A Rare Cause of Phantosmia: Metastatic Small Cell Carcinoma

Nadir Bir Fantosmi Sebebi: Metastatik Küçük Hücreli Karsinom

Nihan Coşkun[1], Ali Ercan Altınöz[2], Behçet Coşar[1]
[1]Department of Psychiatry, Faculty of Medicine, Gazi University, Ankara, [2]Psychiatry, Uşak State Hospital, Uşak, Turkey

Özet

Fantosmi olarak bilinen koku varsanıları az anlaşılmış bir fenomendir. Geniş bir ayırıcı tanı yelpazesiyle ilişkili bulunmuştur. Buna rağmen çoğu olgu idiyopatiktir. 70 yaşında metastatik küçük hücreli karsinomunun öncül belirtisi olarak koku varsanısı olan bir erkek hasta, nedensel ilişkiyi açıklayabilmek için sunulmaktadır. Fantosminin kaynağı ve klinik önemi ile ilgili çok az bilgi bulunmaktadır. Kimi zaman olgumuzda olduğu gibi altta yatan metastatik küçük hücreli beyin tümörünün öncül belirtisi olabilmektedir. Bu nedenle organik sebepleri dışlayabilmek için detaylı anamnezin yanı sıra; fizik muayene, nörolojik muayene, rutin laboratuvar ve görüntüleme testlerinin yapılması önerilmektedir.

Anahtar Kelimeler

Koku Varsanıları; Küçük Hücreli Karsinom; Epilepsi

Abstract

Olfactory hallucinations, known as phantosmias, are a poorly understood phenomenon. It has been associated with a wide rage of differential diagnosis. However, most cases are idiopathic. The author's presents a 70-year-old man with olfactory hallucinations as the predominant symptom of the brain metastatic small cell carcinoma in order to clarify the causal relationship. Little is known about the origin and clinical significance of phantosmias. It can even be the predominant symptom of an underlying small cell metastatic brain tumor as presented in our case. Therefore a detailed history of the symptoms along with a neurological and physical examination and routine laboratory and screening tests should be provided in order to exclude any organic causes.

Keywords

Olfactory Hallucinations; Small Cell Carcinoma; Epilepsy

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Corresponding Author: Ali Ercan Altinöz, Psychiatry, Uşak Devlet Hastanesi, Uşak, Türkiye.
T.: +90 2762240000 E-Mail: ercanaltinoz@hotmail.com

Introduction

Phantosmias, also known as olfactory hallucinations, are the olfactory experience in the absence of appropriate stimulation [1].

In a recent population-based study, the prevalence of subjective olfactory dysfunctions have been reported as 4.5% [2]. Among a clinical population with olfactory dysfunctions, the prevalence of parosmia was found to be %34, while the prevalence of phantosmia was %12 [3].

Although most phantosmia cases are idiopathic, many different causes or underlying diseases have been identified for this symptom, including depression, anxiety disorders, posttraumatic stress disorder, schizophrenia, eating disorders, epilepsy, migraine, idiopathic Parkinson's disease, arteriovenous malformations, intracranial hemorrhage, primary and secondary brain tumors, chronic rhinosinusitis [4-10].

Phantosmias could also occur as a form of epileptic aura. Olfactory auras, which are %0.9 of all epileptic auras, are commonly associated with tumors involving the medial temporal lobe and mesial temporal sclerosis. Acharya et all reported that tumor was the most likely etiology in patients with intractable partial epilepsy with olfactory auras, whereas mesial temporal sclerosis was relatively uncommon [9,11].

In addition hallucinations associated with brain tumors have been reported too. Tarachow reported that 96 out of a series of 458 cases (21%) of supratentorial brain tumors had some form of hallucinations. In particular, he reported that olfactory hallucinations, which had been recognized as manifestations of epileptic discharge, were mainly related to lesions in the temporal and frontal lobe [12].

Olfactory hallucinations as the predominant clinical feature of secondary intracranial mass lesions are rare [8].

Here, we report a 70-year-old patient with a brain metastatic small cell carcinoma presenting with olfactory hallucinations as the predominant clinical feature.

Case Report

A 70-year-old man was consulted to psychiatry outpatient clinic with a 2 months history of episodic spontaneous fragrant smell of flowers emanating from his chest. He was first presented to neurology outpatient clinic with complaint of headache and carbamazepine treatment was recommended 200 mg per day. On the same day he was consulted to psychiatry outpatient clinic upon this olfactory hallucinations. The patient reported that the smell was of sudden onset without any precipitating factors determined. The smell, which lasted 5-10 minutes, was followed by a feeling of anxiety and palpitation accompanied with a headache and a sensation of numbness and tingling in the head. These symptoms were relieved by drinking water. The episodes were similar in nature and had a frequency of 4-5 times a day. During the episodes there was no alteration in the consciousness, no nausea, no worries about dying or going crazy and no muscle jerking or twitching. Between the episodes he reported a persistent but mild and tolerable headache with no need for analgesia. No previous histories of neurological, psychiatric disorders or trauma have been identified. There was no family history of migraine, seizures or any psychiatric disorder. He was not using any drugs, tobacco products or alcohol. During the last month he kept feeling asleep and according to his relatives he refused to every suggestions or instructions. However he wasn't irritable while he rejected, unless he wasn't insisted. On his mental examination reality testing and insight were found to be partially intact. His attitude was more like negativistic.

Neurological examination was normal. His mini-mental state examination score was 23 but the result might be influenced by the negativistic attitude that was mentioned before. He lost 3 points spelling the word 'world' backwards, 2 points from recalling, 1 point from following a 3-stage command and 1 point from drawing interlocking pentagons.

Laboratory tests, electroencephalography and computerized tomography imaging was requested. The results of electroencephalography were normal. Results of hematological and serum biochemical analyses were within normal limits.

In follow up, one week after starting carbamazepine treatment (200mg/day) his symptoms disappeared. The computerized tomography scan demonstrated a mass lesion with indistinct margins, localized to frontotemporal region surrounded by a significant vasogenic edema [Figure 1]. Thereupon, we referred him to a neurosurgery specialist. After he made an evaluation, he offered an operation in order to excise the mass. Although he rejected the operation because he was totally asymptomatic by the time, he required the surgery upon having left sided central facial paralysis one month later. Then, he went through a surgery by which his mass lesion was excised. The histopathological examination revealed small cell carcinoma.



Figure 1. Computerized Tomography Scan: A mass lesion with indistinct margins, localized to frontotemporal region surrounded by a significant vasogenic edema.

Discussion

Little is known about the origin of phantosmias. Therefore most cases are idiopathic. However, there is a wide range of differential diagnosis of the symptom. Interpretation on hallucinations should be examined in order to reveal psychiatric causes. For example, in depression the hallucination is typically of a foul odour and most of patients believe this to arise from their own bodies. In schizophrenia, patients believe that the smells are being forced on them and take "reasonable" steps to prevent this. In the olfactory reference syndrome the complaint of smell is usually of a true hallucination that the patient believes emanates from himself. This syndrome is characterized by persistent preoccupation about body odour accompanied by shame, embarrassment, significant distress, avoidance behaviour and social isolation [13,14]. In this case the patient believed the smell emanates from himself but he didn't have any delusional

interpretations. He didn't have any other symptom or history of psychiatric disorders and the symptom was sudden and late onset as he was 70 years old. Psychotic symptoms especially the hallucinations in patients with brain tumors may be attributed to an underlying delirium. The patient did not have changes in consciousness or awareness that would have suggested delirium or complex partial seizures.

Olfactory hallucinations have been reported in association with migraine [5] but in these cases the aura is always associated with a headache that fulfills the diagnostic criteria for migraine. In this case although the duration of the hallucinations meets the criteria for migraine auras (5-60 minutes) and the episodes of headache were temporally related to hallucinations, the headache was mild, not lasting at least 4 hours, not prohibiting daily activities and not being associated with physical activity.

Olfactory hallucinations could be a manifestation of an epileptic seizure and be called as "epileptic auras". However, not all auras are followed by a seizure [9], as it is true for our patient. Indeed, an aura itself is traditionally called a simple partial seizure without motor symptoms [15] but this phrase is generally used when the case had a confirmed diagnosis of epilepsy and has aura like symptoms temporally unrelated to the seizures.

However hallucinations associated with brain tumors have usually been attributed to an epileptic discharge. The compensatory over-activation of tissue in the nearby brain sensory pathway or a change in global brain excitability after localized, focal compression have been some possible explanations on how tumors could reduce the seizure thresholds.

Anti-epileptic drugs are recommended for individuals with brain tumors who have experienced seizure. In this case the patient was commenced on carbamazepine, and there was a reduction in the frequency and intensity of his symptoms from 2-3 attacks a day at presentation to being asymptomatic within 7 days of commencing this treatment. However there is a case of transient, self-remitting olfactory hallucinations representing a brain tumor [8]. It isn't possible to know if the rapid resolution of this patient's symptoms is a true response to anticonvulsant therapy. It may also be the natural course of this uncommon condition. We could still regard the symptom as an epileptic discharge caused by the brain tumor with the so-called mechanisms, also considering that it has revealed with anti-convulsion treatment.

Most of the studies, which found out that epileptic olfactory hallucinations were related to tumors in the temporal lobe, the epileptic seizures mentioned, were intractable and eliminated by surgery [9,10]. The case is presented with isolated olfactory aura without convulsion or unconsciousness and the aura remitted without surgery.

As a conclusion; olfactory hallucinations are mostly idiopathic and have found to be associated with a broad differential diagnosis. They are rarely seen as the first predominant symptom of a medical illness, including intracranial mass lesions as presented in the case.

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Informed Consent: Written informed consent was obtained from patient who participated in this study.

Competing interests

The authors declare that they have no competing interests.

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