Current Practice

CHILD CARE IN GENERAL PRACTICE

Speech Disorders in Children—Part I

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The importance of speech in human affairs is increasing. Parents take an ability to speak for granted, but the deep importance they attach to it is quickly seen in their anxiety when a child fails to speak at the expected time. We have written this account of speech disorders in children for several reasons. They are common; they worry parents, who are often unsure when and how to obtain help; they begin for the most part in the pre-school years, and so the family doctor is the man best able to achieve early recognition and to see that assessment and where necessary treatment is started in good time. As severe physical disease becomes less common in children family doctors are concerned more and more with problems of defective function and disturbed behaviour. Speech and learning disorders belong to this changing pattern of family practice, and though at some stage specialist assessment of hearing, intelligence, or speech may be necessary the family doctor has a contribution to make and we want him to make it. We shall describe the main features of the common speech disorders, their probable outcome, what can be done by the practitioner himself, and when and how to seek specialist help.

Normal Development of Speech

Speech disorders in children are best thought of as temporary, prolonged, or permanent interruptions of development, and so we must first be clear about the range of normal. The majority of children begin to use single words at a year, with a range stretching from 8 months to 2½ years. Words are put together in phrases at about 18 months, but again the normal range is wide, stretching from 10 months to 3½ years. In most children speech is intelligible to friends and neighbours as well as to the family by the age of 2, but one child in three passes through a phase of unintelligible speech during the third and fourth years. Development does not take place at a steady rate; words are used and lost again, and there are often silent periods when little progress is made. This general statement is acceptable except when deafness is suspected, since this should be detected if possible in the first year.

Common Disorders: Recognition and Understanding

Speech is an ability which depends on hearing, the linking of sounds and symbols in language, and the expression of language in spoken or written words. Speech disorders therefore will be disorders of "hearing," "language," and "articulation." This holds good for most cases, though some children have multiple disabilities. However, the family doctor can best begin his assessment by trying to answer two questions—"Is this child failing to talk at the proper time?"

(a deficiency of language) or, "Is he talking but not talking intelligibly?" (a defect of articulation). The case histories that follow illustrate the types of problem he can expect to meet.

Delayed Development of Speech

Deafness

Case 1.—M. C. was born prematurely and weighed 4 lb. (1.8 kg.). She made good progress: sat up at 8 months old, stood on her first birthday, and began to walk at 18 months. At 6 months her mother felt she was not responding to a rattle, but said nothing to anyone about it. By a year, finding that the child made no response when called, she voiced her doubts about the child's hearing, but the family told her she was imagining things. A month later she consulted her family doctor, who listened to her fears, watched the child's behaviour in the home, and arranged for her to be seen in the audiology clinic. A presumptive diagnosis of severe deafness was made, and when the child was 14 months old a hearing-aid was fitted. The child gradually accepted the aid, and by the age of 18 months was wearing it throughout the day. She continued to develop normally and began to respond to common sounds and to babble. However, there was still no sign of speech, and at the age of 3 years she began to attend the nursery class of the local school for the deaf. Here she was slow to settle, the earlier tantrums having been replaced by diffidence and shyness.

Now at 5 years she is more at ease but still without speech. She can just tell when a record is played at full volume and is obviously profoundly deaf. She will need to remain in a residential school for the severely deaf and is unlikely to develop more than a very limited vocabulary of individual words, poorly articulated and with monotonous intonation. Speech therapy can make no contribution to such a child, but early recognition will enable the mother to understand the true position, accustom the child to a hearing-aid, encourage lip-reading, and make provision for admission first to the nursery class and then on into the appropriate school for the deaf.

Case 2.—S. A. first reached the speech clinic at the age of 4. Her mother was concerned at her lack of speech, constant shouting, and outbursts of temper. Pregnancy and birth had been normal. Progress in the first year, including the quality of her babbling, had been accepted as normal too. She regularly attended the child welfare clinic, but in spite of increasing uneasiness in the second year the mother did not mention her concern to nurse or doctor. At the age of 3 the child was taken to the family doctor with severe temper tantrums and because she was not talking. He counselled firmness and patience. The mother persisted in her approaches, pointing out that "things just didn't seem to sink in," and a year later he referred the child to hospital, where she was seen by a paediatrician and speech therapist. She was physically and mentally normal apart from speech, which was confined to a few single words inaccurately pronounced in a rather monotonous tone. Repeated hearing tests confirmed a considerable hearing loss in both ears and over all frequencies. She was seen by the E.N.T. surgeon and by the speech therapist in the audiology clinic and was fitted with a hearing-aid. With practice and help she adjusted satisfactorily to this, speech has developed considerably, and at 7 she is doing well in the partial-hearing unit of a normal school.

The lessons to be learned from this child's case are the welfare clinic's apparent failure routinely to assess speech development and

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the family doctor's delay in suspecting the deafness which lay behind the temper tantrums and delayed speech.

High-frequency Deafness

Case 3.—J. F. is the younger of two children. Birth was normal, birth weight being 8 lb. 2 oz. (3.7 kg.), and his subsequent growth and health were excellent. Words, however, did not appear until he was 3, and the first phrases at 4, and when speech came it was difficult to understand. His mother recognized that this was later than his sister, but she regarded him as a "slow developer." She felt sure he wasn't deaf, because he reacted quickly to the common household sounds. At 5, however, with the approach of school, she went to her family doctor, who promptly referred the boy to the speech clinic. He was well developed and of high intelligence, but he was unable to discriminate between f, s, sh, th, and ch, and since these were omitted from his speech this was difficult to understand. Audiometric testing revealed a loss of hearing for the higher-frequency sounds which occur so commonly in English. He was treated in the speech clinic for six months, and as with all such children he did not need a hearing-aid. With this help and his superior intelligence, he has been able to maintain a position near the top of the class in a normal school.

The prompt action of the family doctor uncovered the real cause of the boy's delay and defective speech and prevented a disturbed beginning to his school life.

Comment

Few children are so deaf that they cannot hear at all. Treatment therefore aims at helping the child to learn to hear and to do this during the normal period when hearing and speech develop. Deafness must therefore be looked for in the first year and if suspected referred to an audiologist or department of speech and hearing. It is now the practice in some areas for specially trained health visitors to carry out routine hearing tests at 9 months of age on all infants in their charge. Where this service is available the family doctor can make use of it, but the important thing with deafness is that someone should suspect it in the first year of life or as soon after as possible. Early referral with progressive assessment of the degree of hearing and auditory training can then follow. Many children will need to use a hearing-aid all the time, and this can be successful in infants as young as 6 months. If the deafness is severe the child, as with Case 1, may need to start in the nursery class of the local school for the deaf between the age of 3 and 4.

Mental Handicap

Case 4.—B. J., the first child, was born after a prolonged labour. The parents first became concerned when he was 2, because he had only just started to walk, seemed unsteady and clumsy, and was not talking. He was a pleasant active boy, and so it was hoped that speech would develop. In his fifth year, however, he was referred by his family doctor to a paediatrician and then the true position was recognized. He was attractive in appearance, and there were no focal abnormalities in the nervous system; he had some understanding of speech and several experienced observers felt that he was not deaf. Speech, however, was limited to a few poorly articulated sounds. He could feed himself with encouragement, but was not toilet-trained, and when he could not make himself understood readily broke down with crying and excessive outbursts of temper. General behaviour and play was at the level of a 2-year-old child, and it was clear that the failure of speech was part of a severe failure of mental development. He was helped over the next two years by understanding parents and a patient schoolmistress in a village school, but continued to be very restless and easily frustrated. At 8 he became a boarder at a Rudolph Steiner school for mentally handicapped children. From the point of view of his general development this has been most helpful. Now at the age of 14 he is a happy, friendly boy, but speech is still limited to fewer than 20 simple words often poorly articulated. He uses gesture

freely and well, is less restless and more socially adjusted and acceptable.

The important points to note here are that mental handicap is the commonest cause of delayed speech and that it can occur in physically well-developed and handsome children. Speech therapy has nothing to offer this type of child.

Case 5.—C. T., the second child in the family, was born after a prolonged labour. The birth weight was 7 lb. (3.2 kg.), and there was no anxiety in the first week. However, during the early months feeding was difficult and he cried incessantly. He sat unsupported at a year, walked at 2½ years, and began to use words at 3½, though these were unintelligible except to the family. He was first seen at the speech clinic at 5, when speech was largely confined to single words and a few two-word phrases, many of which were mispronounced.

Assessment of his intelligence gave him an intelligence quotient of 67. After a period in the infants' school he now attends a school for the educationally subnormal, and is making progress both in speech and general development. He is receiving speech therapy. Speech therapists can make a useful contribution to the educational achievements and emotional stability of such children.

Neurological Delay (Developmental Aphasia)

Case 6.—A. J. is now 9. By the end of his second year his mother was concerned at his lack of speech. He did not seem to grasp what was said to him and made only unintelligible noises. In his third year a few doubtful words appeared, and at the suggestion of the health visitor he was sent to a speech clinic, but this proved unhelpful. At 4 the parents, now very anxious, consulted their family doctor. He recorded the boy's total development, and noted that this had been delayed; he first smiled at 4 months, sat up at 9 months, walked at 17 months, and was only now beginning to feed himself. He had also become aggressive, destructive, and almost unmanageable. The doctor, suspecting mental handicap, arranged for him to be admitted to an occupation centre. This proved very disturbing; his aggressive behaviour continued; but for the first time the possibility of deafness or aphasia was raised by the visiting medical officer. Again special help was tried, first by a teacher of the deaf, then by a speech therapist, but an initial increase in speech was not maintained, and his behaviour soon deteriorated. At this point he was admitted to hospital, and two months later was sent to us for special assessment.

He was a well-developed, excessively restless boy but without any motor or sensory abnormality, and over a period of 10 days in a unit where his mother could be admitted with him he became more composed and we were able to confirm that hearing and intelligence were normal. Understanding for speech was confined to simple requests, vocabulary was still very limited, and speech almost unintelligible. We decided that this boy had a severe developmental aphasia affecting both the receptive and the expressive side of speech and that his very disturbed behaviour arose from his difficulty with communication. His parents naturally felt they would like him if possible to remain in a normal school, but 18 months later he had made little progress with speech and his emotional disturbance had increased, with nightmares, sleepwalking, episodes of abdominal pain and vomiting, and spells of intense crying. We were asked to see him again and his parents gladly accepted his admission to a residential school capable of dealing with severe speech disorders.

He settled well, and during the past year his behaviour has become normal and remains so in the holidays. His understanding of speech has considerably increased; he is talking more and more freely; and though articulation is still defective this too is responding to a settled environment, understanding education, and speech therapy carried out individually and within a group.

This is a severe disorder of language. Progress will be slow; he will continue to need special schooling, will always have some difficulty in formulating language, and may be limited in fluency and clarity of expression. Doctors and educationalists have been uncertain about the nature and extent of such disorders, though it is surprising that there are only three residential schools for severe speech disorders in Great Britain. There are increasing signs that these limited facilities will be increased soon.

This child has been described in detail because he illustrates very clearly the diagnostic difficulties, the personal unhappiness, the

degree of family disruption, and the inadequate facilities for assessment and treatment which may be involved in such a disorder.

Case 7.—N. J. is now 8 and illustrates a less severe facet of delayed speech. Birth was normal, and apart from speech she has developed normally in every way. The first definite words "Mummy" and "Daddy" did not appear until she was 4. Her wise and observant parents were sure that she could hear, and, unlike the child A. J. who has just been described, could understand verbal requests from an early age. Her physical growth, agility, and facility in using her hands were also normal. However, in view of the approach of school, she was seen at the age of 4½ at the request of a paediatrician and admitted with her mother for assessment. No motor or sensory abnormality could be found, pure-tone audiometry was possible and revealed normal hearing, and her intelligence was in the superior range. By this time she had a vocabulary of 40 words, though many of these were unintelligible except within the family. In the second half of the fifth year short phrases appeared and speech slowly increased. For the past year she has attended and enjoyed a small nursery school, and the hope is that she will attend a normal school early in her seventh year.

We regard this child as an example of developmental aphasia—mainly on the expressive side. With her superior intelligence, lack of major difficulty in understanding language, wise handling at home, and the increase of speech which has occurred in the past six months, we hope she will make satisfactory progress in a normal school where teacher and speech therapist will work closely together.

Comment

We believe the delay in developing speech in these two children is neurological in origin, though the nature of the cerebral dysfunction or damage is not yet clear. At the risk of imposing a more precise terminology than our understanding justifies we call this disorder aphasia—qualifying this with the word "developmental," since it represents a failure to develop language rather than a loss or regression of language already acquired. Progress in the more severe degrees is slow, and as in Case 6 such children may need education in a residential school for speech disorders. When speech does come there may be further difficulties with articulation and reading. As these two children show, the failure may be more on the "receptive" or more on the "expressive" side of the formulation of language, but we would not press this distinction too far.

Mental Disturbance

It is often noted that waiting hopefully for a child of their own and then being disappointed does alter the relationship

of parents with adopted children. It may be that this was the case in the following instance.

Case 8.—L. S. was adopted at the age of 2 weeks by middle-aged and anxious parents. She developed normally apart from speech, but was always exceptionally precise in her movements and activities. Toilet training presented some difficulty, and there were daily scenes between the ages of 2 and 3, often followed by wetting and soiling which the mother felt to be deliberate. At the age of 4 the child when brought to the speech clinic by the mother was only able to say "mum mum," "da da," and "ba ba." She was a beautiful fairy-like child now quite clean and dry, with a strange variety of expressions ranging from meaningless quiet laughter to a troubled puzzled look when in fact there was no outward cause for her to be troubled at all. Her hands were seldom still but occupied in a quick stereotyped flicking movement. She appeared to have no real contact with her mother, whom she used as a lap to sit on rather than as a person to whom she turned for comfort and approval.

At first, she attended weekly at the speech clinic, in consultation with a psychiatrist, in order that her reactions to differing situations might be observed. But she made no contact with the therapist, and it was noted that the therapist's hand was used to turn on a tap for the child rather as a tool would be used. She was able to make all speech sounds, but never progressed beyond a meaningless babble which she never used as a means of communication. She often withdrew, with closed eyes and hands over her ears, from attempted contact. It became obvious that this child was expressing an autistic type of behaviour and that speech therapy on a person-to-person basis was not going to penetrate this aloofness. She was therefore referred to a unit for psychotic children where the whole environment was designed for the management of this perplexing and exacting problem. It is comforting to note that these parents later adopted a second child whose development has been normal.

Comment

The main causes of the delayed development of speech are deafness, mental handicap, developmental aphasia, and psychotic illness. Though mental handicap is the commonest cause, the risk of regarding deaf or aphasic children as mentally defective is a real one. In some of these children a considerable period of observation may be necessary before the true explanation is found, and not unnaturally, as with Case 6, they become emotionally disturbed as a reaction to their disability. Delay in the development of language, evident or suspected by the parents, justifies prompt referral to a centre where paediatricians, audiologists, child psychiatrists, psychologists, and speech therapists are working closely together.

(Part II of this article will appear next week.)

ANY QUESTIONS?

We publish below a selection of questions and answers of general interest.

Antibiotics in Brucellosis

Q.—What is the antibiotic of choice in the treatment of a case of serologically confirmed brucellosis?

A.—Presumably serological confirmation means an agglutinin titre of at least 100. It is also assumed that the patient has fever and other manifestations calling for treatment.

The antibiotic of choice is a tetracycline. According to Spink¹ 500 mg. should be given 6-hourly for 21 days. In severe cases, particularly *Br. melitensis* infections, streptomycin may be given in addition for the first 14 days (0.5 g. intramuscularly twice daily).

Relapse should be treated with a further identical course of a tetracycline only.

Each of the older tetracyclines has been used successfully, though chlor- and oxytetracycline are now less commonly given. Successful results (including freedom from relapse, but with little information about follow-up) have been claimed from smaller doses of demethylchlortetracycline by Chavez-Max² in Mexico, and by Bruno and Palazzotto³ in Sicily. Torres Gost,⁴ of Madrid, claimed uniform success from treatment with novobiocin, but others have not confirmed the freedom from relapse which he reports, and have had sometimes to discontinue treatment because of severe sensitivity reactions, which

commonly occur when this antibiotic is given in full doses for more than a week.

REFERENCES

- ¹ Spink, W. W., *J. Amer. med. Ass.*, 1960, **172**, 697.
- ² Chavez-Max, G., *Antibiot. Ann.*, 1959–60, 429.
- ³ Bruno, F., and Palazzotto, G., *Rif. med.*, 1961, **75**, 874.
- ⁴ Torres Gost, J., *Lancet*, 1958, **1**, 191.

Renal Glycosuria and Diabetes

Q.—What is the risk (if any) of a patient with a normal blood sugar and a low glucose leak-point developing diabetes?

A.—If this is true renal glycosuria there is no risk of diabetes mellitus developing. The difficulty, of course, is to be quite certain that the low renal threshold is not associated with