A case of syncopal convulsions triggered by glossopharyngeal neuralgia

Glossofarengeal невралжинин tetiklediği senkopal konvülziyon olgusu

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Introduction

Glossopharyngeal neuralgia (GN) is a disease characterized by paroxysmal sharp, stabbing, shooting, lancinating flashes of excruciating to agonizing “electrical shock-like” or “needle-like” pain on posterior region of the tongue, tonsils, oropharynx, larynx, auditory canal, middle ear, angle of the mandible, and sometimes the retromolar region.[1] Transient, self-limited interruptions of cardiac output result in generalized cerebral ischemia, a condition that is termed syncope when it results in a loss of consciousness.[2] The clinical spectrum of abnormalities that occur with generalized cerebral hypoperfusion is broad, ranging from non-specific dizziness to a variety of sensory disturbances, including paresthesias and alterations of vision, to loss of consciousness, sometimes with convulsive features.[3] The frequency of cardiac syncope in GN is 2–20%.[4]

Case Report

A 72-year-old male patient with no known medical history was admitted to the emergency department with a complaint of seizures lasting about 10–15 s while the eyes remained open and fixed and the whole body stiffened numerous times a day for the past week. Routine blood tests (complete blood count, glucose, AST, ALT, urea, creatinine, sodium, potassium, chloride, and calcium) and cranial computed
tomography showed no pathological findings. Electrocardiogram (ECG) demonstrated a sinus rhythm of 75 beats/min. The patient was admitted to our clinic for follow-up and treatment with an early diagnosis of epilepsy. Cranial magnetic resonance imaging and electroencephalography (EEG) were performed for the etiology of epileptic seizures. No pathological findings were detected in the cranial magnetic resonance imaging and EEG scans. In our clinical follow-ups, the seizure frequency was found to be 6–10 times a day and the seizures were determined to be generalized tonic–clonic seizures. When the medical history of the patient with resistant seizures was detailed, it was learned that the seizure started pain like an electric shock in the throat and that this pain occurred after swallowing. Cardiac monitoring was performed in the patient who was diagnosed as having epileptic seizures after GN as this patient may have been suffering from reflex asystole (Fig. 1). After swallowing, the patient developed asystole followed by a 10 s syncopal convulsion. Postictal confusion, urinary incontinence, and tongue biting were not observed. Carbamazepine 600 mg/day was administered for GN and control of seizures to patients. However, the seizures could not be controlled with carbamazepine therapy. A cardiology consultation was requested and the patient was fitted with a temporary pacemaker. There were no epileptic seizures after temporary pacemaker implantation. No pain and seizure were determined with 1200 mg carbamazepine therapy without pacemaker in the control examination performed 1 week later.

**Discussion**

GN may be accompanied by recurrent episodic hypotension, bradycardia, syncope, seizures, or even cardiac arrest.\[1\] Eating and speaking trigger neuralgia.\[5\] Changes in blood pressure and cardiac rhythm, and bradycardia were induced by stimulation of the larynx.\[6\] Syncope in GN related to neuralgia pain is most likely caused by activation of the dorsal motor nucleus of the vagus nerve by abnormally enhanced input from afferent or ischemic lesions of the glossopharyngeal nerve. The reflex arrhythmia could be explained from the fact that afferent nerve impulses from the glossopharyngeal nerve may reach the tractus solitarius of the brainstem and through collateral fibers reach the dorsal motor nucleus of the vagus nerve. Activation of this abnormal loop dur-

![Figure 1. Cardiac monitorization image of the patient of syncopal convulsions triggered by glossopharyngeal neuralgia.](image)

*Figure 1.* Cardiac monitorization image of the patient of syncopal convulsions triggered by glossopharyngeal neuralgia. (a–c) Bradycardia and then asystole occurred after swallowing. (d–f) Artifact due to convulsion was observed in monitor. (g and h) Convulsions stopped when the heart beat returned to sinus rhythm.
sensory seizures did not occur in any patient. Cardiac arrhythmias are particularly common in temporal lobe seizures. Seizure-related sinus tachycardia may be detected from the onset of temporal and extratemporal seizures. Bradyarrhythmias such as bradycardia, sinus arrest, atrioventricular block, and asystole are rare seizure-related cardiac dysrhythmias. In these cases, interictal electroencephalography (EEG) and electrocardiography data were typically within normal range. Asystole was detected in our case, and our interictal EEG data were normal.

In a joint study of cardiologists and neurologists, were presented a simple point score of diagnostic criteria that distinguishes syncope from seizures with high accuracy. Some questions about symptoms of seizure and syncope were used in scoring. The symptoms which are cut tongue, deja vu, limb jerking, and postictal confusion all contributed to the diagnosis of seizures. Symptoms of syncope such as prodromal diaphoresis and palpitations, or provocation by prolonged sitting or standing, often have needed to be absent to diagnose a seizure.

The medical literature supports the use of carbamazepine in the management of idiopathic neuralgia at treatment. Temporary pacemaker can be used to treat the reflex cardiac syncope until therapeutic levels of carbamazepine.

**Conclusion**

As it can be seen, syncopal convulsions, a rare entity in GN and epileptic seizures, are clinically hard to distinguish and differ in terms of treatment approaches. It is important to consider the cardiac arrhythmias that impair cerebral perfusion in the differential diagnosis of antiepileptic treatment-resistant convulsions. Our case draws attention to this issue.

**Informed Consent:** Written informed consent was obtained from the patient for the publication of the case report and the accompanying image.

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**References**