Kissing or "Osculation" in Frontotemporal Dementia

Mario F. Mendez, M.D., Ph.D.
Jill S. Shapira, R.N., Ph.D.

The authors investigated the neuropsychiatry of kissing in frontotemporal dementia. Among 15 patients, two had compulsive social kissing, bitemporal involvement, and Klüver-Bucy symptoms, and four pursued kissing with sexually disinhibited behavior. Future research should clarify the neuropsychiatric significance of kissing behavior.

(The Journal of Neuropsychiatry and Clinical Neurosciences 2014; 26:258–261)

Kissing is a nearly universal form of human behavior.[1] Kissing or "osculation" has existed as a form of social interaction since recorded time, and there have been many fascinating theories for the origins of this behavior, from an evolved echoing of sexual intercourse in the upright human, to premastication for nurturing infants, to the transfer of microorganisms in the promotion of immunity.[1] Kissing between people can be sexual, relational, a form of social greeting, or a ritual gesture of respect. Physiologically, kissing between people is an intense sensory contact involving tactile, olfaction, and visual senses. Yet, knowledge of the role of kissing in neuropsychiatric disease is surprisingly sparse.

One vehicle to investigate the neuropsychiatric significance of kissing is behavioral variant frontotemporal dementia (bvFTD). This disorder results in disinhibition, apathy, loss of empathy, compulsive behavior, and dietary or oral behavioral changes.[2,3] Patients with bvFTD can present with inappropriate personal comments or touching, violation of interpersonal space, and other personally intrusive behaviors such as kissing. Accordingly, we retrospectively reviewed 15 patients with bvFTD for kissing behavior, in comparison to 15 age-matched patients with Alzheimer's disease (AD). We additionally report on the two bvFTD patients with the social greeting from of kissing. Previously, this form of kissing has rarely been described from brain disease.

METHODS

Subjects

BvFTD patients enrolled in a larger study were reviewed for changes in kissing behavior. All 15 met criteria for clinically probable bvFTD after an evaluation involving clinical, neuropsychological, and neuroimaging tests.[2] The clinical criteria were then supported by frontal and/or anterior temporal hypometabolism on positron emission tomography (PET). We included 15 well-characterized patients with early-onset AD as a comparison group.

Procedures

The patients with bvFTD were reviewed for heightened kissing behavior sufficient to constitute a change from their usual premorbid behavior. The records were reviewed for type, circumstances, and object of the kissing behavior and the following associated features: evidence of disinhibition, compulsivity (inability to stop kissing tendency on initial verbal command), presence of a sexually interesting target, and kissing as a form of greeting or salutation ritual. The types of kissing behavior were then characterized as 1) Sexual (limited to sexually interesting persons); 2) relational (limited to close relationships or family); 3) social (greeting strangers or acquaintances); or 4) ritual (part of a stereotyped sequence of actions).

Analysis

The patient groups were compared on clinical and neuropsychological variables using χ^2 or *t*- tests. For the patients with vFTD, the clinical PET scans from different scanners were rated for regional hypometabolism as absent, mild, moderate, or severely present (0–3 point scale) for each of left frontal, right frontal, left anterior temporal, and right anterior temporal regions. PET ratings underwent additional repeated measures analysis of variance (ANOVA).

Received June 25, 2013; revised Aug. 26, and Sept. 29, 2013; accepted September 29, 2013. From the Departments of Neurology (MFM, JSS) and Psychiatry and Biobehavioral Sciences (MFM), David Geffen School of Medicine, University of California at Los Angeles; and the V.A. Greater Los Angeles Healthcare System (MFM), Los Angeles, CA. Send correspondence to Dr. Mendez; e-mail mmendez@ucla.edu

RESULTS

There were no significant differences on demographic characteristics or general dementia measures between the bvFTD and AD patients (See Table 1). On the neuropsychological measures, the bvFTD patients performed significantly better than the AD patients on delayed recall memory and complex figure copy but poorer on "FAS" word list generation and the Scale of Emotional Blunting (Table 1).

Six bvFTD patients (40%) had increased kissing behavior compared with none of the AD patients ($\chi^2=5.21$, $p=0.02$). There was compulsive, social kissing in two bvFTD patients and a tendency to pursue sexual kissing in four others, but no strictly relational or ritual kissing. The two with social kissing would kiss others, particularly their hands, on initial greeting, at times when they were addressed, and on saying good-bye. Among the four with sexual kissing, their behavior was less compulsive and occurred only with a sexually interesting target, along with other behaviors indicative of sexual disinhibition, such as verbal sexual comments or inappropriate touching. There were no differences on the demographic or neuropsychological measures between bvFTD patients with kissing behavior, including the two subtypes, and the nine bvFTD patients without kissing behavior.

On the visual ratings of the 15 PET images (only available for bvFTD patients), repeated measures ANOVA revealed significantly greater involvement of the right frontal region compared with other regions ($F(3,26)=3.32$, $p<0.05$). There were no significant differences between the frontal versus temporal and right versus left hemisphere ratings. We performed a further comparison of the patients with kissing behavior versus those without. There were no PET regional or lobe differences between these two bvFTD groups (all $t\leq2.1$, n.s.). When the two with Social Kissing were analyzed separately in comparison to all the other bvFTD patients, they had significantly greater anterior temporal lobe involvement (rating scores: 5.50 ± 0.71 versus 2.08 ± 2.02, respectively; $t=2.31$, $p<0.05$).

TABLE 1. Patient Characteristics: Behavioral Variant Frontotemporal Dementia (bvFTD) and Early-Onset Alzheimer's Disease (AD)

	bvFTD	AD	Significance
Age	59.87 (10.23)	57.13 (4.17)	n.s.
Age of onset	56.80 (10.53)	53.27 (5.35)	n.s.
Sex (male/female)	7/8	7/8	n.s.
Education (years)	15.67 (2.41)	16.07 (2.31)	n.s.
Mini-Mental State Examination Score	23.07 (3.87)	24.43 (4.31)	n.s.
FAS verbal fluency (words/min)	14.00 (8.19)	30.14 (20.67)	$p<0.05$, $t=2.44$
Animal fluency (words/min)	10.50 (6.79)	12.27 (5.46)	n.s.
Boston Naming Test[a]	46.83 (11.13)	53.44 (5.29)	n.s.
Pyramids and Palm Trees Test[a]	44.59 (6.10)	46.90 (3.87)	n.s.
CVLT Delayed Free Recall[a]	2.83 (2.59)	0.73 (1.49)	$p<0.05$, $t=2.36$
Rey-Osterrieth Copy	25.95 (15.17)	15.17 (12.70)	$p<0.05$, $t=2.67$
WCST: Total[a]	28.89 (11.68)	29.20 (10.96)	n.s.
Errors (Perseverative)	27.44 (13.17)	23.60 (10.72)	n.s.
Stroop C: Time (sec),	178.4 (72.68)	219.50 (115.26)	n.s.
Errors	20.2 (27.22)	18.00 (7.07)	n.s.
Social Norms Questionnaire[a]	11.75 (5.28)	9.22 (8.45)	n.s.
Scale of Emotional Blunting[b]	13.27 (11.58)	1.18 (1.08)	$p<0.01$, $t=3.45$

CVLT: California Verbal-Learning Test; WCST: Wisconsin Card Sort Test.
[a] Number of correct items.
[b] Number of items indicating emotional blunting.

CASE REPORTS

Case # 1

A 75-year-old, college-educated woman became disinhibited over 1–2 years. She walked up to people, including strangers, and kissed their cheeks and hands. She often had to be restrained from pursuing her kissing behavior. She also tended to wave at strangers and rub the backs of men that she encountered. Other behaviors included compulsive hoarding, dietary changes (constantly eating sweets and a tendency to eat others' food), placid apathy, and near mutism. On examination, she sat quietly with a broad grin on her face, maintained a fixed gaze on others, and occasionally giggled or laughed out of context. The patient scored 26/30 on the Mini-Mental State Examination (MMSE). Her memory was impaired, and she was concrete on proverb interpretations. She demonstrated stimulus-bound and utilization behavior. On the neurological examination, she had mild extrapyramidal rigidity and prominent grasp reflexes. Magnetic resonance imaging (MRI) showed mild cerebral atrophy with temporal lobe predominance, and PET showed hypometabolism in both temporal lobes as well in the frontal lobes.

Case # 2

A 41-year-old, college-educated woman had several years of inappropriate behavior. She began approaching strangers and would either kiss their hands or, when perceiving someone of special import, try to kiss their

feet, a custom from her native India. She would tell strangers she liked them and wanted to bring them home. Other behaviors included hoarding objects such as bottles and cans, changes in dietary preferences, inability to recognize people, placid apathy, and near mutism. On examination, the patient tried multiple times to kiss the examiner's hands and feet and had to be restrained. She had a fixed smile and sat quietly, maintaining her gaze fixed on the examiner. She scored 25/30 on the MMSE. Her language was sparse, and her memory was impaired. On visuospatial testing, the patient had normal constructions. Her responses to proverbs were concrete, and she had difficulty on motor alternate tapping tasks. They rest of the neurological examination was normal except for slightly increased motor tone and brisk but symmetrical reflexes. Her toes were downgoing, and there was no clear grasp reflex. On MRI, she had pronounced anterior temporal atrophy, and her PET scan indicated regional hypometabolism most evident in both anterior temporal regions and on the midsagittal view of the right frontal medial region.

DISCUSSION

Among our patients with bvFTD, six had increased kissing behavior. There were two with compulsive social kissing ("osculum"), four with a tendency to sexual kissing ("savium"), but none with strictly relational kissing ("basium").[1] The patients with social kissing did so as part of social greeting patterns, primarily at the beginning and at the end of social encounters. They displayed an inability to distinguish "familiars," where the kissing was acceptable, from "strangers," where it was not. And both kissed women and men to the same degree, unlike the patients with sexual kissing, who limited their kissing behavior to persons of sexual interest and in the context of other sexually disinhibited behavior.

There is little known about the neuropsychiatry of kissing or even the general science of kissing ("philematology").[4] The literature in brain disorders is sparse, and what little is known about the neuropsychiatry of kissing comes from the following reports of "kissing seizures." Among three patients with right temporal lobe epilepsy and ictal kissing, one had associated hyperorality and sexual disinhibition, suggestive of the Klüver-Bucy Syndrome (KBS).[5] Another patient with kissing seizures and a right temporal glioma would repeatedly kiss his mother's face and hands or try to kiss the hands of the medical personnel.[6] A further patient with right temporal lobe epilepsy and compulsive kissing behavior could vary the type of kissing depending on the person or object.[7] She usually kissed her right hand or the hands of others around her (social); however, if her fiancé was present she kissed him on the lips (sexual) and if her mother was present she kissed her on the cheek (relational). Her kissing seizures abated after a right amygdalohippocampectomy.

The two bvFTD patients with social kissing may be similar to those with "kissing seizures" for two reasons. First, both are often associated with the spectrum of the KBS. This syndrome is composed of hyperorality or dietary changes, hypersexuality, placidity, hypermetamorphosis (impulse to notice and react to everything within sight), visual agnosia, mutism, and memory difficulty.[8,9] Our two patients with social kissing have oral or dietary changes, placidity, near mutism, memory difficulty, sexual touching (Case #1), and possible visual agnosia (Case #2). In addition, one of the patients with sexual kissing has all major elements of KBS, including extreme hyperoral behavior involving eating paper and other nonfood items. Second, both the bvFTD patients with social kissing and those with kissing seizures are often associated with temporal lobe disease. The PET scans show greater anterior temporal lobe involvement in the bvFTD patients with social kissing, compared with those without. Moreover, the spectrum of the KBS The KBS is usually due to bilateral anterior-inferior and mesial temporal lobe disease involving the amygdalae and adjacent structures, including among bvFTD patients who have had this syndrome.[10–12]

In conclusion, this brief report explores the neuropsychiatry of kissing. The findings are preliminary, and require a more extensive survey and detailed analysis of kissing behavior in bvFTD and related disorders. Findings such as the lack of relational kissing, for example, may simply reflect cultural influences not evaluated in this report. Nevertheless, this preliminary report illustrates "social kissing" in bvFTD and may prompt further investigations into the mechanisms of disturbed kissing behavior in brain disease.

The authors report no financial relationships with commercial interests.

Supported by NIA grant #R01AG034499-03.

References

1. Kirshenbaum S: The Science of Kissing. New York, Grand Central Publishing, 2011
2. Rascovsky K, Hodges JR, Knopman D, et al: Sensitivity of revised diagnostic criteria for the behavioural variant of frontotemporal dementia. Brain 2011; 134:2456–2477
3. Snowden J, Neary D, Mann D: Frontotemporal lobar degeneration: clinical and pathological relationships. Acta Neuropathol 2007; 114:31–38
4. Alpert JS: Philematology: the science of kissing. A message for the marital month of june. Am J Med 2013; 126: 466
5. Rashid RM, Eder K, Rosenow J, et al: Ictal kissing: a release phenomenon in non-dominant temporal lobe epilepsy. Epileptic Disord 2010; 12:262–269
6. Mikati MA, Comair YG, Shamseddine AN: Pattern-induced partial seizures with repetitive affectionate kissing: an unusual manifestation of right temporal lobe epilepsy. Epilepsy Behav 2005; 6:447–451
7. Ozkara C, Sarý H, Hanoğlu L, et al: Ictal kissing and religious speech in a patient with right temporal lobe epilepsy. Epileptic Disord 2004; 6:241–245
8. Klüver H, Bucy PC: Preliminary analysis of functions of the temporal lobes in monkeys. 1939. J Neuropsychiatry Clin Neurosci 1997; 9:606–620
9. Marlowe WB, Mancall EL, Thomas JJ: Complete Klüver-Bucy syndrome in man. Cortex 1975; 11:53–59
10. Devinsky O, Bear D: Klüver-Bucy syndrome in Pick's disease. Neurology 1983; 33:957–959
11. Lilly R, Cummings JL, Benson DF, et al: The human Klüver-Bucy syndrome. Neurology 1983; 33:1141–1145
12. Mendez MF, Foti DJ: Lethal hyperoral behaviour from the Klüver-Bucy syndrome. J Neurol Neurosurg Psychiatry 1997; 62:293–294