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"Aphasia" in Pantomimic Sign Language

Toshihiko HAMANAKA and Hiroshi OHASHI

I. INTRODUCTION

In contrast with aphasia, which means usually disturbance of spoken and written language in subjects endowed with healthy senses before onset of the disease, defects in body sign languages as methods of communication among deaf-mutes suffereng brain damage have not received much attention, alike those in utilizing various signs and symbols, partly because of their extremely rare opportiunties for observation. In our country especially publications reporting such cases have never appeared as far as we aware of. In Europe and U.S.A., however, at least several observations of such cases are found since Hughlings Jackson (1878) predicted the possibility of communication disorder in pantomime among deaf-mutes. The case presented here is not that of a deaf-mute, but has an interesting feature of disturbance of pantomimic sign language, possibly contributing to the understanding of impaired communication by means of signs and symbols — verbal or non-verbal—, which occupied some leading authors since Finkeluburg's conception of "asymbolia" (1870), arousing more interest among recent investigators (e.g. Critchley 1970, Leischner 1974). It will also shed some light on the unsettled problem concerning aphasic or apractognosic nature of the disorder in body sign language.

II. CASE REPORT

I.O., 56 year old, right-handed, Japanese male, a company employee who granduated from primary school. Family and past history was non-contributory.

History of the present illness: On April 24, 1961, at the age of 56, the patient went out for a trip on the company's business, fell down and became unconscious at an inn. He was immediately hospitalized and treated for about 1 month, recovered fairly well and discharged. According to the hospital record, the condition of the patient at the time of falling ill was as follows. Immediately after onset, when seen by a visiting physician, consciousness was already clear. Although pupillary responses were normal and no motor difficulties noted, speech disturbance was pronounced. Blood pressure was 140/75 mmHg. During the following week, nausea and headache were noted, but susbequent course was un-

Toshihiko HAMANAKA (浜中淑彦): Lecturer, Department of Neuropsychiatry, Kyoto University, School of Medicine.
Hiroshi OHASHI (大橋博司): Professor, Department of Neuropsychiatry, Kyoto University, School of Medicine.

eventful. It was not until May 10 that acalculia, agraphia, finger agnosia, right-left disorientation and disorder in color naming were detected.

On May 31, the patient was examined at the out-patient clinic of Department of Neuropsychiatry, Kyoto University School of Medicine. Neurological examination at that time revealed neither sensory nor motor deficits. Reflexes were intact on both sides of the body, and no pathological reflex was elicited. Cranial nerves were in order, and no cerebellar signs noted. Luetic reactions of the serum were negative, electroencephalography, visual fields and fundoscopy were normal.

Neuropsychological findings: Spontaneous speech was free of remarkable changes, except for occasional hesitations and circumlocutory expressions. No dysarthria, paraphasia, jargon, or agrammatism was noted. Comprehension was so good as to raise practically no gross difficulties in daily conversation. Word finding was rather difficult, of which the patient himself complained, with occasional periphrasings. Names of the fingers were correctly answered but with delay, and imitation in the hand-eye-ear test of Head showed considerable difficulties with right-left confusions. Mild amnesia of color names as well as slight degree of acalculia was confirmed. No gross agraphia, alexia, apraxia or agnosia was noted.

In summary, our patient suffered a cerebrovascular accident starting with loss of consciousness to exhibit subsequently amnesic aphasia and so-called Gerstmann syndrome, which were improving at the time of our examination.

III. DISTURBANCE OF PANTOMIMIC SIGN LANGUAGE

Along with the aphasic disturbance described above, the patient complained of his inability to converse with his wife by means of pantomimic sign language at home. He had learned to use this sign language when he remarried, his second wife having acquired deaf-mutism as a result of an unknown inflammatory disease of the nervous system at the age of 8. Subsequently, she learned a kind of sign language, practiced by Geisha girsl in order to maintain professional secrecy in the guest room, from her mother who was a hair dresser for Geisha girls in Osaka. She was not completely mute, capable of uttering some sounds with a slightly hoarse vioce along with communicating in this pantomimic sign language. After his marriage with her, the patient mastered it quickly within few days and utilized it for daily conversation with her ever since without difficulty.

This pantomimic sign language is possibly regarded as "syllabic" instead of "alphabetic" sign language used among European deaf-mutes. It is based upon a system of unit signs, each expressed by means of a gestural or pantomimic movement chiefly of upper extremities and representing one of the 45 fundamental syllabics of the Japanese spoken language:

a (あ): Mouth opened (=*a*keru),

i (い): The shape of the Japanese cursive letter (hiragana) of *i* (い) imitated by spreading right thumb and index finger,

u (う): Face looking upward (=*u*e),

e (え): Right index finger pointing to a collar (=*e*ri) of suit,

o (お, を): Pointing to one's own abdomen (=*o*naka),

ka (か): Gesture of scratching (=*ka*ku) one's own cheek,

ki (き): Right index finger placed vertically against left index and middle fingers stretched to imitate the shape of the Japanese square-formed letter (katakana) of *ki* (キ),

ku (く): Pointing to one's own mouth (=*ku*chi)

ke (け): Pointing to one's own hair (=*ke*) of the head,

ko (こ): Gesture of holding a child (=*ko*domo) in one's arms,

sa (さ): Right index finger and middle fingers placed at right angles to left index finger to imitate the shape of the Japanese square-formed letter (katakana) of *sa* (サ),

si or shi (し): Writing the Japanese cursive letter (hiragana) *si* (し) in the air with right index finger,

su (す): Gesture of handling a pestle (=*su*rikogi),

se (せ): Pointing to one's own back (=*se*naka),

so (そ): The sleeve (=*so*de) pointed to by right index finger, in the assumption that one wears kimono,

ta (た): Gesture of clapping (=*ta*taku) one's hands,

ti or chi (ち): Pointing to one's own breast (=*ti*busa),

tu or tsu (つ): Gesture of walking with a cane (=*tu*e),

te (て): One's own hand (=*te*) shown,

to (と): Gesture of opening door (=*to*),

na (な): Gesture of weeping (=*na*ku),

ni (に): Gesture of carrying a load (=*ni*) on shoulders,

nu (ぬ): Gesture of sewing (=*nu*u),

ne (ね): Gesture of sleeping (=*ne*ru),

no (の): Pointing to one's own throat (=*no*do),

ha (は): Pointing to one's own teeth (=*ha*),

hi (ひ): Pointing to one's own left elbow (=hizi),

hu or fu (ふ): Gesture of whistling (=*hu*ku),

he (へ): The shape of the Japanese cursive letter (hiragana) of *he* (へ) imitated by spreading right thumb and index finger at wide angle, concave side downward,

ho (ほ): Pointing to one's own cheek (=*ho*ho),

ma (ま): Pointing to one's own eyebrow (=*ma*yuge),

mi (み): Pointing to one's own ear (=*mi*mi),

mu (む): Pointing to one's own chest (=*mu*ne),

me (め): Pointing to one's own eye (=*me*),
mo (も): Both index fingers placed on the head to imitate an ox with horns which lows (=*mo* to naku),
ya (や): Gesture of thrusting a spear (=*ya*ri),
yu (ゆ): Gesture of taking bath (=*yu*),
yo (よ): Four fingers of the right hand stretched to symbolize the number four (=*yo*n),
ra (ら): Gesture of blowing a trumpet (=*ra*ppa),
ri (り): Gesture of ringing a bell that jingles (=*rin*rin naru),
ru (る): Gesture of conveying a person's absence (=*ru*su),
re (れ): Gesture of bowing (=*re*isuru),
ro (ろ): Gesture of working a scull (=*ro*),
wa (わ): The shape of a ring (=*wa*) imitated by right thumb and index fingers,
ng (ん): Pointing to one's own buttocks suggesting stool (=*ng*ko in Japanese child language).

Those syllabics, which include the voiced consonants d, g, and z, (e.g. da, ga, za) are expressed by adding to the signs, which respectively signifiy the syllabics with the corresponding non-voiced consonants. (e.g. ta, ka, sa), a supplementary gestural sign in the shape of a dot (ˇ) symbolized by right index finger in the air. Those including b are expressed in the same way by adding a dot, and those including p (e.g. *pa*) by adding a small circle (o) drawn by right index finger in the air, to the gestural signs signifying the syllabics, which include h (e.g. ha).

Words, phrases and sentences in this pantomimic sign language are constructed by combining the unit signs in accordance with the rules of the Japanese spoken language.

If we examine in detail the ununiform way, in which the gestural unit signs symbolize the fundamental syllabics of the Japanese language, 2 modalities of symbolization are discerned, which give us a possible classification of the unit signs into following groups and subgroups:

Group 1: Unit signs which may be called hieroglyphic, expressed exclusively with fingers,

(1) by imitating the shape of the Japanese cursive letters (hiragana) representing the corresponding syllabics : i, he

(2) by imitating the shape of the Japanese square-formed letters (katakana) representing the corresponding syllabics: sa, ki

(3) by writting in the air the Japanese cursive letter of the corresponding syllabic: si (or shi)

Group 2: Unit signs, which may be called "phonetic", expressed by pantomiming particular actions or by pointing to particular objects, and each signifying that syllabic, which constitutes the initial syllable of a word or a phrase meaning the corresponding action or object:

(1) expressed by pantomiming particular actions, and each signifying

(a) that syllabic, which constitutes the initial syllable of a verb meaning an action: a (<*a*keru=open), ka (<*ka*ku=to scratch), ta (<*ta*taku=to clap), ne (<*ne*ru=to sleep), nu (<*nu*u=to sew), na (<*na*ku=to weep), hu or fu (<*hu*ku=to whistle)

(b) that syllabic, which constitutes the initial syllable of a object-noun of a verb meaning an action: u (<to look upward=*u*e), ko (<to hold a child=*ko*domo), su (<to handle a pestle=*su*rikogi), tu or tsu (<to walk with a cane=*tu*e), to (<to open a door=*to*), ni (<to carry a load=*ni*), ya (<to thrust a spear=*ya*ri), yu (<to take bath=*yu*), ra (<to blow a trumpet=*ra*ppa), re (<to make a bow=*re*i), ru (<to convey absence=*ru*su), ro (<to work a scull=*ro*)

(2) expressed by pointing to or symbolizing particular objects, and each signifying

(a) that syllabic, which constitutes the initial syllable of a noun meaning a pointed body part: o (<*o*naka=abdomen), ku (<*ku*chi=mouth), ke (<*ke*=hair), se (<*se*naka=back), ti or chi (*ti*ti=breast) te (<*te*=hand), no (<*nodo* throat), ha (<*ha*=tooth), hi (<*hi*ji=elbow), ho (<*ho*ho=cheek), ma (<*ma*yuge=eyebrow), mi (<*mi*mi=ear), mu (<*mu*ne=chest), me (<*me*=eye), ng (<*ng*ko=stool, buttocks)

(b) that syllabic, which constitutes the initial syllable of a noun meaning the pointed or symbolized (part of) object worn or carried on oneself: e (<*e*ri=collar), so (<*so*de=sleeve), wa (<*wa*=ring)

(c) that syllabic, which constitutes the initial syllable of a onomatopoetic word suggesting the symbolized object: mo (<*mo*=to low), ri (<*ri*nrin=to jingle)

(d) that syllabic, which constitutes the first syllable of a numeral symbolized with fingers: yo (<*yo*n=four)

We had an poportunity to obesrve alterations in pantomimic sign language of our case in the outpatient clinic from about one and a half months after onset over the next five months, during which period we studied mainly the comprehension and expression of the unit signs, pursuing the course. The following observations were made:

1) In comparing defects in expression and understanding of the unit signs, no remarkable difference in severity was noted. The difficulties in these two spheres were not always parallel. The patient was often unable to express those signs which were understood and vice versa.

2) A considerable day to day variation in the disturbance of pantomimic sign language was noted. Expression or comprehension of a certain sign was possible one day and became impossible on the following. Such diachronical changes in performance showed no fixed rules. Occasionally, fluctuations were seen even during the course of a single examination. The patient himself complained "sometimes I can and other times I cannot." It corresponds to a well

known phenomenon frequently experienced in aphasia, and may be considered to be due to "Funktionswandel" (v. Weizsacker).

3) It was interesting to see which of the groups or subgroups of unit signs was the most readily disturbed. In this regard nothing assertive can be said, partly because of the fluctuations in performance described above. It should, however, be noted that in group 2 (1) a considerable dissociation was noted between (a) and (b), in so far as the signs belonging to the former subgroup were apt to be less readily affected than those belonging to the latter. Table 1 illustrates one of such cases. In other words, as shown in the performance of group 2 in Table 1, the gestural unit signs each representing a syllabic, which constitutes the initial syllable of a *verb* (group 2 (1) (a)), were more easily expressed by the patient than those each corresponding to a syllabic, which constitutes the initial syllable of an object-*noun* (group 2 (1) (b)). When failures in utilizing the latter subgroup of signs were studied in more detail, confusions of signs were often noted, where, instead of a syllabic constituting the initial syllable of a object-*noun* in a phrase meaning a particular action, a syllabic constituting the initial syllable of a *verb* included in the same phrase was incorrectly symbolized by a pantomimic expression of the action in question: e.g. not the syllabic *to* but *a* signified by the pantomimic movement of opening door (*to*=door, *a*keru=open).

Table 1

			Comprehension	Expresion
Group 1			i(−) he (−) shi (±)	i(+) he (+) shi (+) sa, ki—confused with each other
Group 2	(1)	(a)	ka (+) ne (+) na (+) hu (+) a (+)	nu (+)
		(b)	ro (−) ni (+) to (−) ru (−) re (−) tu (+) ra (−) ya (±) ko (−) yu (−) su (−)	ro (−) to (−) tu (+)
	(2)	(a)	me (+) mi (+) hi (−) se (−)	ha (−) chi (−) ke (−) se (−)
		(c)	ri (−) mo (−)	

(Examined on June 28)

This reminds us of one of the features observed in amnesic aphasia, in which recall of verbs is easier than that of nouns, suggesting an intimate relationship betewen the impairment of pantomimic sign language and the amnesic aphasia in our case. The fact that the unit signs in group 2 (2) (a) and (b), expressed by pointing to or symbolizing particular objects signified by nouns, were not so severely affected as those in group 2 (1) (b) despite the dependence on recall of nouns common to both groups of signs, might appear paradoxical. This, however, is explained to

some extent by the fact, that most of the nouns mediating the signs in group 2 (2) (a) and (b) designate familiar things in daily life, while those in group 2 (1) (b) less familiar things e.g. oar, spear and trumpet. Furthermore, verbs and nouns in competing positions in the same phrase in the case group 2 (1) (b) probably made the contrast between the performances of both groups even more distinct.

IV. Comments

Among disturbances in use of signs and symbols occurring in brain-damaged patients, those of spoken and written languages apart, it was gestural deficiency incidentally observed in aphasic subjects, that first drew attention of early authors. Trousseau (1864) differentiated 3 groups of aphasic patients, i.e. with gestural expression preserved ,with it lost and with paresis of the extremities, although it must also be mentioned, that the ability of aphasics to indicate, by means of pantomime, what they cannot verbalize, impressed many investigators since Broca (1864).

Difficulties for aphasic patients to express and comprehend gesture and pantomime, after Perroud (1964) having treated disorders of spoken, written and mimic languages from a unitary point of view, gave Finkelnburg (1870) an opportunity as the first to describe alterations in utilizing other signs and symbols and to develop a comprehensive theory of "asymbolia", i.e. loss of the human faculty to express and understand ideas by means of learned signs, the facultas signatrix of Kant (1798). His aphasics showed, in additiopn to gestural and pantomimic deficits, inabilities to understand professional and ritual symbols, musical notes, monetary value e.t.c. For Finkelnburg, aphasia represented one special aspect of asymbolia.

Ever since, further reports on impaired activities of symbolization in various categories are known: "aphasia" of pantomimic sign language among deaf-mutes since Grasset (1896), disorders of signalling (ship's lights, hoists of signal-flags, semaphore signals, Morse signals e.t.c.) since Critchley (1942), disturbance in stenography since Leischner (1950), in Braille reading among blind people since Critchley (1953) and Hoff et al. (1954), in phonography since Peuser et al. (1974). Enrichment of scientific knowledge in this field is reflected in the following classification of asymbolias recently presented by Leischner et al. (1974), in comparison with an analogous attempt by Spamer (1876) a century ago:

I. Asymbolias concerning speech and language

A) for articulate speech

a) asymbolia for letters b) asymbolia for words

B) for non-articulate speech

a) disorders of gesture

b) disorders of finger spelling (of deaf-mutes)

c) disorders of Braille reading d) disorders in Morse alphabet

e) disorders in signal systems (flags etc)

f) disorders in stenography g) disorders in phonography

II. Asymbolias not concerning speech and language

a) for figures (numbers) b) for mathematical signs

c) for chemical formulae d) for traffic signposts

e) for symbols representing a country, an organization, a religion etc

f) for money g) for manners

h) for musical notes and signs i) for punctuation marks

Today the research in this dimension is not independent of rehabilitation therapy of aphasic patients, some of whom are reported to be tentatively trained in pantomimic language (Chen 1968, Eagleson et al. 1968, 1970) and even in artificial sign language learned by chimpanzee (Glass et al. 1973).

As for terms designating these disturbances in signs and symbols, Kussmaul (1877) preferred "asemia" proposed by Steinthal (1871) to "asymbolia" which was accepted by Spamer (1876) fololwing Finkelnburg, and Pick (1908) regretted that "asymbolia", often applied to cover agnosic or apraxic disorders ("Tast-asymbolie" of Wernicke, "motorische Asymbolie" of Meynert etc) led to some conceptual confusion in clinical neuropsychology, "asemia" remaining out of favor. Leischner (1943, 1974) adopted once more Finkelburg's terminology, while one of us (Hamanaka 1971) suggested either term to designate a disorder of the general symbolization process underlying all kinds of sign and symbol formation, as pointed out by Piaget (1966). According to Jackson (1878) another term "asemasia" was proposed by Hamilton, which was taken into consideration also by Critchley (1939). Regarding gestural deficiency in particular, but mostly accompanying aphasia, "asemia mimica", "amimia" or "dysmimia" was suggeted by Kussmaul, "amimie" by Ballet (1890), and "Gebärdenagnosie" (gestural agnosia) by Kogerer (1924).

Confining ourselves to disturbances of body sign language, one of which was observed in our case reported above, we must first of all dintinguish, with Jackson (1878, 1893), Pick (1908) and Critchley (1938–1970) pantomime from gesture or gestuiclation and from physiognomy or facial mimetic movements. Gesture is usually made as an unconscious accompaniment to oral language in order to emphasize and enrich it in an auxiliary and emotional way. Pantomime, on the other hand, is an original sign language as independent method of communication, "propositional language" or "pantomimic propositioning" in Jackson's terms. Facial mimetic movements are intimately connected with vegetative functions, being often out of voluntary control.

Original pantomimic sign languages, according to Critchley (1938), are divided into 3 groups depending on the user or purpose for which used:

(1) Sign language utilized by deaf-mutes as a substitute for normal spoken language,

(2) Sign language used by those who possess normal spoken language,

(a) those used among indigenous tribes speeking different languages for mutual understanding (e.g. inhabitants of Qeensland, North American Indians, Afriacn tribes),

(b) those used in closed societies for special purposes such as religious ceremony or maintenance of secrets (e.g. secret societies in China, slums in Naples, and monastic communities of various denominations in Europe).

Critchley gave afterwards (1963, 1970) an additional description of occupational sign language, symbolic movements and postures in the oriental dance, an elaborate system of communication described in oriental literature etc, which would be included in group (2) (b).

The structure and characteristics of sign language should vary according to the user and purpose for which used. There are two kinds of pantomimic language adopted by deaf-mutes. One is natural sign language or "naturverbundene Zeichensprache", and the other is alphabetic sign language, finger spelling or "Fingersprache", also called dactylology. The latter is based on a system of unit signs corresponding to the alphabet of a particular national language with some variations among different countries, and has principally resort to imitation of the shapes of alphabetic letters by the use of fingers. Combinations of unit signs form words, phrases and sentences. Consequently, learning this kind of communicative methods implies the preexistence of a particular spoken language. Deaf-mutes, above all those with congenital deficiency, learn this and their own national language simultaneously. On the other hand, natural sign language is entirely independent of preexisting linguistic systems of communication, national languages included, and consequently not alphabetic. One pantomimic movement symbolizes not one phonetic unit as such without meaning, but one semantic unity, which would correspond to a word, a phrase or even a sentence of spoken language. It consists in a bodily expressive movement for the most part transferred and adapted from natural gestures or pantomimes widely used among peoples. Most of these sign languages involve not only the use of fingers and hands, but also arms and other parts of the body and are, to some extent, international. Inter-racial or inter-tribal sign languages, used among various indigenous tribes speeking different systems of language, are said to be closely akin to natural sign language. Rather different from them are hand signs utilized in secret societies because of their necessity to transmit messages incomprehensible to outsiders and to be understood exclusively by their members.

The pantomimic sign language employed by our patient is a very special one among those hitherto described. It was originally designed to meet the professional demand of Geisha girls for maintaining secrecy in the guest room, would therefore be classified under group (2) (b) according to Critchley. In our case, it found application to facilitate daily communication between the patient with normal senses, speeking otherwise oral Japanese, and his wife who had acquired

deaf-mutism in the childhood. Structurally this language is considered to be a syllabic sign language, analogous to alphabetic ones employed by European and American deaf-mutes. But apart from a disparity caused by the use of unit signs symbolizing syllabics instead of alphabets, which arises probably from different structure of the Japanese and the European spoken languages, it reveals further distinct features. As already seen above, its unit signs are not homogenous, each symbolizing the respective syllabic of the spoken language in different and more or less complicated ways. In finger spelling of deaf-mutes, shapes of alphabetic letters are often simply imitated with fingers. In the sign language reported here, except for the signs belonging to group 1 (c.f. p. 6), in which that is practically the case, preexistence of knowledge of the Japanese oral language is in another way supposed. One pantomimic unit sign presumes not only knowledge of a corresponding syllabic in oral language, but also of a word or a phrase including that syllabic as the initial syllable. In other words, this sign language is for the most part doubly conditioned by the preexisting language, Japanese. It lies therefore in the nature of things, that it was originally evolved among Geisha girls, who possessed normal language function.

These prominent features of the pantomimic sign language employed by our patient are naturally reflected in its pathological manifestions, as described above. In parallel with its evident dependence upon spoken language, its disturbance exhibited some characteristics possibly explained by one of those of amnesic aphasia, which was concomitantly noted in our case in the absence of apraxic symptoms. This underlines strongly the nature of the pantomimic deficiency observed in our patient as a secondary or partial manifestation of amnesic aphasia which existed primarily. It must, however, be mentioned, that it remains undetermined, whether the deficits of our patient will be wholly dissolved in the disorder of the spoken language or not.

It goes without saying that our case cannot be discussed in the same context as those of congenital or acquired deaf-mutism with "aphasia" described by Grasset (1896), Burr (1905), Critchley (1938–1970), Leischner (1943), Tureen et al. (1951), Douglass et al. (1959) and recently by Sarno et al. (1969), nor as those with alterations in gestural activity in association with aphasia, which were studied since Trousseau by Jackson (1878, 1893), Nothnagel et al. (1887), Ballet (1890), Mills (1893), Bastian (1898), Mazurkiewicz (1900), Groβ (1904), Liepmann (1905), Kogerer (1924), Critchley (1939–1970), Goldstein (1948), Brain (1961), de Renzi et al. (1961), Alajouanine et al. (1964) and most systematically by Goodglass et al. (1963). In the former cases that sign language is disturbed, the use of which is obligatory for its user in communication, it being an indispensable substitute for a spoken language, while in the latter the impaired gestural ability plays no more than a supplementary role in transmitting messages. There seems to be only one case, that of N. Reider (1941) briefly cited by Critchley (1970), known in the

neuropsychological literature, which would somehow be comparable to ours, except for the fact, that his patient employed a sign language originally designed for deaf-mutes instead of normal people with particular professional interests, as seen in our case. In his case as well as in ours, two different systems of communication, one a spoken the other a sign language, each utilized in different situations, had been at disposal of the patient before onset of his brain disease, which affected both communicative resources of the patient, resulting in aphasia and deficit in sign language.

It was one of much discussed topics in these cases showing gestural or pantomimic deficiency, whether it lies at the level of apractognosia or at the aphasic level with disturbance of inner language or rather at the level of intellectual disability. In brain-damaged deaf-mutes Critchley (1938) spoke of "dactylological apraxia", Tureen et al. (1951) regarded the disturbance of finger spelling as due to "a communication apraxia and agnosia," Douglass et al. (1959) stated that defect in natural sign language was aphasic and that in finger spelling apractic, while according to Sarno et al. (1969) their patient showed deficits analogous to those seen in hearing aphasics. A comprehensive study on gestural and pantomimic deficiency of aphasic patients by Goodglass et al. (1963) revealed that it was essentially apractic in nature. In our case were found some features which suggested an aphasic origin of the disorder of the sign language. No definite conclusion in this regard can be drawn today, but it must be noted that theoretically sign language can be disturbed at any level of performance, aphasic, apractognosic or intellectual, depending on numerous unknown factors. Further studies on a large number of cases are required.

Summary

The case of a 56 year old, right-handed man is presented, who had a cerebrovascular attack resulting in amnesic aphasia in spoken language and disturbance in pantomimic sign language, which was originally designed for a particular professional purpose, and which he had used in daily communication with his acquiredly deafmute wife. Structural analysis of this sign language as well as investigation of its disorder revealed some deficits analogous to those seen in amnesic aphasia. A historical review of the neuropsychological literature on disorders of various sign languages is also given.

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