# All Psychosis Isn't Created Equal: - *A Multidisciplinary Approach to a Patient with Acute Psychosis/Encephalopathy*


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CC: 37 year old female brought in by EMS for laceration , AMS and possible attack.

- Pt presents to the ED with parents after being found covered in blood at home.
- Per EMS Patient called 911, however has been unable to really give a full history as to what happened on scene.
- History provided by patients parents
  - 3-4 day history of **Bizarre Behavior**
  - Hypersomnolense, difficulty arousing from sleep, complaints of something in her ear
  - Mood swings, outburst in the past not immediately preceding this event
  - Episodes of slow and incoherent speech

- PMH:  Learning Disability ,Vertigo, Hirsutism, Schizophrenia diagnosed 3 years prior
- PSH: None
- SH:
  - recently moved from Chicago 2-3 months prior,
  - lives with her parents  ( Never lived alone/ independently)
  - Previously employed currently unemployed ,  Education: associates degree
  - No prior relationships, not sexually active,  non-smoker, no IVDA
- FH:  Paternal Grandfather with multiple tumors
- Medications:  None .
- ALL: NKDA

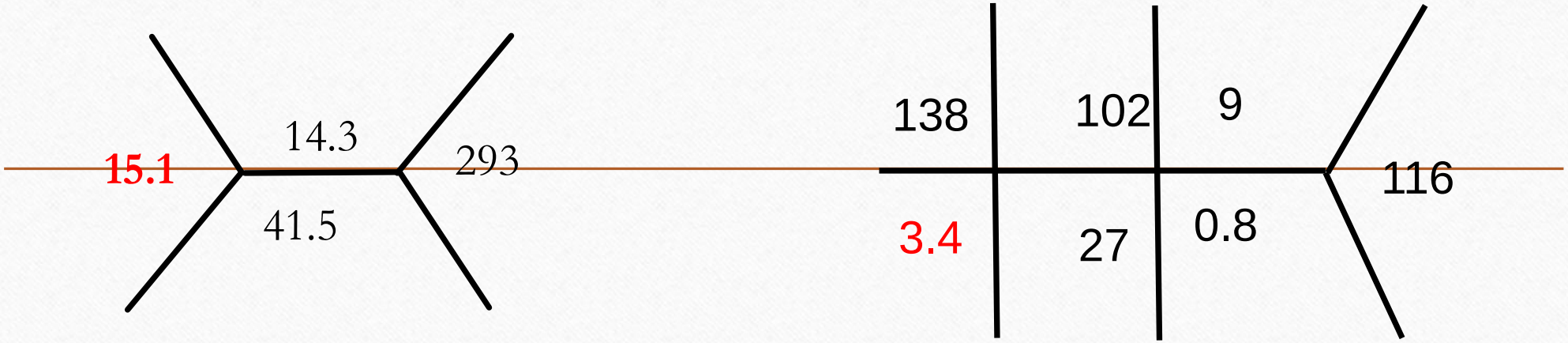
# PE: Vitals: T 97.4, HR 86, RR 16, BP 127/ 79 O2 sat 97% on room air

- GEN: NAD, Awake, Alert oriented only to self , bloody , disheveled appearing
- HEENT: L Posterior auricular 10 cm laceration with dried blood, missing hair. Jaw asymmetry Moderate Hirsutism.
- GI: Distended and protuberant, LLQ palpable abnormality tender to light palpation.
- EXTREMITIES: Dried blood noted on hands without evidence lacerations, scratches or bruises.
- NEURO: B/L Strength WNL in all 4 extremities, reflex intact bilateral 1-2+, sensation intact, no tremors, able to follow commands.
- PSYCH: Gaps in memory of events, bizzare affect, episode of blank staring not responsive to verbal or tactile/ stimuli.
- All other systems within normal limits ( GU, Cardio, Pulm)

# DDX:

| Metabolic Encephalopathy | Limbic encephalitis |
| --- | --- |
| Infectious encephalopathy | NDMA encephalitis |
| Psychosis 2/2 being off medication | Meningitis |
| Acute psychotic Illness | Paraneoplastic Limbic Encephalitis. |
| Seizure Disorder | Hashimoto's encephalopathy |
| PTSD | Narcolepsy |
| Acute exacerbation of psychiatric Illness | Autoimmune encephalitis |

# Laboratory Data




Liver Profile :
T. Bil 0.9
D.Bil 0.2
**Alk Phos:** 131
AST 11
ALT 18
ALB 3.9
T. Protein 8.1

U/A : negative
**Except**
Occult blood 1+ A
Rbc 6

**Lumbar puncture:**
Appearance: clear
no atypical cells
RBC 0
WBC 1
Protein: 52
Glucose: 73
VDRL: negative
Crypto: negative

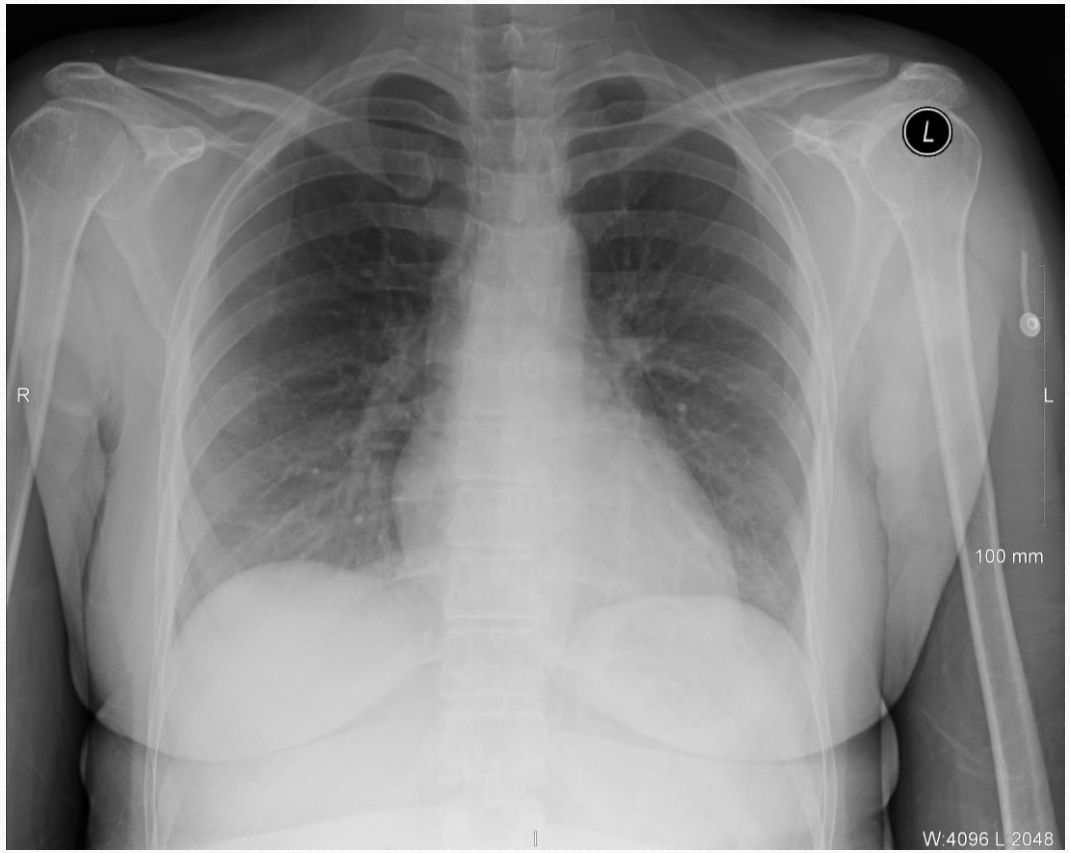
# Labs Continued

TSH: 0.994
Mg: 2.3
**Crp: 0.85**
Vit B12: 489
**Bhcg: negative**
**UDS Negative**
**RPR: non reactive**
**Folate >24.0**

ANA: negative
DS-dna: neg
HIV neg
HSV 1 &2 negative
Thyroglobulin Ab 10
**TPO Ab 256**
(Repeat TPO wnl)

Misc Labs :
Serum Osm: 286
LH: 3.0
FSH: 2.9
Estradiol: 73
Hba1c: 5.3
Blood Cltx : neg

# Imaging Data




CXR: Heart size is not enlarged. No focal consolidations or significant pleural effusions. No pneumothorax.

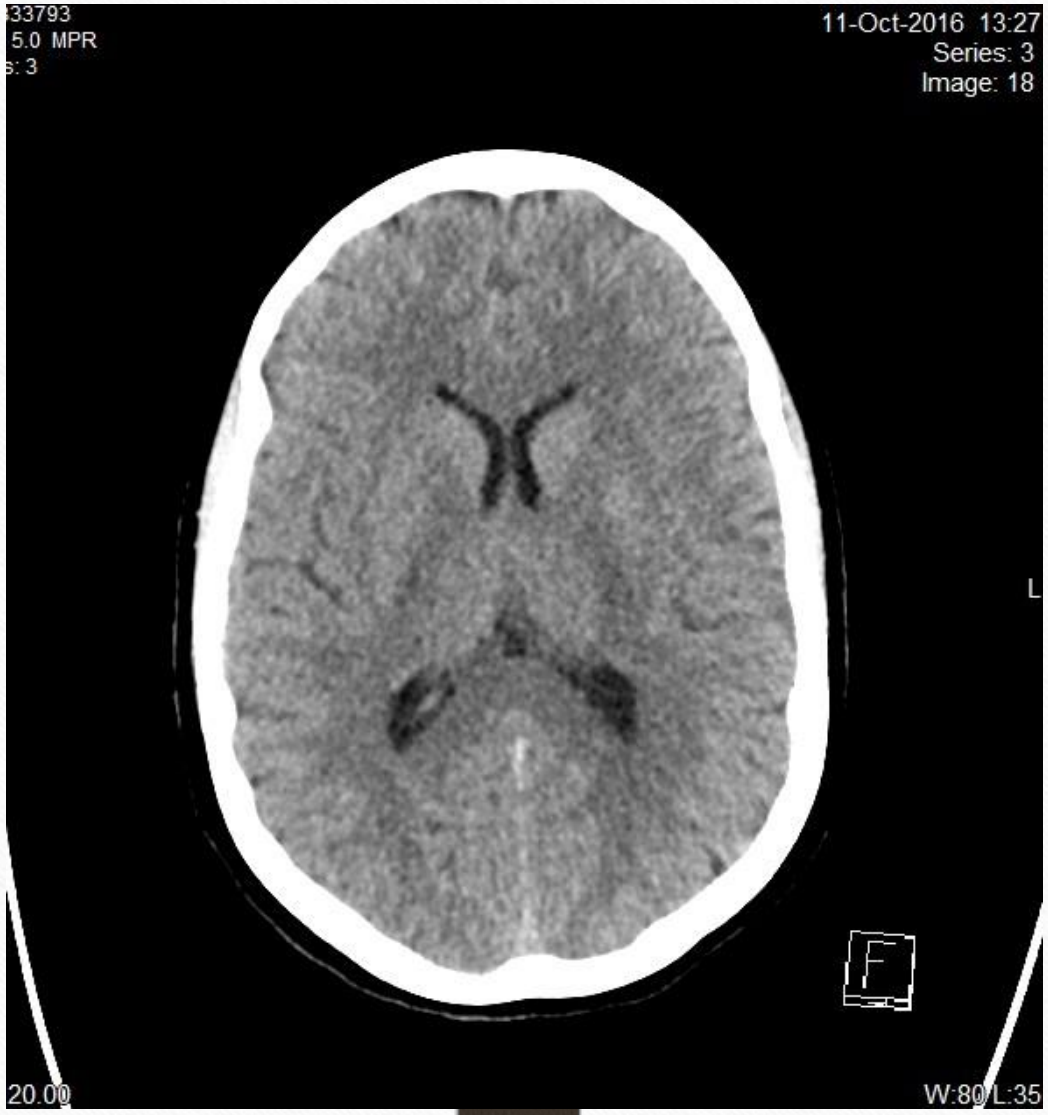
**Pelvic US**: Normal sonographic examination of the pelvis.

**CT ABD & Pelvis with**: No evidence of metastatic disease in the abdomen or pelvis. Bilateral adnexal follicles ,there is no pelvic adenopathy.

**CT chest**: The thyroid is unremarkable. No mediastinal or hilar adenopathy. Heart size is normal. There is no evidence of focal consolidation, pleural effusion or pneumothorax. No osseous lesions seen.

# Radiographic Assessment

Dr. Brian Fletcher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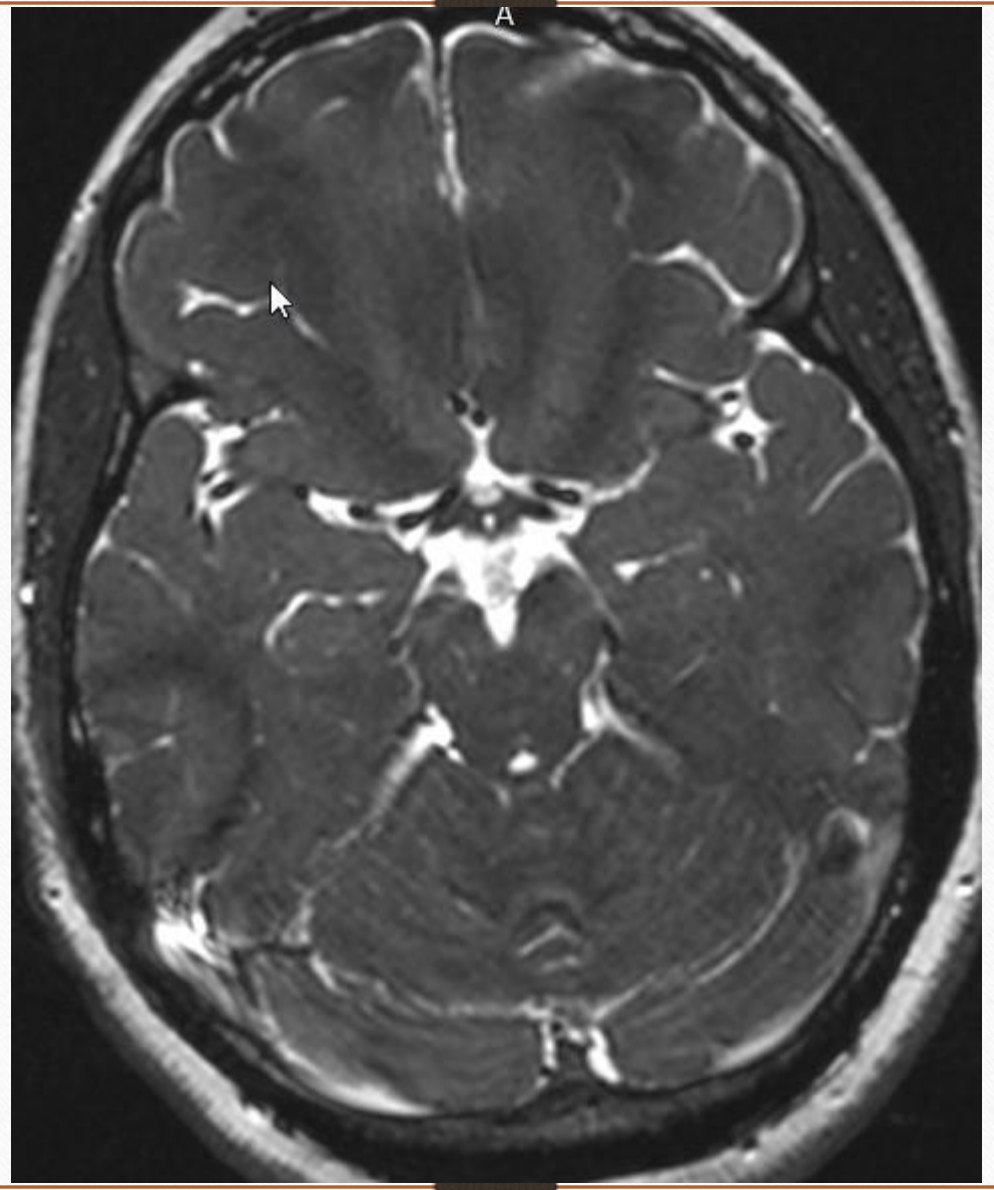
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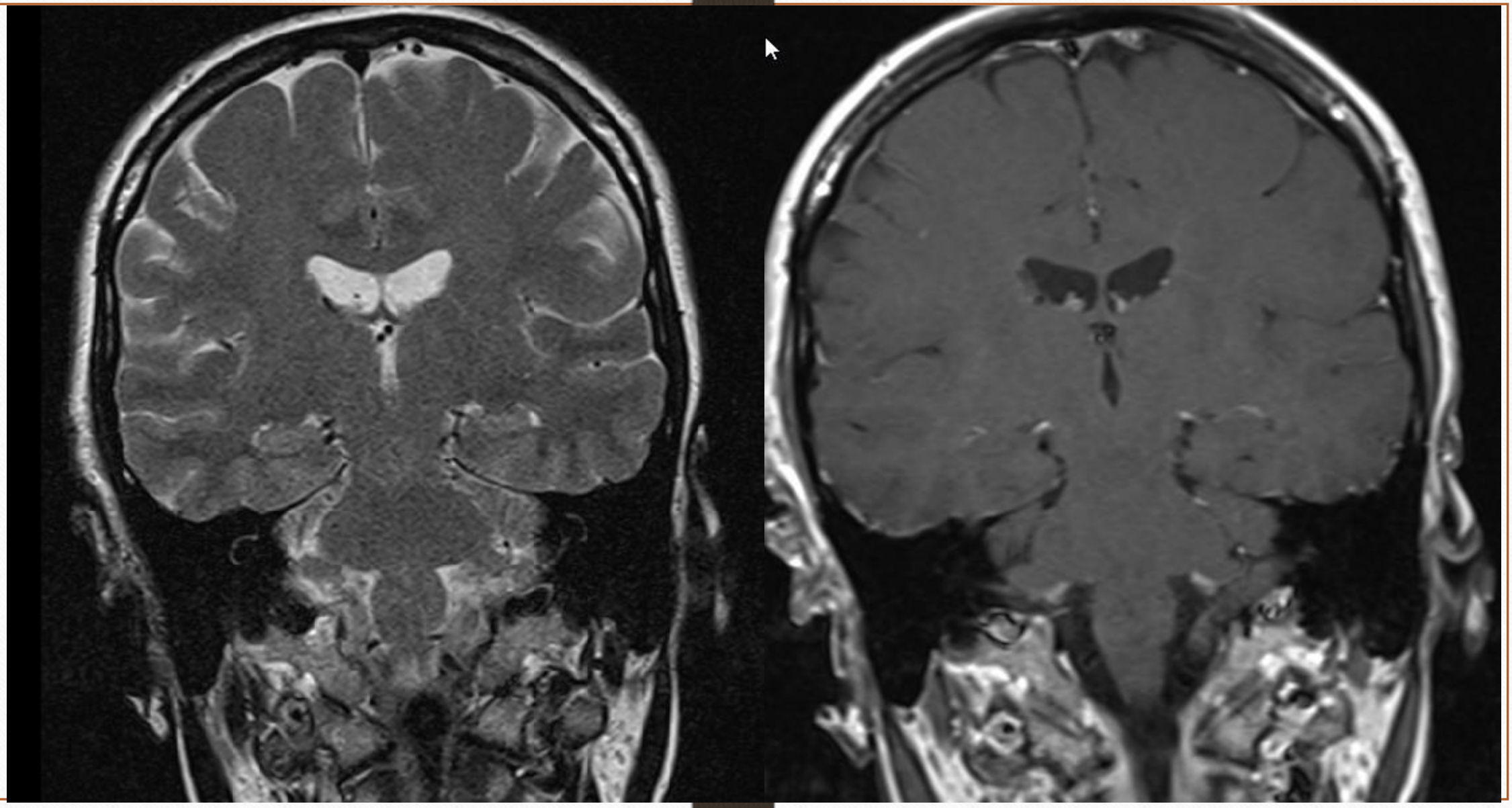


# Consult-Liaison Psychiatry/ Psychosomatic Medicine

Dr. Yankel Girshman

# Psychosis

- Psychosis is a term used to describe a disconnect from reality which may contain **strange** or **bizarre thoughts**, abnormal **perception** (sight, sound), abnormal **behavior**, abnormal **emotions** and/or abnormal **speech**.

- Then what is reality?

# Schizophrenia

- Criteria A.
  - Two or more of the following for 1 month. (At least one criteria must be 1, 2, or 3)
    - 1. **Delusions** 2. **Hallucinations** 3. **Disorganized Speech**
    - 4. **Disorganized Behavior**
    - 5. **Negative Symptoms (diminished emotion, avolition, etc.)**
- Criteria B.
  - Disturbance in **functioning**; work, interpersonal, care, school.
- Criteria C.
  - Signs of disturbance for **6 months**.

# Schizophrenia

- 1% worldwide
- First break: Male~18-25yo & **Female~21-30yo**

- Schneiderian "first rank" symptoms.
  - **Running commentary**
  - **Voices speaking to each other**

# Psychosis in the Medical/Surgical Setting

- Drug & Alcohol Intox/Withdrawal
- Primary Psychotic Illness
- Mood Disorder w/ Psychosis
- Delirium (Medical Illness)
- Lupus
- Stroke
- Seizures
- Tumor (CNS Lymphoma, GBM, Sinus Thrombosis, Meningioma)
- Infection (Meningitis/Encephalitis) (Syphillis, Bacterial, HSV, Lyme, HIV, CMV, Toxo, etc)
- Paraneoplastic Limbic Encephalitis
- Neurocognitive Disorder (Demenita, Parkinson's, LBD, +)
- Prion Disease
- Wilson's Disease
- Electrolyte/Hormone Abn (Thyroid, Pheo, Sodium, Calcium, etc.)
- Congenital (MR, Huntington's)
- MERRF/MELAS
- Toxin/RX (Sinemet, Lead, Steroids)
- Dissociative/Amnestic

# Consult-Liaison Psychiatry Perspective

- 37 year old, with prior diagnosis of Learning Disability and "Borderline PD or Mild Schizophrenia", brought in for cutting herself.
- She exhibited slowed and slurred speech, not oriented to date but denied psychotic sx (hallucinations, delusions, etc), denied mood sx, denied suicidality, and was not aware that she cut herself.
- Parents deny past suicidality, do not feel that she was trying to hurt herself and are vaguely implying that she may have lost consciousness.
- Patient was diagnosed with "Borderline PD or Mild Schizophrenia" only 3 years ago and has been psychiatrically hospitalized once and treated with multiple psychotropics.

# Consult-Liaison Psychiatry Perspective

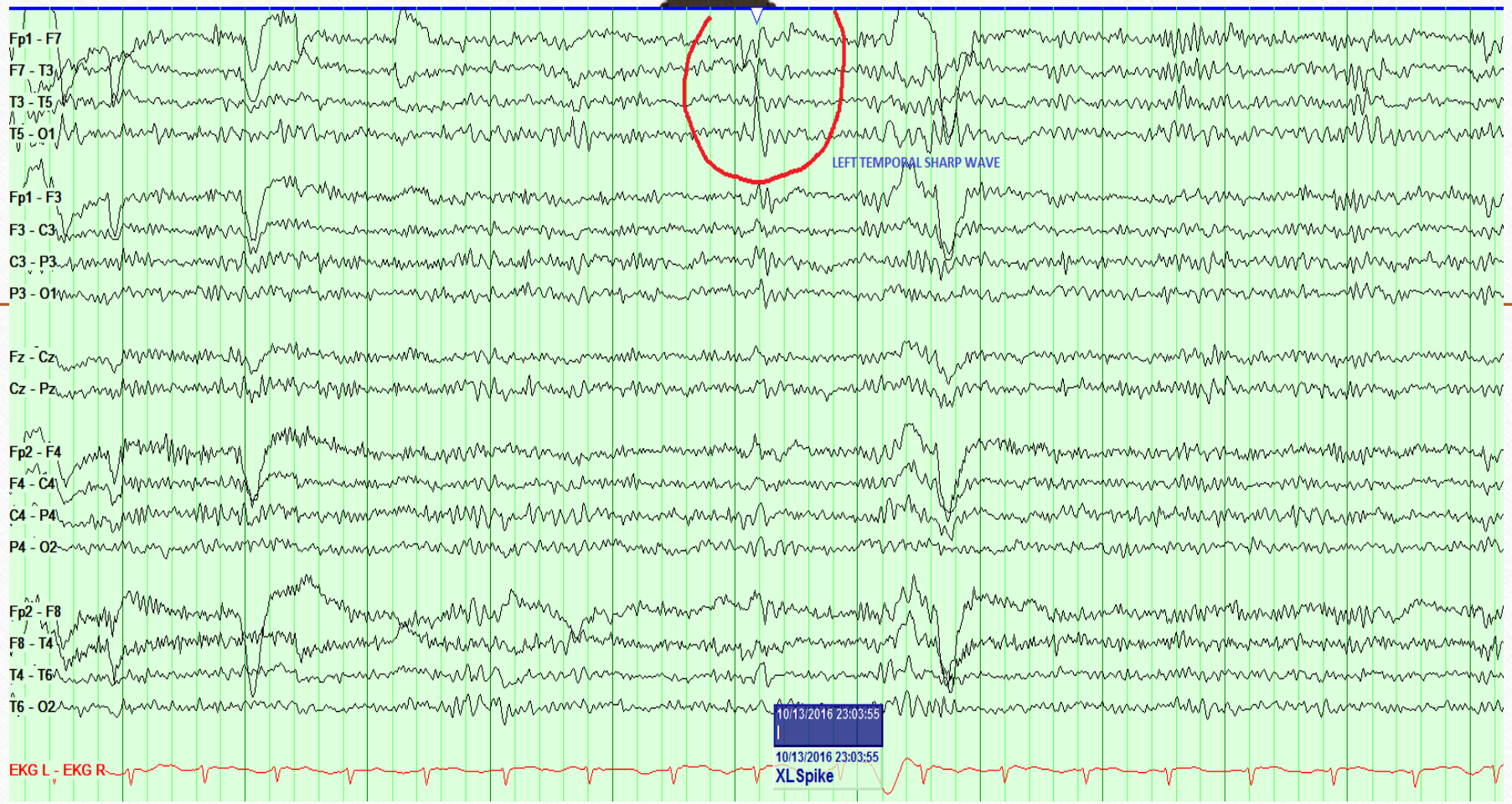
- No drug or alcohol use.
- Degree in medical billing, h/o special education, no children or partner.
- Living with parents.
- Family h/o multiple tumors within 1 relative.
- H/o sexual abuse.
- No medications and no medical issues.

# Consult-Liaison Psychiatry Perspective

- **Mental Status Exam**
  - Tall, poorly groomed, appearing younger than stated age, hirsutism on face.
  - Mildly sedated but staring intensely, limited facial expression, mouth open.
  - Blood stains trailing from behind her left ear and onto the neck area of her gown.
  - Oriented to person, place and situation but not date.
  - Odd, slurred speech, only answering when addressed with questions.
  - Affect flat but reactive, inappropriate.
  - Though process was limited but relevant. Thought content did not include suicidality or delusions.
  - No perceptual disturbances but patient was concrete and had short term memory impairment.

# Consult-Liaison Psychiatry Summary

- **Summary**
  - Late onset diagnosis.
  - Unusual area to cut oneself.
  - Disorientation, lethargy and short term memory impairment with ? LOC.
  - Hirsutism
  - No hallucinations or delusions but odd affect and facial expression.
  - Patient and family deny suicidality.



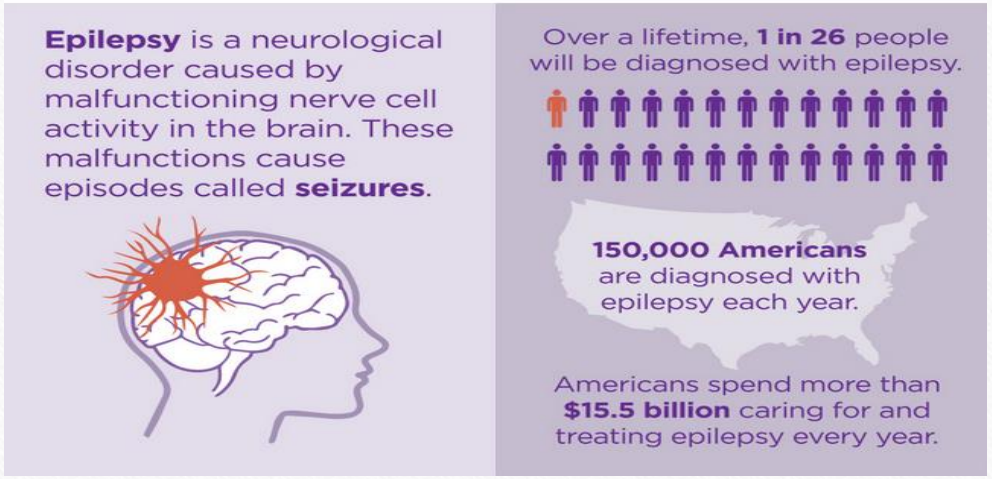

# Temporal Lobe Epilepsy

# Neurology

Dr. Patricio Espinosa

# Epilepsy Facts

- Epilepsy is a chronic disorder of the brain that affects people of all ages.
- Around 5.1 million people have epilepsy in the US.
- 2nd most common neurological disorders in the acute setting




References
Kobau R, Luo Y, PhD, Zack M, Helmers S, Thurman D. Epilepsy in adults and access to care — United States, 2012. *MMWR*. 2012;61(45);909-913. . Accessed October 10, 2014. pdf [863KB].
US Census Bureau, Population Division [database online]. Annual estimates of the resident population by sex, age, race, and Hispanic origin for the United States, States, and Counties: April 1, 2010, to July 1, 2013. Release Date: June 2014. html. Accessed February 2, 2015.
Russ SA, Larson K, Halfon N. A national profile of childhood epilepsy and seizure disorder. *Pediatrics* 2012;129:256–64. DOI: 10.1542/peds.2010-1371.

Institute of Medicine. Epilepsy Across the Spectrum: Promoting Health and Understanding. Washington, DC: The National Academies Press, 2012.

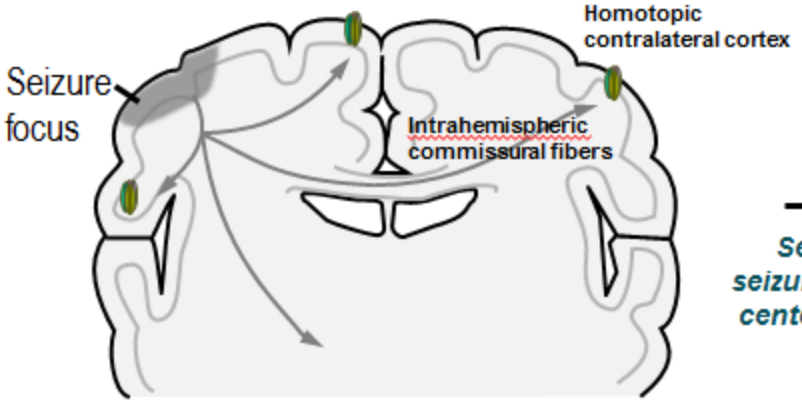
# Seizures and Epilepsy

- Seizure
  - Change in body movement, function, sensation, awareness, or behavior due to transient, hypersynchronous, abnormal electrical activity in the brain lasting seconds to minutes[1-3]
- Epilepsy: disease of the brain defined by any of the following[2]:
  - At least two unprovoked seizures occurring >24 hours apart
  - One unprovoked seizure and a probability of further seizures
    - Probability similar to general recurrence risk (at least 60%) after two unprovoked seizures, occurring over the next 10 years
  - Diagnosis of an epilepsy syndrome
- Convulsion
  - Episodes of excessive, abnormal muscle contractions, usually bilateral, which may be sustained or interrupted[1]

1. Blume WT et al. *Epilepsia*. 2001;42:1212-1218. 2. Fisher RS et al. *Epilepsia*. 2014;55:475-482. 3. Institute of Medicine of the National Academies. *Epilepsy Across the Spectrum: Promoting Health and Understanding*. 2012.

# Pathways for Seizure Propagation

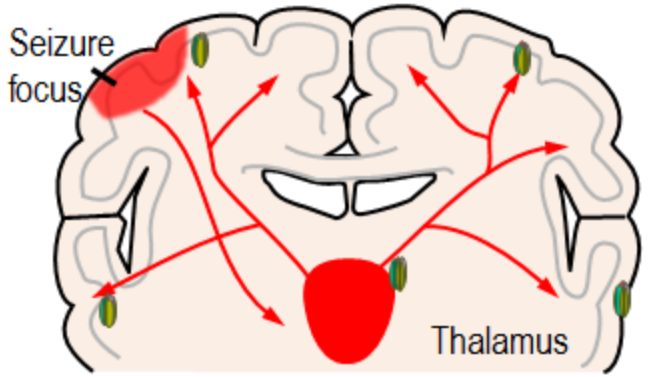
## Focal Seizure




**Spread**

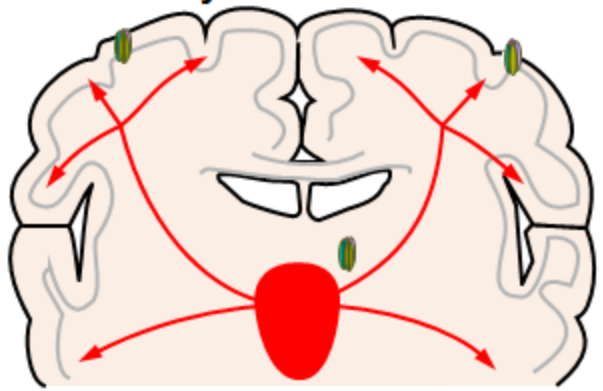
***Secondarily generalized seizures spread to subcortical centers via projections to the thalamus***

## Secondarily Generalized Seizure




= AMPA receptor

## Primary Generalized Seizure



***Widespread thalamocortical interconnections causes rapid activation of both hemispheres***

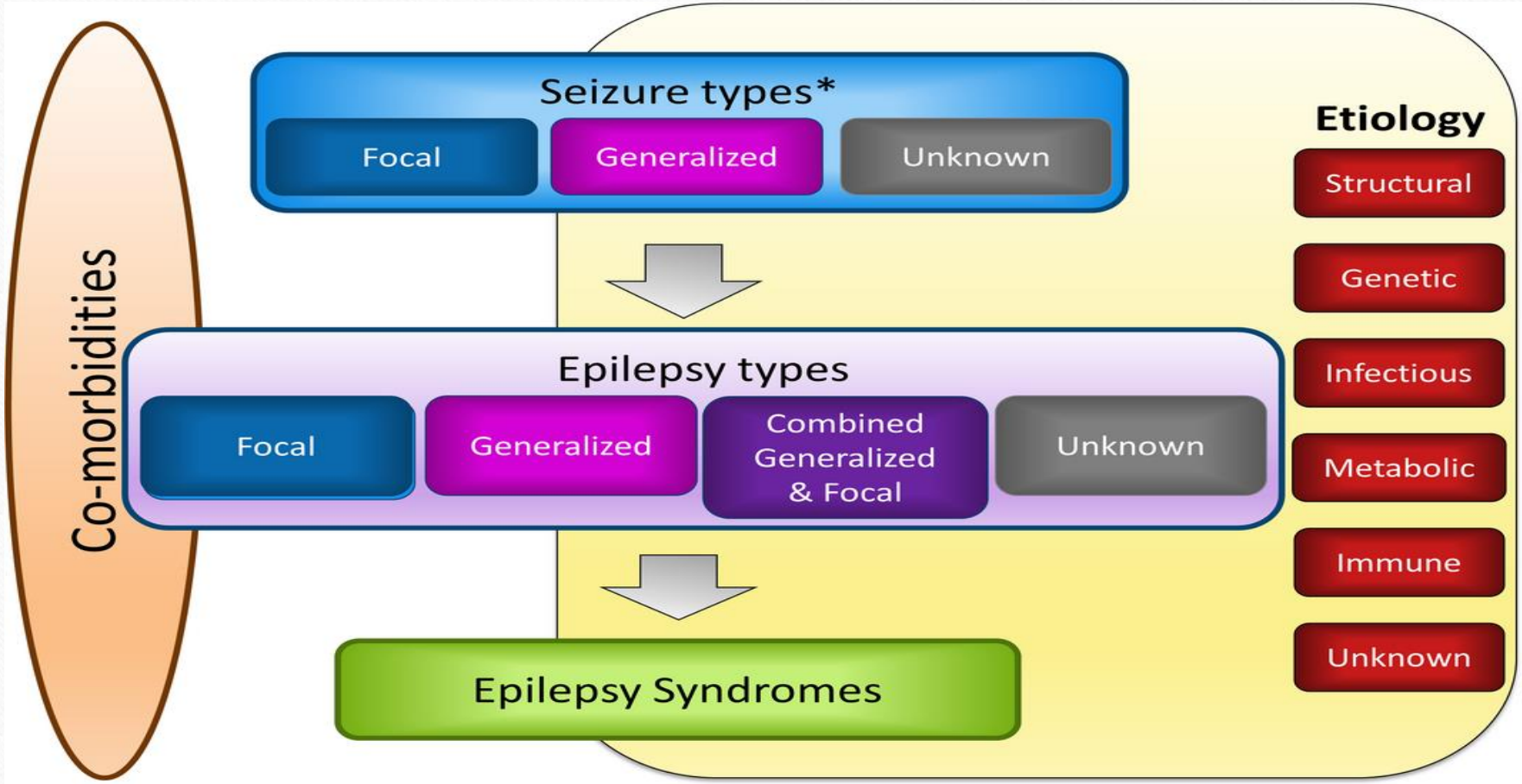
In addition to their role in generating local discharges, AMPA receptors mediate the spread of excitatory signals along long pathways.

Thalamocortical and corticothalamic transmission utilizes glutamate as neurotransmitter. The glutamate acts on AMPA receptors.

Similar cortical/thalamic mechanisms come into play in secondarily generalized tonic-clonic (TC) seizures and in primary generalized TC seizures.

Westbrook GL. Seizures and epilepsy. In: Kandel ER et al, eds. *Principles of Neural Science*. 5th ed. New York, NY: McGraw-Hill; 2012.

**ILAE classification of the epilepsies: Position paper of the ILAE Commission for Classification and Terminology 2017**

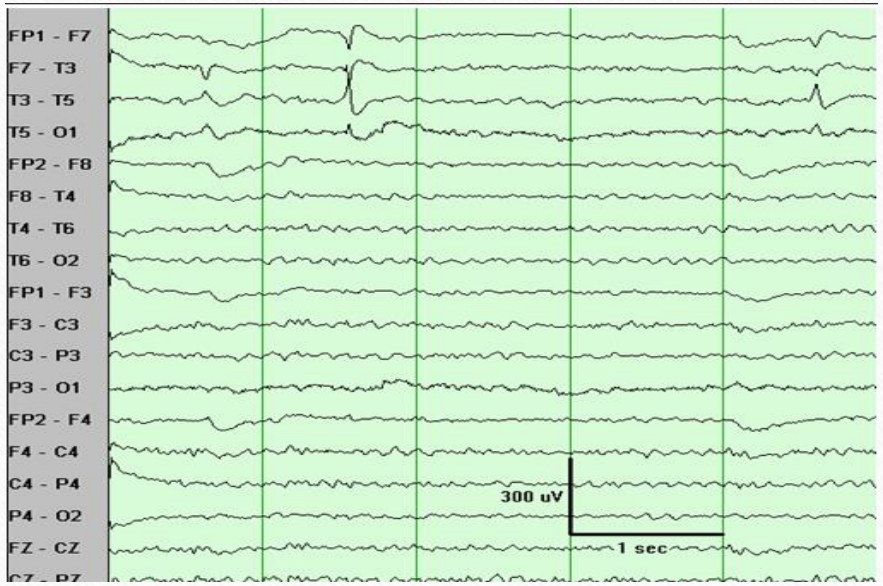



**Epilepsia**
8 MAR 2017 DOI: 10.1111/epi.13709
http://onlinelibrary.wiley.com/doi/10.1111/epi.13709/full#epi13709-fig-0001

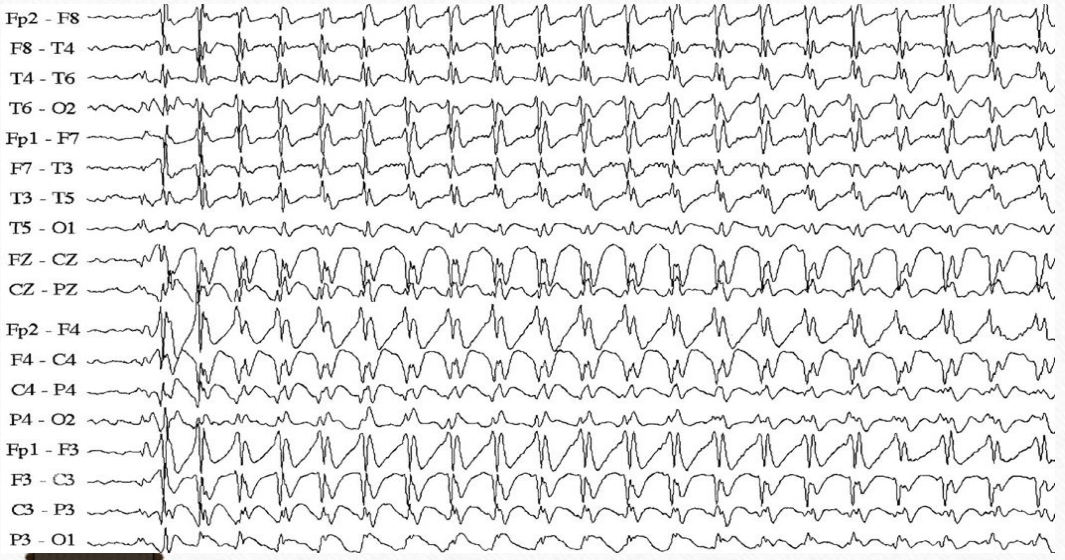
# Frequency and Type

- Seizures can be divided in 2 main types:

**- Focal Seizures**



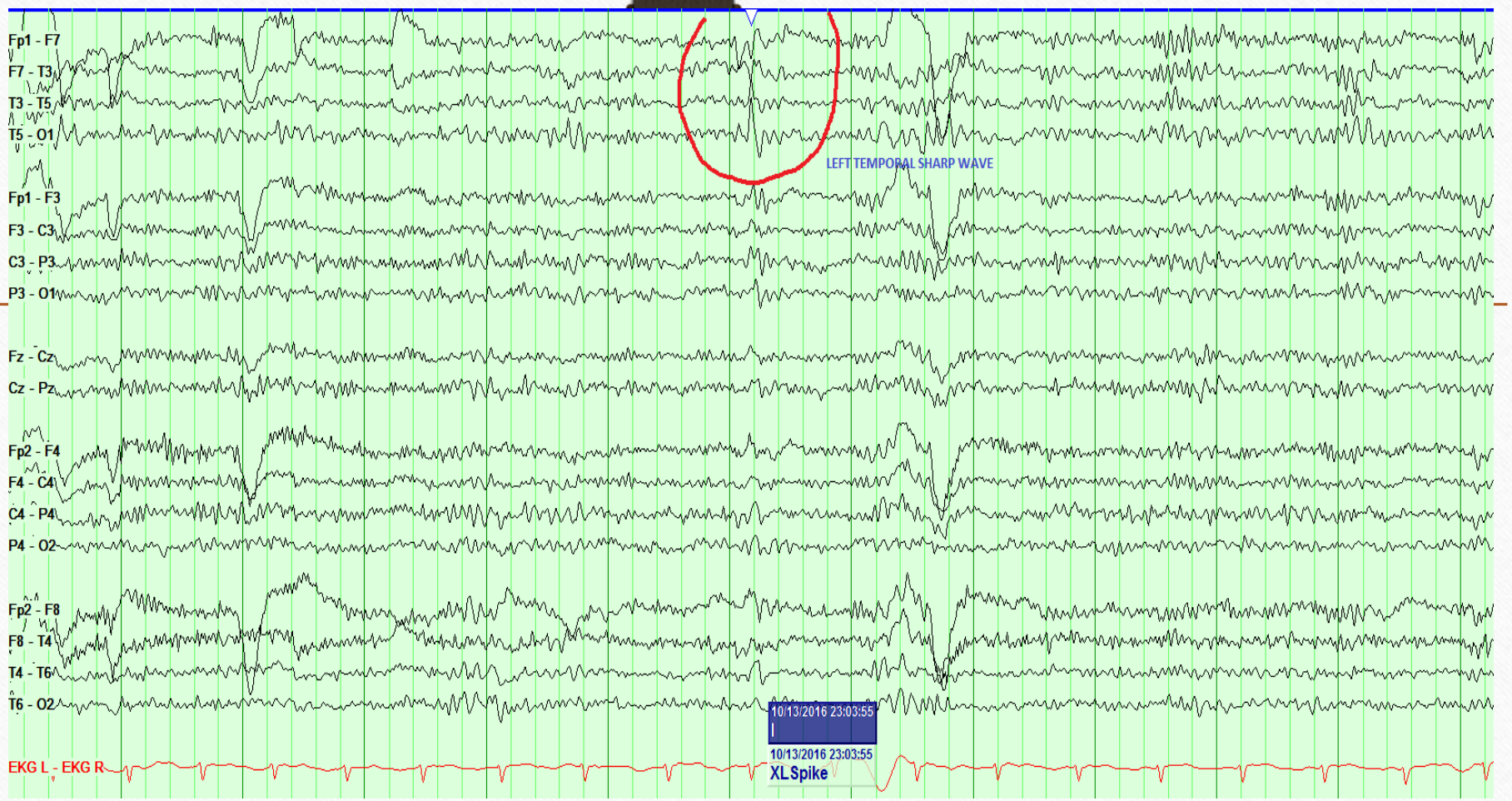

**- Generalized Seizures**



## Manifestations of Focal Epilepsies

- Etiology of focal epilepsy can be[1,2]:
  - Symptomatic/structural: known etiology
    - Various lesions (trauma, malformations, infections, etc)[3]
    - Causes unknown[3]
  - Idiopathic/genetic: eg, benign rolandic epilepsy
  - Unknown: most common
- Clinical manifestations of focal seizures depend on the site of onset[1]:
  - Temporal (mesial or neocortical)
  - Frontal
  - Parietal
  - Occipital

1. Commission on Classification and Terminology of the International League Against Epilepsy. Proposal for Revised Classification of Epilepsies and Epileptic Syndromes. *Epilepsia*. 1989;30(4):389-399.
2. Berg AT et al. *Epilepsia*. 2010;51:676-685. 3. Besag FM, Patsalos PN. *Neuropsychiatr Dis Treat*. 2012:8:455-464.




# EEG Findings

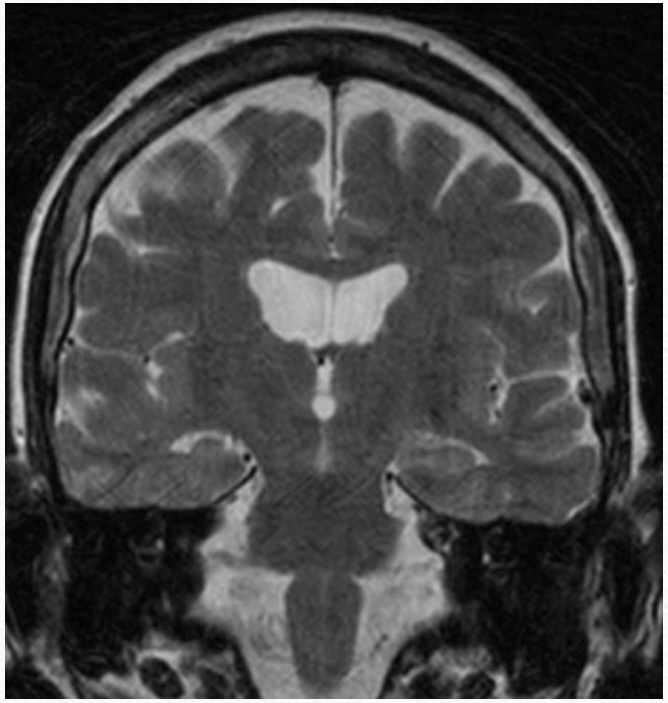
Diagnosis: Temporal Lobe Epilepsy

# Temporal Lobe Epilepsy

- Constitutes 2/3 of localized epilepsies
  - Mesial Temporal Lobe Epilepsy
  - Neocortical Temporal Lobe Epilepsy
- The natural history of temporal lobe epilepsy is variable ~40% can continue to have seizures despite of appropriate treatment.

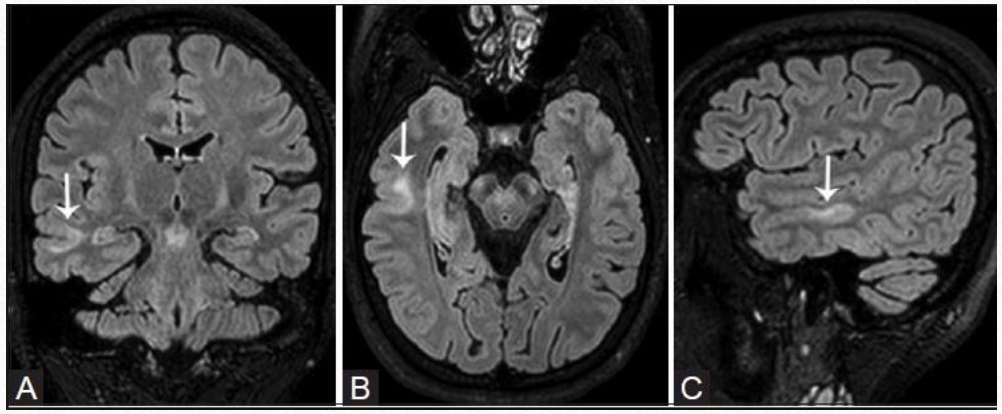
# Mesial Temporal Lobe Epilepsy

- - Risk Factors: Febrile sz, CNS infections, Perinatal Injury
- - Auras: abdominal sensations, fearful feelings, anxiety, olfactory disturbances, deja vu, automatisms,
- - Secondary GTCSs



# Neocortical Temporal Lobe Epilepsy

- The clinical presentation is less well defined
- - Sz start at the 3th decade of life
- Risk Factors: No hx of Febrile sz, Head Trauma, CNS infection, intellectual disability.
- Ictal activation of the cortex cause patient clinical symptoms; Auras, non specific sensations and psychic phenomenon



# Postictal Psychosis Clinical features:

- The typical patient is psychiatrically well until a cluster of tonic–clonic seizures, with or without complex partial seizures, occurs.
- After an initial postictal period marked by confusion and lethargy, the patient improves for hours to days (the lucid interval).
- Subsequently, psychotic symptoms develop and typically last days to weeks

# Risk Factor Postictal Psychosis:

1. Focal  Epilepsy, especially Temporal lobe epilepsy, is considered a critical risk factor for PP
2. Evidence of  bilateral or widespread CNS injury, including encephalitis,
3. Head injury/Head trauma
4. Bilateral interictal epileptiform activity and EEG slowing
5. Borderline intelligence

Orrin Devinsky, MD Postictal Psychosis: Common, Dangerous, and Treatable Epilepsy Curr. 2008 Mar; 8(2): 31–34.

# AEDs for Focal Epilepsy

**1st Generation**

- Phenobarbital
- Carbamazepine
- Phenytoin
- Valproate

**2nd Generation**

- Gabapentin
- Pregabaline
- Zonisamide
- Oxcarbazepine
- Lamotrigine
- Levetiracetam
- Topiramate

**3rd Generation**

- Perampael
- Lacosamide
- Vigabatrin
- Eslicarbazepine
- Ezogotamine
- Brivaracetam

# Thank You

Questions?