

THE APHASIC CHILD*

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Aphasia in children is of two main types, acquired aphasia and congenital or developmental aphasia.

In acquired aphasia, in a child whose language function has developed normally for his age, the disturbance may result from acute illnesses such as cerebral infections of encephalitis or meningitis; from cerebral tumour or cerebral abscess, or it may be due to a head injury. The resulting language disturbance may be transitory and recovery is often good, residual deficit depending on the extent of the cerebral damage and the age of the child. It is this type of aphasia which we meet more frequently in our clinical experience at Grootte Schuur Hospital.

My clinical experience with the child with congenital or developmental aphasia is far more limited. Looking back I feel certain that misdiagnosis and failure to recognise the syndrome has played its part.

For the purpose of this paper, I use the term congenital aphasia to imply a specific language disability of probable organic origin, a failure to develop symbolic language due to minimal diffuse neurological deficit, or at least some neurophysiological immaturity or a "developmental lag" as some writers prefer to think of it (de Hirsch, Bender, Ingram, Morley *et al.*).

Most writers seem to agree that this special entity of the impairment of the acquisition of language function does exist. Aphasia is the term, controversial though it may be, most generally used to denote it.

Some writers, however, restrict the term aphasia to refer to linguistic impairment of oral and aural communications, whereas others extend it to embrace the continuum of the more complex language functions of reading, writing, spelling and composition (Arnold, de Hirsch *et al.*).

Some feel the symptoms of aphasia in children are limited to language as expressed orally and perceived aurally whereas others feel elements of the syndrome are to be found outside of the behaviour of speaking and listening. This seems reasonable to me as perception gives meaning to sensation and evidence of deficits of neurophysiological phenomena underlying linguistic behaviour should aid diagnosis and guide therapy planning. The child's ability to form concepts of size, shape, form, colour, number, time, space and so on is an integral part of learning to use functional language.

Some writers feel that the diagnosis of aphasia is only plausible when the linguistic disturbance stems from a definite demonstrable organic

* This paper was read on 14 October 1965 at the Cape Education Department's Conference for Teachers of Speech Defective and Hard of Hearing Children.

origin, whereas others feel that there is a group in which a large familial constitutional factor is important, and yet others feel that the language symptoms themselves are sufficient to classify the disorder as aphasia.

These diversities of opinion are, of course, an indication of the complexity of this specific language disability.

DEFINITIONS

Eisenson defines aphasia in children as "an impairment of the ability to express and comprehend verbal symbols."

West defines it as "an impairment of language function, receptive or expressive, resulting from maldevelopment or injury to the central nervous system pre-, para- or post-natally."

Mycklebust defines it as "a language disorder which derives from organic impairment, i.e. a symbolic disorder due to neurological involvement."

McGinnis and Kleffner define it as "an inability to express and/or understand language symbols as a result of a deficit in the central nervous system rather than as the result of a deficit in the peripheral speech mechanism, ear or auditory nerve, a defect of intelligence or severe emotional disturbance."

Language Development in Children

Functional language development may be divided into 3 types:

1. *Inner Language*: the language we use for inner life and thought.
2. *Receptive Language*: the language we use to understand others.
3. *Expressive Language*: the language we use to express thoughts and ideas to others.

INNER LANGUAGE

During the first months of life the infant receives multiple sensations of many types. Through gradual integration he develops a basic inner and fundamental language, i.e. an awareness of sensation and recognition. At 8-9 months he begins to comprehend spoken language and at \pm 1 year he begins to use expressive language.

According to Karlin, the development of receptive and expressive language functions follow an order of increased cortical complexity.

RECEPTIVE LEVELS

First Level: The awareness of sensation, or the arrival platform as Orton calls it.

Second Level: Recognition, i.e. the ability to recognize objects and symbols and build up memory constellations capable of recall.

Third Level: Symbolic formulation where concepts are formed and language is elaborated.

MOTOR LEVELS

First Level: Ability to contract striated muscles voluntarily.

Second Level: Ability to perform purposeful movements.

Third Level: Ability to express meaningful language.

A disturbance and disorder of function at any of these levels will result in:

<i>Receptive</i>	<i>Motor</i>
1. Cortical blindness/deafness	Dysarthria
2. Visual/auditory agnosia	Dyspraxia
3. Receptive Aphasia	Expressive Aphasia.

Assessment

In the absence of valid and reliable assessment techniques the diagnosis of developmental aphasia becomes one of elimination as is implied by McGinnis and Kleffner's definition.

The aphasic child must be differentiated from the deaf child, the mentally retarded child, the autistic child and the severely emotionally disturbed child for failure to acquire language and respond to speech is common to all these groups.

Diagnosis should therefore be a multi-disciplinary process and should include:

- (a) A detailed developmental, medical and social history.
- (b) Neurological examination.
- (c) Psychiatric evaluation.
- (d) Psychometric testing.
- (e) Audiological investigation.
- (f) An assessment of inner, receptive and expressive language functions.
- (g) Observations of behaviour and neuro-physiological phenomena underlying linguistic behaviour.

History. A careful developmental, medical and social history of the child must be taken. This should include a family history of speech, reading, writing, laterality and neurological deficits.

It is important to note the presence or absence of vocal play in infancy, and responses to sounds and speech. Such comments as "he doesn't listen," "he's disobedient," "sometimes he seems to hear sounds," "he keeps on saying 'what'" may prove to be significant, as may be reports of clumsiness, hyperactivity, falling, etc.

Goldstein, Landau and Kleffner believe that the etiological background contributes to differentiation. They believe that:

- (a) Meningitis, infantile infections and family history of deafness support the classification of deafness.
- (b) Jaundice from Rh incompatibility, anoxia at birth, convulsive disorders, congenital brain abnormalities and a family history of speech and neurological disorders support the classification of aphasia.

Many aphasic children respond normally to social training in a broad sense and are then capable of fairly normal behaviour, whereas the autistic child and the severely emotionally disturbed child will present a different picture and is more likely not to respond to social training. Extreme "aloneness," failure to make contact and persistent bizarre behaviour may hallmark the autistic child.

Neurological Investigation. Many aphasic children show no obvious neurological deficit. Sub-clinical diffuse organic involvement may only be picked up when the child fails to acquire the complex activities of speaking and reading.

Some show no deviations on classical neurological examination and electroencephalography. Yet performance on more subtle neurological tests may infer minimal neurological deficit.

Focal abnormalities on electroencephalography are more common among aphasic than deaf children as is "obstruseness" during neurological test-

ing as evidenced by an inability to grasp a perceptual non-language task (Goldstein, Landau and Kleffner).

Psychiatric Evaluation. Receptive and expressive language functions are frequently disturbed in severely emotionally disturbed and autistic children. The bizarre behaviour and failure to make contact exhibited by the autistic child may be readily distinguishable to those familiar with the disorder. But the partially autistic child and the emotionally disturbed child may not be so readily recognized without the help of a child psychiatrist.

Psychometric Testing. Testing the intelligence of the non-communicating child presents the psychologist with many problems. Testing procedures which require no language in their administration and response may be required.

The performance and verbal scales of the Wechsler Intelligence Scale for Children seem to be the most commonly used here in assessing children with brain damage or suspected neurological deficit. In this test it appears that there are also certain items which enable the tester to distinguish the neurologically involved child with a language deficit.

Memory for temporal and spacial patterning appears to be markedly weak in aphasic children, and therefore memory test items may be diagnostically significant.

However, it must be remembered that ultimately it is the information derived from the analysis of the test results rather than the score that is of importance and significance in planning treatment and education.

Visuo-motor Organization. In this sphere the Bender Gestalt Test is useful. Responses in the aphasic child seem to be developmentally immature or to show poor spacial organization (de Hirsch).

Goodenough Draw-a-Man Test. de Hirsch finds the responses of a child with a specific language disability may be two years behind his mental and chronological age, indicating disturbances of body schema.

Figure Ground Organization. Differentiation between figure and ground is essential for both speech and reading, i.e. in both auditory and spacial areas.

Spacial Organization. This must be observed within the age limits of the child.

Ambilaterality is related to difficulties with temporal and spacial sequences. The child who says "ricecrispsy" for "rice crispy," "hostipal" for "hospital" and the one who reads "won" for "now" and "tap" for "pat" has the same difficulty but in different modalities.

Confusion of temporal and spacial organization, according to de Hirsch, may be related to familial factors but is also indicative of central nervous system immaturity or deficit.

Audiological Investigation. Children who do not respond to sound or speech are not necessarily deaf, nor can they all be educated by methods conventionally used with the deaf.

One of the most striking features of the aphasic child's behaviour is his inconsistency of response. This inconsistency of response to all types

of hearing tests makes assessment of his hearing potential extremely difficult. It may be some time before a reliable audiogram is obtained, for at times the child seems to be hard of hearing, and at other times not.

Attention span is generally poor, so it is wise to test for quiet sounds first. He may alert to faint sounds such as the rustling of tissue paper or a quiet "sh" and fail to respond at all to loud sounds and speech. He may show a normal response to one or two sounds only. He may alert to everyday sounds or unusual sounds, but fail to alert to speech.

If no startle response is elicited it may be necessary to use psychogalvanic or electroencephalographic audiometry to establish the presence or absence of hearing. Gordon and Taylor have reported some interesting work with electroencephalographic audiometry in Manchester with children with severe communication disorders. They have recorded responses at 30 db in children who have failed to respond at all to conventional pure tone and speech audiometry. Such results are significant diagnostically in that peripheral hearing is intact, and so cortical deafness and auditory agnosia are implied.

Goldstein, Landau and Kleffner reported half the aphasic group at the Central Institute for the Deaf to have some degree of peripheral hearing loss but this was not considered to be the major factor contributing to their failure to use language. They noted:

- (a) Normal hearing or moderate loss on all frequencies was characteristic of the aphasic group.
- (b) Sloping audiograms with severe loss was characteristic of the deaf group.
- (c) Sloping audiograms with moderate to severe loss were found in both groups.
- (d) Normal vestibular responses were characteristic of the deaf group, except in meningitis when there was no response.
- (e) Depressed vestibular responses were characteristic of the aphasic group.

Assessment of Language Function: (a) *Inner Language*. This may be observed by presenting the child with toy objects and family figures related to his environment and watching his play for association of objects, concreteness and abstractness. It is likely that the aphasic child's play is less imaginative than the deaf child's.

(b) *Receptive Language*. Observations must include auditory memory and auditory discrimination as well as auditory recognition and comprehension of language of increasing complexity.

Predominantly Receptive Aphasia. The basic characteristics are:

- i. An inability to understand and use language.
- ii. A poor memory for learning it.

Other clinical manifestations are variable. The following are typical:

- i. Intelligence within normal limits.
- ii. Normal or slightly impaired hearing.
- iii. Inability to associate names with objects.
- iv. Inability to name objects.
- v. Inability to imitate names of objects.
- vi. Poor recall of names he has repeated.
- vii. Inability to interpret and use environmental language.

According to McGinnis the speech behaviour of these children manifests itself in 4 different ways:

- i. Silence or rare vocalization.
- ii. The use of jargon with inflections indicative of adequate hearing.

- iii. Jargon speech interspersed with intelligible words or phrases.
- iv. Echolalia, where the child can repeat words and phrases without any association of meaning.

Receptive aphasia is frequently accompanied by other conditions and it may be difficult to decide which is the predominant factor in the failure to learn speech and language.

(c) *Expressive Language*. Assessment of expressive language ability must be guided by the stage of language development, if any, that the child has reached. It is important to note his ability to use vocal play and his ability to name objects, repeat names or sounds, use one word sentences, phrases, etc.

Predominantly Expressive Aphasia. The basic characteristics are:

- i. Intelligence within normal limits.
- ii. Adequate hearing and understanding of speech.
- iii. In general behaviour symptoms of perseveration, disinhibition, hyperactivity and distractibility are in evidence.
- iv. Echolalia, where the child can repeat words and phrases without any association, poor balance, a tendency to fall and confused laterality.

Speech behaviour manifests itself in the following manner:

- i. Vocalization may be limited to staccato vowels and occasional consonants.
- ii. There is usually some evidence of a constant chatter of perseverative patterns in no way resembling words these children attempt to say.
- iii. A limited ability to imitate words.
- iv. A limited ability to initiate speech sounds.
- v. A delay in onset of speech until the age of four years or later.
- vi. A pronounced difficulty in memory for sequences of sounds.

When assessing older children with speech and/or reading disabilities who have histories of late acquisition of speech, the following characteristics may be indicative of residual specific language disability and should thus be fully investigated:

- i. Poor memory for word sequences in sentences, e.g. question and negation forms such as "Her come here?" "Me no can do."
- ii. Difficulty in discriminating like sounds.
- iii. Confusion of the beginnings and ends of words.
- iv. Word-finding difficulties.
- v. Many sound substitutions and the omission of final consonants.
- vi. Pronounced developmental lag in the language area.
- vii. Grammatical confusions, e.g.:
Omission of prepositions and articles.
Omission of forms of the verb "to be," e.g. "Billy going school."
Objective use of pronouns, e.g. "Me do it," "her want it."
Infinitive form of verbs for every person.
Exclusive use of the present tense.
- viii. Striking monotony with distortions of rhythm and rate.
- ix. Motor immaturity such as turning the head when flexing the tongue.
- x. Difficulties with conceptualization related to time and space.
- xi. At about twelve years or more:
Trouble with formulating ideas.
Poor ability to put a story together.
Difficulty in functioning on a high abstract verbal level.
Difficulty with literal and figurative meanings of words.
Difficulty with metaphors.
A marked concreteness, e.g. an ability to do better with pictorial rather than verbal absurdities.

Early diagnosis and treatment for the aphasic child is advocated by all writers. Prognosis is infinitely better, particularly for severe cases when

the problem is recognized early and adequate treatment is provided in the pre-school years.

Treatment

There appear to be two main approaches to the treatment of young aphasic children:

1. The Association Method. This was devised and used at the Central Institute for the Deaf by McGinnis. It is an elemental approach in which the child is taught to:

- (a) Articulate a number of speech sounds correctly.
- (b) Produce several individual sounds in a set sequence.
- (c) Read and write these sounds. This is all taught before the sequence is identified as a word and associated with an object or picture representing it. A multi-sensory approach is emphasized to reinforce the auditory channel and when a number of words have been acquired, sentence building is begun. Cursive writing, never printing, is used from the start.

2. Synthetic Approach. This approach starts with a word as a unit of language in order to let the child develop the concept of the word as a symbol.

Eisenson advocates a uni-sensory approach initially until some basic symbolic communication is established, whether this be gesture, reading or speech, before reinforcement and further learning through a multi-sensory approach is begun.

Both methods emphasize the need to speak slowly and clearly to the child at all times.

According to authorities such as McGinnis, Eisenson and others; children with aphasia uncomplicated by other disorders, diagnosed correctly and treated from an early age may be ready to take their place in the ordinary classroom from the age of 9 or 10 years. Those with less severe disturbances may be ready to take their place in the ordinary school system from the start, but may require special help with speech and the complex language functions of reading, writing, spelling and composition.

The problem of childhood aphasia is a complex and fascinating one requiring a multi-disciplinary approach. There is an increasing awareness in this country of the need for an expert team of specialists and educators to investigate this problem, develop reliable diagnostic techniques and to provide suitable treatment and education for this type of child.

Opsomming

'n Kort opsomming van die algemene gedagte in verband met die verloop van aangebore of ontwikkelde afasie dien as 'n verwys van die ingewikkeldheid van hierdie spesifieke taalgebrek.

Die identifisering van hierdie taalgebrek is afhanklik van 'n multi-disiplinêre benadering tesame met neurologiese, psigiatriese, psigometriese en audiologiese ondersoek en beraming van innerlike reseptiewe en ekspressiewe taalvermoë.

Die twee vernaamste behandelingsmetodes is reeds genoem en die belangrikheid van vroeë volledige diagnose en behandeling is benadruk.

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