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Charles West: a 19th century perspective on acquired childhood aphasia

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Introduction

In the second half of the 19th century interest in the representation of mental functions in the brain was typically pursued through two research enterprises: experimentation with localisation of function in animals (e.g., Brown-Sequard, 1860) and the clinical study of acquired adult disorders of the nervous system (e.g., Hughlings Jackson, 1864). English investigations from a developmental perspective had not yet begun (e.g., Darwin, 1877). Although childhood diseases were extremely prevalent in Victorian England, the study of clinical medicine from a developmental perspective was nonexistent in mid 19th century Britain. Cases of acquired childhood aphasia (ACA) were rarely published in the medical literature and those that appeared were not typically differentiated from adults in any way. Contemporaneous theorising on the localisation of language functions in the human brain concentrated on aphasic adults. Charles West (1816-1898) was one of the few physicians who wrote specifically on language disorders in children in his works on childhood diseases (West, 1848; 1854; 1871). West founded and was Chief Physician of the first Children's Hospital in England in 1852--the Great Ormond Street Hospital for Sick Children in London (GOSH). From his vast clinical experience, West concluded that child language disorders were distinct from those seen in adults in the patterns of impairment and recovery they exhibited.

Born in London, West initially trained as an Apothecary. He was barred from the study medicine at Oxford because his father was a Baptist minister. He undertook his initial medical training at St Bartholomew's Hospital in London, subsequently pursuing his studies on the Continent, first at Bonn University in 1835, continuing his training in Paris, Heidelberg and finally in Berlin where he obtained his M.D. in 1837. Later he went to Dublin to study at the Meath Hospital where he made a special study of midwifery. Upon returning to London, he was made physician to the Universal Dispensary for Women and Children, Waterloo Road in 1842. This institution provided the only outpatient service for children in the city at the time.

“There exists in London only one dispensary for the special treatment of the diseases of children; and neither in this city nor throughout the whole British empire is there any hospital exclusively devoted to their reception. At the same time, the number of children received into the general hospitals is so small, that on an enumeration of the population of those institutions, made in January 1843 by a Committee of the Statistical Society, they were found to contain only 136 children under 10 years of age. Of this small number, too, 41 had been admitted in consequence of accidental injury, 69 for the surgical treatment of some local ailment, and only 26...for the cure of any internal disease.” (Ellis, 1852, p. 8)

While working at the Dispensary West was appointed Physician Accoucher at the Middlesex Hospital. In 1845, West began to teach midwifery at the old, prestigious St. Bartholomew's Hospital. Two years later, he gave a course of lectures at the Middlesex Hospital on children's diseases which was published in the Medical Gazette and subsequently as a 488 page text in 1848 under the name *Diseases of Infancy and Childhood*.

The First Modern English Book on Childhood Disorders

This was the first English textbook on pediatrics produced in the 19th century. Prior to its publication, British physicians had either to rely on childcare books aimed primarily at mothers and carers or read paediatric texts written in French or German. Of the 6,000 works written on pediatrics between the mid 18th and mid 19th centuries, almost none appeared in English (Ballabriga, 1991). Until the publication of West's influential lectures, the best-known work in English was Michael Underwood's treatise on the diseases of children first published in 1784.

West's work was based on his observations of 14,000 children with 600 detailed cases and 180 post mortems. Surprisingly for a text on general diseases of infancy and childhood, the first 12 of the 39 lectures--142 pages, were devoted to diseases of the nervous system. This covered fits and convulsions, cerebral hemorrhage, inflammatory acute and chronic hydrocephalis, atrophy, disorders of the spinal cord, meningitis, chorea and paralysis. West justified this by demonstrating the high prevalence of these disorders in children. He cited the available health statistics of the day from the "Report of the Registrar General for 1842." Of the 45,000 deaths recorded in London in that year, 7,503 deaths were due to diseases of the nervous system. Sixty four percent (4,847) of these neurological cases occurred in children under the age of 5 years. (West, 1848, p. 4).

Diseases of the nervous system are divided by West into three great classes of symptoms: "disorders of intellect", "altered sensation", and "impaired motion." Throughout this section, West demonstrates three unique aspects of his clinical research: 1) the insistence that children manifest diseases in different ways to adults; 2) the need for rigorous observational skills; and 3) that assessment techniques must be objectified. West gives detailed instructions on how to deal with the specific demands of interviewing and examining children, and how to write detailed and valuable case notes.

The significance of symptoms in children as compared with adults is first explored in a discussion of motor signs and seizures:

"The value of the symptoms, too, is different; for disturbance of the motor power, which is comparatively rare in the adult, except as the consequence of some serious disease of the brain, takes place in the child in cases of the mildest as well as the most serious ailments; and we may even observe convulsions recurring several times a day for many days together, apparently without adequate cause, and not leading to any serious impairment of the child's health." (West, 1848, p. 14)

"In early life the superintendence of the motor power is the chief function of the brain, which has not yet attained to its highest office as the organ of the intellect." (West, 1848, p. 16)

"The grand reason for their [convulsions] frequency is no doubt to be found in the predominance of the spinal over the cerebral systems in early life...In proportion as the brain increases in size, and its structure acquires perfection,

and its higher functions become displayed, convulsions grow less and less frequent. (West, 1848, p. 17)

This statement on the higher frequency of seizures in childhood is backed up with a statistical analysis of the percentage of deaths from diseases of the nervous system and those where death involved convulsions at different ages deduced from the data supplied for London by the Registrar-General, 1842.

It is in this section that West's interest in speech disorders is also first manifest. He asks the question: how can one find out about impaired intellect in nervous disease? His answer demonstrates many salient points about his early conceptualisation of language in relation to mental faculties with specific regard to developmental factors:

“At first [the child] cannot express its sensations at all, while long after it has acquired the power of speech, it knows too little how to shape its ideas into words to give a correct account of what it feels; and we cannot expect to learn much from the disturbance of an intellect which as yet has scarcely asserted its claim to be any thing higher than the instinct of the animal.” (West, 1848, p. 14)

West's comments reflect his insightful and original approach to the problem of children's lack of ability to self-report. West also underscores the difference in examining children with respect of their late development of cognitive abilities. It should be noted that although West makes reference to an evolutionary model, this is consistent with earlier French and German formulations of transformism which had been entertained for many decades (Corsi and Weindling, 1985). Moreover, when Darwin subsequently published the *Origin of Species* in 1859, West was one of the theories detractors referring to it as the “dreary creed”. West's had strongly held religious beliefs and he rejected the implications of Darwin's theory. West later referred to Darwin's just published *Descent of Man* (1871) in his Lumleian Lecture discussed below. “The race being all, the individual nothing” was his reading of Darwinism. Throughout his life West retained a biblical belief in “the perfection of each individual of the race;- a perfection to be attained not here, but higher.” He describes speech as the “highest endowment of man.” West links Speech and Intellect in discussing conditions such as deafness, chorea, idiocy, and aphasia.

While discussing the possibility of atrophy of the brain as an occasional result of chronic illness he states:

“It is only in infants that accidents of this grave nature are likely to ensue, from the imperfect nutrition of the brain consequent on protracted illness; but symptoms arise in older children, under similar circumstances, well calculated to excite the apprehension of parents. In children who have but lately learned to talk, I have sometimes known loss of speech follow a long illness, the child being too weak to talk, just for the same reason as it is too weak to walk. Occasionally, however, the child apparently regains its previous health, and yet makes no effort to articulate, even for 2 or 3 months. In cases of this kind I have seen parents thrown into great anxiety from the fear lest the child's continued silence should be the result of the intellect having become impaired during its illness. I imagine that in many of these cases the child has forgotten during its illness much of its newly-acquired knowledge, and that it is some time before it again feels equal to the mental effort of shaping its ideas into words usually, however, when it begins to make the effort, it recovers its

speech rapidly; and you may therefore console parents with this prospect...The brain seems to regain its lower powers, and to perform its humbler functions, before it resumes its nobler office as the organ of the mind." (West, 1848, p. 101)

In this passage, West makes it clear that he believes the lack of speech in these instances to be due to loss of memory and/or will rather than impairment to the faculty of intellect, of which language is a part. He suggests that indications of this state of affairs would be if a child has a "vacant look", "silly manner" or "unmeaning laugh".

In discussing the course of illness and patterns of recovery West asserts the differential status of motor from cognitive functions: "One point which it behoves us to bear in mind in connection with these cases (of infantile paralysis) is, that though cerebral symptoms...generally subside in a short time, there is still very great danger of the paralysis continuing..." (West, 1848, p. 137) The brain, West suggests, regains power of the motor ("humbler function") "before it resumes its nobler office as the organ of the mind". Thus, although he couched his discussions in terms of clinical patterns rather than anatomy and physiology, West was well aware of the significance of the functional organization of motor versus cognitive faculties.

On Disorders of Mind in Childhood

There was a significant lack of pediatric care in England which Charles West single handedly changed with the opening of the first in-patient hospital for sick children at Great Ormond Street in 1852. Up to this time specialist children's hospitals existed in most major European cities except London, with the first children's hospital in the world having opened in Paris as early as 1802. Raised to prominence in the British medical community, West's text on disorders of childhood enjoyed great success and was issued in a 2nd edition in the year that the hospital opened. It was republished in America and was translated into German, French, Danish, Dutch, Russian, Italian and Spanish. It went through 7 editions each expanded from the first. While the 1st edition was said to be based on West's observations of 600 detailed cases and 180 post mortems, the 6th edition published 26 years later in 1874 was based on 2,000 selected cases and 600 post mortems. A year later, West left the staff of the Hospital but a final edition of the text was published during his retirement in 1884.

In 1854, two years after the opening of the first children's hospital, a 3rd edition of West's book appeared with the significant addition of a new chapter entitled "Lectures on Disorders of the Mind in Childhood". This was a completely original contribution to the clinical literature. Never before had these issues been addressed in English. In the preface he comments:

"The remarks, however, which are embodied in a separate Lecture on Disorders of the Mind in Childhood, are so fragmentary and incomplete, that their publication may seem to call for some explanation or apology. "I regret that it should be furnished by the absence of any institution in this country to which medical men are allowed access for purposes of study [nervous diseases in childhood] or from whose reports they could gain any information concerning those saddest of all affections of early life. When this excuse

ceases to be valid, I shall most gladly cancel what I have written so imperfectly.” (West, 1854, p. v-vi)

Although West made many additions and changes to his book over the next 36 years which reflected his growing clinical investigation of acquired disorders of speech in children the section quoted above on the temporary loss of the power of speech after long illness remained unchanged. However, his ideas became more complex with his growing clinical expertise in the area of mental disorders of childhood. In his lectures on disorders of mind produced in two years after the opening of Great Ormond Street hospital, his newly gained insights become apparent. West methodically explores the issue through diagnostic concerns; pointing out the need to exclude peripheral or systemic effect which are also often manifest by difficulties in expression.

First he discusses the need to exclude problems with hearing and/or the vocal apparatus when diagnosing mental impairment:

“It is well, in all cases of unusual backwardness, to ascertain the condition of the sense of hearing, and of the power of speech; for I have known the existence of deafness long overlooked, and the child’s dullness (sic) and inability to speak referred erroneously to intellectual deficiency; and have also observed mere difficulty of articulation, partly dependent on malformation of the mouth, lead to similar misapprehension. In both instances referred to, the complete inability to keep up intercourse with other children, or the great difficulty in the attempt, had cast a shadow over the mind, and the little ones were dull, suspicious, unchildlike.”(West 1854, p. 201)

He then goes on to consider the indirect effects of chronic ill health on verbal expression:

“A similar effect is not infrequently produced by serious illness, even after the time of infancy has passed. The child will for months cease to walk, or forget to talk, if these had been comparatively recent acquirements; or will continue dull, and unequal to any mental effort, for weeks or months together, and then the mind will begin to develope (sic) itself once more, though slowly; possibly so slowly as never altogether to make up for lost ground.” (West 1854, p. 201)

Finally, West clarifies the difference between a specific and selective loss of speech and the difficulties of verbal expression in cases of “mental deficiency”:

“Just as the idiot is slow to notice, slow in learning to grasp any object in his hands, or to stand or walk, so he is late in learning to talk; often acquires but few words, and those with difficulty, often using the same to express many different ideas, generally articulating them indistinctly,--often, indeed, so imperfectly as to be almost unintelligible. (West, 1854, p. 204-5)

West draws a further distinction between verbal memory and speech production on the one hand and ‘the intellect’ on the other:

“Mere verbal memory, too, is by no means a fair index of a child’s mental condition; for the idiot may be taught, parrot-like, to repeat many things of the meaning of which he has not the slightest notion.” (West 1854, p. 205)

The First Modern Consideration of Acquired Aphasia in Children

Charles Dickens, a personal friend of West's, gave regular public readings of his books to raise funds for Great Ormond Street Hospital. In his 1858 reading at the London Freemason's Hall he underscored the needs of children: "This is a pathetic case which I have put to you; not only on behalf of the thousands of children who annually die in this great city, but also on behalf of the thousands of children who live half developed..." The money raised by Dickens was used to purchase an adjacent building and expand the number of inpatient beds from 10 to 20. (Kosky, 1989) The hospital continued to grow in size and reputation throughout the 1860's. One street away the National Hospital for the Paralyzed and Epileptic had opened (1860) and John Hughlings Jackson was carrying out his research into the neurological foundations of aphasia (Lorch, 2004).

In 1871 West was invited by the Royal College of Physicians in London to give the prestigious Lumelian Lectures. He presented a series of three lectures which were reported in the medical journals and published in full as *On some Disorders of the Nervous System in Childhood*. The final lecture was on a completely novel topic with respect to childhood diseases: Lecture III was on "Disorder and loss of power of speech.—mental and moral peculiarities and their disorders". This included discussion of speech as the

"the highest human power.--Its occasional tardy development.-- Deaf- and dumbness.-- Power of speech: in the idiot; in the backward child.— Stammering.-- Affectation of speech in course of chorea not always dependent on severity of muscular movements; associated with intellectual disorder; eventual recovery of such cases.—Other instances of loss of speech: after typhoid fever; after other ailments.—Rarity of abiding aphasia; case in illustration of it.---Imperfection of our knowledge concerning these cases."

Prior to West's lecture in 1871, cases of acquired aphasia in children had appeared in the literature but they were typically published alongside adult cases in series and age was not considered a relevant variable. For example in the case series presented by Hughlings Jackson in his first major paper on aphasia in 1864 young children, adolescents and adults were included. Although age was noted in the case history there was no further discrimination between cases on the basis of age. West's perspective appears unique in the 1870's medical literature in distinguishing between the aspects of a childhood language disorder from that found in adults.

West warned against viewing the child as a miniature adult. Physically he might differ only in degree being weaker than an adult, but mentally there were fundamental differences. West argued vigorously against the prevailing view at the time that "...the child is treated as though he were in mind, as well as in body, a miniature man, feebler in intellect, as he is smaller in strength, but differing in degree only, not in kind." West stressed the mental differences between child and adult; 1) the child lives in the present, not in the future; 2) the child has less self-consciousness; 3) his imagination is more vivid; 4) his emotions are both more transitory and more intense; 5) the child has limited experience of the world; 6) the child has undeveloped reason. West asserted that these differences would necessarily make the manifestation of disorders of mind peculiar to the developing child.

West divided mental disturbances into two groups 1) disturbances that affect the intellectual powers and 2) those that involve the moral faculties; but the two groups could, and frequently did, coexist. The severest forms of mental retardation were usually associated with physical defects. West believed them to be almost exclusively of congenital origin. Less severe retardation might also be congenital but could also occur after the onset of epileptic fit, or after fever. Retarded mental development was also associated with deafness, but as to which was the underlying cause and which the result was problematic. West distinguished between mentally retarded children and those that appeared “generally backward.” As a practical clinician he was interested in cases where, given time and/or some form of therapy an improvement might be expected: “the hopeless idiot should not be associated with those who are capable of improvement.” West wanted to encourage and reassure the parents wherever he could. These “*enfants arrières*” (a term he borrowed from Edouard Seguin) would appear to be generally behind their peers; they “do not lay aside the habits of infancy till far advanced in childhood.”(West, 1854, p. 288) West warns that, particularly among the poor, attempts to teach such children is often abandoned. As the child is left uneducated and ignorant it is little wonder that he or she should then be regarded as an idiot. But he insists there is a difference between these children and idiots. If the child’s manners, habits and intelligence would appear normal in a younger child, West insisted the case should be classified as one of backwardness rather than idiocy. The backward child’s mental development is slower than other children but it does not remain fixed. Seguin (1866) described the resulting developmental lag as insurmountable but West is more optimistic. If the child “corresponds in its condition with what we might expect at an earlier period of life”(West, 1871, p. 98) the assurance that speech will certainly follow could be given. West though, could give no guarantee as to the ultimate intellectual attainment of the child. Perversion of the intellect or of the moral faculties deserved, in West’s opinion, to be regarded and treated as insanity no less in the case of a child than in an adult. Disorders of the mind in childhood might follow the onset of physical conditions such as epilepsy, chorea or feeble-mindedness, but, because of the poor prognosis in many cases and the implications for society, they were of greater importance to the physician than disorders of the body.

Throughout his long career, though, his belief in the positive effects of education for all but the most severely retarded child remained strong. While any family history of mental abnormalities was noted on the child’s admission to the hospital West rarely suggested a congenital origin except in cases of severe mental retardation. He believed that “moral peculiarities” e.g., suicide or hypochondria, were the likely to be result of unchecked excessive natural tendencies (i.e. being overly sensitive) and were not, contrary to much medical opinion of the time, innate traits.

At this time, universal schooling was being instituted in England and common physical symptoms were thought to be brought about by overwork in the classrooms (Duffy, 1968). West rehearsed this contemporaneous widely held view that overwork in early childhood might result in later childhood or early adulthood in tuberculosis, epilepsy or mental disorder including hysteria. Sick headaches and a type of choreic movement could also be attributed to overwork in children. This temporary irritation of the nervous system was thought to be due to the child’s anxiety to make progress in school and West stated that it was almost never found among poor children. He thought that illness brought about by mental strain was, by its nature, a threat to the

educated rather than working class. Stammering, likewise, a consequence of “nervousness, self-consciousness, and highly-wrought nervous system of the educated classes”(West, 1871, p. 99) which West observed was very rarely found among the poorer children.

The developing nervous system of the child was not as robust as that of an adult. The nervous system could be easily jolted. The causes might be physical-fall, violence or neglect, or psychological- fright, mental overstrain or sudden extreme emotion. Children, whose nervous systems had been previously impaired perhaps by infantile convulsions or epilepsy, were at risk of the symptoms reoccurring even years after they had apparently ceased if the balance of the nervous system was disturbed. The fragility of the developing nervous system was such that sudden shock might, in extreme circumstances, result in the death of a hitherto healthy child.

As an illustration West describes a case of a 5-year-old boy, of previous delicate health, taken unexpectedly ill during his fathers funeral. He “became very sick, complained by signs of pain in the head, but had lost the power of speech, and was unable to protrude his tongue”. Three days later he was admitted to GOS.

“ his pupils were unnaturally dilated; he could not close his right eye; his mouth was drawn to the left side, and the saliva dribbled from his mouth; power over the right arm was impaired, and the head was drawn to the left side. These symptoms did not persist; power over the right side returned by degrees, as did the power of speech, and that of protruding his tongue.” A few days later he suffered convulsions followed by drowsiness. Sixteen days after his father’s funeral, he died. “ A little fluid in the ventricles of the brain, a little congestion of its vessels, was all that the anatomist could find. I suppose his mother was right; she said his heart was broken”. (West, 1871, p. 127)

Despite presenting with the physical symptoms of a cerebrovascular accident, including hemiplegia, West persists in attributing the illness to be of emotional origin. Although he acknowledged that the father and son had not been particularly close, he felt that by witnessing the funeral the boy’s fragile nervous system was overcome with tragic consequences.

Throughout his writings, from his earliest work in 1848, West stated that a possible consequence of serious illness, particularly in a young child, was the temporary impairment of motor and/or intellectual functions. The child, due to weakness, may cease to walk or talk for some time after clinical recovery. West had observed that temporary loss of speech might be sequelae to recovery from some comparatively trivial local complaint. The loss usually accompanied by more or less general disorder of the nervous system. However, West insisted that recovery would always occur in such cases of the loss of speech and mental weakness after fevers, although he admitted that the child might never altogether make up the lost ground.

He had only twice known the assurance of the return of speech “to be falsified”. In one case hearing after typhoid fever was lost with subsequent speech lost by degrees. West had been unable to follow the child’s progress as he came from a remote part of Scotland. The other case, a 10-year-old boy was admitted to GOS 5 months after attack of typhoid fever. The shock of the fever was believed to have “disordered hopelessly some of the mental powers”. His manner became strange as he regained

his strength from the illness; he talked irrationally. West saw him intermittently over the years remaining unsure whether this was a case of mutism of the insane, or aphasia.

West had observed that temporary loss of speech might be sequelae to recovery from some comparatively trivial local complaint. He pointed out that this transient loss would seem to occur with greater frequency in the child than in the adult. The loss usually accompanied by more or less general disorder of the nervous system. The child would be speechless for a time, but the condition being independent “of any grave disorder of the intellectual powers” language functions would return completely. West “did not pretend to know what happens in these cases”. (West, 1871, p.114) He did not accept contemporary neurological theory provided an adequate account of these child cases. Aphasia in childhood could not be defined solely in relation to the adult aphasic literature. Current “scientific phraseology” merely “seems to explain, but...in reality pays us only with words that do not represent distinct ideas.” (West, 1871, p.115)

West called for a generally accepted classification of the aphasic condition with the identification of relevant variables. Terminology at the time was used indiscriminately to include voice, speech and language disorders. Loss of speech might refer to a range of difficulties from aphonia due to laryngeal difficulty to aphasia caused by cerebral disturbance (Lorch, 2004). Among the medical profession throughout the period from 1860 to the end of the century, there was little agreement as to what constituted the basic units of language or how language, in these disordered cases, ought to be analysed. West (1871, p. 92) quoted “one of the most learned men of our day” Max Muller, professor of linguistics at Oxford University and the leading authority on language of the time. “We cannot tell as yet what language is. It may be a production of nature, a work of human art, or a divine gift”. The aphasic condition was referred to in the in this period as a defect or loss of the function of the ‘power of speech’, ‘faculty of speech’, ‘faculty of expression’ or ‘memory of words’.

An editorial in *The Lancet* in the mid 1880s bemoaned the plethora of “explanations” used without a clear framework. “It needs no great stretch of the imagination to invent hypotheses to account for such cases of transitory aphasia, and almost any theory must, from the nature of the case, possess a certain degree of plausibility.” (Anon, 1884, p. 654) By the late 1880s a number of physicians were reporting cases of aphasic symptoms of brief duration if the developing nervous system of the child was disturbed. Gowers (1888), referring to the continental literature, stated that “as an isolated symptom, functional aphasia occurs chiefly in children” thereby supporting, though not citing, West’s statement 15 years earlier (Gowers, 1888, p. 116).

West (1871) pointed out that the aphasic child didn’t necessarily recover language function. “The power of speech once acquired may be impaired, - may be lost partially or altogether, and this either for a few hours, or days, or weeks; or once lost it may never be regained”(West, 1871, p. 98). He insisted that in his experience the condition was extremely rare, having only once observed this “true aphasia” in a child. “True aphasia” in his terminology being the condition as described by Trousseau (1864) in the contemporary medical literature with reference to adult cases. The case was, West judged, one of “true aphasia” being “obviously connected with cerebral affection, and...of long duration”. West relates this unique case in the

Lumleian lectures “because hers is the earliest age at which, as far as I know, aphasia, accompanied with paralysis of the right side, has been recorded”(West, 1871, p. 113)

West’s “true aphasia” case

West’s ACA case is not only one of the earliest in the GOS archives, dating from 1868, but is also one of the very few longitudinal studies of ACA to be published. Due to the arrangements at this specialist hospital, West had the rare opportunity to follow a case over a long period of time. The case history was reported in the Lumelian Lecture as follows: The 5 year old girl had fallen down suddenly and was then found to be paralysed on the right side and to have “entirely lost her speech.” She had had no convulsion and never appeared to lose consciousness. As she was not believed to have struck her head, “and as the day was very hot, it was concluded that she had had a sunstroke.” The details that West published in his 1871 have been supplemented here with extracts from his original unpublished case notes to provide an extremely detailed picture of this extraordinary picture of this unique longitudinal study of ACA.

The child was taken to GOS hospital with right hemiplegia and aphasia where she remained for about 5 months. Her sole utterance throughout the initial period of her stay was “da”. Her comprehension of speech was believed to be normal and she had “an intelligent expression of countenance”. In 3 months she learned to say “here” and “oh” but “here” cost her a great effort, and often, in spite of all her efforts, she would fail, and say “oh” or “dah” instead. After 4 months her mother believed her capable of singing a few lines from nursery songs but West disagreed, stating, in her case notes and to his Lumelian audience, that the child was only able to “modulate the tone in which she sang the same old monosyllable “dah”.”

After a year the facial paralysis had disappeared, the right leg considerably improved in strength but the power over the right arm was still very poor. The child would attempt, occasionally and imperfectly, to imitate words though some articulation sounds proved impossible. She used gestures, which were said to be easily understood by her mother, to make her wishes known. West was able to follow her progress as the child was readmitted to GOS several times during the following years.

When the child was admitted again for a period of 4 days one year post onset of illness. It was noted that during the last year there had been “only very slight improvement both in speech and paralysis”. Temperature of the limbs was noted, sensation, growth and reflex actions checked. West records that there was “no impairment of intelligence”. The patient’s speech was said to be “unintelligible to an uneducated observer”. The child made errors in naming objects. West assessed her repetition skills were assessed. “She can occasionally repeat words after another person, though she is not able always to do that.” West also noted that she found some articulation sounds i.e., s, impossible to produce. Over the next 2 years her single utterance had been “da” “which she used in reply to all questions.” This changed to attempts to use other words but these “were so indistinctly articulated that they could not be understood”.

Subsequently she went to school and had acquired in this time a small vocabulary; including “yes”, “no”, “father”, “mother”, “brother”, “sister.” Although very quiet, and seldom speaking unless first spoken to, she was able to repeat words though she often failed to use them correctly, saying one for the other, seeming unaware of her mistake, “nor distressed when it was pointed out to her”. However during the next few months her expressive language skills improved, her vocabulary increased to include words of three syllables and some two word phrases. Her articulation generally was still considered indistinct compared with children her own age being described in her case notes as resembling “that of a much younger child who has not long learned to speak – thus for K she says “Tay” for school “Tool” for come “Tum” for hungry “hungy” for S “Etts”.”

She was able to form a few letters “very fairly” on a slate using the left hand and could copy others. The child became more talkative as she reacquired more words. Her repetition skills were good. While she still had articulation problems and used paraphasias it was possible for the GOS physicians to understand her; it is not clear though how easy it was for others outside her immediate family and medical attendants, to follow her speech.

Assessment- Final Admission to Hospital 3:6 years after symptom onset
 Extracts from West’s unpublished original Case Notes

Time post admission	Description of Symptoms
4 days	<p>Comprehension-She appears to understand well everything that is said to her, and although very quiet, and seldom speaking unless first spoken to.</p> <p>Intelligence-she appears to be very intelligent.</p> <p>Production- She has quite a copious vocabulary of short words – often says two words following – and even occasionally attempts a sentence.</p> <p>Reading- She does not know the alphabet, although she has been to school for some considerable time, but knows four letters a – k – o – s .</p>
7 days	<p>Repetition- She tries to repeat any word she is told to, and if the word be not too long or complicated she succeeds so well that one can understand very fairly what she says.</p> <p>Production- But her speech is always lispy (?).</p>
12 days	<p>Writing- Can form several letters very fairly on a slate, using the left hand. Other letters she can copy.</p> <p>Reading- She has learned the names of several more letters since she came in.</p>
46 days	<p>Production- She talks a good deal more than she did – repeats longish</p> <p>Repetition-sentences when told to do so, and imitates any word given her. But her speech is very defective and she turns the words into one another. Yet she can be fairly understood in most things she says.</p> <p>progressive improvement of speech while in hospital and increase of vocabulary</p> <p>Reading- She has made no progress reading for she has not been further taught.</p>

West noted the child's expressive and receptive language ability, made judgements as to her intelligence and commented on her reading and writing skills. He assessed the patient's intelligence and comprehension by questioning her. West was cautious, the child "appears" to understand and she "appears" to be intelligent. Throughout the century physicians working with language disordered children used these type of questions, focusing on the patients own history, emotions and surroundings, to try to elicit a response from the child. The patient's replies (or silence) could then be seen as an indicator of the child's intelligence as well as their expressive and comprehensive skills.

Expressive language, on the face of it far less open to subjective judgement, was not much easier to describe. West notes that "she has quite a copious vocabulary of short words – often says two words following – and even occasionally attempts a sentence". He also in a later entry comments that "her speech is very defective and she turns the words into one another." This case is the earliest in the archives where the patients' ability to repeat words or phrases is noted as a means of assessment and where the syllable is mentioned as the unit of measurement. However, West does not mention whether or not any attempt is made, if the child is able to repeat, to ascertain if she understands the meaning of the word. Typically, the child is tested as to her knowledge of the alphabet. West is not clear, though, how his patient "knows" her four letters, e.g., does she recognise them printed, can she write them to dictation? The entry a few days later shows that West was well aware of the difference. "Can form several letters very fairly on a slate, using the left hand. Other letters she can copy."

Discussion

West's case notes show what he thought relevant to assess and record, both in aphasic cases and other conditions affecting the child's language skills. He describes the process of first language acquisition as learning by repetition, using simplified syntax, needing instruction. In the child's initial stages of language acquisition, the parent "almost unconsciously" accompanies words with gestures. West was keen to stress to anxious parents that all children (excepting cases of severe congenital idiocy) eventually acquired language, believing anxiety was groundless even in the case of speech-delayed 2-year-olds. "Sooner or later almost every child who is not deaf will talk"(1871:97). If the child demonstrated "any intelligence at all", if hearing was unimpaired and if he used modulated tones in his vocalisations, speech, however tardy, would follow. Delayed speech, West assured, did not necessarily imply a deficiency of intelligence. He suggested that an intelligent child with good mimetic skill might render "the exercise of speech superfluous to a later age than that to which it which it would have been deferred with a child of slower intellect."(West, 1871, p.94) Moreover, West was one of the earliest observers to identify individual differences in normal patterns of language acquisition due to age, family birth order and gender. He states that the age at which children commence talking varied greatly. First children talked later than those born into a large family, possibly due, he suggests, to the "want of the instruction and example afforded by the elder children". He also noted that girls talked at an earlier age than boys.

Although there were no standardised methods of language assessment yet available, West included in his writings many details of good practice in examining patients and recording cases. In his GOSH archive case notes West demonstrates systematicity in noting relevant family history, the child's past illnesses and the suspected etiology of the presenting disorder. West urged all clinicians to keep a "careful daily record of the steps by which speech came back". His probing analysis of linguistic factors can be seen in his notes on the case of a choreic girl whose sole initial vocalization was "dah". Over the period of her slow recovery of speech West noted the first word spoken was "papa". West suggested that this was "but a little step from the old monosyllable "dah" and one which did not need a different play of the vocal organs". Other words appeared a few days later that West notes were "not similar in sound" and "seeming as if chosen at haphazard". When a small vocabulary had been acquired "the key note seemed to have been struck and the whole melody recovered; not words only but complete sentences were framed, forgotten memories came back again; and the little one no longer found difficulty in uttering all that she had to say". (1871:102)

In such cases where loss of speech could not be accounted for by difficulties of articulation West believed "the memory of words for the time is lost". He describes the child labouring vainly "in search of words to convey the ideas with which its little brain is busy" and looking "wistfully around as if for help". (1884:232) Where language was observed to recover during the child's stay in hospital, West frequently likened it to a bird learning a song again. Sometimes, though, language would appear to be reacquired "all at once" "as a forgotten dream flashes back without effort on our memory"(1884:232) The metaphors describe language relearned and language remembered.

Although West's notes detail only motor (expressive) aphasic cases, he did however, make the distinction between the production and comprehension of language in his assessments. West believed a child's comprehension skills were a more accurate guide to mental ability but he found testing this function proved difficult. The child's comprehension/intelligence could only be judged by the response to verbal questioning. Speech was needed to get child to reply to questions "a child's inability to describe its sensations deprives us of another important guide"(1884:242). West's earlier comments on the value, and difficulty, of questioning even very young patients were noted by his contemporaries very few, if any, of whom had his experience with infants and children.

"Dr West points out many of the obstacles which resist the physician in the management of his little patients...even when the child is old enough to speak, still through timidity, or from imperfect comprehension, he will probably give you an incorrect reply. (Anon, 1860, p. 851)

West's meticulously detailed case notes, his statistical analysis of variables associated with disease (e.g., incidence, age and gender differences, etc.), the use of autopsy to confirm the site of a lesion, and his clinical methodology of observation and assessment all conformed to the "new medicine" that swept Europe after the French revolution which was inculcated in him during his early training on the Continent.

West's Lumleian lectures and book of 1871 predates most other English language contributions to the field. His work amount to one of the earliest modern accounts of

language acquisition and loss in the child. Having founded the first children's hospital in the British empire, he was in the enviable, and at the time unique, position to assess, compare and categorise the language skills of large numbers of children. He didn't waste the opportunity. From the use of gesture in child language acquisition to the proposed education and therapy of brain damaged children his thoughts were considered, practical and always focused on the child's best interests.

West's work, his archive and published cases, amount to one of the earliest modern accounts of language acquisition and loss in the child. Language skills in idiocy, delayed speech, hysterical mutism, articulation difficulties (stuttering, chorea) and aphasic disorders are all described and analysed by West. Probable causes, complicating factors, natural history of the disorder and prognosis, recommended treatment and theoretical implications are noted.

Conclusions

The standard teaching on childhood language disorders which became widely accepted by the turn of the 19th century and throughout the 20th was that acquired language disorders in children would be transitory, and auditory comprehension would be spared relative to impaired expressive language. West's case of "true aphasia" in a child published in 1871 demonstrated that long-term language difficulties in both comprehension and production can occur in childhood. The case is exceptional in that case notes were kept with records of repeated testing over a long period of time. In contrast to the typical contemporaneous clinical practice of writing only on admission and discharge, West was interested in documenting the course of recovery of language and attempted to develop means of assessment and treatment for these disorders.

West was the first to describe the temporary loss of the power of speech which occurred with greater frequency in children than adults. In transitory aphasia, the child would be speechless for a time, but if there was no impairment of general intellect, he expected that language functions would return completely. West did not accept contemporary neurological theory provided an adequate account of these child cases. Aphasia in childhood could not be defined solely in relation to the adult aphasic literature. Current "scientific phraseology" merely "seems to explain, but...in reality pays us only with words that do not represent distinct ideas." (West, 1871, p. 115)

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