A Clinical Delineation of Tachyphemia (Cluttering)

A CASE OF DOMINANT INHERITANCE

J. OP'T HOF, ISABELLA C. UYS

SUMMARY

Cluttering constitutes one of the most important disorders of speech, language and communication in general. The majority of clutterers are themselves unaware of the disorder.

The problems of definition, symptomatology, aetiology and relationship to stuttering and hereditary aspects, are discussed.

A preliminary case report of a family in which cluttering appears to follow a dominant mode of inheritance, is given. It is concluded that the major symptoms underlying the general cluttering syndrome in the family described, are related to some form of psychoneurological dysfunction with emphasis on a central language imbalance.

S. Afr. Med. J., **48**, 1624 (1974).

Department of Health, Pretoria
J. OP'T HOF, M.SC., D.SC.
Department of Speech Therapy, University of Pretoria
ISABELLA C. UYS, B.A., M.A.

Date received: 4 April 1974.

Although cluttering is one of the most important disorders, not only of speech, but of language and communication in general, it is, for various reasons, still an orphan in the house of speech pathology.

Cluttering causes a varied symptomatology and is frequently found with other speech disorders. This phenomenon has for a long time contributed to the haziness in theoretical formulation. Probably the most important reason for the general lack of awareness of cluttering and its consequent omission from the literature, is the fact that the majority of clutterers are themselves unaware of the disorder.

Definition

Cluttering has been defined in various ways, because of its heterogeneous manifestation.

Henry Freund[1] broadly defines cluttering as a 'discrepancy between the intensity of the drive for verbal expression and the verbal communicative skill'. In this definition two factors are distinguished, viz. a drive factor which is rooted in the temperamental and charac

terological make-up of the person (which may be excessive in the case of a clutterer), and the individual language and speaking skill (which may be impaired due to a variety of heterogenous speech and language anomalies).

According to Weiss,[2] cluttering may be defined as follows: 'Cluttering is a speech disorder characterised by the clutterer's unawareness of his disorder, by a short attention span, by disturbances in perception, articulation and formulation of speech, and often by excessive speed of delivery. It is a disorder of the thought processes preparatory to speech and based on a hereditary disposition. Cluttering is the verbal manifestation of central language imbalance, which affects all channels of communication (e.g. reading, writing, rhythm and musicality) and behaviour in general'. This concept of central language imbalance, or as many other authorities describe it, 'a developmental general language disability', can be regarded as the common pathological basis of the various disorders of communication.[9] It focuses attention on psychoneurological functions at the highest level of cortical integration, as well as on an underlying relationship between symptoms that might otherwise be regarded as unrelated. The cluttering element itself is described by Van Riper[10] as disorganised stuttered speech, or a torrent of half-articulated speech, where the torrent is irregularly interrupted in its flow.

SYMPTOMATOLOGY

An analysis of the variable nature of the symptoms of cluttering indicates some form of psychoneurological dysfunction.[11] This, however, remains to be proved conclusively.

Only a few of the symptoms of cluttering are obligatory, i.e. symptoms which are always manifested, viz. short attention span and its corollary, poor concentration; lack of complete awareness of the disorder; an excessive number of repetitions in speech; and a reduced capacity of perception.

The majority of symptoms of cluttering are, however, facultative, i.e. often present, but not necessarily so. These cover a wide range, from receptive to integrative and expressive disorders. A few of the most impressive symptoms to the listener are the motorial failings such as excessive speed of speech delivery, articulatory deviations and a general restlessness of hyperactivity. The receptive disorders are not as easily noticeable, but can lead to gross deviations in perception, reading and writing (spelling). The most common facultative symptom of cluttering is, according to Weiss, the reading disorder, comparable to dyslexia.[4] Most researchers relate the problem of central language imbalance or disability to a disturbance in the development and functioning of the central nervous system. It is in the area of higher cortical integration that most of the problems are manifested.[9] Arnold stresses that it is a 'disorder which affects the highest level of linguistic formulation and integration',[12] and Bradford emphasises that whatever condition causes a lessened harmonious organisation of cerebral activities tends, in all likelihood, to cause difficulties in the reception and co-ordination of visual and aural impressions, and reduces the psychomotor stability of the individual.[9] In this area the basic poorly-integrated and incomplete thought process leads to repetitive speech, drawling, the use of interjections, grammatical errors, monotony and dysrhythmic verbal expression. When considering symptomatological descriptions of psychoneurological dysfunction, it becomes apparent that there is a definite relationship between cluttering and psychoneurological dysfunction. A delineation of this relationship is given elsewhere.[21]

CLUTTERING AND STUTTERING

One of the most challenging diagnostic problems in speech pathology is that which seeks to differentiate cluttering from stuttering.[13] This could be due to the fact that there exists a lack of precision in the definitions of both disorders—both can be regarded as complex overlapping syndromes rather than as distinct entities. For many years stuttering and cluttering have been cited together as disturbances in the rhythm of speech, until Weiss formulated his concept of stuttering being rooted in cluttering.[3] He based this concept on the observation that 'stuttering begins in the disorganised repetitions of cluttering', and left a cluttering-like residue when cured. The clinical impression gained from some cases of stuttering seems to indicate that they have their origin in cluttering. But it has also been found that there are some clutterers who do not stutter, and some stutterers who do not clutter, while some stutterers have cluttered and some still do. Speech disorders, classified by the general public as stuttering, might actually belong to any of the two categories.

Langová and Morávek[14] examined 57 clutterers by electrophysiological methods in an attempt to differentiate between cluttering and stuttering. The results of this study are summarised in Table I.

AETIOLOGY

Cluttering has often been described as a subnormal language development, or cerebral immaturity, or developmental lag. So far, no evidence has been found that minimal and discrete brain lesions are involved in cluttering. Seeman,[5] however, postulates that submicroscopic lesions localised in the area of the striatum cause cluttering. De Hirsch's[17] concept of lack of maturation of the nervous system appears to be more plausible.

In 1951 Luchsinger and Landolt[19] found EEG abnormalities in almost all of their clutterers, but these initial conclusions were later revised. Most researchers conclude that more irregularities are found in the electro-encephalograph (EEG) records of clutterers compared with those of stutterers, whose irregularities in turn exceed those of normals. The significance of these results are, however, still questionable. The activity of the deeper-lying subcortical structures, often considered the possible neurological sites of cluttering, as a rule does not register on EEG recordings.[6] The evaluation of EEG recordings, on the other hand, is still a very individual matter, except in the case of clearly-defined disorders.

TABLE I. DIFFERENTIATION BETWEEN STUTTERING AND CLUTTERING[14]

	Stuttering	Cluttering
Heredity	Neuropathic background, sometimes specific heredity	Specific heredity of speech disorder
Development	Sudden during emotional shock, gradual from iterative type	Gradually increasing rate of speech and deterioration
Course	Periods without disorders	Disorder is permanent
Patient's character	Solitary type, 'hair-splitter'	Sociable, sometimes 'queer bird'
Intelligence	Good or above average	Good or above average
Musical talent	Good	Poor or amusia
Talent	General	More frequently for exact sciences
Writing	In general neat	Untidy
General motor activity	Deliberate, calm, hesitating	Rash motor propulsion
Associated motor activity	Synergies and synkineses	Motor unrest
Main manifestations	Tonus, clonus, phonatory tonus, blocks	Inter- and intraverbal acceleration
General rate of speech	Slow	Accelerated
Vegetative manifestations	Vagotonia	Usually sympathicotonia
Emotions	Negative	Positive
Respiration	Irregular	Irregular
Singing	Improves	Often cannot sing
Speaking with superiors	Deteriorates	Improvement
Speaking with familiar persons	Improves	Deteriorates
Concentrated speech	Deteriorates	Improves
Lee's effect	Improves	Deteriorates
White noise	Improves	
'Shadowing'	Improves	Usually deteriorates
Electrophysiolgical findings		
EEG	Within wide range of normal values	Great % of abnormalities not related to degree of speech disorder
HV-EEG	Raised	Normal
Alpha index	Normal	Reduced
Electrical activity of skin	Raised	Raised
Drugs		
Chlorpromazine	Deteriorates	Improves
Psychomimetic drugs	Partly improves	Deteriorates
Awareness of disorders	Always present	Usually absent
Desire for treatment	Great	Very small

Although no unequivocal neurological symptoms have been discovered, the symptoms in typical cluttering still have an organic flavour.[5] The symptoms can be regarded as endogenous or primary, because they do not occur due to a reaction of the patient, viz. stuttering. The ability to improve performance by concentrated mental effort is proof of this.

INCIDENCE AND SEX RATIO

General unawareness of the problem of cluttering probably accounts for the lack of data available on the incidence and sex ratio of clutterers. One study in Berlin reports an incidence of 1,5% among 7 - 8-year-old schoolgoing children.[19] There seems to be a predominant occurrence and manifestation of cluttering in males, while different symptoms of Weiss's[6] central language imbalance may be found in various combinations—women and men being equally affected. Arnold found a 4:1 ratio of affected males and females.[12]

HEREDITARY ASPECTS

According to Weiss,[7] the most constant aetiological factor in cluttering appears to be of familial nature—a history of cluttering generally being found in the family. The fact that cluttering, in common with other types of disturbed language function, occurs about 4 times more often in males of all ages than among females, also points to an underlying constitutional disorder. Arnold stresses that there seem to be two types of hereditary influences distinguishable, i.e. specific inheritance, which brings about the transmission of the cluttering syndrome in families containing many clutterers or stutterers,[21] and non-specific inheritance, which, on the other hand, manifests itself in the transmission of general language disability. In the latter case the ascendancy indicates the frequent occurrence of language disorders in various combinations. Bradford's clinical experience seems to provide substance to this differentiation.[9]

With regard to familial incidence of cluttering, Grewel[20] makes the following distinctions:

(a) In some families men in different generations show

cluttering with very fast speech, but without the other concomitant symptoms.

(b) In other families, where cluttering follows delayed motor development in combination with reading and spelling disorders, the hereditary factor seems to stem from the maternal line.

(c) In still other families different symptoms of central language imbalance may be found in various combinations, women as well as men being affected. Again the cluttering symptoms usually manifest in males, while grammatical and formulation disorders, word-finding difficulties, amusia, rhythmical incompetence, articulatory deviations and delayed language development, are found in other members of the family.

In the families of 95 'pure' stutterers, Freund found 29 stutterers with very fast speech (tachylalia), 7 stutterers and 12 tachylalics—a total of 50,5% of such anomalies.[22] In the families of 26 stuttering clutterers he found 2 stutterers with tachylalia, 12 stutterers and 10 tachylalics—a total of 92,5% with such disorders. The clinical findings of Weiss[8] coincide with those of Freund.[22] He mentions that it is most often the father who exhibits the cluttering symptoms. Weiss also refers to an article by Gedda *et al.*,[23] who cited a family in which there were male twins, one of whom stopped stuttering while the other continued to stutter; a paternal uncle, the maternal grandfather and his brother were stutterers. The father, his two uncles, two first cousins, and a second cousin had tachylalia. It is tempting to suggest that a common genetic substratum for stuttering and cluttering is therefore indicated, but this can only be determined by analyses on several more families in whom cluttering and/or stuttering occur.

PRELIMINARY CASE REPORT

The home language of the family is Afrikaans, and the family pedigree is given in Fig. 1. As indicated, not all the affected individuals could be examined.

Methods

Investigations performed included a general neurological examination and EEG analysis. The psychological tests included the Wechsler Intelligence Test for Adults, the New South African Individual Scale for Children, the Rorshach Test, the Thematic Apperception Test, Bender Gestalt, Ellis Visual Designs, Marble Test, and Grassi Test. An audiometric and auditory perception test were performed. The individuals examined were also subjected to

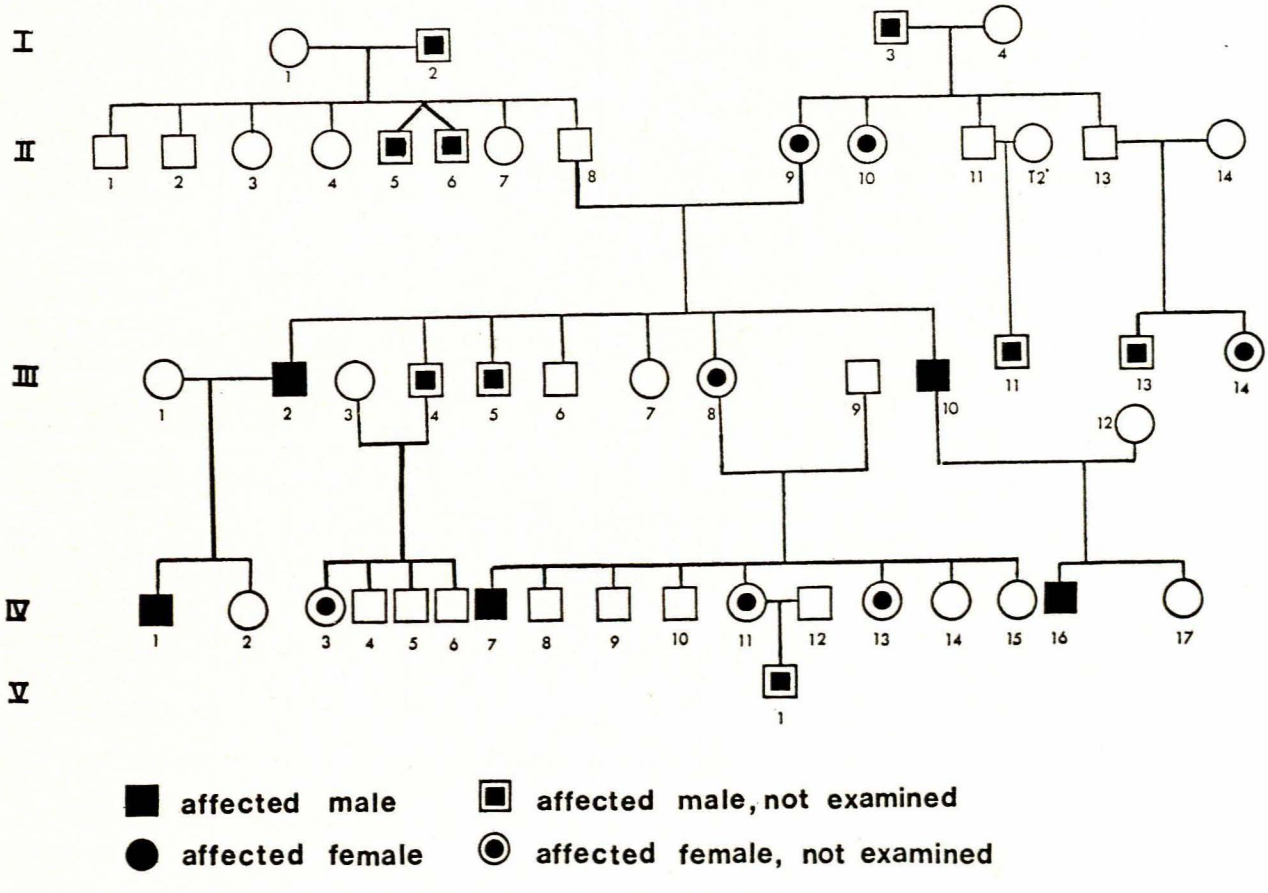

Fig. 1. Pedigree of family in which cluttering occurs.

the Seashore Measures of Musical Talents and a general speech, reading and writing assessment. Three individuals, III 10, IV 7 and IV 16, were subjected to the complete range of tests, whereas two others, III 2 and IV 1, were classified as clutterers according to a preliminary assessment.

Findings and Discussion

The individuals examined manifested typical symptoms, indicative of cluttering, which may be grouped in the following main categories:

Reception: A short attention span, and lack of complete awareness. Perceptional difficulties included: difficulties in visual closure, seeing objects as a whole, auditory discrimination and spatial relationships. Pronounced reading difficulties were evident which included 'skimming' over words, the positioning of words and letters and a considerable degree of 'guessing'. The reading disabilities showed a close resemblance to the typical symptoms of dyslexia, e.g. the reversal of letters and words ('p' for 'q', 'b' for 'd', 'was' for 'saw' etc.), omission, inclusion, translocation and substitution of words, syllables and letters.[24] Amusia, which included lack of tonal memory and timing, was clearly recognisable in all the subjects investigated.

Expression: Excessive speed of speech delivery and restlessness. Articulation difficulties included the slurring, omission, displacement, repetition and inversion of order of sounds. Telescoping of sounds and syllables was obvious. Writing difficulties reflected the same basic problem found in the speech and reading difficulties.

Integration: In general, poorly-integrated thought processes with difficulties in abstract reasoning prevailed. Associated was a short memory span, with word finding and grammatical difficulties manifested in silences and substitutions of words, and integrating figures and spatial relationships.

Organic disturbances: Irregularities in the EEG record, i.e. slight non-diffuse abnormalities and in general an immature record. Neurological soft signs included problems in motor co-ordination, perceptual and speech difficulties.

It should be mentioned that all the cases investigated showed very strong compensatory mechanisms. In the performance on any achievement test it was clear that they sacrificed speed for accuracy. This could be related to the above average intellectual abilities in all the cases.

The cases not examined are known to exhibit more or less the same or related symptoms of those individuals examined. These symptoms included: fast speech, stuttering, articulation difficulties, co-ordination problems, errors, speech, reading, spelling and rhythmic difficulties. A tentative family pedigree was subsequently compiled (Fig. 1). It is possible that the familial occurrence of cluttering in this family is indicative of the 'specific hereditary' type referred to by Arnold, as opposed to the hereditary type of non-specific general language disability.[12]

It was also apparent that the symptoms of the individuals examined, classified under reception, expression, integration and organic disturbance, varied to some degree from person to person, which consequently complicates a rigid description of the inherited syndrome in the family. It is moreover, not excluded that the manifestation of inherited cluttering is related to genetic heterogeneity underlying the disability. Intra- and interfamily comparisons could reveal evidence of clinical subclasses possibly related to genetic heterogeneity.

The pedigree analysis is complicated by the fact that incomplete penetrance, often found in dominant traits, probably prevails in some cases.

In general, it appears that cluttering follows an autosomal dominant mode of inheritance in the family described, more males being affected than females, and according to the symptoms found it is concluded that some form of psychoneurological dysfunction, with emphasis on a central language imbalance, is the underlying cause.

REFERENCES

1. Freund, H. (1966): *Psychopathology and the Problems of Stuttering*, p. 140. Springfield, Ill.: Charles C. Thomas.
2. Weiss, D. A. (1964): *Cluttering*, p. 1. Englewood Cliffs. N.J.: Prentice-Hall.
3. *Ibid.*, p. 68.
4. *Ibid.*, p. 42.
5. *Ibid.*, p. 7.
6. *Ibid.*, p. 6.
7. *Ibid.*, p. 8.
8. *Ibid.*, p. 51.
9. Bradford, D. (1970): Folia Phoniatrica, **22**, 272.
10. Van Riper, C. (1972): *Speech Corrections*, p. 435. Englewood Cliffs. N.J.: Prentice-Hall.
11. Uys, I. (1974): D. Phil. thesis in preparation. Department of Speech Science, Speech Therapy and Audiology, University of Pretoria.
12. Arnold, G. E. (1970): Folia Phoniatrica, **22**, 301.
13. Van Riper, C. (1970): *Ibid.*, **22**, 347.
14. Langová, J. and Morávek, M. (1970): *Ibid.*, **22**, 325.
15. Seeman, M. (1965): *Sprachstörungen bei Kindern*, p. 360. Berlin: Jena.
16. *Ibid.*, p. 370.
17. De Hirsch, K. (1961): Logos, **4**, 3.
18. Luchsinger, R. and Landolt, H. (1951): Folia Phoniatrica, **3**, 135.
19. Becker, K. P. and Grundmann, K. (1970): *Ibid.*, **22**, 261.
20. Grewel, F. (1970): *Ibid.*, **22**, 301.
21. Arnold, G. (1960): Logos, **3**, 24.
22. Freund, H. (1952): Folia Phoniatrica, **4**, 146.
23. Gedda, L., Braconi, I. and Bruno, G. (1960): Acta Genet. med. (Roma), 4.
24. Op't Hof, J. (1972): S. Afr. Med. J., **46**, 737.