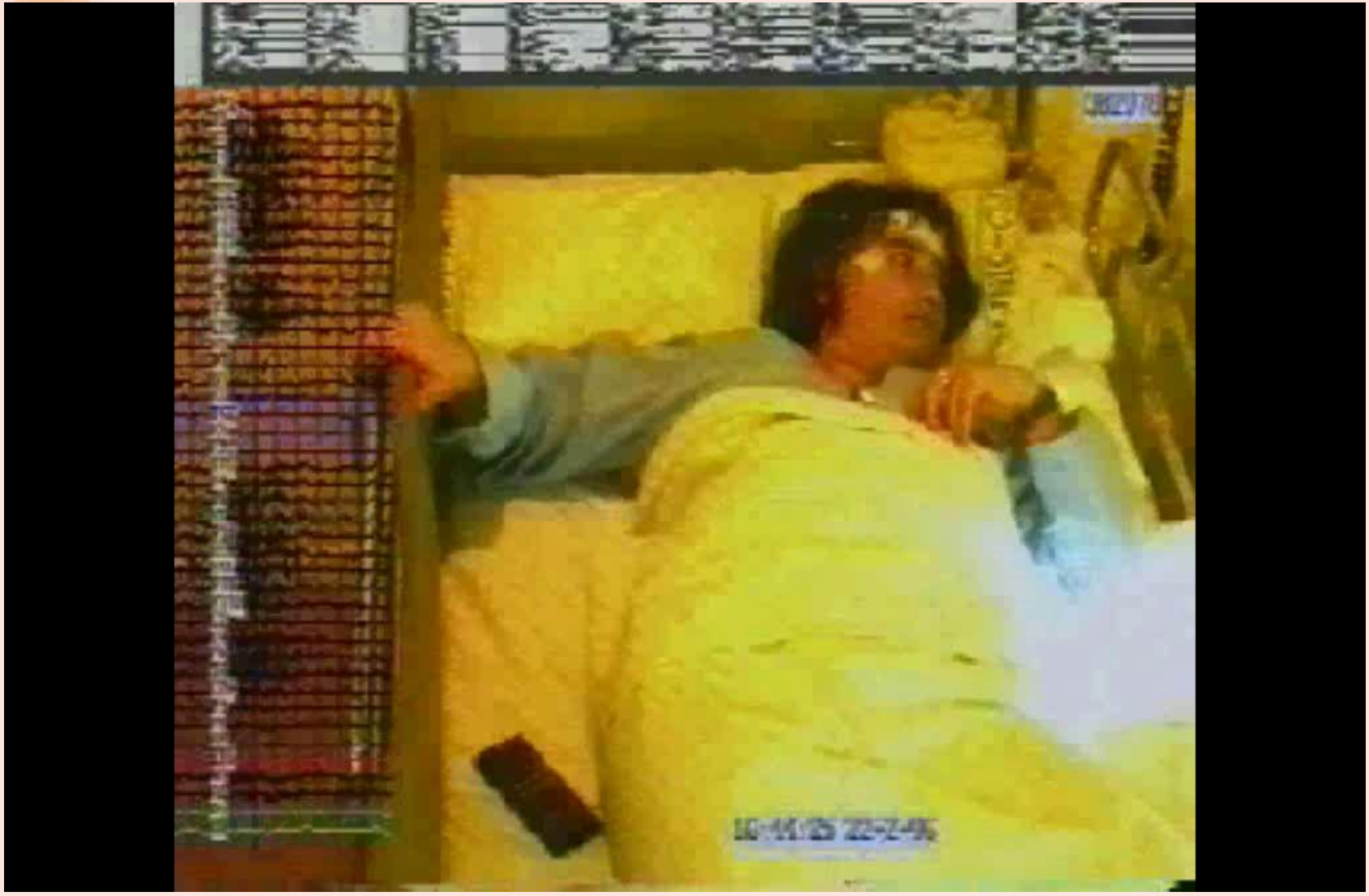






ZONA DE INICIO ICTAL

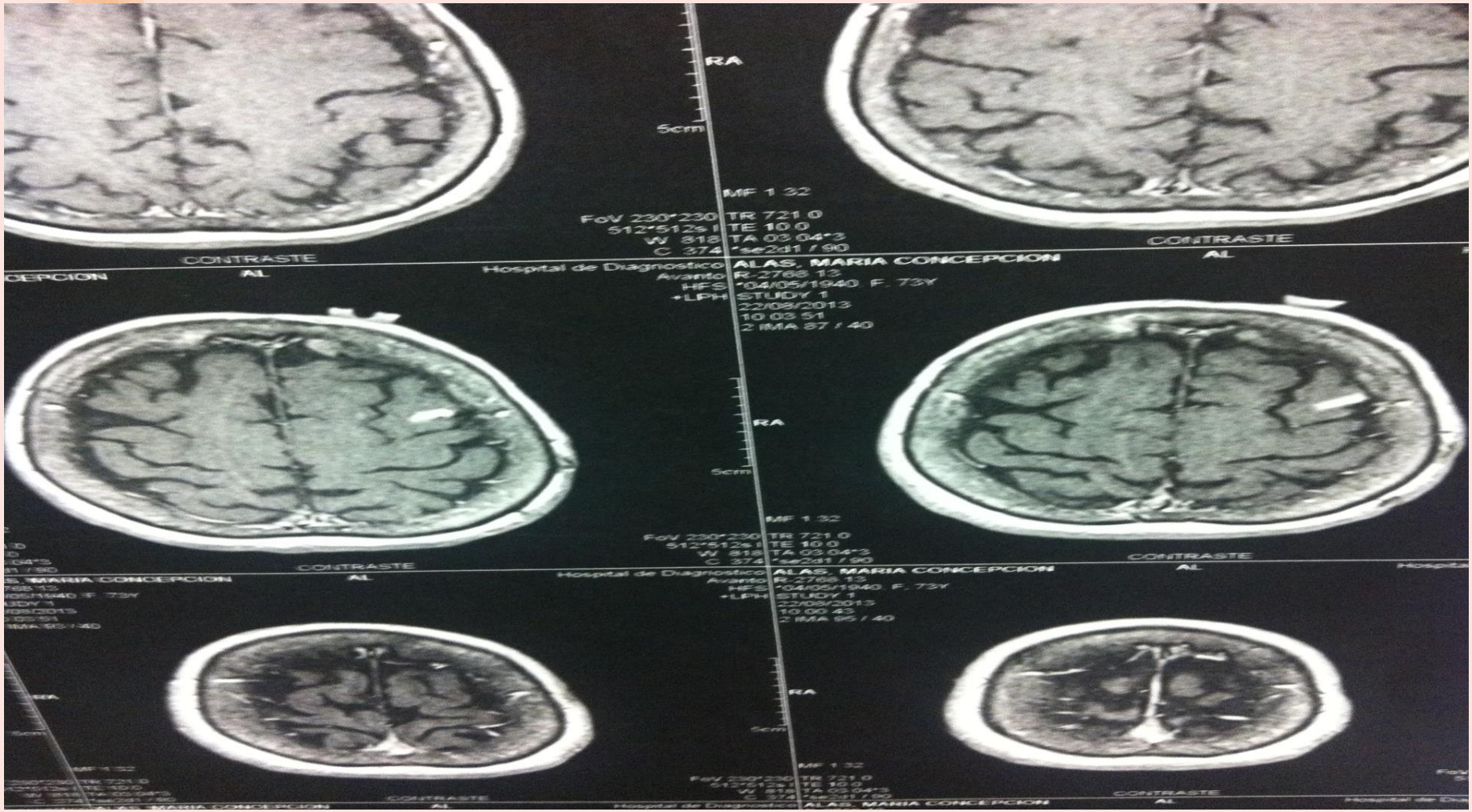
ZONA DE DEFICIT FUNCIONAL



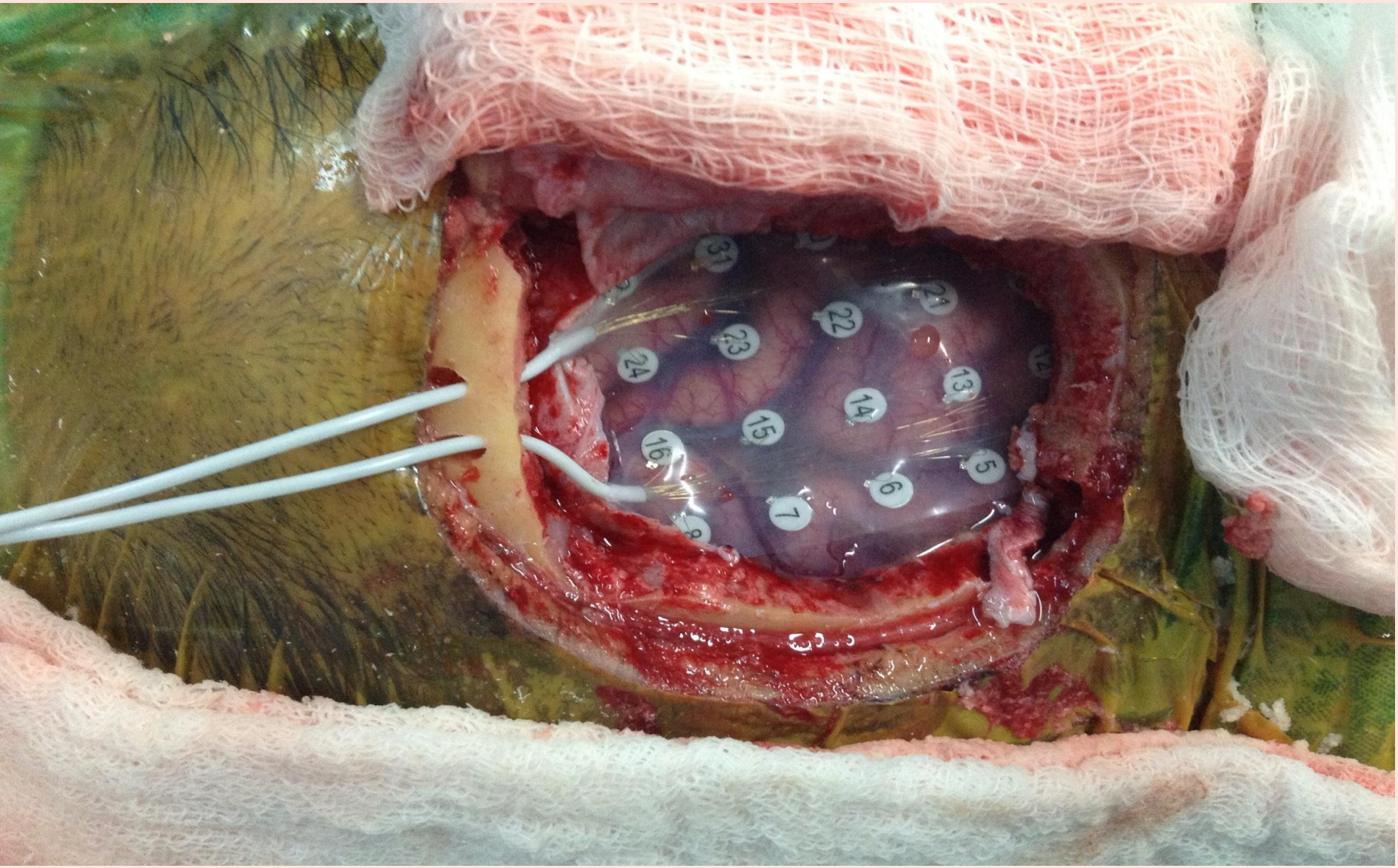
ZONA SINTOMATOGENICA

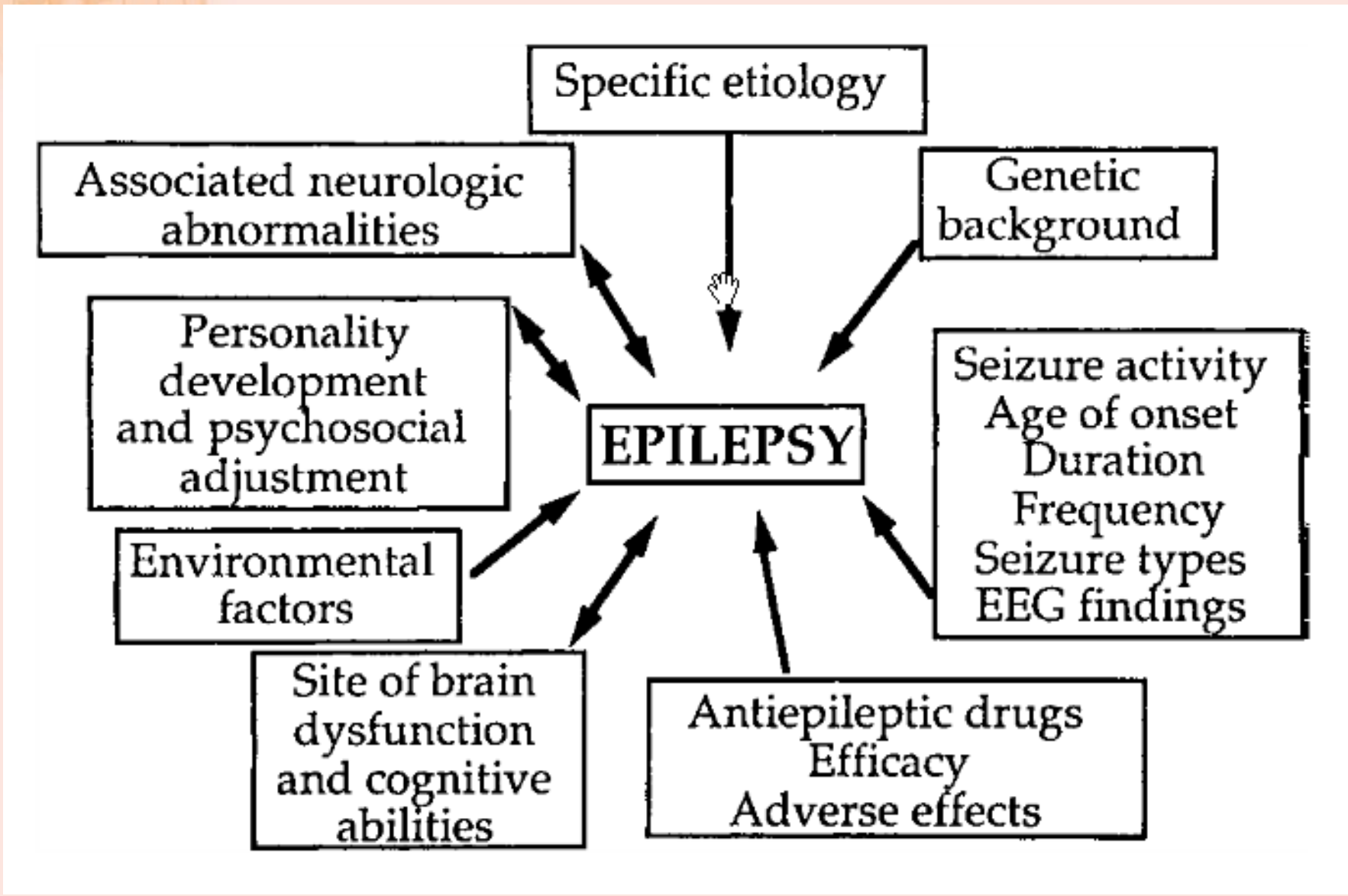
Zona Sintomatogénica

Lesión epileptogénica



ZONA EPILEPTOGENICA




Specific etiology
Associated neurologic abnormalities
Genetic background
Personality development and psychosocial adjustment
EPILEPSY
Seizure activity
Age of onset
Duration
Frequency
Seizure types
EEG findings
Environmental factors
Site of brain dysfunction and cognitive abilities
Antiepileptic drugs
Efficacy
Adverse effects

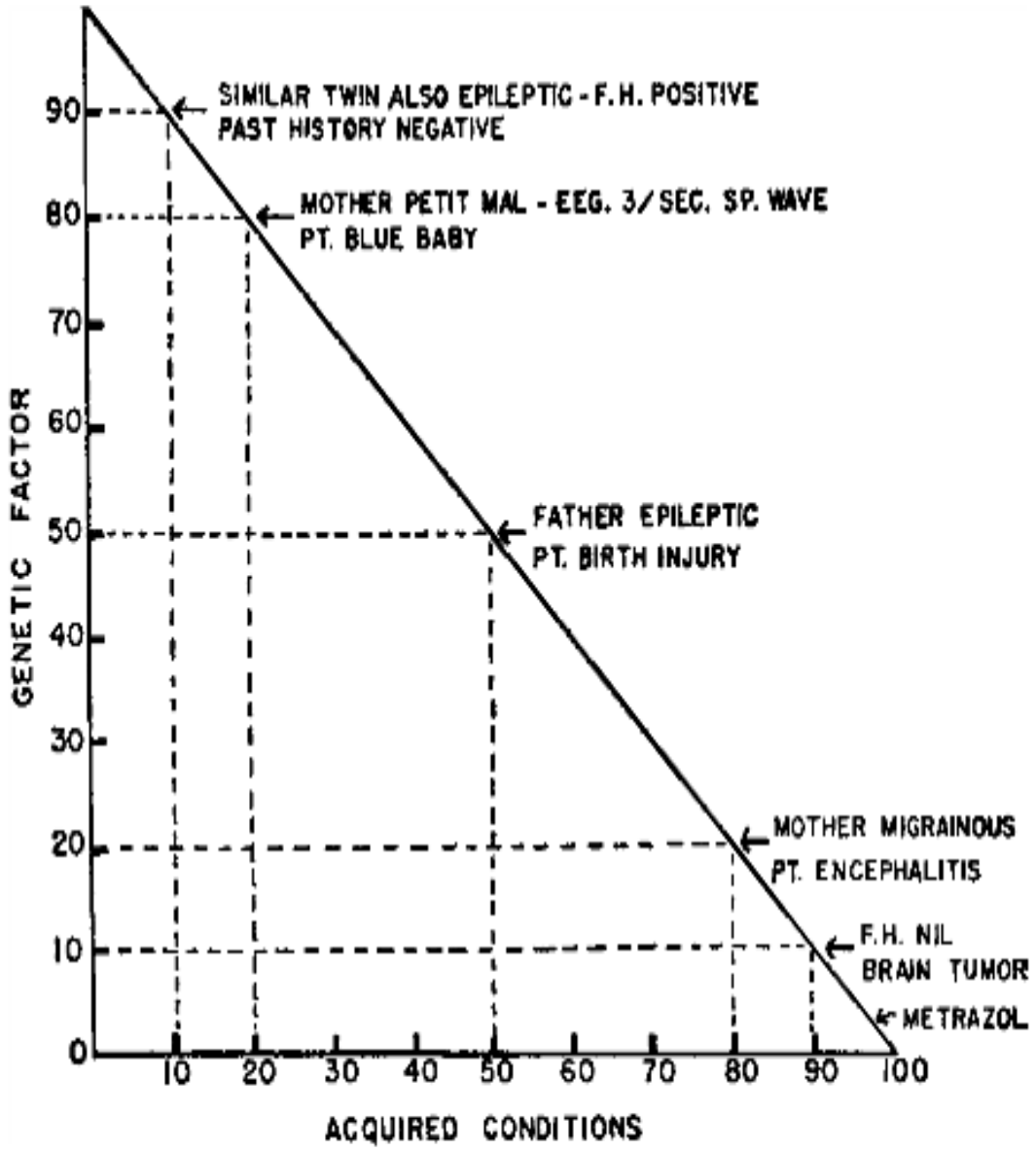


FIGURE 4. The interrelation of genetic and acquired factors in the development of seizures, as proposed by Lennox. (From Lennox WG. *Epilepsy and Related Disorders*. Boston: Little, Brown; 1960:532–574, with permission.)

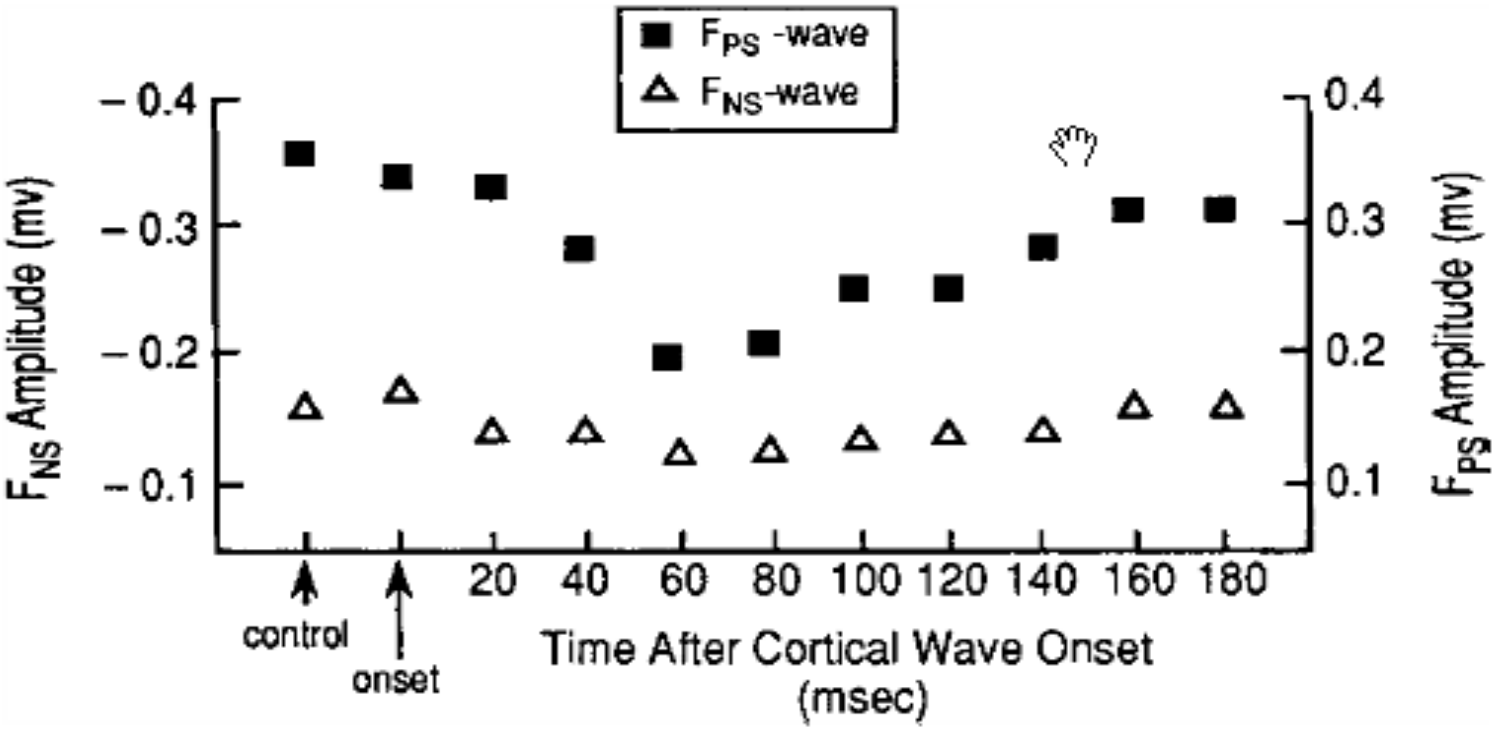


FIGURE 2. Graph showing the effect of the corticofugal volley from a cortical epileptiform discharge, evoked by stimulating a forepaw nerve, on the negative (*triangles*) and positive (*squares*) components of the cuneate nucleus field potential. Maximal inhibition of the cuneate sensory response occurred about 60 msec after the cortical spike. The amplitude of the positive component (F_{PS}) of the cuneate potential was affected much more than the negative component (F_{NS}). (From Schwartzkroin PA, van Duijn H, Prince DA. Effects of projected cortical epileptiform discharges on field potentials in the cat cuneate nucleus. *Exp Neurol.* 1974;43:88–105, with permission.)

TABLE 2

ABNORMAL BRAIN AREAS IN PARTIAL EPILEPSY

Brain area	Definition	Measure
Irritative zone	Area of cortex that generates interictal spikes	EEG
Ictal onset zone	Area of cortex that initiates or generates seizures	EEG
Epileptogenic lesion	Structural pathology of the brain that is the direct cause of seizures	CT, MRI, tissue pathology
Symptomatogenic zone	Portion of the brain that produces the first clinical symptoms	EEG, behavioral observation
Functional deficit zone	Cortical area producing nonepileptic dysfunction	Neurologic exam, neuropsychology, PET, SPECT
Epileptogenic zone	Total area of brain that is necessary to generate seizures and that must be removed to abolish seizures	Unknown

CT, computed tomography; EEG, electroencephalography; MRI, magnetic resonance imaging; PET, positron emission tomography; SPECT, single-photon emission computed tomography.

Adapted from Lüders HO, Engel J Jr, Munari C. General principles. In: Engel J Jr, ed. *Surgical Treatment of the Epilepsies*. New York: Raven Press; 1993:137–153, with permission.

ESQUEMA DE ABORDAJE DE EPILEPSIA Y SINDROMES EPILEPTICOS

- EJE 1: Fenómeno ictal (glosario de terminología ictal)
- EJE 2: Tipo convulsivo. Localización del área cerebral involucrada, estímulos precipitantes (lista de convulsiones epilépticas)
- EJE 3: Síndrome. Identificación del síndrome epiléptico (puede no ser siempre posible) (lista de síndrome epilépticos)
- EJE 4: Etiología. De la clasificación de enfermedades asociadas con convulsiones epilépticas
- EJE 5: Deterioro. WHO clasificación funcional y discapacidad

GLOSARIO DE TERMINOLOGIA ICTAL

TABLE OF CONTENTS

CLASIFICACION1981

Clinical seizure type	EEG seizure type
a. Dysphasic	
b. Dysmnesic (e.g., déjà-vu)	
c. Cognitive (e.g., dreamy states, distortions of time sense)	
d. Affective (fear, anger, etc.)	
e. Illusions (e.g., macropsia)	
f. Structured hallucinations (e.g., music, scenes)	
B. Complex partial seizures (with impairment of consciousness: may sometimes begin with simple symptomatology)	Unilateral or, frequently, bilateral discharge, diffuse or focal in temporal or frontotemporal regions
1. Simple partial onset followed by impairment of consciousness	
a. With simple partial features as in A.1–4 (followed by impaired consciousness)	
b. Without automatisms	
2. With impairment of consciousness at onset	
a. With impairment of consciousness only	
b. With automatisms	
C. Partial seizures evolving to secondarily generalized seizures (This may be generalized tonic-clonic)	Above discharges become secondarily and rapidly generalized
1. Simple partial seizures (A) evolving to generalized seizures	
2. Complex partial seizures (B) evolving to generalized seizures	
3. Simple partial seizures evolving to complex partial seizures evolving to generalized seizures	

II. GENERALIZED SEIZURES (CONVULSIVE OR NONCONVULSIVE)

Generalized seizures are those in which the first clinical changes indicate initial involvement of both hemispheres. Consciousness may be impaired, and this impairment may be the initial manifestation. Motor manifestations are bilateral. The ictal electroencephalographic patterns initially are bilateral and presumably reflect neuronal discharge, which is widespread in both hemispheres.

Clinical seizure type	EEG seizure type
A. Absence seizures	
1. Typical absence	Usually regular and symmetrical 3-Hz but may be 2- to 4-Hz spike-and-slow-wave complexes and may have multiple spike-and-slow-wave complexes. Abnormalities are bilateral
a. Impairment of consciousness only[a]	
b. With mild clonic components[a]	
c. With atonic components[a]	
d. With tonic components[a]	
e. With automatisms[a]	
f. With autonomic components[a]	

CLASIFICACION1981

II. GENERALIZED SEIZURES (CONVULSIVE OR NONCONVULSIVE)

Generalized seizures are those in which the first clinical changes indicate initial involvement of both hemispheres. Consciousness may be impaired, and this impairment may be the initial manifestation. Motor manifestations are bilateral. The ictal electroencephalographic patterns initially are bilateral and presumably reflect neuronal discharge, which is widespread in both hemispheres.

Clinical seizure type	EEG seizure type
A. Absence seizures	
1. Typical absence	Usually regular and symmetrical 3-Hz but may be 2- to 4-Hz spike-and-slow-wave complexes and may have multiple spike-and-slow-wave complexes. Abnormalities are bilateral
a. Impairment of consciousness only[a]	
b. With mild clonic components[a]	
c. With atonic components[a]	
d. With tonic components[a]	
e. With automatisms[a]	
f. With autonomic components[a]	
2. Atypical absence	EEG more heterogeneous; may include irregular spike-and-slow-wave complexes, fast activity, or other paroxysmal activity. Abnormalities are bilateral but often irregular and asymmetrical.
May have:	
a. Changes in tone that are more pronounced than in A.1	
b. Onset and/or cessation that is not abrupt	
B. Myoclonic seizures, myoclonic jerks (single or multiple)	Polyspike-and-wave or sometimes spike-and-wave or sharp and slow waves[b]
C. Clonic seizures	Fast activity (10 c/sec or more) and slow waves; occasional spike-and-wave patterns[b]
D. Tonic seizures	Low voltage, fast activity or a fast rhythm of 9–10 c/sec or more, decreasing in frequency and increasing in amplitude[b]
E. Tonic–clonic seizures	Rhythm at 10 or more c/sec, decreasing in frequency and increasing in amplitude during tonic phase, interrupted by slow waves during clonic phase[b]
F. Atonic seizures (astatic)	Polyspike-and-wave or flattening or low-voltage fast activity[b]

CLASIFICACION1981

III. UNCLASSIFIED EPILEPTIC SEIZURES

Includes all seizures that cannot be classified because of inadequate or incomplete data and some that defy classification in hitherto described categories. This includes some neonatal seizures, e.g., rhythmic eye movements, chewing, and swimming movements.

IV. ADDENDUM

Repeated epileptic seizures occur under a variety of circumstances:

1. As fortuitous attacks, coming unexpectedly and without any apparent provocation.
2. As cyclic attacks, at more or less regular intervals (e.g., in relation to the menstrual cycle or to the sleep–waking cycle).
3. As attacks provoked by:
   a. Nonsensory factors (fatigue, alcohol, emotion, etc.)
   b. Sensory factors, sometimes referred to as *reflex seizures*

Prolonged or repetitive seizures (status epilepticus). The term *status epilepticus* is used whenever a seizure persists for sufficient length of time or is repeated frequently enough that recovery between attacks does not occur. Status epilepticus may be divided into partial (e.g., Jacksonian), or generalized (e.g., absence status or tonic–clonic status). When very localized motor status occurs, it is referred to as *epilepsia partialis continua*.

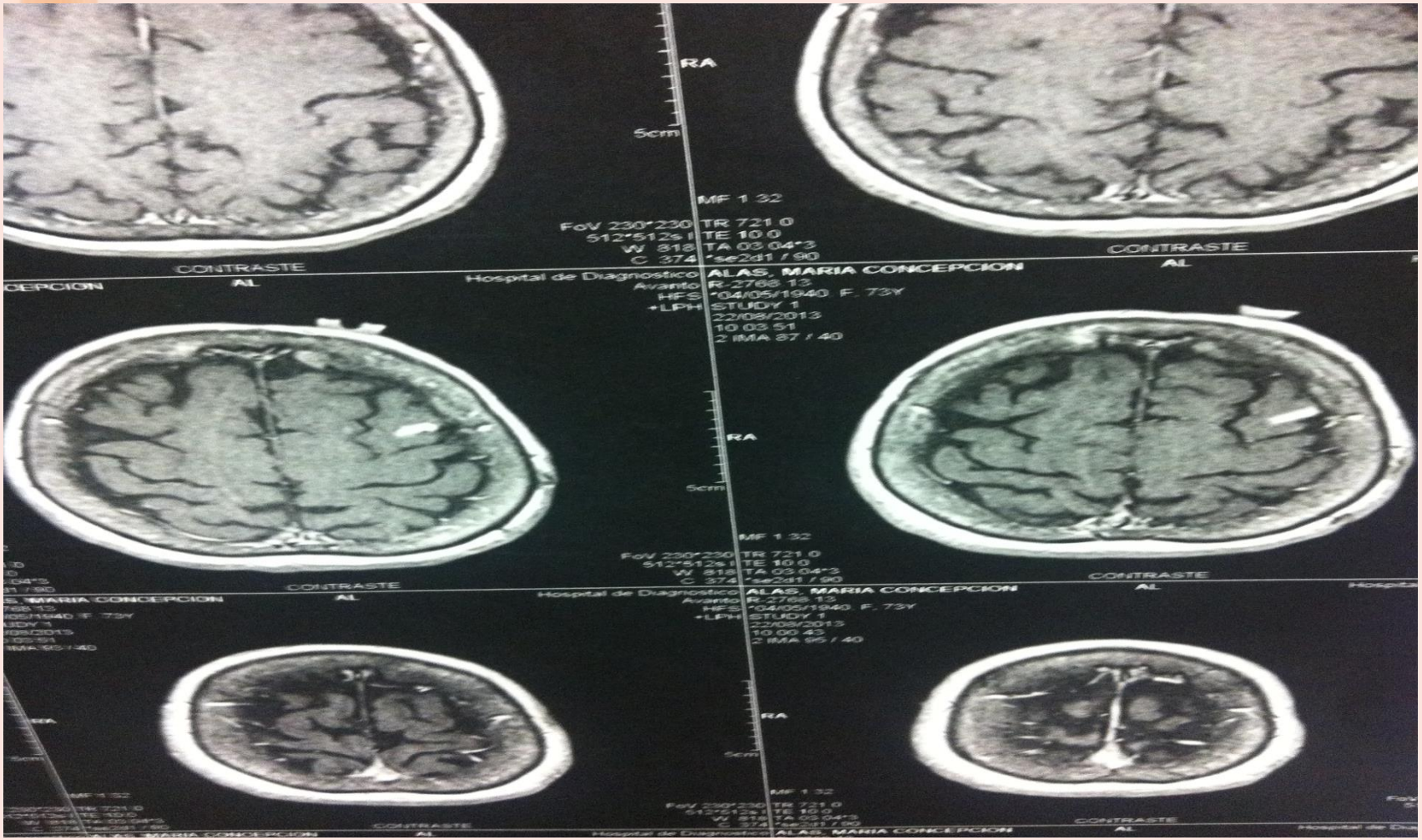
[a] II.A.b–f may be used alone or in combination.
[b] Combinations of II.B–F, e.g., B and F, B and D.
From Commission on Classification and Terminology of the International League Against Epilepsy. Proposal for revised clinical and electroencephalographic classification of epileptic seizures. *Epilepsia*. 1981;22:489–501, with permission.

CASO

EJE 1: Fenómeno ictal (glosario de terminología ictal)

EJE 2: Tipo convulsivo. Localización del área cerebral involucrada

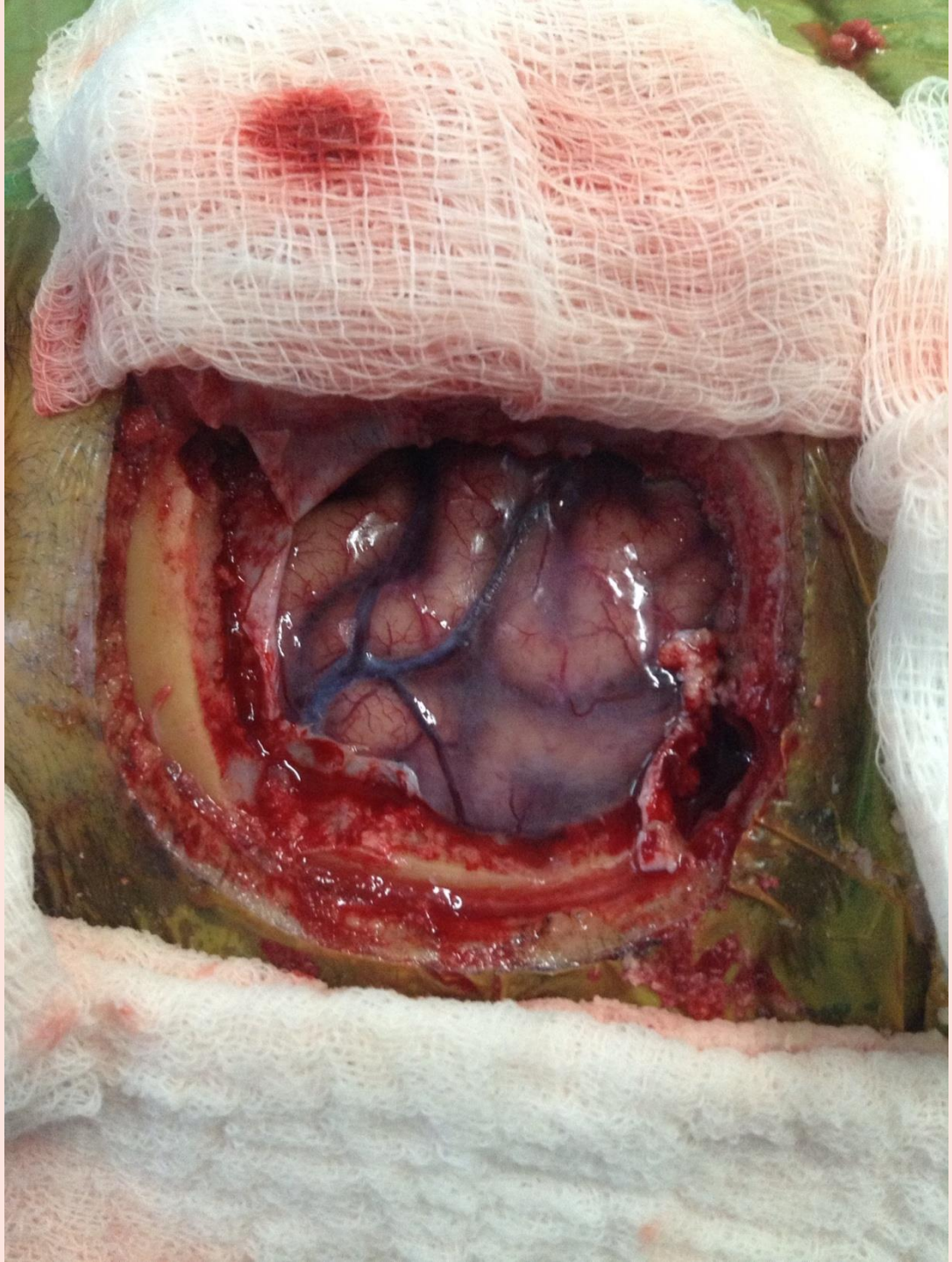
EJE 4: Etiología. De la clasificación de enfermedades asociadas con convulsiones epilépticas

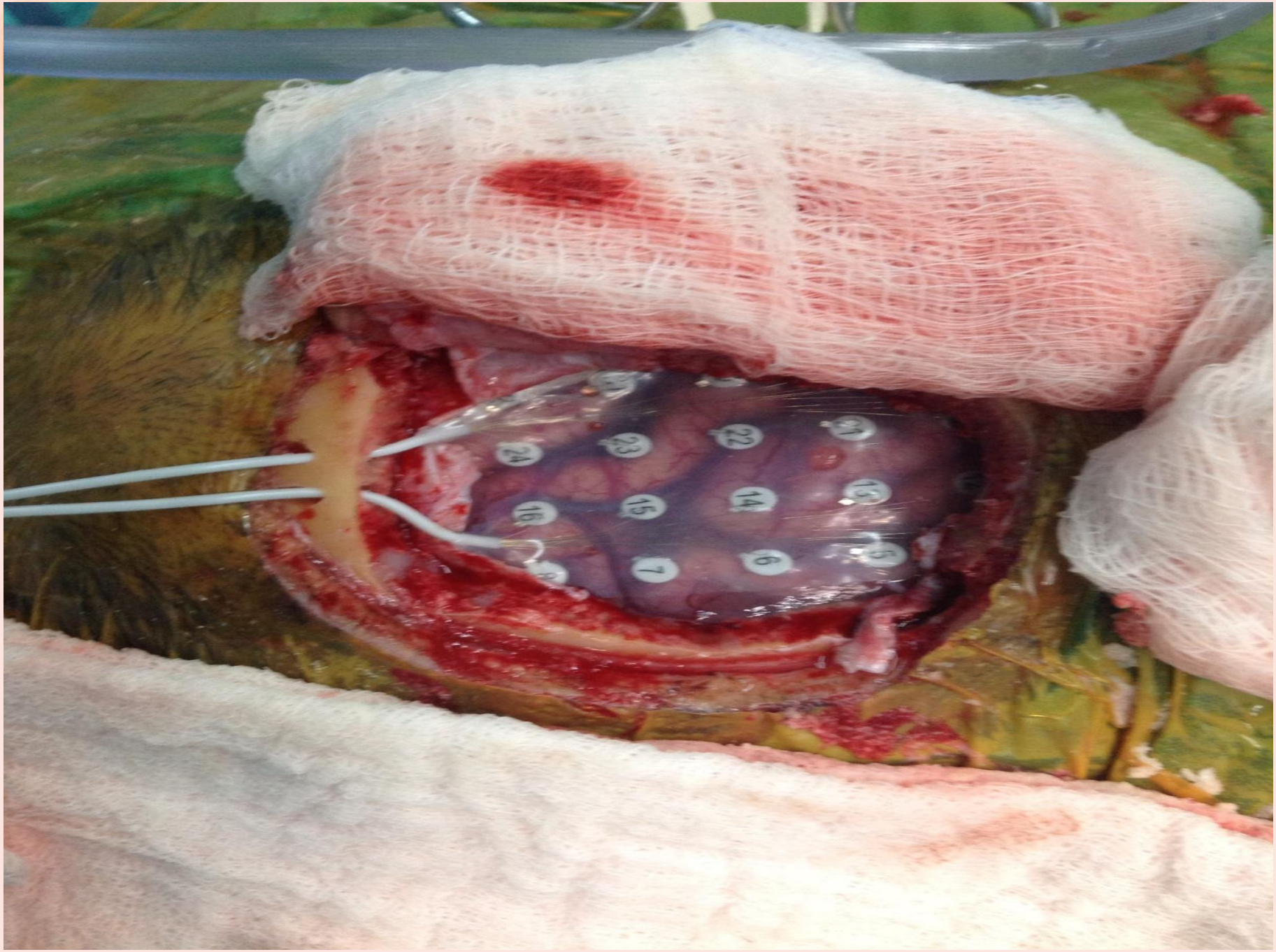


COLOCACION DE MANTA CORTICAL

Dr. Luis Ernesto González Sánchez

Neurólogo

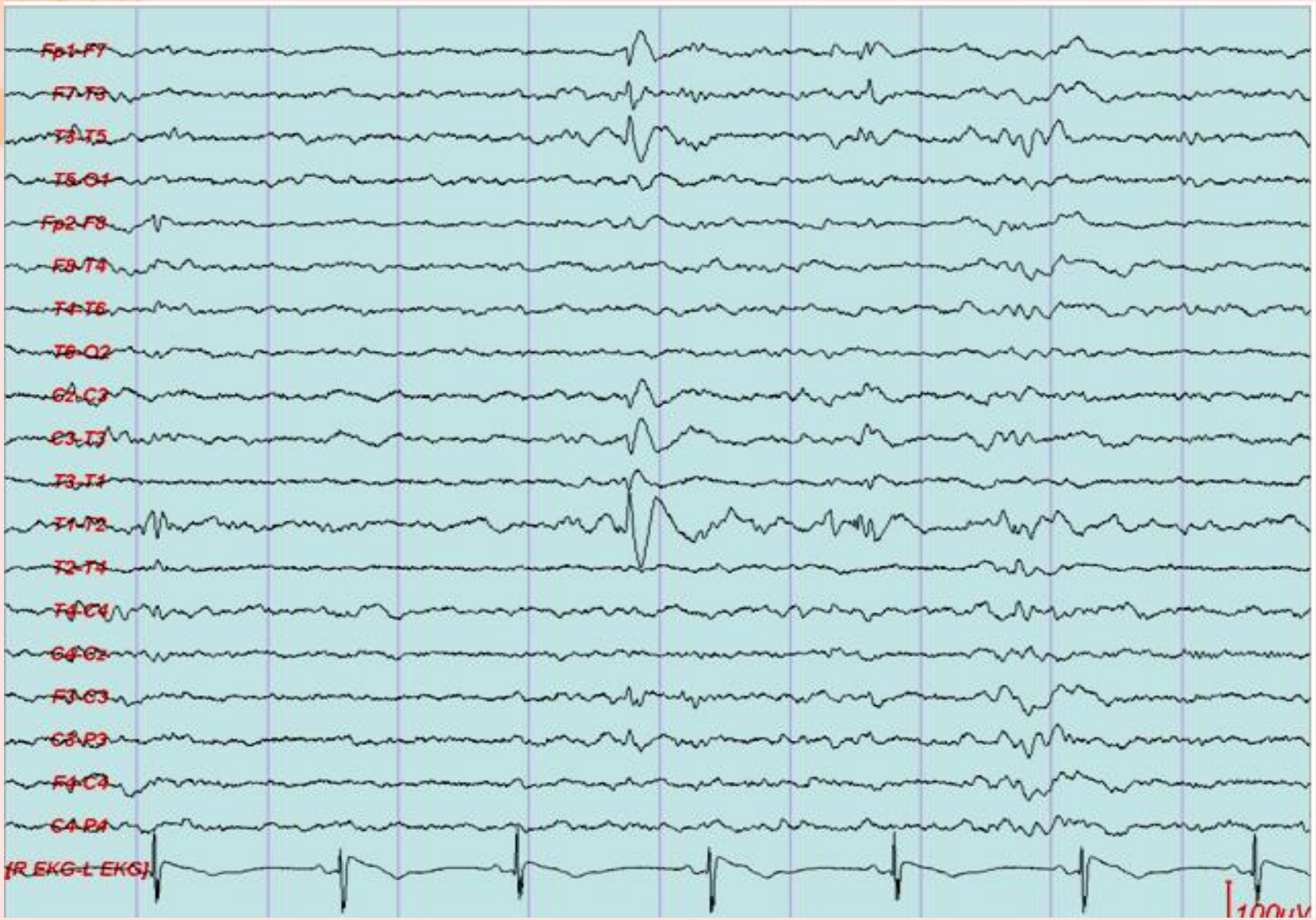



24
23
22
16
15
14
13
7
6

Ubicación de la manta intracortical

Dr. Luis Ernesto González Sánchez
Neurologo

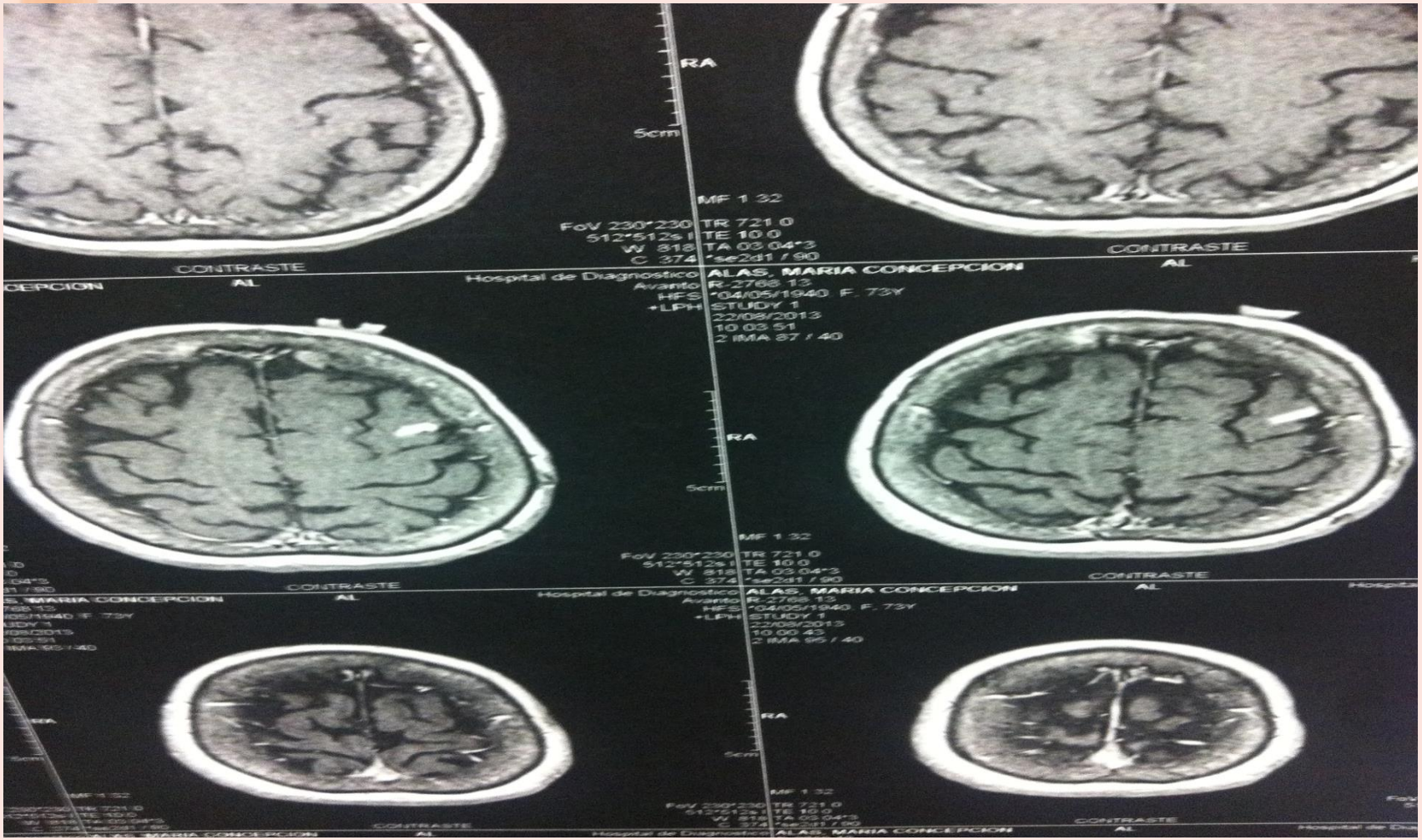
Que buscamos?



Opciones se pueden observar ?

- 1.Zona irritativa
- 2.Zona zona de inicio ictal
- 3.Lesion epileptogénica
- 4.Zona sintomatogénica
- 5.Zona de déficit funcional
- 6.Zona epileptogénica

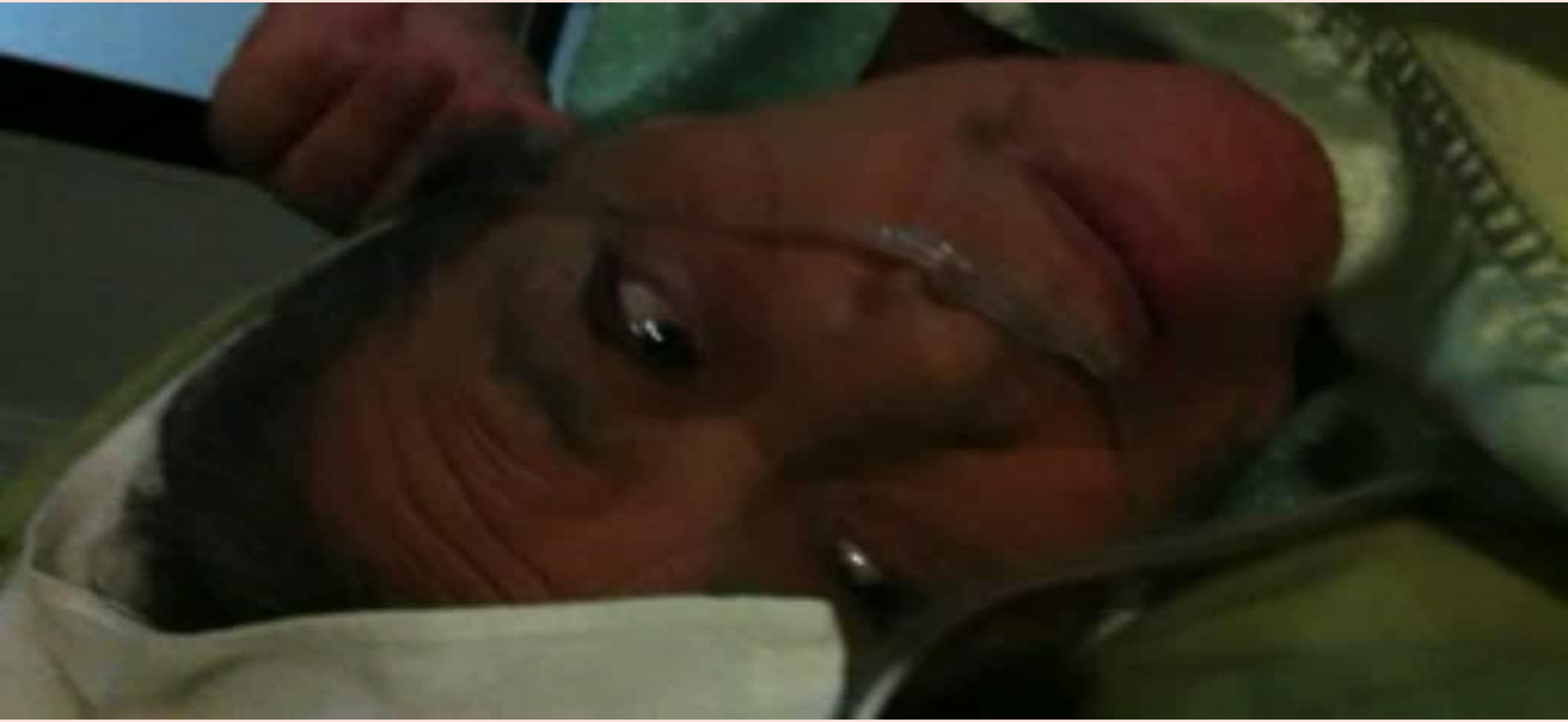
EJE 4: Etiología. De la clasificación de enfermedades asociadas con convulsiones epilépticas



Opciones se pueden observar ?

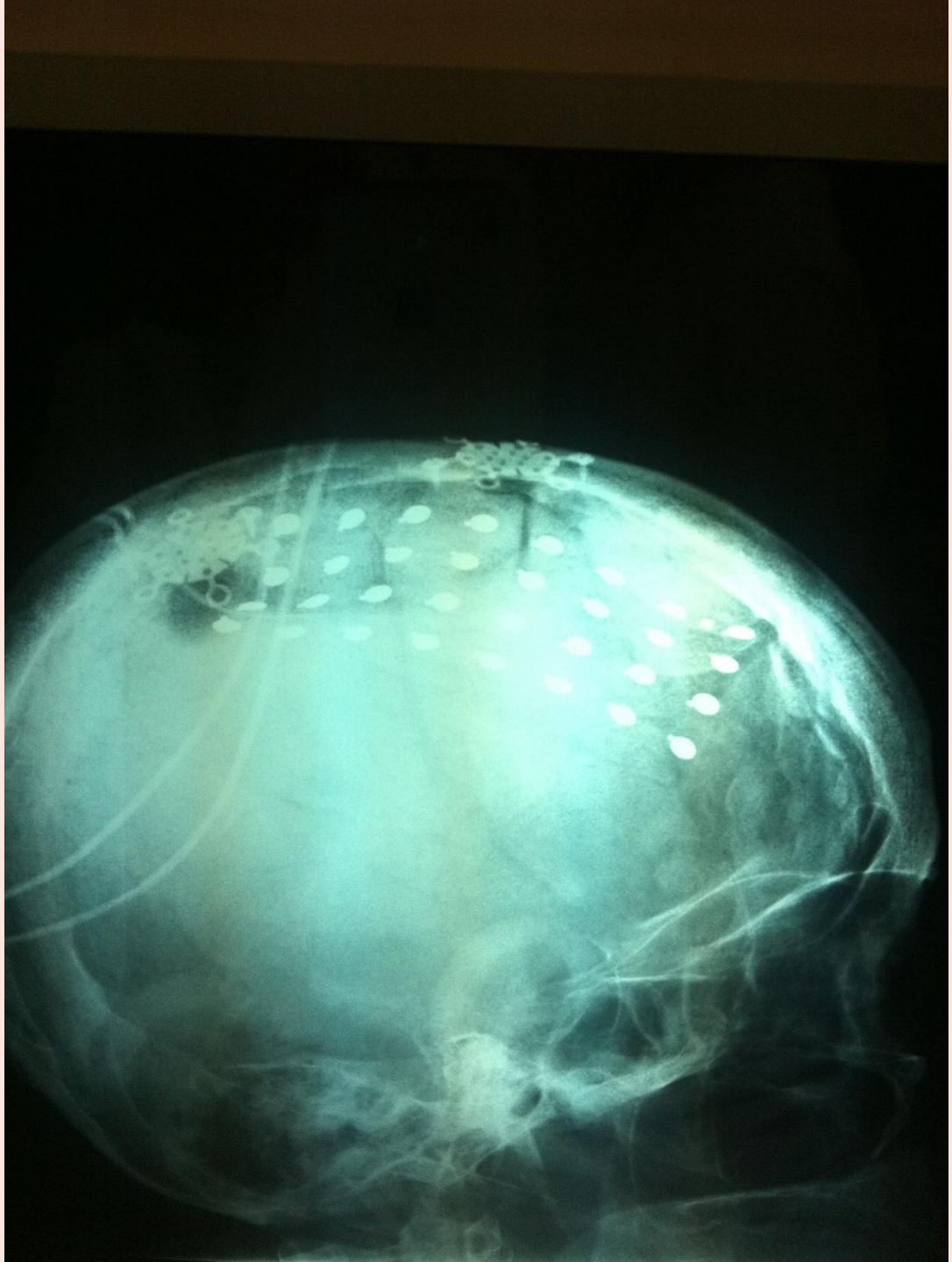
- 1.Zona irritativa
- 2.Zona zona de inicio ictal
- 3.Lesion epileptogénica
- 4.Zona sintomatogénica
- 5.Zona de déficit funcional
- 6.Zona epileptogénica

CASO



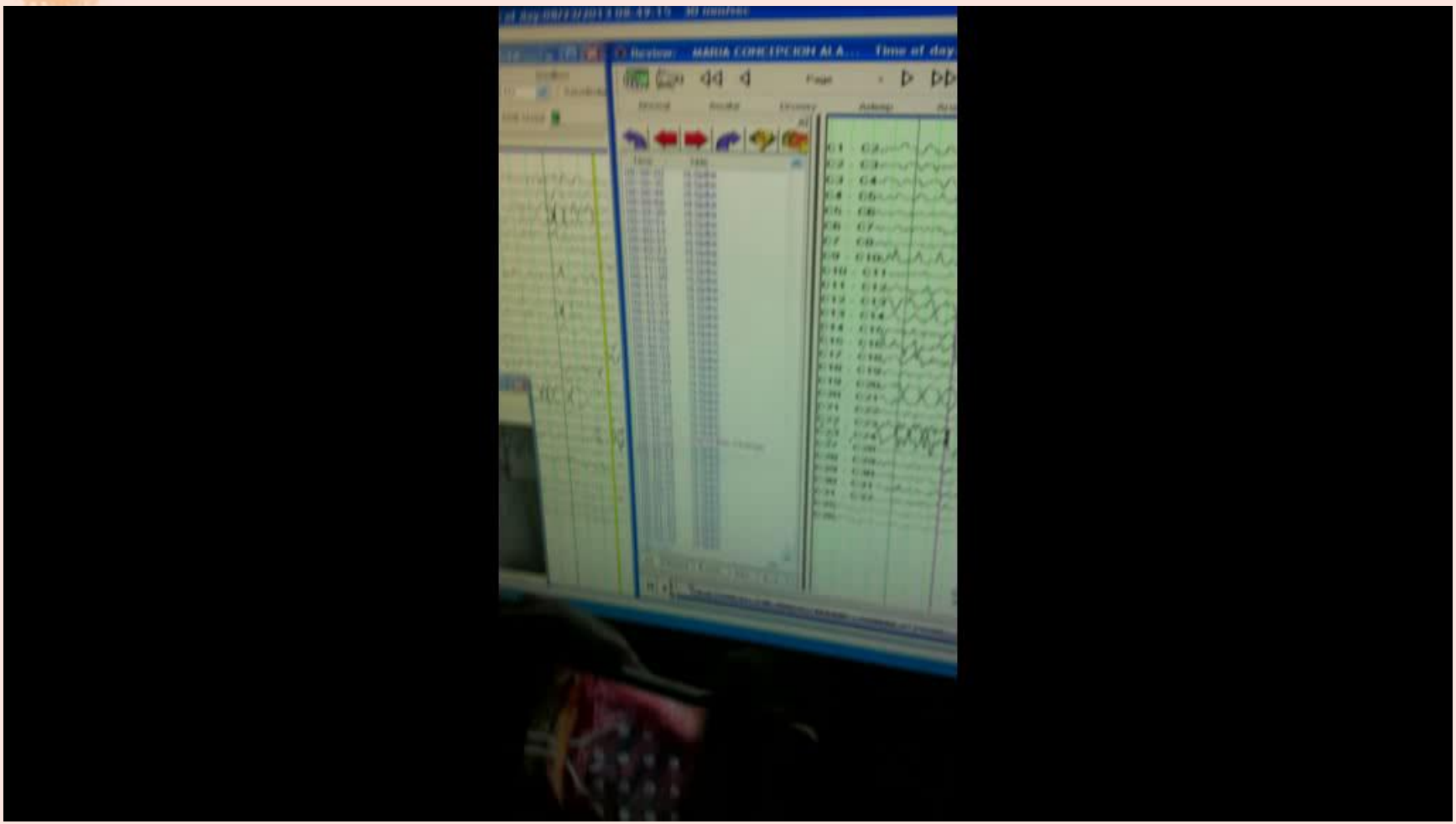
Opciones se pueden observar ?

- 1.Zona irritativa
- 2.Zona zona de inicio ictal
- 3.Lesion epileptogénica
- 4.Zona sintomatogénica
- 5.Zona de déficit funcional
- 6.Zona epileptogenica



a

Que buscamos aquí en esta paciente?



Opciones se pueden observar ?

- 1.Zona irritativa
- 2.Zona zona de inicio ictal
- 3.Lesion epileptogénica
- 4.Zona sintomatogénica
- 5.Zona de déficit funcional
- 6.Zona epileptogénica