



Ictal kissing behavior: Neurological and psychodynamic overview[☆]



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ABSTRACT

This study is based on the psychodynamic and neurological analysis of three Turkish patients who displayed ictal kissing automatism during their seizures. To unveil the probable underlying causes of their kissing behaviors, all patients underwent psychiatric interviews after being evaluated by ictal video-EEG recordings. The group consisted of two females (ages 35 and 29) and one male (age 26). In addition to prominent oral automatisms, each patient also displayed behaviors of kissing or blowing kisses to individuals at close proximity. Seizures were related to the right temporal lobe in two patients and the left temporal lobe in one patient. Magnetic resonance imaging showed mesial temporal sclerosis in two of the patients (one left, one right) and was normal in one. According to the DSM-IV-TR criteria, each of the three patients also suffered from major depression, while the psychodynamic interviews revealed traumatic childhood histories and intense unfulfilled affective needs.

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1. Introduction

Automatisms have been defined as coordinated, involuntary simple movements or more complex acts performed by a patient who is unaware of them because of certain impairments in consciousness [1]. The ILAE provides a more detailed explanation: “More or less coordinated, repetitive, motor activity usually occurring when cognition is impaired and for which the subject is usually amnesic afterwards. The automatism often resembles a voluntary movement, and may consist of inappropriate continuation of ongoing preictal motor activity” [2]. Automatisms were first described in 1875 by J. H. Jackson, who defined them as repetitive motor activities that occur during or after a seizure and that are followed by amnesia [3].

Ictal automatisms may be simple or complex [1]. Penry and Dreifuss described the nature of two different kinds of automatisms that occur in absence seizures: 1) an automatism that begins *de novo* during the course of the seizure, which can be as “reactive” to external or internal environmental stimuli and as “released,” i.e., actions that are carried out that would be normally eschewed, e.g., scratching, undressing, and indecorous exhibition, and 2) perseverative automatisms, which are a continuation of an activity engaged in prior to the onset of the seizure following transient interruption [4].

Ictal kissing (IK) is both a rarely seen complex automatism and one whose clinical importance and mechanisms are not adequately understood. Kissing behavior that occurs as an automatism during a seizure

has been previously reported in only five patients [5–7]. While the descriptions of these patients focused primarily on the lateralizing and localizing importance of this automatism, none of these reports discussed the psychodynamic aspects of IK behavior.

2. Methods

In this present work, IK behaviors were noted in three patients whose seizures were refractory to medical treatment and who were being monitored at the epilepsy unit during surgical evaluations. Standard protocols were followed in the recording of all the seizures and in the conducting of cranial MRIs. Positron emission tomography scans were also performed. In addition, the three patients were also evaluated by a psychiatrist–psychoanalyst. Clinical discussions were carried out relative to their ictal seizure features and the results of their neuropsychiatric examinations.

3. Results

The clinical features of each patient are described below. Additionally, ictal EEG and demographic information (Table 1) of these patients are provided in the Supplementary data.

3.1. Patient 1: NM

The first patient, NM, is a 35-year-old left-handed female patient who started to have seizures at the age of 17. She characterizes her seizures as being “dreamlike” and “in another place” and also reports seeing colors differently and images as blurry. She was admitted to the epilepsy monitoring unit, and five seizures were recorded. Kissing

[☆] Ictal kissing automatism.

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Table 1
Clinical features of the patients.

	Patient 1, NM	Patient 2, CG	Patient 3, NI
Age (years)	35	26	29
Gender	Female	Male	Female
Age at onset	17	16	5
Handedness	Left	Right	Left
Initial precipitating factor	–	–	Febrile seizure
MRI	Right MTS	Normal	Left MTS
PET	Right mesiolateral T hypometabolism	Right T hypometabolism	Left T hypometabolism
Number of seizures with IK automatism	4	1	3
Interictal EEG	Bilateral FT sharp and slow waves	Sharp and slow waves prominent in the right FT region, F8 > F4 phase reversal	Sharp edged theta waves in the left FCP
Ictal EEG			
Onset	Right TO	Right T	Left FT
Spread to the other side (mean latency, max–min, seconds)	18 s (6–37 s)	37 s	55 s (9–95 s)
Kissing (mean latency, max–min, seconds)	53 s (39–67 s)	46 s	22 s (12–40 s)
Aura	As being dreamlike, in another place, seeing colors differently and images as blurry	Tinnitus and noise in the right ear, goosebumps	Smelling bad odors
Seizure semiology	Lip licking, swallowing, raising left hand, automatic movements, hugging, kissing the people around, and secondary generalization	Swallowing, lip licking, speech, blowing kisses, coughing	Emotion, speech, bilateral and left hand automatism, drinking water, dystonic posture in the right hand, and lip kissing automatism
Ictal speech	No	Yes	Yes
Neuropsychological test	Verbal and nonverbal memory impairment	Impairment of attention and mild executive dysfunction	Verbal memory impairment

Abbreviations: MTS: mesial temporal sclerosis, T: temporal, FT: frontotemporal, TO: temporooccipital, FCP: frontocentroparietal, IK: ictal kissing.

automatism lasting for a mean of 7 s occurred in 4 of the seizures [duration: mean: 88 s (range: 69–101 s)]. During her seizures, she reported annoyance, palpitation, and fear, followed by lip licking, swallowing, raising her left hand (which becomes dystonic in posture), making automatic movements, and hugging and kissing the people around her. She did not speak and did not respond to the technician during her seizure.

Electroencephalography showed rhythmic theta discharges over the right temporooccipital region during ictal events (max amplitude at T6) and spreading to the contralateral occipital, then to the temporal region with a mean latency of 18 s. Magnetic resonance imaging revealed right hippocampal sclerosis, and FDG-PET showed right mesiolateral temporal hypometabolism. She is on carbamazepine 600 mg/day and has one seizure a month.

Seizure onset was determined to be in the widely distributed right posterior temporal lobe which may be language-dominant, as she is left-handed and cannot speak during the seizure (verified by neuropsychological tests although it may not be always reliable). The IK automatism emerged in the late stages of the seizure with a mean latency of 53 s (39–67 s) from the onset of the seizure. This behavior consisted of her kissing the cheeks of those individuals who were physically near.

3.2. Patient 2: CG

The second patient, CG, is a 26-year-old right-handed male patient whose seizures started at the age of 16. One seizure was recorded at the epilepsy monitoring unit. His aura is characterized by tinnitus and noise in the right ear, goosebumps followed by swallowing, licking, and proclaiming: “I am bored, I said I am bored, uuh, okay, I love all of you; we are brothers,” blowing kisses with a latency of 46 s after onset and then coughing. This IK behavior endured for 19 s during the seizure which lasted for 119 s. He was partially cooperative during the seizure. He had no postictal confusion but was amnesic to the event. The MRI was normal, whereas the FDG-PET showed right temporal pole hypometabolism. EEG showed rhythmic theta discharges increasing in frequency after the 3-Hz onset over the right temporal lobe (max amplitude at F8) and spreading to the left temporal region with a 37-s latency. Aura with auditory hallucinations indicates right temporal superior gyrus involvement, where goosebumps are correlated to

temporal plus epilepsies which may be due to extended involvement of the network, probably including the insula [8]. His comprehensible ictal speech indicates the nondominant temporal lobe. The behavior of blowing kisses is compatible with his proclamations of love and brotherhood and may also be related to his job as a security guard. He is on levetiracetam 1000 mg/day and has been seizure-free for the last two years.

3.3. Patient 3: NI

The third patient, NI, is a 29-year old left-handed female patient whose habitual seizures began at the age of five. She had a prolonged febrile convulsion in her first year of life. Her aura was characterized by smelling bad odors, followed by rising up in bed, covering her face with her hands, and saying “Oh, my God!” as she rubs her hands. Ictal kissing was seen during three of four seizures recorded at the epilepsy monitoring unit. During the seizures, she tried to get up and asked for and then drank water. She displayed dystonic posture in the right hand for a short period of time and then insisted on being kissed on her lips. Her kissing behavior lasted for a mean of 32 s and emerged after a mean of 22 s (12–40 s) of ictal event. Seizures lasted for a mean of 132 s (62–283 s). The ictal onset was over the left temporal lobe (max amplitude at F7–T3 and T3–T5 electrodes) with a rapid spread for a mean of 55 s (10–95 s) to the contralateral temporal region. The MRI revealed left hippocampal sclerosis, and FDG-PET showed left temporal hypometabolism. In this patient, bad odor refers to limbic involvement, whereas comprehensible speech indicates the nondominant (left in this case) temporal lobe. She consistently demands to be kissed. These demands become prominent in the late stages of her seizure as she tries to kiss those around her, regardless of gender, and exclusively on the lips. She had frequent seizures (3/week) on admission and was evaluated for surgical candidacy. However, to our surprise, she remained seizure-free for two years since her marriage, but she was still on oxcarbazepine 1200 mg/day, sodium valproate 1000 mg/day, and pregabalin 300 mg/day according to our recent telephone conversation.

3.4. Psychodynamic formulation of patients

Each of the three patients was interviewed twice by a psychiatrist–psychoanalyst. The limited number of interviews conducted made it

impossible to collect analytical information through free associations, dreams, and transference, and reconstruction of the therapeutic story within the therapy process was not possible. Despite this, the intense affective needs of the three patients interviewed were remarkable.

The first patient (NM) was aware of her deep affective needs. The third patient (NI) used denial as a defense mechanism against her neediness: “I do not need friendship.” The only male patient (CG) displayed difficulty in regulating his emotions and appeared to be trying to cope with these negative feelings, which resulted in emotional suppression through drug use and self-abuse. Although all three had developed different coping mechanisms, it was clear that they each had had traumatic early childhoods characterized by intense unmet affective needs. It is possible that the contents of the seizures were affected by these unfulfilled needs.

The parents of Patient 1 had divorced, and she was brought up by a caregiver. Her father had difficulty in controlling his anger, with frequent rages, while her mother displayed no affection towards her. The patient reported that she had always felt unloved. She chose to be a preschool teacher as she thought that caring for children would be a way for her to compensate for her own lack of attention and care.

Patient 2 was abandoned by his father when he was five years old. His mother raised him and his brothers under very difficult conditions. He was unable to learn how to control and regulate his emotions. He deals with his negative emotions by frequently smoking hashish and getting his body tattooed in several areas. He expresses his difficulty in establishing attachments with others.

Patient 3 demonstrates limited communication skills and mental capacity. Despite the fact that she gave limited information, she especially mentioned that she had never kissed anyone and that no one had ever kissed her. Interestingly, her seizures are shaped by kissing and demands to be kissed exclusively on the lips.

According to DSM-IV-TR criteria, each of the three patients was diagnosed with major depression comorbid with epilepsy.

4. Discussion

To date, only five patients showing IK behavior have been reported in the literature [3–5]. Our three patients showed temporal lobe involvement and bilateral spread during ictal EEG and prominent oral automatisms.

Hypotheses related to automatism mechanisms include the following: reaction to internal stimuli, activation of a specific motor program with cortical stimulation, or removal of inhibitor control as a release phenomenon [9]. In our opinion, since the IK failed to be demonstrated by stimulation studies and the patients also shared complex emotional backgrounds, this automatism may very well be a release phenomenon.

Tassinari et al. postulated that epileptic seizures can lead to a temporary loss of neocortical control on the central pattern generators (CPGs) which are located in the brain stem and spinal cord and induce some behaviors or emotions thought to be innate and essential for survival [10,11]. This hypothesis may be an explanation for some ictal automatisms presumed to be due to a release phenomenon. However, we believe that kissing is a learned behavior rather than an innate pattern developed after an interactive attachment with the caregiver indicating the role of CPGs to be unlikely in IK automatism.

From a semiologic perspective, the most prominent signs were lip movements accompanied by oral automatisms, ipsilateral arm automatism, contralateral dystonic posture, ictal speech, and poor emotional facial expressions which support temporal lobe involvement with mesial onset in two (patients 1 and 3) and lateral onset (patient 2) in one patient.

In a previously reported case series by Rashid, one patient exhibited hyperorality with pronounced uninhibited sexuality and compulsive behavior that was spontaneously induced and extended in the postictal period independent from environmental factors [7]. This was explained as being compatible with partial Kluver–Bucy syndrome. This patient's

ictal EEG pattern was characterized by the involvement of both temporal lobes with epileptic activity. Likewise, bilateral temporal lobe propagation was evident during the IK automatism in all our patients. However, none of them presented with hyperorality and/or sexual behavior during their kissing behavior, and, therefore, likely not to suggest a possible Kluver–Bucy syndrome. Furthermore, the five patients reported previously [5–7] and two of our current patients had right temporal lobe involvement, whereas one of our patients had left temporal lobe involvement. Our first patient (NM) is left-handed and had right TLE where the right hemisphere can be the nondominant one, whereas our third patient (NI) is again left-handed but had left TLE where the left hemisphere still has a 50:50 chance to be the nondominant one. Therefore, IK is probably related to nondominant TL seizures with partially preserved responsiveness which allows interaction (including kissing) with the environment.

We also aimed to investigate the nature of the kissing behavior, which showed varying patterns in individual patients. In many primitive societies and in the animal kingdom, kissing behavior is a kind of alimination. Warrior Yanomami males and females of Venezuela, Papua natives, and mothers of the Black Forest area of Germany feed their children by mouth-to-mouth kissing. Members of the Kung community also give chewed food to their children by mouth. Many animals such as birds, wolves, lions, chimpanzees, orangutans, and gorillas feed their offspring by kissing. According to psychoanalytic theory [12] and human ethology, erotic kissing is derived from the feeding of offspring. Ancient Greeks were known to drink wine and water from their lovers' mouths. Kissing behavior also includes feelings of safety and feelings of trust, which are important features of the pair-bond between mother and child [13].

Kissing behavior is related to our earliest relationships. From the psychoanalytic point of view, it has some meanings referring to the early years of life. The period from birth to the end of the first year is called the “oral period” in classical psychoanalytic theory. During this period, lines between the biological and psychological requests of the child are blurred. Feelings of pleasure result from the meeting of biological demands, but if these demands are unmet, feelings of pain arise. In this period, the child is fully dependent on external care. The mouth and lips are pleasure areas, and all life is maintained by these areas. During the oral period, the baby takes “food/stimuli” coming from the external environment by not only stimulation of the mouth area but also all of his/her senses. In addition to the dependence of the child, the mother's care, attention, and protection create the fundamentals of mutual togetherness. Unmet needs may be traumatic for a young child. Over-satisfaction as well as lack of satisfaction may interrupt the natural development of the child and may lead to a fixation to oral period characteristics [14]. Thereafter, the child might become a psychologically dependent adult continually seeking oral stimulation, seeking to fulfill his or her needs rather than maturing to independence or he/she might resist maturation and return to dependence upon others in fulfilling his or her needs. These oral-stage fixations are manifested as garrulousness, smoking, continual oral stimulus (eating, chewing objects), and alcoholism. Studies of very young traumatized children have demonstrated that trauma has persisting effects throughout adulthood. Trauma is thought to leave conscious or unconscious memory imprints that cause ongoing flashbacks, affective reexperiencing, traumatically driven behavioral reenactments, trauma-determined fears, sensory and somatic symptoms, and traumatic dreams [15–19].

Therefore, it might be hypothesized that the traumatic experience of childhood may manifest itself through the content of seizures; the ictal behavior/kissing might indicate or carry the prints of the traumatic personal history of these patients which may be related to their unmet affective needs during very early childhood. However, this is a preliminary and rather speculative observation, and we do not intend to postulate that this particular traumatic experience directly leads to seizures, though it might have contributed to its development and contents which might be the subject of future detailed studies. The kissing

behavior in these patients may have symbolic meanings. For instance, the expressions of Patient 1 (i.e., lack of maternal love) may reflect unmet needs during the oral period. Her choice of profession may also be interpreted as a means of compensation and amendment. Patient 2, on the other hand, refuses to acknowledge his desires. As a defense mechanism, sometimes children whose intense emotional requests are unmet learn to protect themselves by denying their needs. However, these needs may be exposed by the kissing behavior that occurs during seizures.

In addition to meaning attributed to passion and love, in Turkish (or Near/Middle Eastern) culture, kissing behavior (kissing the hand or the robe) may also indicate respect. In this sense, kissing becomes a cultural ritual; for example, young people show respect by “kissing the hand” of their elders. When Patient 2 managed after some years to find his father, who had deserted the family, he found his father “very sick and miserable.” This led the patient not to confront his father or to seek revenge for the man's abandonment. The declarations of love and attempts to kiss the hands of those around him may be founded on the wish of a little boy to love, respect, and be loved by his father.

Kissing requires certain motor components based on the coordination of lip and tongue movements. If someone holds chewed food between his/her lips, babies of three months of age (who learned feeding with kissing) protract their tongue and lips in order to take the food. When considering the issues mentioned above, the third patient's tendency to purse her lips, her persistence in attempts to kiss on the lips, and the lack of sexual content in these behaviors may be interpreted as reflections of primitive feeding behavior, rather than sexual kissing. The hugging and kissing behavior of Patient 1, on the other hand, suggests both the mutual care and trust between mother and child, along with kissing within a sexual drive.

Our male patient differed from the two female patients in types of kissing behavior. He did not attempt to physically kiss anyone but rather simply blew kisses while acclaiming that “we all are brothers.” This may be considered to be a disinhibition of recorded memories. Personality and lifestyle may also affect automatism and seizure content. This patient displays difficulty in controlling intense negative feelings and so uses drugs to suppress the negativity in his daily life. It is also thought that his choice of occupation – security guard – may have been an effort to cope with this. His work as a guard also represents a reversal of this situation, as it allows him to be the person who prevents or controls the uncontrolled behavior of others.

In conclusion, IK automatism is very complex in nature, most likely involves various extensive networks, and probably occurs as a release phenomenon rather than a cortical inhibition. While this behavior may be related to both of the temporal lobes, family dynamics, developmental history, personality, lifestyle, and feeding and love instincts may all play roles in the emergence of this rare automatism during a seizure.

Conflict of interest

None of the authors has any conflict of interest to disclose.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <http://dx.doi.org/10.1016/j.yebeh.2013.07.032>.

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