

Midwakh (pipe) and seizure: The overlooked link



Mustafa Mahmood Eid 

Emergency Department, Al Ain Hospital, Al Ain, United Arab Emirates

Received: 1 March 2021
Accepted: 5 May 2021
Published online: 16 May 2021

***Corresponding author:**
Mustafa Mahmood Eid,
Al Ain Hospital, Shakboot Bin Sultan
Street, Al Ain, U.A.E.
P.O.Box 1006.
Tel: 00971505848181,
Email: Dr.mustafa191982@gmail.
com

Competing interests: None.

Funding information: None.

Citation: Eid MM. Midwakh (pipe)
and seizure: The overlooked link.
Journal of Emergency Practice and
Trauma 2021; 7(2): 140-142. doi:
10.34172/jept.2021.16.

Abstract

Objective: Numerous drugs and medications from various pharmacological classes can lead to seizures as an unwanted side effect. Midwakh is a pipe commonly used to smoke tobacco blend in small quantities. Midwakh use is increasing, especially among young people.

Case Presentation: A 17-year-old patient with a history of seizures was provoked by smoking midwakh, despite having no previous disease history.

Conclusion: Although the patient had a negative workup for epilepsy, midwakh should be classified as an epileptogenic drug. More studies need to be conducted on the effects of midwakh on the neurological system.

Keywords: Seizures, Smoking, Tobacco, Water pipe

Introduction

Seizures are toxic and lethal complications that occur commonly owing to several poisons and drugs. Syndromes associated with drug withdrawal can also result in seizures as an adverse effect. Seizures induced by drugs can happen directly due to the alteration of neural pathways and the alteration of the inhibitory or excitatory receptors and transmitters within these neural pathways. Indirect impacts of drugs and toxins can also cause seizures by affecting oxygenation, brain perfusion, or disturbances in metabolism (1). Midwakh is a popular form of smoking tobacco products in various Middle Eastern regions, especially the ones used in the Persian Gulf (2). It contains a mix of herbs, spices, and thin dried tobacco shreds (3). The tobacco mix used inside the midwakh is known as dokha. While there is scant evidence regarding the impact dokha has on a person's health, health officials are nonetheless concerned about dokha as a praised, better alternative to cigarettes (4). Also, preliminary studies discovered high concentrations of tar and nicotine in dokha; moreover, the initial analysis of dokha smoke has detected high toxins levels (5). However, the effects of midwakh on the central nervous system (CNS) are still ambiguous and require further research. The patient had a fit attack while smoking midwakh, although he had no previous disease history.

Case Presentation

A 17-year-old male was presented to the emergency department by an ambulance after he sustained a seizure while smoking midwakh at a restaurant. A witness who was a doctor at the restaurant at the time of the incidence came with the emergency medical services and confirmed it.

The patient was in a postictal state. On examination, he was confused and had a Glasgow coma score of 11 (motor 5, eye 3, verbal 3). His pupils dilated bilaterally. Also, he had tachycardia (140 beats/min.) with elevated blood pressure (180/100 mm Hg) and tachypnea (25 breath/min). He had a clear chest, no added heart sound, and a soft abdomen.

Consequently, the patient started to gain consciousness. He confirmed his smoking for the first time despite his initial denial. His neurological examination was regular. A blood test set, an ECG, a toxicology workup, and a venous blood gas analysis were conducted. The patient was monitored continuously, and intravenous fluid commenced. Moreover, a brain CT was performed and revealed a typical result while his ECG revealed sinus tachycardia.

Later, the patient's vital signs started to improve with an optimum state of consciousness. The patient's blood tests



came within normal limits apart from an elevated lactate level of 9 (0.2–1.8) mmol/L (Table 1). Additionally, his toxicology workup, including blood and urine, showed average results (Table 2).

Consequently, the patient was referred to the physician on call, who admitted the patient for further evaluation. In addition, the patient's follow-up confirmed that all his tests, like electroencephalography and magnetic resonance imaging, were standard. The patient stayed for a few days with no more convulsive attacks and then discharged safely to follow with the neurology clinic.

Discussion

The severe consequences related explicitly to the use of dokha have scarcely been studied; only a few papers have investigated this. One study was conducted across male students from UAE Medical University; however, the research was uncontrolled. The study observed increased

respiration, elevated heart rates, systolic blood pressures, and significantly reduced diastolic blood pressures (4).

Another study conducted in February 2018 examined the detrimental impacts of dokha smoke. Three different dokha samples were collected from North Africa and the Middle East. The analysis of these samples revealed many toxic metals, 22 different irritants, three carcinogenic compounds, 5 CNS depressants, and other numerous harmful compounds with various effects (5).

Furthermore, the levels of nicotine and tar present in dokha was compared to the levels present in other popular tobacco products in one study. The results showed that dokha had substantially higher concentrations of the two chemicals than the other products (6).

Moreover, the University of Sharjah performed a study to measure trace metals in shisha and dokha products quantitatively. Both smoking products were found to have trace amounts of calcium, aluminum, iron, chromium, magnesium, copper, nickel, manganese, zinc, strontium, and potassium. The metals with the highest average detected concentrations in the 13 tested dokha products were magnesium, potassium, and calcium (7).

While many predicted factors were assumed to explain how midwakh induces seizures, such as the high, excessive nicotine content of midwakh or the presence of additives with pre-convulsant characteristics. In addition, there might be other variables that come into play that are still unknown.

Additionally, the epilepsy workout came back negative indicating that the patient had no history of epilepsy syndrome or any other underlying conditions. This further supports the hypothesis that midwakh caused the patient's seizure because it isolates midwakh exposure as the only causative agent and excludes other triggers.

In this case, the condition was similar to a case series reported in a study conducted in the UAE. The study included seven successive patients who had a history of midwakh-triggered seizures and negative epilepsy workups. Among these patients, six ceased midwakh smoking and did not report any further seizure incidents (8).

Conclusion

Previous studies have identified numerous drugs as likely causes of seizure attacks. In this case, we suggest that midwakh should be classified as an epileptogenic drug as well. Additionally, it is crucial for patients who present with recent seizures or a history of seizures without a clear known cause. It is important to perform a full drug history analysis. Besides, more detailed studies should be conducted on this topic for further evaluation and explanation. Moreover, we need to increase community awareness through health agencies and the dangers of smoking midwakh, as is the case against cigarette smoking.

Table 1. Blood test results of the patient

Blood test	Results
White blood cell count (WBC)	7.4 (4–11) $\times 10^9/L$
Haemoglobin	15.4 (11.5–16.5) g/dL
Platelets	188 (140–440) $\times 10^9/L$
C-reactive protein (CRP)	0.3 (0–) mg/L
Troponin- T	0.004 (<0.015) $\mu g/mL$
pH	7.31 (7.35–7.45)
Glucose	7.41 (4.11–7.81) mmol/L
Alanine transaminase (ALT)	13 (less than 18) IU/L
Aspartate aminotransferase (AST)	18 (less than 23) IU/L
Urea and electrolytes (U&E)	Within normal limits
Total creatinine kinase (CK)	172 (39 – 308) IU/L
Calcium level	2.39 (2.32 – 2.64) IU/L
Magnesium level	0.84 (0.70 – 0.91) IU/L

Table 2. Blood and urine toxicology of the patient

Blood Test	Results
Blood Ethanol level	< 2.2 (Less than 2.2) mmol/L
Serum acetaminophen level	< 5 mg/L
Serum Salicylate level	< 3 mg/L
Urinary phencyclidine	Not detected
Urinary amphetamine screen	Not detected
Urinary Barbiturate screen	Not detected
Urinary Benzodiazepine screen	Not detected
Urinary Cocaine screen	Not detected
Urinary methadone screen	Not detected
Urinary Opiate screen	Not detected
Urinary Tricycle Antidepressants screen	Not detected
Urinary Methamphetamine screen	Not detected
Urinary Acetaminophen screen	Not detected

Ethical issues

Written informed consent was taken from the patient for publication of this case report

Acknowledgments

This work is dedicated to my family; for all the care and love they have given to me.

References

1. Chen HY, Albertson TE, Olson KR. Treatment of drug-induced seizures. *Br J Clin Pharmacol* 2016;81(3):412-419. doi:10.1111/bcp.12720
2. Vupputuri S, Hajat C, Al-Houqani M, Osman O, Sreedharan J, Ali R, et al. Midwakh/dokha tobacco use in the Middle East: much to learn. *Tob Control* 2016;25(2):236-241. doi:10.1136/tobaccocontrol-2013-051530
3. Al-Houqani M, Ali R, Hajat C. Tobacco smoking using Midwakh is an emerging health problem--evidence from a large cross-sectional survey in the United Arab Emirates. *PLoS One* 2012;7(6):e39189. doi:10.1371/journal.pone.0039189
4. Shaikh RB, Abdul Haque NM, Abdul Hadi Khalil Al Mohsen H, Abdul Hadi Khalil Al Mohsen A, Haitham Khalaf Humadi M, Zaki Al Mubarak Z, et al. Acute effects of dokha smoking on the cardiovascular and respiratory systems among UAE male university students. *Asian Pac J Cancer Prev* 2012;13(5):1819-1822. doi:10.7314/apjcp.2012.13.5.1819
5. Elsayed Y, Dalibalta S, El Kouche M. Chemical characterization and safety assessment of dokha: an emerging alternative tobacco product. *Sci Total Environ* 2018;615:9-14. doi:10.1016/j.scitotenv.2017.09.255
6. Mahboub B, Mohammad AB, Nahlé A, Vats M, Al Assaf O, Al-Zarooni H. Analytical determination of nicotine and tar levels in various dokha and shisha tobacco products. *J Anal Toxicol* 2018;42(7):496-502. doi:10.1093/jat/bky029
7. Mohammad AB, Mohammad SHK, Mohammad MK, Khan AS, Al-Hajjaj MS. Quantification of trace elements in different dokha and shisha tobacco products using EDXRF. *J Anal Toxicol* 2019;43(4):e7-e22. doi:10.1093/jat/bky095
8. Alsaadi T, Alkaddour AR, Shahrour TM, Shakra M, Turkawi L, Shatila A. Midwakh-induced seizures: case series from UAE. *Epilepsy Behav* 2014;39:85-87. doi:10.1016/j.yebeh.2014.08.132