■ Case vignette

Epileptic Disord 2022; 24 (2): 1-4

Epileptic Disorders

Dacrystic seizures in MRI-negative patients

Poul H. Espino[1], Jorge G. Burneo[1,2]

[1] Epilepsy Program, Schulich School of Medicine and Dentistry, Western University, London, Ontario, Canada

[2] Neuroepidemiology Unit, Schulich School of Medicine and Dentistry, Western University, London, Ontario, Canada

Epileptic Disorders

Dacrystic Seizures

Definition and Prevalence

Focal non-motor seizures, characterized by stereotyped bursts of crying with lacrimation, grimacing, sobbing sounds and/or sad facial expression. Prevalence is between 0.1% to 0.13%.

Etiology

- They are frequently associated with hypothalamic hamartomas. However other types of lesions (tumors, vascular, mesial temporal sclerosis) have been described.
- They can also be seen in non-lesional cases

Blumberg et al. Epilepsia 2012;53 (10):1810-9. Asadi-Pooya et al. Epilepsy Behav 2016;59:1-3. Apala et al. J Indian Assoc Child Adolesc Ment Heal. 2016;12(3):275–82.

Dacrystic Seizures with MRI-negative

EEG findings

- Scalp EEG: Ictal changes have been reported over frontal and temporal regions. Different ictal patterns have been described.
- SEEG: Ictal changes have also been reported over the cingulate.
- Electrocortical stimulation of the insula, orbitofrontal and subcortical structures may cause crying.

Structures involved and mechanisms proposed for DS

DS could be the result of direct involvement of the emotional system in fronto-temporo-insular regions or subcortical structures (hypothalamus-periaqueductal gray-dorsal tegmentum) or loss of inhibition in the volitional system (frontoparietal region)

Hogan RE et al. J Neurol Neurosurg Psychiatry. 2006;77(1):107–10. Burghardt T et al. Epileptic Disord. 2013;15(1):72–5. Lauterbach EC et al. Neurosci Biobehav Rev. 2013;37(8):1893–916

Clinical electrographic characteristics in MRI-negative patients with dacrystic seizures.

Reference	Pt No.	Age (at onset of epilepsy)/ sex/handedness	Neurological examination	Other semiological signs during DS	GS	Other types of seizure	Localization of abnormalities on ictal EEG (scalp)	Final diagnosis (syndrome or aetiology)	Clinical outcome (follow-up in months)
This study	1	34 (12)/M/Right	Normal	Head deviation, manual automatisms	Yes	Focal aware emotional	Right fronto temporal (rhythmic theta activity)*	Focal unknown aetiology	Seizure-free with ASM (24)
Vidaurre et al. 2018 [7]	2	19 (5)/M/NA	Developmental regression	Tonic component	Yes	Behavioural arrest	Generalized (electrodecremental)	Metabolic focal epilepsy (cerebral folate deficiency)	Seizure-free after specific treatment was started. Continued with ASM. Cognitive improvement (30)
Apala et al. 2016 [3]	3	13 (2)/F/NA	Normal	Unresponsiveness	No	GTC, absence	Not investigated	Generalized epilepsy	Seizure-free with ASM (6)
Asadi-Pooya et al. 2016 [1]	4	28 (7)/F/NA	NA	Arm tonic posture, vocalization	No	GTC, tonic, atonic	Generalized (fast activity)	Lennox Gastaut	NA
	5	60 (55)/F/NA	NA	Arm tonic posture, head deviation	No	Tonic	Unclear	Focal unknown aetiology	NA
	6	54 (NA)/F/NA	NA	Increased awareness of the sounds, became motionless, spoke nonsensically	Yes	No	Midline frontal	Focal unknown aetiology	NA
Brisos et al. 2011 [8]	7	37 (37)/F/Right	Normal	Anguish and fear	No	GTC unknown onset	Right frontal	Focal unknown aetiology	Seizure-free with ASM (12)
Hogan et al. 2006 [6]	8	28 (8)/M/Right	Normal	Tonic-clonic hemifacial, impaired awareness	No	No	Left anterior temporal (rhythmic theta activity)*	Focal unknown aetiology	Seizure-free after surgery (ATL/AH) (48)
Luciano et al. 1993 [4]	9	35 (1)/F/Right	NA	Salty taste, oral-manual automatisms, impaired awareness	No	No	Right mesio temporal (quasi periodic spikes)	Focal unknown aetiology	Seizure-free after surgery (ATL) (22)
	10	32(25)/M/Right	Congenital nystagmus, learning disorder	Perioral numbness, speech arrest, head deviation, clonic facial	No	No	Fronto central (rhythmic theta activity)*°	Focal unknown aetiology	NA
	11	48(7)/F/Right	NA	Thrashing, postural adjustments, vocalization	No	Focal propagation to bilateral tonic-clonic	Right mesial temporal (attenuation then rhythmic theta activity)	Focal unknown aetiology	NA

M: male; F: female; GS: gelastic seizure; GTC: generalized tonic-clonic; ASM: anti-seizure medication; ATL: anterior temporal lobectomy; AH: amygdalohippocampectomy; DRE: drug-resistant epilepsy; NA: not available; *after clinical onset, °not associated with dacrystic event.

Espino and Burneo 2021.

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