Psychogenic nonepileptic seizures (PNES)

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Non-Epileptic Paroxysmal Events

1. TIA
2. Migraine
3. Sleep disorders
4. Movement disorders
5. Panic Disorder
6. Psychogenic Non-epileptic seizures
7. Syncope
8. Demyelinating Disorder

- **Three broad categories of psychogenic states** seem to generate pseudoseizures:
  (1) **panic** disorder that is itself common in people with epilepsy
  (2) **dissociative disorders**, in which convulsions are typically prolonged, resembling generalized tonic-clonic seizures, or alternatively, swooning as in a faint or presyncopal spell, or blank spells that closely simulate absence seizure
  (3) **malingering**

Psychogenic nonepileptic seizures (PNES)

- Sudden and involuntary episodic events (paroxystic)
- Associated with motor, sensory, mental or autonomic manifestations
- During PNES, **normal functioning of central nervous system is altered,** and self-control is reduced.

There are no pathognomonic signs that allow us to totally rule out epileptic seizures

Definition of PNES

- Transient/paroxysmal events that resemble epileptic seizures in clinical signs and symptoms
- Manifestations of psychological distress and/or psychiatric disorder (e.g., conversion, dissociation, or anxiety)
- Not related to cortical hyperexcitability (i.e., ictal epileptiform discharges)

Epidemiology

- Prevalence of PNES in Epilepsy monitoring Unit: 20-40%
- Prevalence: 2-33 in 100,000
- Mean time to Diagnosis : 7-10 Yr

Making the diagnosis : History

- **Predictors from Pt's description of events**:
  1) focus on situations in which seizure have occurred or consequences of seizures
  2) subjective seizure symptoms listed but not described in detail

NES: Patient Characteristics

- 80% occur in the 15-35 age group
  - Children and elderly also develop NES
- ~80% are women
- 5-10% also have epilepsy
- Up to 50% will report an epilepsy risk factor (e.g., head trauma)
- ~70% have other psychiatric diagnoses

Other clues to nonepileptic seizures:

- **highly resistant epilepsy** in an individual with **normal cognitive function** and **normal brain imaging**
- A background of unexplained medical problems
- **previous psychological problems** (depression, panic disorder, overdose, self harm, addiction), and a life story that includes **intense emotional trauma**.
- **Prolonged *fugue*** ***states*** usually prove to be manifestations of hysteria or a psychopathy, that is, a dissociative state, **even in a known epileptic**.
- The serum **creatine kinase** levels are normal after nonepileptic

- Dissociative (conversion) disorders are characterized by the **partial or complete loss of normal integration between certain memories of the past**, awareness of one's own identity and sensations of loss of control of body movements

Making the Diagnosis: Semiology

6-item bedside diagnostic tool:

- **To diagnose PNES with motor features similar to generalized motor seizures (to be used in ED)**

	EPILEPTIC	NONEPILEPTIC
EYES	Open	Closed
HEAD	Fixed, Unilateral Version	Side-to-side head movements
LIMBS	In phase / same direction	Out-of-phase limb movements
BODY (AXIS)	Straight / anterior flexion	Opisthotonus / arching
BODY (MOVEMENT)	No rotation	Intense rotation in bed
EVOLUTION	Continuous course	Fluctuating course

De Paola et al., Epilepsy & Behav 2016

The **unconventional motor display** in the course of a nonepileptic seizure

- Completely asynchronous thrashing of the limbs
- Repeated side-to-side movements of the head
- Striking out at a person who is trying to restrain the patient
- Hand biting
- Kicking
- Trembling, and quivering
- Pelvic thrusting and opisthotonic arching postures
- Screaming or talking during the ictus
- The eyes are kept **quietly or forcefully closed** in pseudoseizure whereas the lids are **open** or show **clonic movement** in epilepsy.

Psychogenic spells are likely if:

- Attacks are prolonged (many minutes, even hours)
- There is rapid breathing (whereas apnea is typical during and after a seizure)
- There is tearfulness after an episode
- Tend to occur in the presence of **observers**
- To be precipitated by emotional factors
- **With few exceptions**, tongue-biting, incontinence, hurtful falls, or postictal confusion are lacking
- **If the tongue is bitten** in one of these spells it is usually in the **front**, compared to the lateral tongue injury that is characteristic of an epileptic attack.
- **Incontinence** ***does not assist*** in making a **clear** distinction from epileptic seizures.

- **non-synchronic hypermotor symptoms**, were not actually specific since they could also be seen in epileptic seizures originated in the frontal lobe
- **Injuries** during seizures such as **tongue biting**, bumps and **falls:** 8% to 31% of patients with PNES
- **Loss of sphincter control** and the appearance of **seizures during sleep**, have been also described in some patients with PNES, although they are more frequent in epilepsy.

VEEG the method of choice to confirm the differential diagnosis

Making the Diagnosis: Physiologic Measures

Physiologic measures:

- **Prolactin (PRL): elevated serum PRL in patients with GTC ES vs. PNES**
- **[redacted] Twice normal elevation in serum PRL, drawn 10-20 min after ictal onset, c/t baseline, is useful adjunct to differentiate GTC (88% sens) and CPS (64% sens) ES from PNES**
- **False positives: DA antagonists, TCAs, syncope**
- **False negatives: DA agonists, status, frontal lobe ES**
- **Not reliable: serum cortisol, DST, salivary amylase**

Comorbid PNES and ES

- Studies report 5-50% of pts with PNES also have ES (video-EEG)
  - Varying definitions of ES
- ES typically begins before PNES
- Similar semiology in 40-64% although PNES duration typically longer, with greater frequency; PNES is usually stereotyped and distinguishable from ES