Epileptic Disord 2020; 22 (5): 693-4

Syncope due to ictal asystole: a challenging semiology

Miguel Leal Rato [1,2], Cristina Ionel [3], Yanina Baduro [4], Renato Oliveira [5,6], Ana Catarina Franco [2,7,8], Ana Rita Peralta [2,7,8], Carla Bentes [2,7,8]

[1] Neurologia, Departamento de Neurociências e Saúde Mental, Hospital de Santa Maria, Centro Hospitalar Universitário de Lisboa, Lisboa, Portugal
[2] Faculdade de Medicina, Universidade de Lisboa, Lisboa, Portugal
[3] Serviço de Neurologia, Hospital Garcia de Orta, Almada, Portugal
[4] Hospital Central de Maputo, Maputo, Moçambique
[5] Departamento de Neurologia, Hospital da Luz Lisboa, Lisboa, Portugal
[6] Comprehensive Health Research Centre, Universidade Nova de Lisboa, Lisboa, Portugal
[7] Laboratório EEG/Sono, Unidade de Monitorização Neurofisiológica, Neurologia, Departamento de Neurociências e Saúde Mental, Hospital de Santa Maria, Centro Hospitalar Universitário de Lisboa, Lisboa, Portugal
[8] Centro de Referência para Epilepsias Refractárias do HSM-CHULN (no âmbito do EpiCARE)

Received April 12, 2020; Accepted August 09, 2020

Cardiac rhythm abnormalities are a possibly serious manifestation of epilepsy and seizures. We present a 36-year-old woman with episodes of altered mental status and loss of muscle tone for 20-30 seconds, preceded by *déjà vu*, bilateral tinnitus and generalized coldness. Cardiac investigation was negative. Head MRI revealed a probable dysembryoplastic neuroepithelial tumour (*figure 1*), and levetiracetam was started with complete abolition of the paroxysmal events. During pre-surgical video-EEG monitoring, the patient had a similar episode followed by involuntary movements and a tonic posture of both arms (*video sequences 1 and 2*). The EEG showed an anterior and inferior right temporal seizure, followed by a 30-second period of asystole. Ictal asystole is a very rare phenomenon and an early diagnosis can be confounded by associated motor signs (Tényi *et al*., 2016). It occurs more frequently in temporal lobe seizures, especially with left hemispheric onset (Bestawros *et al*., 2015). The sudden occurrence of atonia signifies the onset of a seizure-induced syncope and is followed by posturing and a few myoclonic jerks (Shmuely *et al*., 2018). The chance of short-term recurrence is high and a cardiac pacemaker should be considered in high-risk patients (Bestawros *et al*., 2015, Hampel *et al*., 2017). After pacemaker implantation, the patient was discharged home while waiting for neurosurgical intervention. □

VIDEO ONLINE

Supplementary data.
Summary didactic slides are available on the www.epilepticdisorders.com website.

Disclosures.
None of the authors have any conflict of interest to declare.

Correspondence:
Miguel Leal Rato
Serviço de Neurologia,
Departamento de Neurociências e Saúde Mental,
Hospital de Santa Maria,
Centro Hospitalar Universitário Lisboa Norte,
Avenida Prof. Egas Moniz,
1649-028 Lisboa, Portugal
<mlealrato@gmail.com>

doi:10.1684/epd.2020.1215

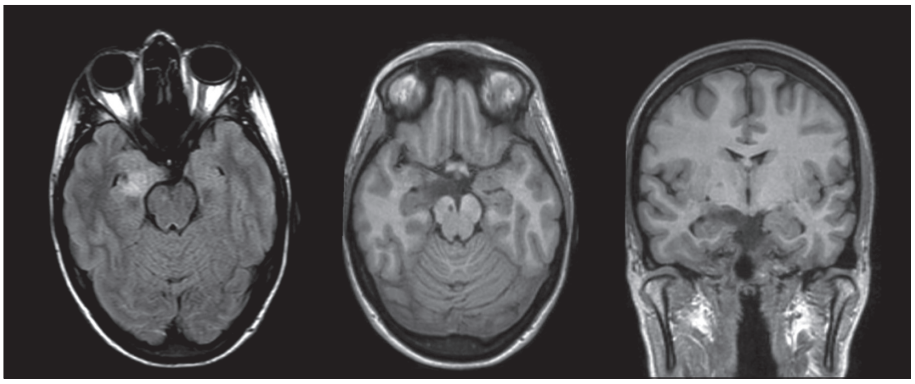

Figure 1. MRI showing a right medial temporal lesion, with involvement of the uncus, amygdala and head of the hippocampus, with ill-defined limits. The lesion is not enhanced after gadolinium contrast injection. These findings are compatible with a dysembryoplastic neuroepithelial tumour.

Legend for video sequences

Video sequence 1
The occurrence of an anterior and inferior right temporal seizure consisting of rhythmical theta activity at the right inferior temporal leads, followed by bradycardia and then asystole. The patient warns of impending loss of consciousness (after eight seconds of ictal asystole) and then loses muscle tone and becomes unreactive to stimuli.

Video sequence 2
Twenty-five seconds after cardiac rhythm normalization, widespread myoclonic jerks are noted, including palpebral and apendicular myoclonias, and the patient raises her arms in a tonic asymmetric posture. She quickly recovers full consciousness.

Key words for video research on www.epilepticdisorders.com

Phenomenology: syncope; myoclonic jerks; asymmetric posture
Localisation: right temporal lobe
Syndrome: ictal asystole
Aetiology: dysembryoplastic neuroepithelial tumour

References

Bestawros M, Darbar D, Arain A, *et al*. Ictal asystole and ictal syncope: insights into clinical management. *Circ Arrhythm Electrophysiol* 2015; 8: 159-64.

Hampel KG, Thijs RD, Elger CE, Surges R. Recurrence of ictal asystole in epilepsy. *Neurology* 2017; 89: 785-91.

Shmuely S, Bauer PR, van Zwet EW, van Dijk JG, Thijs RD. Differentiating motor phenomena in tilt-induced syncope and convulsive seizures. *Neurology* 2018; 90(15): e1339-46.

Tényi D, Gyimesi C, Kupó P, *et al*. Ictal asystole: a systematic review. *Epilepsia* 2016; 58(3): 356-62.

TEST YOURSELF

(1) What is the most frequent localization of seizures that causes heart rhythm slowing (bradycardia or asystole)?
(2) In patients with ictal cardiac rhythm abnormalities, when should a cardiac pacemaker be considered?

Note: Reading the manuscript provides an answer to all questions. Correct answers may be accessed on the website, www.epilepticdisorders.com, under the section "The EpiCentre".