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Hallucination of soliloquy: Speaking component and hearing component of schizophrenic hallucinations

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Abstract In the present paper, two cases of schizophrenia with hallucinatory soliloquy are presented, and the concept of the symptom, hallucination of soliloquy is proposed. In hallucination of soliloquy, while having the experience of hearing his own voice, the patient has a conviction that he speaks out aloud, without actually vocalizing. It is an abnormal experience of both speaking and hearing; that is, a combination of auditory hallucination and motor hallucination. It is considered that hallucination of soliloquy is an exemplar of schizophrenic hallucinations.

Key words auditory hallucinations, motor hallucinations, schizophrenia, soliloquy.

INTRODUCTION

Schizophrenic patients are often observed to be muttering to themselves in psychotic wards. The soliloquies or monologues of schizophrenic patients are a commonly reported phenomenon. Despite its relatively high frequency, this behavior has been largely ignored in the psychiatric literature.[1] Some patients who speak to themselves are considered to be vocalizing their auditory hallucinations. Other patients complain of being under stress because of their own soliloquies, which are, however, unobservable. Few studies have been performed to explain the relationship between auditory hallucinations and these verbal behaviors and/or experiences.

In the present paper, we present a case of schizophrenia (case 1) where hallucinatory soliloquy was the main symptom, with the aim of comprehending this phenomenon mainly from the phenomenological point of view. An appropriate name for this symptom might be hallucination of soliloquy. Detailed clinical observations reveal that, contrary to what is currently accepted, hallucination of soliloquy is not an unusual symptom. As this symptom does not usually persist for a long time during the course of schizophrenia, it may be overlooked. We present case 2 in order to give an example of transient hallucination of soliloquy. We propose that it would be worthwhile focusing on this phenomenon to develop a further understanding of schizophrenic hallucinations.

Although soliloquy and monologue are parallel terms of Latin and Greek origins, the former has come to mean speaking aloud to oneself, while the latter implies a single speaker talking one-sidedly to others.[1] Therefore, we employ the term soliloquy in the current paper.

CASE REPORTS

Case 1: A case with long-lasting hallucination of soliloquy

A 28-year-old man had changed his job and was laboring under delusions of persecution and auditory hallucinations in the form of being blamed by others. His trivial misunderstandings or subjective impressions of others often made him paranoiac and aggressive, and he caused a lot of trouble at his workplace. For example, while he seemed to willingly take on jobs that were not in his charge, he would subsequently complain to the labour union about it. At other times, he got angry at office girls for hurling abuse at him when they passed by him.

Half a year later, he believed that he had been maltreated at his new work place and that this stress made him speak to himself. The contents of his soliloquies were nonsensical; for example, he would grumble about his colleagues or the plot of a

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television show that he had seen the previous day. During his soliloquies, he experienced the vivid sensation of speaking, as well as hearing, his own voice at the same time, but the episodes lacked obvious external vocalization, hence nobody around him ever heard him soliloquizing. He also had auditory hallucinations of hearing the neighbors reacting to his soliloquies: he heard voices such as 'Shut up!' or 'Again, he is talking to himself!'

At age 30, he consulted Jichi Medical School Hospital demanding a drug for controlling his soliloquies. The following description of the therapeutic course is divided into three phases.

Clinical phase I: Coexistence of delusions of persecution and auditory hallucinations with soliloquies

This occurred from February to October 1993.

We prescribed successively several neuroleptics such as haloperidol, sulpiride, or nemonapride in low to moderate doses. However, no remarkable effect on his soliloquies was noted. Our medication had to be restricted, because high-dose neuroleptics easily cause drug-induced Parkinsonism in him. In May 1993, he wanted to be admitted to the hospital. But after 8 days of hospitalization, he was discharged of his own accord. Electroencephalography and a cranial computed tomography revealed no abnormalities. He was frequently absent from work. As he believed that the cause of his soliloquies was maltreatment at his workplace, he longed for a change of his posting.

Clinical phase II: Monosymptomization of soliloquies

This occurred from October 1993 to May 1994.

From the month of October 1993, the treatments administered brought about a reduction in the frequency of delusions of persecution and auditory hallucinations. His superiors and colleagues found him less aggressive than before. Thus, his disorder became monosymptomatic with soliloquies as his only positive symptom. This monosymptomatic period lasted for several months. In November 1993, nemonapride was prescribed at a dose of 60 mg daily. Then, his soliloquies gradually lost their speaking element and changed to speaking in his head or silent soliloquies. That is, his soliloquies changed to pseudohallucinations of Jaspersian meaning. In December 1993, he stopped attending the hospital, and again consulted us in February 1994, for the complaint of really speaking soliloquies.

In April 1994, his long-standing wish was realized, and his job posting was changed. But duties at the new workplace were heavier than those before, and his soliloquies exacerbated.

Clinical phase III: Transformation and disappearance of soliloquies

This occurred from June 1994.

In June 1994, as he suffered from anorexia and vomiting, he was treated by an internist. But the internist could not find any obvious cause for the anorexia and vomiting. These symptoms seemed to be body-related schizophrenic symptoms. Trial reinstatements at work subsequently resulted in repeated suicide attempts, and psychiatric hospitalization for 3 months. In the hospital, he rarely complained of his soliloquies. Sultopride (1200 mg daily) was the main administered treatment agent.

After leaving the hospital, he complained of trivial domestic stressors sometimes precipitating his really speaking soliloquies, silent soliloquies, anorexia and vomiting.

He began to attend day care in May 1995, and rarely complained of his soliloquies. However, he showed a new symptom, that of breathing hard. Administration of a combination of sultopride (1200 mg daily) and floropipamide (150 mg daily), and subsequently of risperidone (6 mg daily), relieved him of this symptom. Although his illness is in remission, lack of spontaneity and efficiency has posed an obstacle to his reinstatement at work.

Case 2: A case with transient hallucination of soliloquy

A 19-year-old girl had been laboring under delusions of persecution and lost her job. Soon the delusions disappeared, but she lived with a tendency to shut herself indoors.

At the age of 23, she developed confusion, saying, 'I don't know how to eat, how to put on clothes'. She was admitted to Jichi Medical School Hospital. Administration of bromperidol (3 mg daily) relieved her of her confusion. During a 6-month stay at the hospital, she showed autistic behavior, loss of spontaneity, thought disturbance, and monotonous emotion.

Under treatment with bromperidol, she was, however, able to help her mother with the housework to some extent.

At the age of 30, her condition again deteriorated. She complained of soliloquy. She believed that she was speaking unwillingly, which she did not intend to

do. The content was about life or money: She believed herself as saying, 'Kill', or 'Being killed', 'I give you a life', or 'I give you money'. She was afraid that she would seem strange because of her strange soliloquy. A second hospitalization was required for 2 months. In the context of her belief, her family or the psychiatric ward staff never heard her soliloquizing. During her soliloquies, she experienced the vivid sensation of speaking as well as hearing her own small voice at the same time. The dose of bromperidol was increased to 6 mg daily, which was found to be efficacious against her soliloquy. The duration of her symptom of hallucination of soliloquy was about 2 months.

DISCUSSION

Hallucination of soliloquy

We present what appears to be the first reported cases of schizophrenia with hallucinatory soliloquy.

Case 1 is a schizophrenic patient whose early symptoms were typical of schizophrenia: delusions of persecution and auditory hallucinations in the form of being blamed by others. But his illness was also characterized subsequently by a hallucinatory experience in which he complained of speaking to himself and of hearing his own voice in soliloquy. As the author has emphasized above, however, although he experienced the vivid sensation of speaking as well as hearing his own voice at the same time during his soliloquies, nobody around him had ever heard his soliloquy. Thus we concluded that this symptom was 'hallucination experienced as soliloquy'. His belief that he spoke to himself resulted from a sensory experience of 'hearing' and 'speaking.' While his soliloquies changed into speaking in his head or silent soliloquies, the strength of the 'speaking' experience had merely weakened. His soliloquies were characterized by a simultaneous 'hearing' and 'speaking' experience throughout their course. We call this 'hearing' and 'speaking' experience hallucination of soliloquy.

At the beginning of his illness, he had delusions of persecution, and auditory hallucinations of being blamed; later he developed hallucination of soliloquy. As the medication reduced the frequency of the delusions of persecution and auditory hallucinations, hallucination of soliloquy became his main symptom, and continued for over a year. Under medication with nemonapride and later sultopride, the hallucination of soliloquy gradually lost its 'hearing' element and became a pseudohallucination. Thereafter, the 'speaking' element changed to breathing hard, before eventually disappearing.

While case 1 is a rare case with long-lasting hallucination of soliloquy, case 2 is an example of transient emergence of hallucination of soliloquy. She manifested hallucination of soliloquy only for 2 months during the course of her 10-year illness. We consider that transient hallucination of soliloquy is frequently experienced by schizophrenic patients. For example, if hallucination of soliloquy is generated in the form of only one phrase, clinicians may hardly recognize it. However, detailed clinical observation often reveals the verbal component of schizophrenic auditory hallucinations. It is very likely that verbal experience is an important component of schizophrenic auditory hallucinations. Thus, hallucination of soliloquy may be an exemplar of schizophrenic hallucinations.

Abnormal experiences of soliloquy

In the Japanese literature, the concept of delusion of soliloquy was first proposed by Kasahara *et al*.[2] in 1972. Since then, there have been only two reports of three cases with delusion of soliloquy. To clarify the characteristics of hallucination of soliloquy proposed by us, we must elaborate here on delusion of soliloquy.

Delusion of soliloquy is defined as a pathological conviction that one unintentionally spoke to oneself, mainly in public.[2] Kasahara *et al*.[2] mentioned that although the patients with delusion of soliloquy were well aware that their soliloquies were never pronounced in words,[2] they strongly believed that they let slip what they called soliloquy and that everyone learned their secrets through their soliloquy. They made no concessions.[2] Judging from the finding that the patients 'are well aware that their soliloquies were never pronounced in words', Kasahara *et al*.[2] seem to infer that the patients' experience of soliloquy was not a hallucination, but a delusion. One of their patients complained, 'people have a full knowledge of me because I have been speaking aloud to myself unwittingly'.[2] As this might have the characteristics of delusion of reference, the above-mentioned inference seems to be pertinent. At the present time, we would like to call this symptom delusion-of-reference-like delusion of soliloquy.

Delusion of soliloquy could be explained by another mechanism. Another of Kasahara's patients mentioned, 'Neither am I speaking with my voice nor am I simply thinking. I feel I'm doing something in the middle. Anyway my privacy comes to light through it.'[2] In this case, it remains ambiguous as to whether this was a delusion of reference or thought broadcasting. As regards the difference between

them, Kasahara *et al*.[2] proposed, 'In thought broadcasting, the patient is conscious of the relation to verbal movement and defines his larynx, mouth etc. as the escaping point of his thought'. As for verbal movement in thought broadcasting, it should be emphasized that in Japan, the term 'thought broadcasting (Gedankenausbreitung)' is recognized as meaning that 'the patient's thought becomes transmittable and others learn about his thought', while in the West, the definition is somewhat different; in thought broadcasting, the patient knows that he is thinking what everyone else is thinking in unison with him. In the context of psychiatry in Japan, thought broadcasting implies verbal movement, that is, the patient believes his thoughts are being transmitted to others around him. This verbal movement is present in delusion of soliloquy and we use the term verbal-movement-like delusion of soliloquy to define it. However, it would be inappropriate to assert that we comprehend all the elements of verbal movement within a delusional state.

We then conclude that delusion of soliloquy has two components. One is delusion-of-reference-like delusion of soliloquy, which is realized through a mechanism of delusion of reference; the other is verbal-movement-like delusion of soliloquy, which has a certain cenesthesia of speaking and is related to verbal movement. These two aspects often coexist in the same patient.

While delusion of soliloquy (especially delusion-of-reference-like delusion of soliloquy) represents the delusional pole in abnormal experiences of soliloquy, hallucination of soliloquy represents the hallucinatory pole. As for hallucination of soliloquy, it is an abnormal experience of soliloquy with a feeling of verbal movement and auditory hallucinations in the patients' own voice. We can characterize hallucination of soliloquy as an experience of both speaking and hearing, consisting of two components, that is a speaking component and a hearing component.

Hearing component

As the hearing component in hallucination of soliloquy can be recognized as a phenomenon in which the patient hears his/her own thought, it is equivalent to his/her own thought-hearing experience (Gedankenlautwerden). In a strict sense, this term implies that the thought of the patient comes to be heard in a certain voice (often a stranger's voice). But the contents of 'soliloquy' in case 1 were borrowed thoughts, such as hackneyed grumbled phrases, the lyrics of some theme song or the plot of a soap opera. As for case 2, the contents were nonsensical or threatening words about life or money. These were thus not their own thought, not words that had their roots deep in the patients' subjectivity, and are considered as something between self-belonging thoughts and the alien thoughts of others. Although the speaker of the 'soliloquy' is the patient himself, he cannot control it. 'Soliloquy' is neither passive speech nor active speech. In contrast, in thought-hearing, the thought itself, which comes to be heard, represents the patient's spontaneous thinking.

After all, we could say that the hearing component in hallucination of soliloquy is something like thought-hearing, but both are similar in meaning in that thoughts are believed to be spoken.

Speaking component

As for the speaking component of hallucination of soliloquy, it is noteworthy that this component is evidently the one emphasized by Séglas[3,4] and Cramer.[5] In a broad sense, hallucination of soliloquy belongs to verbal psychomotor hallucination (hallucination verbale psychomotrice)[3,4] or hallucination of muscle sensation (Halluzination des Muskelsinns)[5] in the classical literature.

Séglas' considerations of hallucination were based on findings from the neuropsychological experiments of that time. He supposed that strong connections exist between the auditory centres and auditory hallucinations, visual centres and visual hallucinations. Furthermore, he described hallucinations belonging to the two motor centres of speaking and writing as verbal psychomotor hallucination (hallucination verbale psychomotrice) that belongs to the centres of speaking and writing. In brief, verbal psychomotor hallucination is the experience of one's inner speech being spoken aloud with the pathological feeling of being affected or influenced. He states that it develops in three steps: (i) simple kinesthetic verbal hallucination (hallucination verbale kinesthétique simple), in which the patient feels speech movement in his tongue, lip, larynx and/or diaphragm and thinks that he is forced to speak; (ii) complete verbal motor hallucination (hallucination verbale motrice complète), in which the patient hears his voice in a whisper and his speech movement is observed at the tongue or lips but without any vocalization; and (iii) verbal impulsion (impulsion verbale), in which the patient speaks unwittingly.

However, it was observed that neither our patients were actually speaking to themselves, nor were they actually moving their mouths, although they had the sensation of their mouths moving. In other words, they were not objectively moving their mouths while

they felt this movement subjectively. Therefore, the speaking component itself of hallucination of soliloquy corresponds to the simple kinesthetic verbal hallucination of Séglas. When taking the hearing component into consideration together with this speaking component, hallucination of soliloquy seems to be quite similar to the complete verbal motor hallucination of Séglas, insofar as these two hallucinations display hearing as well as motor components in a manifest way.

Previous to Séglas, Cramer proposed hallucination of muscle sensation that informs movement or posture of the body to the central nervous system. In hallucination of muscle sensation, abnormal stimulation of muscle sensation that occurs in centripetal nerves is considered to cause an inappropriate motor representation in the patient's brain and he feels that his body moves unwittingly. Apart from this, Cramer considered hallucination of muscle sensation in the speech apparatus and ocular muscles. The former rouses our concern. He noted that motor representations in the speech apparatus enable accurate pronunciation in children. He suggested that even in adults, speech representations still trigger faint but definite motor impulses that impel the speech apparatus and that these impulses guide the motor representations. When hallucinatory stimulation of muscle sensations occurs, a hallucinatory motor representation of a certain word is formed. This motor representation then leads to a sound representation of language in the patient's mind. The patient may experience this as a thought simultaneously spoken by an internal voice or the voice may be transferred to the mouth and other loci in the body. Moreover Cramer explained the mechanisms of thought-hearing, obsessive speech representations and compulsive speech.

Currently, neuroimaging studies of auditory hallucination are being performed by position emission tomography, single photon emission computed tomography, or functional magnetic resonance imaging.[6–9] One could say that these studies are in line with Cramer's neurophysiological explanation for hallucination. Despite Cramer's explanation, it must be noted that attention is focused on the motor component of hallucination in his theory.

Links between auditory and motor hallucinations

As explained before, generally speaking, hallucination of soliloquy exhibits both a hearing component and a speaking component, that is, thought-hearing and verbal psychomotor hallucination (Séglas) in conventional symptomatology. Hallucination of soliloquy must not be considered as only a coincident combination of these two symptoms. We would rather think that this hallucination is a single phenomenon with two components, which is characteristic of schizophrenia. Thus, such a symptom must have a specific name, and we propose hallucination of soliloquy.

At present, we place a certain value on the explanations of such researchers (mechanists[10]) as Séglas or Cramer who considered hallucination as a reinforced image caused by pathological stimulation, because their opinions involve the viewpoint that auditory and motor hallucinations are two aspects of a single phenomenon.

Séglas[4] took account of auditory, visual and motor (speaking and writing) centres of language and he thought that representations that exist in these centres work together to drive linguistic function. The origin of hallucinations is an abnormal stimulation in a certain centre. As there are connections among these linguistic centres when abnormal stimulation occurs in a certain centre, 'visual persons' see visual hallucinations of letters, 'auditory persons' hear auditory hallucinations, and 'motor persons' have verbal psychomotor hallucination.

In Cramer's consideration,[5] hallucinatory motor representation that occurs under abnormal sensitivity in the nervous system causes sound representation of language, which transfers to various parts of the patient's body, including anterior chest and epigastrium. From this point of view, Jaspersian true hallucinations,[11] in which the voice orients itself outside the body, appear to be formed through transference of the voice to the outside.

The present-day interpretation of the explanation of Séglas and his followers places emphasis on the motor component of auditory hallucinations, which usually seem to be a pathology of 'hearing'. This viewpoint is accepted by studies on subvocal speech. Subvocal speech is defined by Bloomfield[12] as 'soundless movements of the vocal organs, taking the place of speech movements, but not perceptible to other people'. In schizophrenic patients, a certain relationship between subvocal speech and the mechanism of generation of hallucinations has been suggested by researchers such as Gould,[13] McGuigan,[14] Inoue and Shimizu,[15] and Bick and Kinsbourne.[16] If subvocal speech generated auditory hallucination, the roots of the hearing component in auditory hallucinations would be the speaking component. But it is not yet certain whether the above-mentioned is always true in schizophrenic patients, and even if it were, it is still uncertain whether subvocal speech generates auditory hallucinations or is merely the consequence of repeating what the patient hears in the hallucinations.

In recent studies, Frith[17] appreciated these arguments, calling them 'output theories of hallucinations', and proposed the hypothesis of 'a defect of self-monitoring'. He said 'It is, of course, possible for subvocal speech to occur in the absence of any detectable sound or muscle activity'.[17] He used the term 'inner speech' as such subvocal speech in the absence of muscle activity and peripheral feedback, and explained as follows:

If hallucinations are caused by inner speech, then the problem is not that inner speech is occurring, but that patients must be failing to recognize that this activity is self-initiated. The patients misattribute self-generated actions to an external agent. I have called this a defect of 'self-monitoring' because the patients are failing to monitor their own actions.[17]

It is of interest that the proposed mechanism of motor hallucinations is applicable to the generation of auditory hallucinations. But we think that this is a one-sided view. Even latently, schizophrenic auditory hallucinations have both speaking and hearing components. In this sense, hallucination of soliloquy would constitute an exemplar of schizophrenic hallucination.

REFERENCES

1. Grumet GW. On speaking to oneself. *Psychiatry* 1985; **48**: 180–195.
2. Kasahara Y, Fujinawa A, Sekiguchi H, Matsumoto M. *Fear of eye-to-eye confrontation and fear of emitting bad odors.* Igaku Shoin, Tokyo, 1972 (in Japanese).
3. Séglas J. *Des troubles du langage chez les aliénés.* J. Rueff et Cie, Paris, 1892 (in French).
4. Séglas J. *Leçons cliniques sur les maladies mentales et nerveuses.* Asselin et Houzeau, Paris, 1895 (in French).
5. Cramer A. Hallucinationen im Muskelsinn des Sprachapparates. In: *Die Hallucinationen im Muskelsinn bei Geisteskranken und ihre klinische Bedeutung.* Akademische-Verlag, Freiburg IB, 1889; 11–22 (in German).
6. Cleghorn JM, Franco S, Szechtman B *et al.* Toward a brain map of auditory hallucinations. *Am. J. Psychiatry* 1992; **149**: 1062–1069.
7. David AS, Woodruff PWR, Howard R *et al.* Auditory hallucinations inhibit exogenous activation of auditory association cortex. *NeuroReport* 1996; **7**: 932–936.
8. McGuire PK, Shah GMS, Murray RM. Increased blood flow in Broca's area during auditory hallucinations in schizophrenia. *Lancet* 1993; **342**: 703–706.
9. Woodruff PWR, Wright IC, Bullmore ET *et al.* Auditory hallucinations and the temporal cortical response to speech in schizophrenia: A functional magnetic resonance imaging study. *Am. J. Psychiatry* 1997; **154**: 1676–1682.
10. Ey H. *Traité des hallucinations.* Masson, Paris, 1973 (in French).
11. Jaspers K. *Allgemeine Psychopathologie*. Springer, Berlin, 1913 (in German).
12. Bloomfield L. *Language*. George Allen and Unwin, London, 1934.
13. Gould LN. Auditory hallucinations and subvocal speech. *J. Nerv. Ment. Dis.* 1949; **109**: 418–427.
14. McGuigan FJ. Covert oral behavior and auditory hallucinations. *Psychophysiology* 1966; **3**: 73–80.
15. Inoue T, Shimizu A. The electromyographic study of verbal hallucination. *J. Nerv. Ment. Dis.* 1970; **151**: 415–422.
16. Bick PA, Kinsbourne M. Auditory hallucinations and subvocal speech in schizophrenic patients. *Am. J. Psychiatry* 1987; **144**: 222–225.
17. Frith ChD. *The Cognitive Neuropsychology of Schizophrenia.* Lawrence Erlbaum Associates Publishers, NJ, 1992.