ECHO IDAHO

Behavioral Health in Primary Care

Functional Neurological Disorders

4/1/26

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Project ECHO

I have no disclosures

University of Idaho
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Project ECHO

"Conversion disorders are disorders of communication and language, not necessarily aphasias, but disorders of expression, in some ways a cognitive dyspraxia of the self. The cure comes in 'knowing oneself' "

-LaFrance, 2013

Objectives

1. Become familiar with the variety of names used to describe functional neurological symptom disorders
2. Recognize signs and symptoms of functional neurological symptom disorder
3. Learn to differentiate epileptic seizures from non-epileptic seizures

Case: The Happiest Kid

- Consult Call: we have an 18 year-old female with left sided blindness, left sided weakness and facial droop and stuttering who came in for a stroke. Neurology thinks this is conversion disorder.
- Me: Ok. What else do we know about her?
- Consulting MD: It sounds like she has had an eye exam consistent with blindness, but follow up MRI was normal
- Me: any notable medications or labs?
- Consulting MD: none.

Case: The Happiest Kid

Collateral History from family:

“Tasha has always been the happiest kid. Nothing ever gets to her, so when that other doctor said there was nothing wrong with her, we knew that couldn’t be right. I mean, how in the world could someone make all this happen?”

“What have you observed?”

“Well, she is so weak on the left that she can’t walk. She’s been blind in her left eye since about 4 months ago. We went to the eye doctor and see (shows results of a visual field test), she is completely blind on that left side of the left eye. That’s proof. And the poor girl can’t manage to get a word out. I don’t know why they keep talking about stress. She isn’t stressed out. We also have a picture of when she had the stroke (shows picture of left droop with intact nasolabial fold)”

Case: The Happiest Kid

Past Psychiatric History, family hx, PMH: none

Past Surgical History per chart: appendectomy, cholecystectomy

Studies Review:

- CBC, Chem 10, urinary tox screen all wnl
- MRI brain w/o x 3: normal
- MRI brain orbits w/wo: normal
- CTA head and neck: normal
- TTE w/ bubble: normal
- CSF: normal

Case: The Happiest Kid

Mental Status Exam:

General Appearance: well developed, appears stated age, adequately groomed; dressed in hospital attire. No noticeable facial droop

MSK: normal tone, gait and station not tested due to patient condition

Motor Behavior: Facial twitching, grimacing, tongue thrusts and twisting along with a shoulder twitch when speaking

Speech: severe stuttering, as if trying to spit out words, loud volume ,decreased spontaneity

Attitude: cooperative to exam, but minimally engaged

Mood: "tired"

Affect: restricted, with limited reactivity

Thought process: coherent, logical, linear and goal directed without signs of a formal thought disorder

Thought content: Denies SI/HI. No indication of paranoia or delusions, no perseveration

Perceptual disturbances: denies auditory, visual, tactile, gustatory and olfactory hallucinations

Sensorium: Awake and alert, appropriately attentive

Orientation: oriented to person, place, date

Memory: intact to recent events

Insight: limited

Judgment: limited

Case: The Happiest Kid

Family's Differential:

- Family has spent a great deal of time researching online
- Their differential includes:
  - Stroke that is being missed
  - Tourette's syndrome
  - Bell's Palsy
  - Huntington's Disease
  - Multiple Sclerosis
  - Partial Paralysis
  - Heavy Metal Poisoning

Case: The Happiest Kid

What is on your differential diagnosis?

Primary Neurological Condition vs Functional Neurological disorder (conversion) vs Malingering

Argument for Primary Neurological Condition

eye exam concerning for blindness, symptoms seem neurological (droop, weakness, stuttering), family denies patient has any stress

Argument for Functional Neurological disorder

4 negative MRIs, negative CSF, atypical speech abnormality, no evident neurological explanation for her particular clustering of symptoms, visual field defects are not purely objective

Case: The Happiest Kid

A little Social History:

- Tasha grew up with her mother, father and brother
- She is a senior in high school
- She has a part time job
- **Her child is almost a year old**
- Unusual living arrangement

Show of hands- Stressful or Not?

Diagnosis: Functional Neurological Disorder

Functional Neurological Disorder

"Functional neurological disorder (FND) is a medical condition in which there is a problem with the functioning of the nervous system and how the brain and body sends and/or receives signals, rather than a structural disease process such as multiple sclerosis or stroke. FND can encompass a wide variety of neurological symptoms, such as limb weakness or seizures…

One way of thinking about FND is looking at it as a bit like a 'software' problem on a computer. The 'hardware' is not damaged but there is a problem with the 'software' and so the computer doesn't work properly. "

-Functional Disorders Research Group of National Organization for Rare Disorders

Functional Neurological Disorder

Other Common Names / Synonyms:

- functional neurological symptom disorder (adopted in DSM5)
- functional movement disorder
- conversion disorder
- psychogenic seizures / movement disorder
- dissociative seizures / motor disorder
- non-epileptic seizures
- Pseudo-seizures
- FND
- Psychogenic attacks

Functional Neurological Disorder

Epidemiology:

- True incidence and prevalence hard to quantify
- Some research indicates that it is the 2nd leading cause for a neurological visit second only to headache
- Uncommon in children under 10 years old, but can occur
- More common in women, except after 50, when it seems to effect sexes equally
- However, functional myoclonus and parkinsonism are more common in men

Co-Occurring Disorders and Differential Diagnosis:

- Symptoms may resemble epilepsy, stroke or MS, and there is overlap b/w these
- Anxiety and depression may have physical manifestations that overlap or are misdiagnosed as FND (ex. Panic attack may include numbness and tingling, chronic pain patients may have fatigue, sleep disturbance, headache and poor concentration)
- Irritable bowel and overactive bladder are more common in those with FND
- Because of overlap and co-occurring symptoms, symptoms should be thoroughly investigated before being diagnosed as functional

JAMA Neurol. 2018;75(9):1132-1141. doi:10.1001/jamaneurol.2018.1264

Functional Neurological Disorder

Pathophysiology:

- Exact cause is unknown
- Classic model of conversion – psychological distress is converted to a physical symptom (hysteria)
- Predisposing factors may include:
  - Having another neurological condition
  - Experiencing chronic pain, fatigue or stress
  - Some with FND have none of these risk factors
- May be triggered by physical injury, infectious illness, panic attack or migraine. The thought is the brain gets stuck in a patterned response from these initiators, and the brain needs to be "retrained"
- **While psychological stress and trauma may be risk factors, patients do not have to be survivors of ACEs or have psychological distress**

DSM 5:
Functional Neurological Disorder

Criteria/Diagnosis:

- ✓ One or more symptoms of altered voluntary motor or sensory function
- ✓ Clinical findings provide evidence of incompatibility between the symptom and recognized neurological or medical conditions
- ✓ The symptom or deficit is not better explained by another medical or mental disorder
- ✓ The symptom or deficit causes clinically significant distress or impairment in social, occupational, or other important areas of functioning or warrants medical evaluation

Specifiers:

- With weakness or paralysis
- With abnormal movement (tremor, dystonic movement, myoclonus, gait disorder)
- With swallowing symptoms
- Speech symptoms (dysphonia, slurred speech)
- With attacks or seizures
- With anesthesia or sensory loss
- With special sensory symptoms (visual, olfactory, or hearing disturbance)
- With mixed symptoms
- With Psychological Stressor / Without Psychological Stressor

Functional Neurological Disorder

Signs and Symptoms:

- Functional Motor dysfunction
  - Limb weakness or pain
  - Tremor, spasms, jerking, walking problems
  - Stuttering, whispering of words, slurred speech
  - Seizure like episodes
- Sensory dysfunction
  - Numbness, tingling or pain in face, body or limbs (often one sided)
  - Vision loss or double vision
- Altered Awareness
  - Dissociated, non-epileptic seizures, blackouts and fainting

Functional Neurological Disorder

Types and Signs of Functional Movement Disorders

- Poverty of Movement: Extreme slowness; give-way weakness; inconsistent performance
  - Leg Weakness: hoover sign, hip abductor testing
  - Arm Weakness: drift without pronation, able to remove objects from bag or use personal items inconsistently
  - Parkinsonism: lack of amplitude decrement on tapping, variable resistance during passive manipulation
- Excess of Movement:
  - Tremor: variable frequency, entrainment or suppressible, pauses with contralateral movement, whack-a-mole sign
  - Myoclonus: entrainment or suppressible, variable; axial and facial jerks dominate
  - Dystonia: fixed at onset, variable resistance to passive manipulation, tonic pulling of lips or jaw to one side, closed eyelids resist examiner
  - Tics: not fully stereotyped, interfere with speech and voluntary actions, lack premonitory urge, not voluntarily suppressible
- Axial Manifestations
  - Gait: knee buckling, dragging with forefoot in contact with ground, “ice-walk” slowness
  - Posture: changing positions in time, inconsistent “uneconomic” postures
  - Balance: excessive swaying while walking but without falls or with controlled falls
  - Speech: effortful speech, halting and sudden stutter or dysprosody, foreign accent

Functional Neurological Disorder

What this is Not:

A. Factitious Disorder
   - falsification of physical or psychological signs or symptoms, or introduction of injury or disease, associated with identified deception.
   - Individual presents him herself to others as ill, impaired or injured
   - Deceptive behaviors evident even in the absence of obvious external rewards
   - Behaviors not better explained by another disorder

B. Malingering
   - Malingering is the purposeful production of falsely or grossly exaggerated physical or psychological complaints motivated by external incentives or rewards. These may include money, insurance settlement, drugs or the avoidance of punishment, work, jury duty, release from incarceration, the military, etc.

Functional Weakness Signs

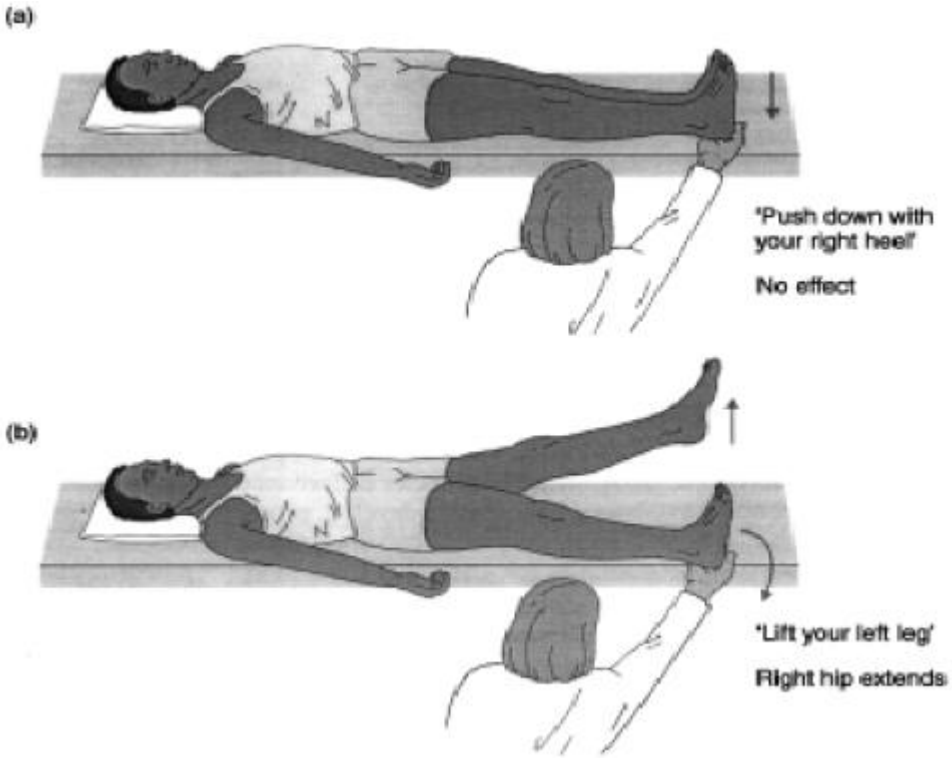
Follow up physical exam

Positive Hoover Sign:

–When asked to flex weak hip, no extension of “good” hip

–When asked to flex good hip, extension is noted in “weak” hip

Try this with a friend. You naturally press one leg down when raising the other.



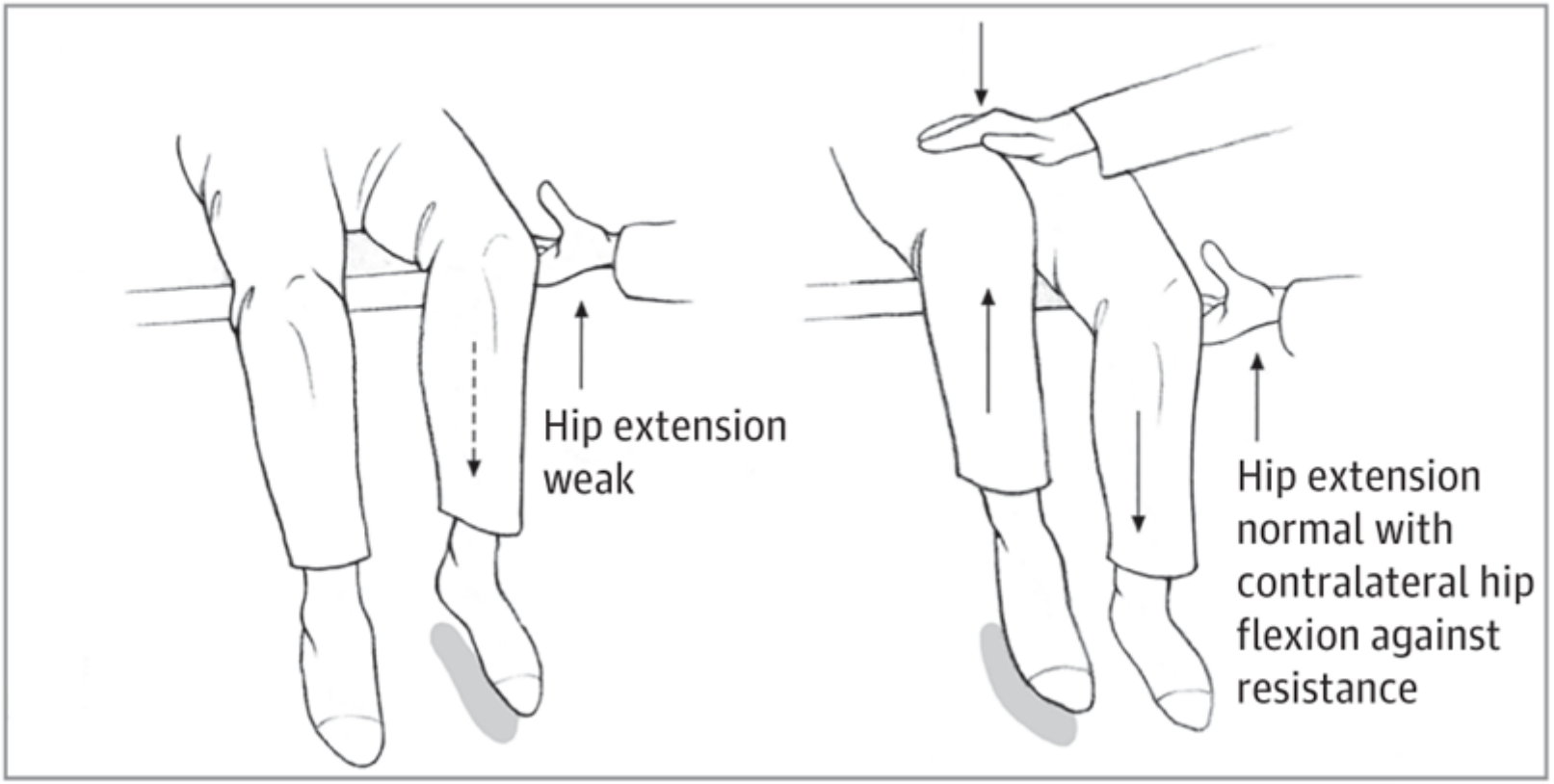
In normal and those with organic hemiparesis, effort is transmitted to “good” hip. Feeling nothing is <u>suggestive</u> of functional weakness.

Stone et al. “Practical Neurology: Hoover’s Sign.” *Neurology: an illustrated colour text*. Fuller and Manford, p116, 1999.

Functional Weakness Signs

Figure. Clinical Signs in Selected Functional Neurological Disorders

A Hoover sign in the weak leg



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Functional Weakness Signs

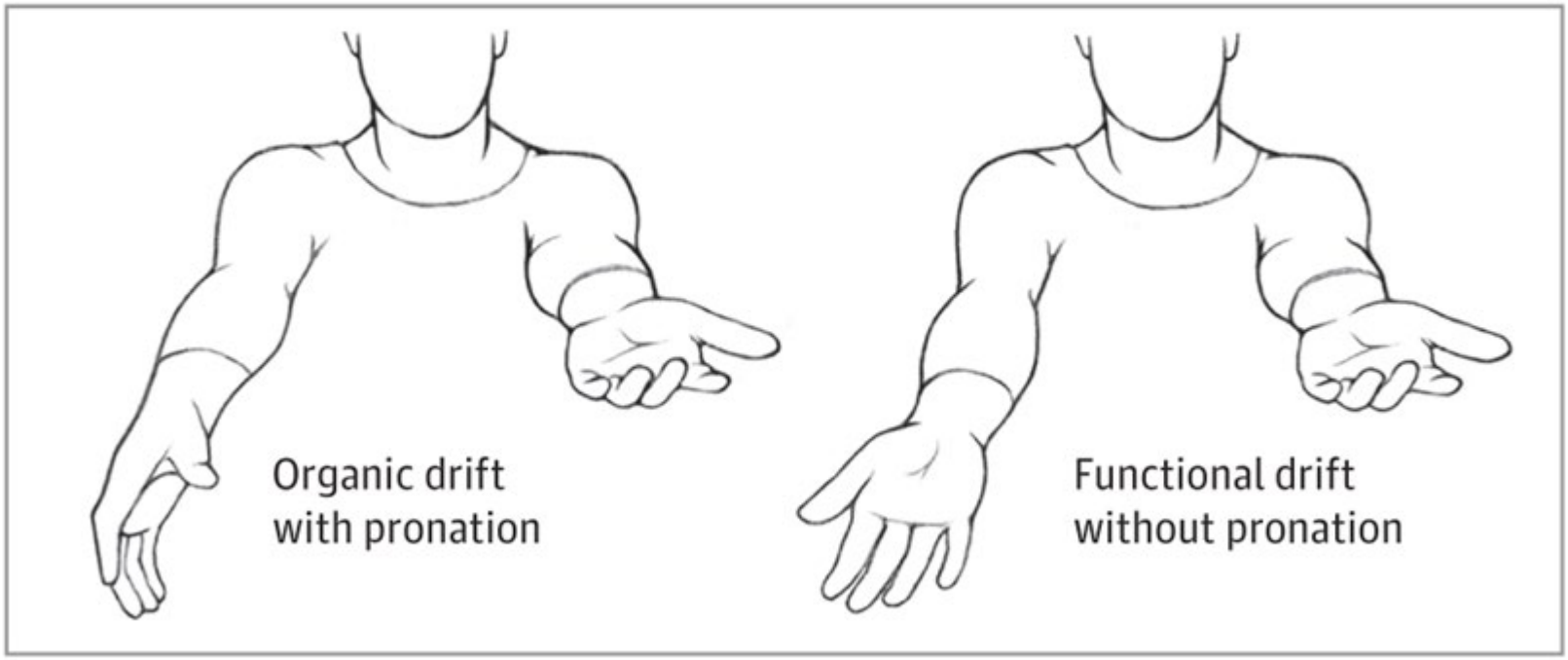
Spinal Injuries Center Test

(Resting position,
unable to lift knees)

(Yugue et al. Spine 2004;29:1910)

Functional Weakness Signs

B Drift without pronation of the weak arm



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Functional Weakness Signs

Diagnosis: Physical signs

FIG. Typical response to raising the eyelids in a hysterical patient feigning unconsciousness.

(Cain, 1983 *Ann R Coll Surg Engl*)

Functional Vision Disorder

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Semin Neurol 2015;35:557–563.

Abstract

Functional vision disorder (FVD) is a common problem seen
ophthalmologic practitioners' offices and may occur in isola
medical illness. This disorder presents with visual or oc
manifests as vision loss in one or both eyes, visual field loss,
anisocoria, blepharospasm, or ptosis. Manual perimetry is the
determining functional visual loss, and the presence of a centr
visual field signifies that a neuropathophysiologic process is
The exact neuropathophysiologic mechanism of this disorc
information can be drawn from the small studies of FVD samp
neuropsychiatric factors in other conversion disorder semic
psychiatric interventions can be useful in treating these pati

Keywords

- functional vision disorder
- functional visual loss
- functional vision loss
- nonorganic visual loss
- psychogenic
- conversion disorder

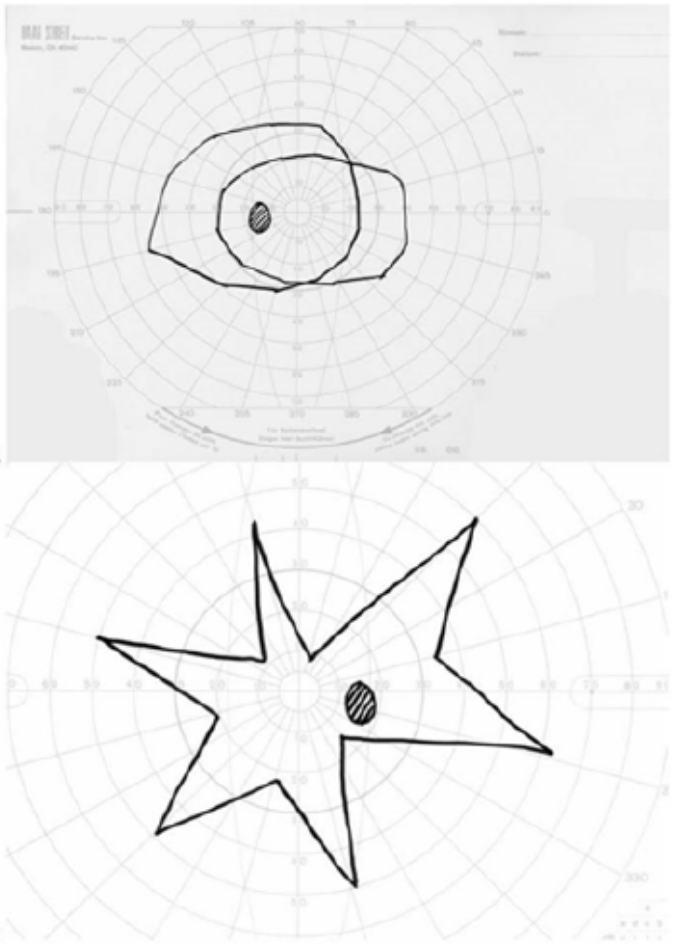
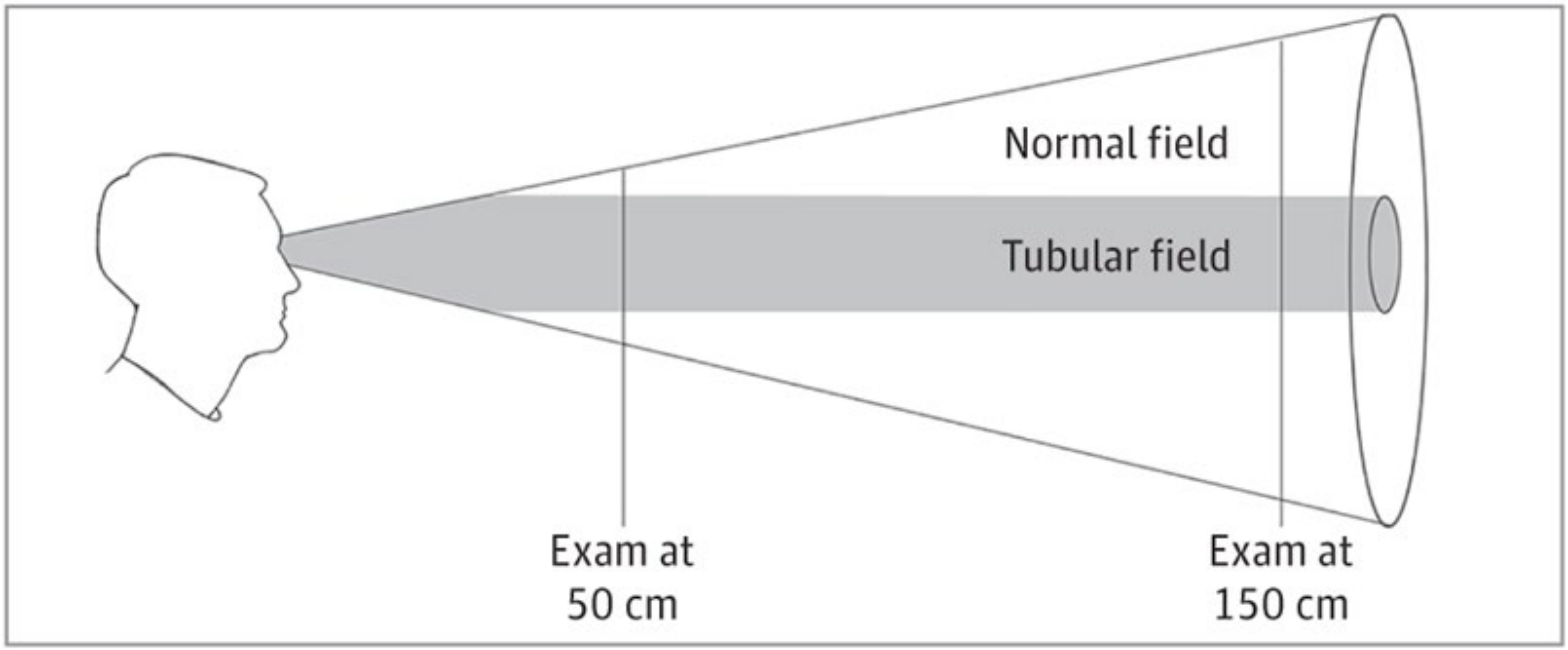


Fig. 1 Two examples drawn from the Goldmann perimeter that confirm functional vision disorder. (A) Crossed isopters. (B) The starfish pattern.

(Egan & LaFrance, *SeminarsNeurol*, 2015)

Functional Weakness Signs

D Tubular vision defect



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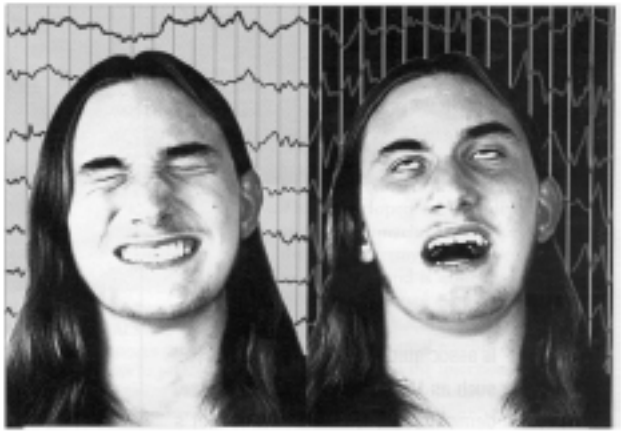
More common features distinguishing epileptic seizures and psychogenic nonepileptic seizures*

Sign	Epileptic	PNES
Duration	Usually brief, less than 1-2 minutes	Usually longer than 2 minutes
Eyes	Eyes usually open during event	Eyes often closed Forced eye closure suggests PNES
Motor activity	Stereotyped Synchronized Build, progress	Variable Forward pelvic thrusting, rolling side to side, opisthotonus Wax and wane
Vocalization	Uncommon, especially during convulsion	May occur
Prolonged ictal atonia	Very rare	May occur
Incontinence	Common in convulsive seizures	Less common
Autonomic signs	Cyanosis, tachycardia common with major convulsion	Uncommon
Postictal symptoms	Usually confused, drowsy Headache common	May rapidly awaken and reorient Headache rare

* No single feature is sensitive or specific for epileptic versus psychogenic nonepileptic seizures.

Non-Epileptic Seizure

NES diagnosis: Eyelid Closure



Montage by: Vincent Chauvel AAN 2006;6(12):1

(DeToledo 1996 *Neurology*, Flugel 1996 *J Epilepsy*, Chung 2006 *Neurology*, Syed 2007 *Epilepsia*)

NEUROLOGY TODAY

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Physical Signs

Post-ictal Yawning in Epilepsy

Vaníousky AH, Andermann F, Dubeau F. *Epileptic Disord* 2006.

Physical Signs

Ictal Grasping in Epilepsy

1) FHS

Latency = short
Duration/ Repetitivity = brief, repeated several times
Sites affected by IG = few fixed points
Movement's features = wild, forced, alternating with both hands
Concomitant athetoses = wild bimanual / bipedal

(Gardella, Tassinari. *Epilepsia*. 2006;47S1:59-63)

Case: The Happiest Kid

Working Diagnosis: Functional Neurological Symptom Disorder

Hospital Course:

–Family not accepting of diagnosis; convinced team is missing something

–Tells us that the patient has always had illnesses with no physical findings and this is "proof" that she presents atypically

–2 extended family meetings exploring rule outs, dx, tx

–On hospital day 3, Tasha develops seizures

–continuous EEG monitoring initiated

–5 episodes captured, no epileptiform activity

–Tasha was transferred to inpatient rehabilitation for PT/OT and speech

–Referrals made for CBT

How to Discuss with Patients and Families

This diagnosis and treatment causes “mixed emotions” and disbelief.

Don’t use the word “pseudo”, say “this is all in your head!” or “these aren’t real seizures.”

- “This diagnosis is only made after a thorough medical and psychiatric exam are done”
- “This disorder is as serious, impairing, and disabling as any medical disorder (epilepsy, stroke) and should be treated that way”
- “Stress needs to be expressed by the body, either by words or symptoms – conversion disorder is a body’s way of “blowing off steam,” sending “false alarms””
- “Emotional issues result in real chemical changes in the body that have been measurable in research studies”
- “Treatable - symptoms get better over time”
- “Symptoms may change significantly over time into other areas of the body”
- “Treatment consists of both individual and family therapy +/- medication”
- “Symptoms/medical complaints may get worse /triggered at the start of treatment”

WHAT IS “PSEUDO” ABOUT PSEUDOSEIZURES? *A REVIEW OF CONVERSION DISORDER Todd Peters, MD , Dept of Psychiatry, Vanderbilt Psychiatric Hospital*

Treatment

- Physical Therapy: focuses on retraining movement patterns
- Occupational Therapy: focuses on adaptations and gaining confidence in ability to carry out IADLS
- Speech Therapy: focuses on retraining speech patterns
- Cognitive Behavioral Therapy, Psychodynamic Therapy
- Seizure Treatment Workbook (taking control of your Seizures/Conversion, etc)
- SSRI and Neuroleptic medications if indicated for co-morbid sx

Patient Resources

- www.neurosymptoms.org
- www.rarediseases.org/rare-diseases/fnd/
- www.epilepsy.com/diagnosis/imitators-epilepsy/psychogenic-non-epileptic-seizures

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