

A rare cause of recurrent syncope: chemodectoma of left carotid

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ABSTRACT

Syncope is a frequent cause of access to emergency departments. Recurrent syncope may be associated with a transient lock of consciousness. When neurological or cardiological common causes of syncope are excluded, rare causes of syncope, such as solid carotid tumors, should be considered. In this study, we report a rare case of left carotid chemodectoma in a patient with frequent access to the emergency room for syncope in which a thorough differential diagnosis has been performed.

Introduction

Transient lock of consciousness (TLOC) with syncope is one of the more frequent reasons to access an emergency room. Frequently, TLOC is a complex and

multifactorial syndrome associated with transient or chronic cardiological or neurological causes.^{1,2} Consensus and guidelines suggest performing a thorough differential diagnosis among cardiological and/or neurological dysfunctions since 2015.³ In particular, after the exclusion of a post-traumatic TLOC, several diseases among cardiac brady-arrhythmias or severe hypotension need to be considered while among neurological dysfunctions seizures or reflex, the syndrome should be considered.²

A life-threatening clinical condition associated with reflex syndrome because the presence of Carotid sinus syndrome (CSS) or Carotid sinus hypersensitivity (CSH) may be found when also cardiac pacing is ineffective, although carotid sinus massage was positive.⁴⁻⁶

In this way, other rare diseases, such as carotid body tumors, should also be considered in the differential diagnosis, and we here report a rare case of recurrent syncope with TLOC in patients with left carotid chemodectoma.

Case Report

A.D., a 72 years-old man, was admitted to our emergency room because of TLOC. His personal anamnesis revealed repeated previous episodes of syncope without a known cause; other chronic medical illnesses of the patient were diabetes, atherosclerosis without significant stenosis of carotid, and lower limb and lower limb skin ulcers.

Immediately the patient was tested for vital signs and basic cardiological tests. His blood pressure was 110/50 mmHg with an HR of 64 bpm, pulse oximetry was 97%, and the temperature was 36.1°C. ECG was performed and revealed a sinus rhythm with 65 bpm without abnormalities of P waves or PR interval, or ST-segment; therefore, an ECG holter for 48 hours was applied. Then, blood samples were collected and

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Ethical approval and informed consent:

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Informed consent: the patient gave his written consent to use his personal data for the publication of this case report and any accompanying images.

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revealed mild hypochromic anemia (Hb 11.5 g/dL) and an infected skin ulcer of the right lower limb (staphylococcus epidermidis). Blood samples were summarized in Table 1. A treatment based on antibiotics and fluids was planned, while a neck and thoracic CT scan was performed. In the meantime, an ultrasound scan of the carotid was performed; during this scan, a new TLOC appeared for a few seconds with “restitution ad integrum” when the left carotid was explored and symptoms ceased after the scan cessation. During the examination and therefore, when TLOC appeared, the ECG monitor revealed a sinus bradycardia with hrf of 38 bpm. Yet, because the carotid scan was not completed, a CT scan of the head and neck was immediately performed and identified a *iuxta* carotid mass of the left carotid. Because of the chance of also having a large lymph node or another compressive mass in that area of the neck (e.g., lipoma), in order to better understand the type of mass, also an MR was performed. MR was chosen to better determine the location of the mass (e.g., carotid or internal jugular vein or both) (Figures 1-3). Immediately, because of the absence of other acute illnesses and the anamnesis of recurrent syncope, surgical treatment was planned. Surgery, in fact, remains the treatment of choice for chemodectoma and paraganglioma of the neck. After surgery, the patient came back to regular life, and after 3 months, there were no further recurrences of syncope or TLOC, or other vascular complications.

Discussion and Conclusions

Syncope is a complex syndrome in which multiple pathophysiological mechanisms occur together in a series of spontaneous reflexes.⁶ Syncope is a major health problem because it is not only one of the most common causes of access to emergency departments,⁷

Table 1. Blood samples of the patient with chemodectoma.

Blood tests	Reported values	Normal values
Haemoglobin (g/dL)	11.5	13-16
Haematocrit (%)	34.8	40-48
White blood cells (K/mL)	9800	4-10
Platelets (K/mL)	293	140-400
Creatinine (mg/dL)	0.9	0.4-1.1
Urea (mg/dL)	48	<50
d-dimer (mcg/dL)	<500	<500
Troponin (ng/mL)	<0.3	<0.3
Na (mEq/L)	136	132-140
K (mEq/L)	4	3.5-5.5

Na, sodium plasmatic levels; K, potassium plasmatic levels.

but also a serious health problem because it may be induced spontaneously during cardiological diseases, such as arrhythmias or several neurological diseases that induce intracranial hypertension or seizures.^{5,6}

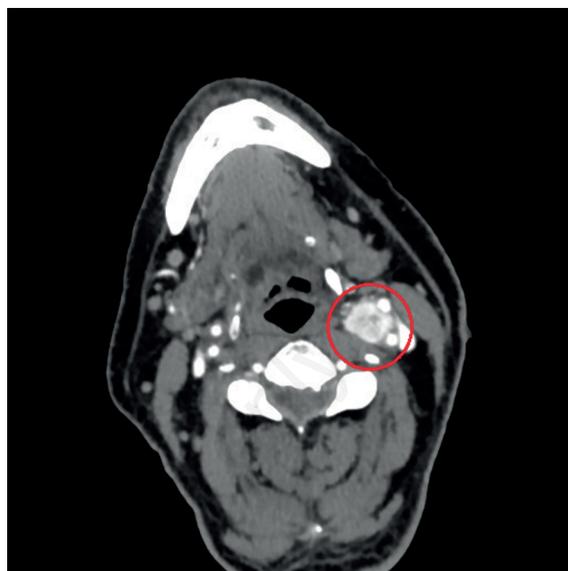


Figure 1. Frontal MR imaging of chemodectoma.

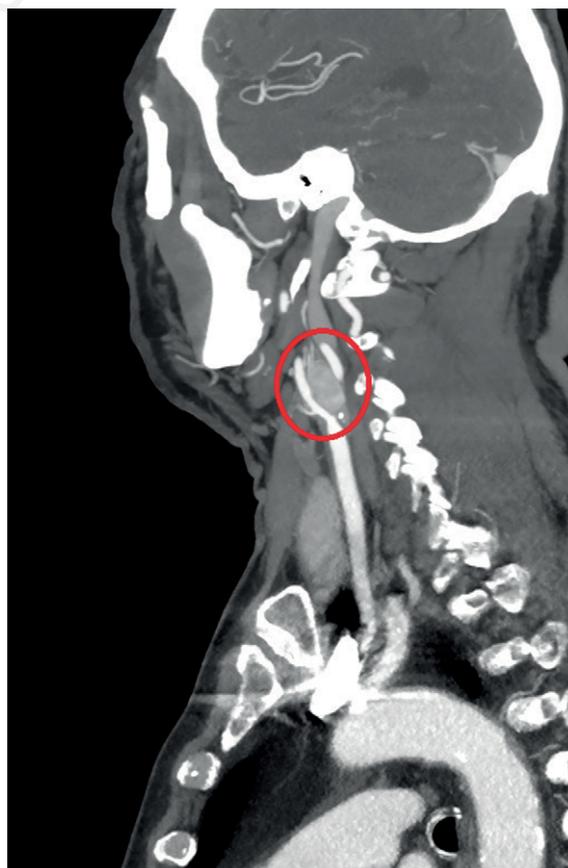


Figure 2. Lateral MR imaging of chemodectoma.

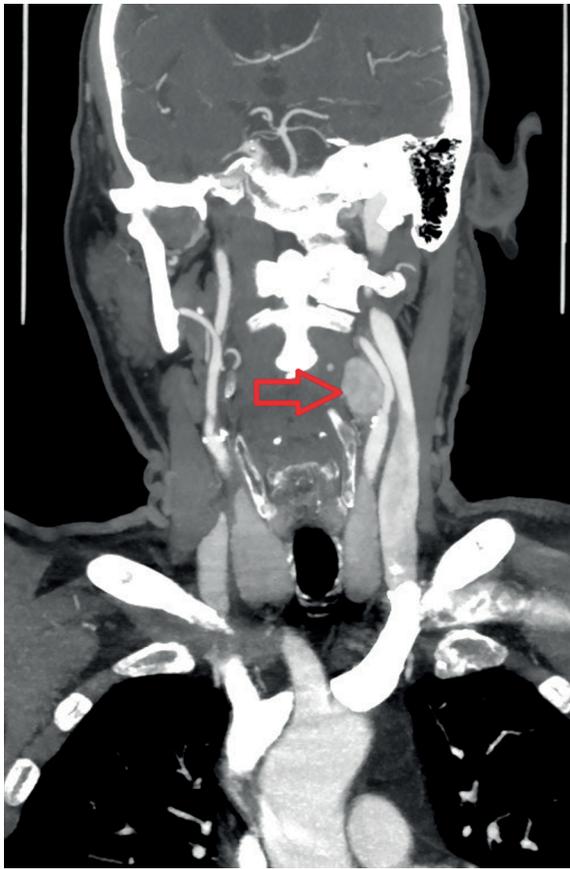


Figure 3. Coronal MR imaging of chemodectoma.

Furthermore, also syncope induced by the reflex syndrome is possible with a combined cardiovascular and neurological etiology because of the carotid compression sinus.⁴ For these reasons, usually the management of patients referred to the emergency department for syncope with TLOC, for it has strong health priority. First of all, to exclude acute underlying cardiological or neurological diseases is required for uncrastinable treatments (*i.e.*, arrhythmias or intracranial hypertension).⁷ Therefore, after the exclusion of reported acute illness, a thorough evaluation of other diseases that may induce reflex syncope for any reason should be evaluated (*e.g.*, all causes that may induce hypotension and or severe bradycardia or AV block).⁸

However, a relevant number of syncope and TLOC frequently remain without an identifiable cause.⁸

In these cases, also other diseases are able to in-

duce a CCS or a CSH, as solid tumors of the neck (including chemodectoma and paraganglioma) need to be explored.

In the case that we reported, in fact, during a routine analysis as a carotid ultrasound scan, the physician detected a mass *iuxta* left carotid. This fact induced the clinical suspect of an associated underlying disease. Therefore, a CT scan and an MR of the head and neck were performed so, giving a chance to optimize the radiological diagnosis of a carotid tumor. Other concomitant diseases, present when the hospitalization of the patient began (*i.e.*, anemia and skin infection of the lower limb), did not give any type of interference with the identified cause of syncope and TLOC, surgery was performed with a good surgical outcome.

In conclusion, we can suggest always having a thorough clinical approach to patients with unexplained causes of syncope, because when common cardiovascular or neurological dysfunctions are not present, also rare diseases that may induce CCS or CSH are possible, as in the case of a rare tumor of left carotid we reported.

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