

EARLY PROFOUND DEAFNESS AND MENTAL RETARDATION

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"Epileptics, psychotics and deaf mutes have been frequently confused with the intellectual defective. The fact that these various conditions can co-exist in the same individual often makes clinical analysis difficult even at the present day."

L. S. Penrose (1949)

Deafness is an invisible handicap whose consequences are not apparent to the casual observer. Moreover, 'deafness' is a blanket term which covers many different clinical conditions, the result of such variables as degree of deafness, age of onset, and rate of development; for example, the problems of the child who is born profoundly deaf are of an entirely different order from those of a person who loses all hearing in adult life. The born deaf child has a sensory deficit which interferes with all aspects of his development, while the person who is deafened in adult life suffers a sensory deprivation which may affect his whole life-style and call for many readjustments. Deafness which is present before the development of speech and language (prelingual deafness), and deafness which is acquired after this stage (postlingual deafness), therefore have entirely different implications.

Childhood deafness can be congenital or acquired at any later age, and can vary in degree from minimal unilateral impairment to bilateral total loss. Few cases are treatable by surgery but many are capable of alleviation by aids to hearing.

Any attempt to be definitive about the degree of deafness is complicated by the fact that a deaf child may have little useful hearing without a hearing aid and yet be able to hear reasonably well with one. Some workers would label such a child 'profoundly deaf' while others, correctly in the author's view, would describe such a child as 'partially hearing'.

The term prelingual profound deafness should be confined to hearing impairment which is profound, which cannot be alleviated to any useful degree by hearing aids and which is either congenital or acquired in early life before the development of speech and language. Prelingually profoundly deaf children should be differentiated from those who have sufficient residual hearing to enable them to discriminate speech with or without hearing aids, and also from those children who become deaf postlingually, i.e. after speech and language have been acquired.

The basic problem of prelingually profoundly deaf children is that they cannot acquire speech and language normally. About the end of the first year of life the normal child begins to imitate speech. To do so he has both to hear the speech of others and to monitor his own voice. He soon begins to associate words with people and with objects, and so begins the process of internalisation of language. Slowly at first, but then with increasing rapidity, he achieves a command of language, and by the age of 4 years the normal hearing child has already grasped most of the grammatical and syntactical complexities of his native tongue. Later with further intellectual development and with education he learns to read and write — he learns to understand and express in another form the language he has acquired through hearing.

For the child who is profoundly deaf from birth or early age the acquisition of verbal language is an immensely difficult task, for he cannot acquire it through hearing but he has to do so through another sensory channel — through vision — by lipreading or by the written word. Lipreading, however, is extremely difficult simply because of its inexactitude. The problems are that some of the sounds of speech are not accompanied by movements of the mouth or lips, while their movements are in many cases the same for different words. A more important aspect is that lipreading presupposes a knowledge of verbal language, which, in the case of the young prelingually profoundly deaf child, is absent. Consequently the deaf child has to acquire verbal language through the written word. This presents a further difficulty for the ability to read and write requires a certain degree of intellectual development, so that even normally hearing children with good language development are not capable of literacy in their early years.

For the prelingually profoundly deaf child the development of speech and the acquisition of language are both formidable tasks. The fact that the deaf child cannot hear means that he is unable to imitate the speech of others or monitor his own voice. Consequently the deaf child has a long pre-verbal stage. He only begins to acquire the rudiments of language much later than his hearing peers, and even then he progresses very slowly.

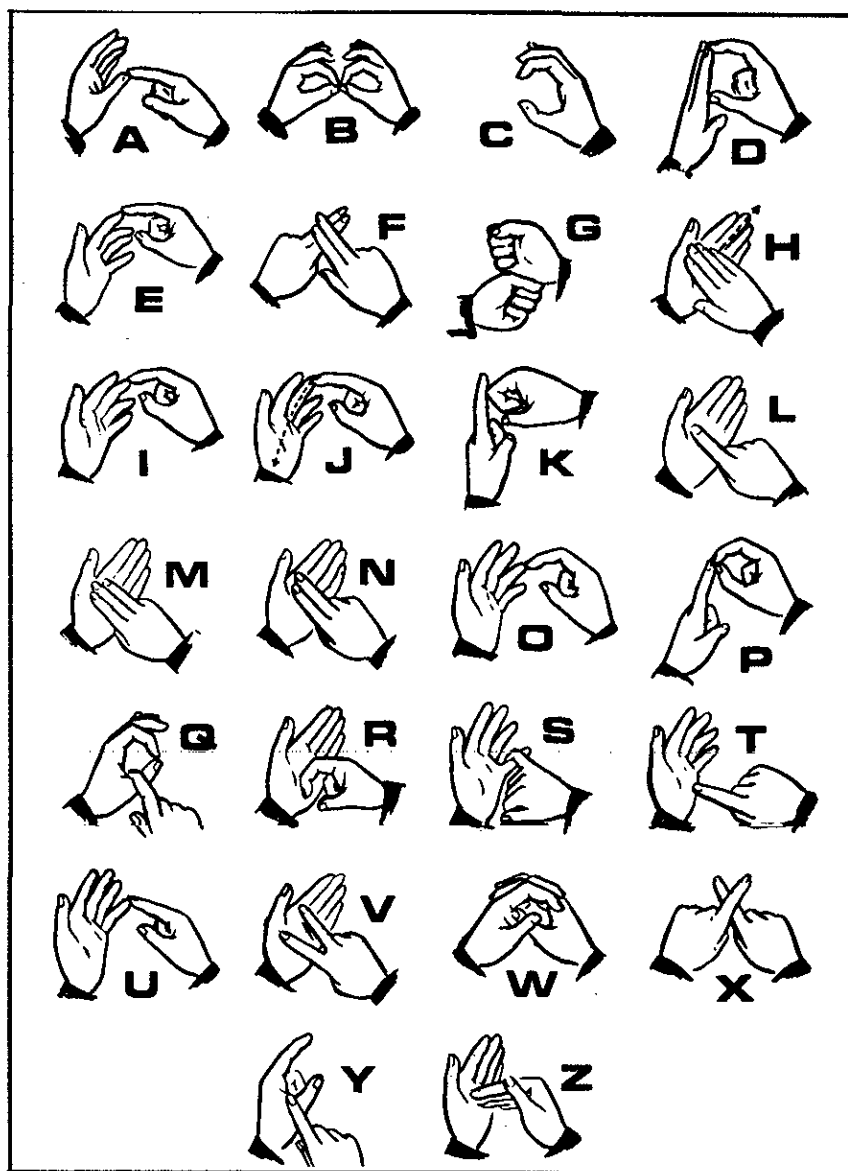
Manual methods of communication i.e. finger spelling and sign language are used universally by prelingually profoundly deaf adults. Finger spelling consists of spelling out each word, letter by letter, by using different configurations of the fingers of one or both hands to represent the different letters of the alphabet. (Fig. 1).* Manual sign languages of deaf people involve the use of the hands and aims to convey the meanings of words and concepts. Sign languages differ to some extent from country to country and are different in structure from the native spoken language. (Fig. 2).* Some deaf people who use manual communication methods have an excellent command of verbal language, while others are seriously retarded linguistically. The former will usually employ a combination of finger spelling and sign language, while those with poor verbal language will use only sign language and gesture.

For centuries controversy has existed whether or not manual methods of communication should be employed to overcome the communication problems of deaf children. The arguments are really concerned with sign language, for young children are not literate and cannot, therefore, finger spell. Some workers, the so called 'pure oralists', mainly teachers of the deaf, believe that deaf children should concentrate upon speech, lipreading, the written word, and any useful residual hearing. They do not allow the use of sign language, arguing that deaf children will use it because it is the easiest method, and so will not be motivated to develop speech and lipreading skills. There is, however, no evidence to support this. Indeed all the evidence supports the opposite view that combined oral and manual methods should be employed with all deaf children from the earliest years — years when a meaningful form of communication is so vitally important for future intellectual, social and emotional development (Denmark 1973).

The hearing aid has undoubtedly been of immense benefit to hearing impaired children and many who would otherwise have had to be treated as profoundly deaf have been enabled to be treated as partially hearing. Nevertheless, its advent appears to have led to the development of a myth that all deaf children have useful

Fig. 1.

THE STANDARD MANUAL ALPHABET



This is the two-handed manual alphabet used for finger-spelling to the sighted deaf in Great Britain and many other parts of the world. Note how each symbol forms, or at least suggests, the letter it represents.

Fig. 2.

SIGN LANGUAGE



COMMITTEE



COLD



COLLECT — SAVE



COME



CRUEL



CRUSH

* Figs. 1 and 2 are reproduced from "Conversations with the Deaf," published by the Royal National Institute for the Deaf.

residual hearing and can, therefore, learn to speak. This is not the case; but the perpetuation of this myth has undoubtedly been a major factor in delaying the introduction of manual methods of communication into schools for the deaf. Changes are now taking place, however, and a number of schools are now using combined oral and manual methods.

The relative situation of deaf and hearing children at a time when formal education begins can profitably be compared. The normal hearing child has been acquiring knowledge throughout his early years simply because he is able to hear and communicate easily with others. With formal education he builds upon a store of knowledge already acquired.

The situation of the pre-school prelingually profoundly deaf child is vastly different. Unless special efforts have been made to communicate with him non-verbally by sign language he will not only be unable to hear and speak and have little verbal language but he will also be lacking in much basic knowledge. Gregory (1976) in a study of 122 deaf and partially hearing children under the age of five years whose parents had not been instructed in sign language found that 57% were forced to rely exclusively upon gesture, showing and pointing when communicating with their mothers. Lack of communication between mother and child in these early years must have important implications for the child's future development.

Unless the deaf child is exposed to sign language his teacher will not be able to communicate easily with him and her task will be an extremely difficult one. She will have to teach the use of verbal language from the beginning, and give him all that basic knowledge which a hearing child so easily acquires. These are daunting obstacles and many intelligent deaf children never do gain a complete mastery of verbal language and do not learn to speak intelligibly. Many acquire lipreading skills, but they are only able to lipread when all the conditions are right i.e. when face to face, in good light, and most important of all, when simple language is used. They are unable to follow normal conversation. Conrad (1976) in a study of some 360 children aged 15 to 16 $\frac{1}{2}$ years in schools for the deaf and partially hearing in England and Wales found that of those with hearing losses greater than 85 decibels, half had a reading age of less than 7 years 6 months, half lipread worse than the average hearing child and only 10% had speech which was easy to understand. It is hardly surprising that the prelingually deaf, whether or not they have been taught sign language in childhood, invariably come to use it eventually with other deaf people.

Since ancient times attitudes towards deaf people have been veiled in ignorance and superstition. Aristotle, for example, believed that those who were born deaf were "incapable of reason". Although attitudes have altered considerably since those times, many people still have little understanding of the psychological implications of deafness. Inability to speak is often equated with backwardness, and the word "dumb" is often used colloquially to mean unintelligent. There is a danger, therefore, that deaf children and adults without speech may be mistakenly regarded as mentally retarded (Denmark, 1975).

Case 1. F.E., a prelingually profoundly deaf man was first seen during a survey of deaf patients in a subnormality hospital in 1967. He was then 56 years of age. His father had died when he was a child and he appears to have been rejected by his mother for he was admitted to a Poor Law Institution at the age of 14. At the age of 16 he was admitted to a hospital for the subnormal.

F.E. has no speech and limited ability to lipread. He communicates by sign language and finger spelling and within the limits of his language gives a good account of himself. He underwent psychometric testing using the Wechsler Adult Intelligence Scale and achieved an I.Q. of 104. In 1968 he was admitted to the Department of Psychiatry for the Deaf at Whittingham Hospital. He underwent rehabilitation and was discharged to a hostel in 1970 at the age of 59. He was found employment and is still working for the same employer.

In a clinical situation when the written word is used in attempts to overcome the communication difficulties of prelingually profoundly deaf people, the deaf person may not understand the questions and may answer incorrectly owing to his limited language. On the other hand, he may understand the questions, but his written answers may be grammatically and syntactically incorrect and even simple words may be misspelt. This may give the impression of limited intelligence. The diagnostic problems are well illustrated by the following case:-

Case 2. C.M., a twenty-five-year-old man had been remanded to prison having been charged with assault. He suffers from prelingual deafness, is without speech and his verbal language is limited. He had become aggressive when asked to leave the house of his girlfriend's mother who did not wish his association with her daughter to continue. In referring him the prison doctor had written . . . "He may be schizophrenic, mentally defective, or anything." Using manual communication methods C.M. was able to give a good account of himself, explaining that he resented being pushed out of his girlfriend's home without, he felt, good cause. He became very angry when he could not understand what was being said and because he could not communicate his own thoughts and feelings. When examined using manual communication methods there was no evidence of any material psychiatric abnormality and, using non-verbal psychological tests, he achieved a pro rated I.Q. of 116.

Every practising psychiatrist and clinical psychologist is likely to be faced with a prelingually deaf person at some time in his professional life, and it is important that they should have some knowledge of the implications of early profound deafness and especially of its retarding effects upon language development. In this context it is important to remember that psychological testing is fraught with difficulties when the subject is prelingually profoundly deaf. The communication problems create difficulties in establishing contact, in explaining the nature of the test situation, and in giving instructions. However, the greatest pitfalls are likely to occur in the use of inappropriate test material and in the interpretation of results.

Case 3. W.M., a nineteen-year old youth was referred with a history of irresponsible behaviour, inability to keep employment and outbursts of aggressive behaviour. Some two years previously he had been referred to a psychiatric clinic and had undergone psychometric testing. He had achieved an I.Q. of 57 using the Terman Merrill Test and was therefore considered unemployable.

W.M. was able to communicate by combined oral and manual methods and there was no evidence of any frank psychiatric abnormality. Using the performance items of the Wechsler Adult Intelligence Scale he achieved an I.Q. of 114, the scores on the sub-tests being uniformly above-average. He was recommended for vocational training and is now employed. The Terman Merrill is a verbally loaded test and the discrepancy between the results of this test and that of the Wechsler Test illustrates the inapplicability of using verbally loaded tests with prelingually deaf subjects.

Case 4. P.D. was referred at the age of 29 years with behaviour problems. He suffers from prelingual profound deafness and is without speech. His language development is poor. He had been diagnosed as mentally retarded on more than one occasion and has been given intelligence quotients of 100, 60, and 125 by different psychologists.

Some of the factors responsible for early childhood deafness e.g. prematurity, meningitis, maternal rubella and rhesus incompatibility, frequently result in concomitant brain damage. Consequently deafness is often accompanied by other disabilities, and there is both a high incidence of mental handicap amongst the hearing impaired and a high incidence of hearing impairment amongst the mentally retarded.

Uncomplicated prelingual profound deafness presents an enormous barrier to normal language development. When it is complicated by even a minimal degree of intellectual retardation, then language development becomes even more difficult. A normally hearing person with an intellectual handicap sufficient to preclude literacy may acquire sufficient verbal language through hearing to develop social competence, to hold down a routine job in open industry, to marry and raise a family. Should a deaf person have an intellectual handicap only of a degree to preclude literacy, then that individual will be unable to acquire any such store of verbal language.

In these circumstances, and when the intellectual handicap is not of severe degree, there will be a marked discrepancy between the person's innate intellectual potential and his or her verbal competence. The poor development of language may, unfortunately, be frequently believed to be due to a severe degree of mental retardation and there is, therefore, a grave danger that the potential of such a child will remain unrecognised and under-developed.

To deny the prelingually profoundly deaf child who also has an intellectual handicap the chance to acquire communication skills through sign language is to deny him all communication. He will remain not only a non-verbal being but a non-communicating being.

Unfortunately some schools in the United Kingdom have adopted the Paget Gorman Systematic Sign Language in preference to the indigenous sign system used by deaf people (British Sign Language). The Paget Gorman Systematic Sign Language (Gorman and Paget, 1970) is an artificial sign language which was invented in an effort to teach grammatical English. It is, however, far too complex for use with pre-verbal and non-verbal deaf children and the signs when used together in many instances bear little relation to the message to be conveyed. However, perhaps the greatest disadvantage of the Paget Gorman System is that it does not enable low-verbal and non-verbal children to integrate into deaf society.

Case 5. P.L. was referred at the age of 14½ years for advice as to management. He was born six weeks premature and weighed 4lbs. 14oz. There was some neo-natal distress. At six weeks he suffered from meningitis. His developmental milestones were delayed and he was always irritable and over-active. He failed to develop speech and at the age of about three years deafness was suspected. However, this was not confirmed until he was about six years of age when sensori-neural deafness was diagnosed. He was tried with a binaural hearing aid and given auditory training but without benefit.

P.L.'s behaviour was such that his parents were unable to cope with him and he was admitted to a hospital for the mentally handicapped. His behaviour remained disturbed and psychotropic drugs brought about little change. The results of psychometric testing were thought to be unreliable because of his poor attention and distractability.

Some twelve months prior to being seen attempts were made to teach him to communicate by the Paget Gorman Systematic Sign System and, although such a systematic signing system proved difficult for him, it was soon obvious that he had the ability to acquire manual communication skills. His behaviour materially improved and he soon began to mimic other patients and help other more retarded patients with their personal care.

P.L. is profoundly deaf and in all probability has an intellectual handicap also. He is unlikely to acquire any verbal competence. He has been accepted for a school for the deaf where the British Sign Language is used.

It is vitally important that prelingually profoundly deaf children should be given the benefit of combined oral and manual methods of communication from an early age and that their parents should receive the necessary guidance. It is just as important that those schools and hospitals currently using the Paget Gorman System should be aware of its limitations, for the majority of prelingually profoundly deaf children do not develop intelligible speech and will, therefore, have severe communication difficulties in both the hearing and the deaf communities.

This paper is mainly concerned with those who suffer from prelingual profound deafness. However, it is important to remember that children who suffer from partial hearing losses may also be mistakenly regarded as mentally retarded.

Case 6. N.M. was 8 years 8 months old when his mother sought an appointment to discuss his management. She was concerned that he had been transferred from a primary school to a school for educationally subnormal children. She related that she had thought her son had a hearing deficit when he was about four years old and sought the opinion of her general practitioner. She stated that her doctor had performed only a very superficial examination, had told her he could find nothing wrong and that she was worrying unnecessarily.

N.M. developed speech and language and began primary school at 4 years 10 months. However, his academic progress was poor and at the age of 7 years he was transferred to a school for the educationally subnormal. Shortly after his transfer hearing impairment was suspected by the school doctor and subsequently confirmed by audiometry. Otological examination revealed bilateral serous otitis media. Grommets were inserted into both tympanic membranes and N.M.'s hearing improved considerably. On psychometric testing N.M. achieved a full scale I.Q. of 102.

The relationship between deafness and mental retardation is a complex one and it is important that mental health workers are aware of the psychosocial implications of deafness of all types but especially of early childhood deafness.

Summary

The difficulties of speech and language development for the prelingually profoundly deaf child are explained, and arguments are made for the use of manual communication methods i.e. finger spelling and sign language, in the education of deaf children. The relationship of prelingual profound deafness to mental retardation is discussed.

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