

Deafness and language...delay or disorder?

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discuss the features of delayed and disordered language in deaf children

Deafness presents a potential challenge to the development of speech, language and communication (SLC) skills (Lederberg et al 2012). For most this simply means that the child is later to meet language milestones, but the child follows a very typical pattern of development and does move on with language. This is referred to as 'language delay'. We all know of deaf children who don't make the progress with speech, language or communication that was expected given appropriate audiological support, enhanced communication environments and educational/therapeutic support. There are various reasons why a deaf child may struggle to make progress with SLC including:

- Global developmental delay/general learning difficulties.
- Autism Spectrum Disorder.
- Auditory Neuropathy Spectrum Disorder.
- Emotional/behavioural issues.
- Certain syndromes such as Rubella and CMV which have associated language difficulties and other reasons.

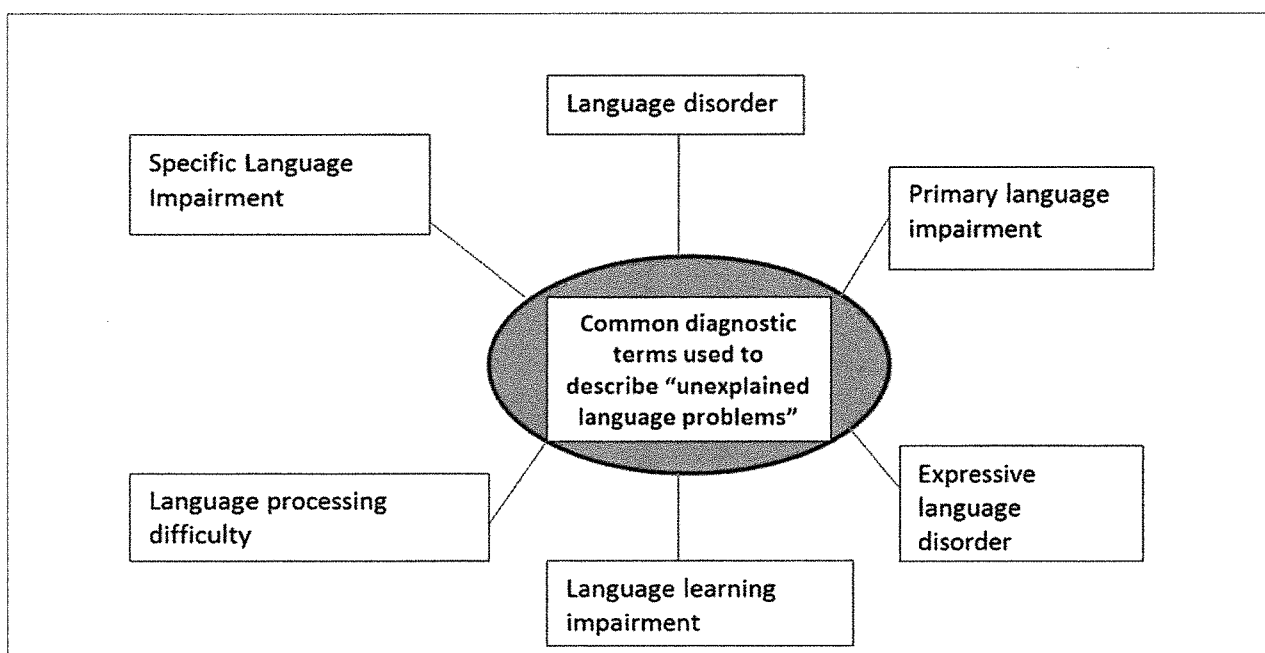
It is also possible, however, that a deaf child may have a significant difficulty with SLC that is not accounted for by any other obvious factor, including their hearing impairment. This phenomenon is also seen in hearing children and is sometimes referred to as language disorder or specific language impairment (SLI). In DSM V, Language Disorder is defined as being where

"language abilities are persistently, substantially and quantifiably below age expectations in one or more of the following but in the absence of neurological difficulties:

- Vocabulary (word knowledge and use)
- Sentence structure (grammar and morphology)
- Discourse (narrative and conversational skill)".

In deaf children, you might hear this referred to as "a language difficulty that is in addition to their hearing impairment", "a language disorder", or "language processing difficulties". Within the speech and language therapy community there is currently a debate about the diagnostic criteria for SLI and whether the term should continue to be used as a label for children with "unexplained language problems" (Bishop 2014). The latest issue of the International Journal of Language and Communication Disorders is entitled "The SLI debate: Diagnostic criteria and terminology". Part of the difficulty is that NHS trusts as well as Speech and Language therapists themselves use different diagnostic terms to describe the same problem. For some, this variability is reportedly resulting in a lack of access or equality to services and a limited understanding and recognition of children's language problems (Bishop 2010). Whilst the debate continues, what is essential is that we recognise that children with a hearing loss also have risk factors for SLI.

In hearing children, studies have shown that in five year olds, SLI affects about two children in every



classroom (Grist et al 2012). Areas that a child might have difficulties with include:

- receptive language
- expressive language
- pragmatic skills
- speech sounds.

Recently, research has been carried out with deaf children for whom British Sign Language (BSL) is a first language. SLI does also occur in this population with a similar prevalence of 6.4% (Mason et al 2010). Markers of SLI in children acquiring BSL are very similar to those found in the spoken language of hearing children. There are very recent papers which look at these children's difficulties with narrative skills (Herman et al 2014) and signed sentence repetition (Marshall et al 2014). Woll and Morgan (2012) found that sign bilingual children with SLI tend to exhibit the same linguistic difficulties in spoken and signed languages.

What features do we need to look out for when working with deaf children who are struggling with language learning that might suggest SLI?

- A child who can say/sign a lot of nouns but few verbs.
- Persistent use of jargon in two word plus phrases.
- Difficulties learning verbs e.g. uses 'doing' a lot: "Him doing that there."
- Older children who use verbs but have difficulty with verb endings, agreement and tenses.
- Persistent difficulties with 'wh' questions.
- Word order problems not accounted for by a second language, e.g. BSL or Spanish.
- Unusual production of vowel sounds where the child has good auditory access to the first two formants.
- Difficulties with generalising features of language that have been explicitly taught.
- Word finding difficulties, where a child has difficulty accessing words that they do understand.
- Difficulties with narrative skills e.g. ordering a start, middle and end to a story.
- Persistent difficulties with social interaction skills, despite specific support with this.
- Disproportionate difficulties in one or two areas of language e.g. a child who is able to form grammatically correct sentences, but has a great deal of difficulty acquiring and using vocabulary.
- Children for whom correctly constructing or comprehending spoken language is exceptionally effortful.
- Children who tend to make little, if any, progress when compared to other deaf peers over time.

Is it important to have a diagnosis? Children with SLI, especially those with receptive as well as expressive difficulties, are known to require direct and intensive input in order to make progress (Ebbels 2014). There is now a growing body of research for hearing children with SLI that shows that therapeutic intervention in this group is effective and brings about significantly more development



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than if no therapy takes place e.g. Broomfield and Dodd (2011). Identifying additional SLC needs in a child who is deaf can lead to a greater level of support being put into place. It can be helpful for families to find out more about the language difficulties their child has and to understand why their child is not making the same progress as their deaf peers. It is important that teaching staff are aware of the child's range of difficulties and how to help them best with their SLC needs and provide access to the school curriculum.

The following case studies describe a range of deaf children with unexplained language difficulties:

John is seven years old. He was born with a severe bilateral sensorineural hearing impairment. John wears bilateral hearing aids. John was brought up in an oral environment and was very slow to develop language as a young child. John's difficulties with language persisted. He has problems with acquiring and retaining new vocabulary (even when this is specifically taught), constructing a sentence (using the right word order) and in forming narratives. His understanding of language is delayed, but significantly stronger than his expressive skills. John was assessed by an educational psychologist when he was in year 1, who found that his non-verbal skills were in the normal range. John's specialist speech and language therapist then, after considering his range of difficulties and response to the high level of input he was receiving in school, made the diagnosis of a specific language impairment in addition to his deafness. As a result of the diagnosis, John has received blocks of direct speech and language therapy and his therapist provided a training package to his teaching assistant that included shape coding to promote word order and vocabulary

strategies that are commonly used with SLI hearing children, but adapted for a deaf child.

Ella is four years old, profoundly deaf and is the second child in a family where BSL is the first language. Ella's parents felt that she could understand early signs, but she was very late to use any formal signs. For a long time Ella relied on gesture to communicate. When Ella was three she only had a handful of single nouns in use. She had been known to the speech and language therapy service since she was six months old and she had been closely monitored since the age of two when her Teacher of the Deaf raised concerns over her language development. Ella's parents worked with the speech and language therapist on a parent-child interaction programme when she was two years old. Her Teacher of the Deaf has also given a lot of input in the home. Other aspects of Ella's development, including her gross and fine motor skills and play skills, have developed typically and she is keen to communicate. Ella has received intensive work on acquiring new vocabulary and linking two signs together over the last year. Her progress has been slow and she has really struggled to acquire verbs. It has become apparent that she is presenting with a specific language impairment in addition to her deafness.

James is sixteen years old and attends a specialist school for the deaf. He was diagnosed at birth with a profound bilateral sensorineural hearing loss as a result of a genetic cause (Connexin 26). He was fitted with hearing aids when he was a few weeks old and received a cochlear implant at the age of two years. James attended a primary school which had a total communication philosophy where he received both speech therapy and support from a ToD. James's parents report that there has always been something "not quite right" with his ability to communicate effectively and that this difficulty presents in his sign as well as his spoken language. James was recently seen by the Educational Psychologist and the assessment results indicate that his non-verbal IQ falls within the average range. The assessment identified that James has particular difficulty with short term auditory memory, vocabulary and spelling. In formal language assessments, James was shown to have particular word finding difficulties in both his spoken language and sign language. He has persistent difficulties using grammar in his spoken and written language as well as the use of correct word order. His sentences often appear incoherent and unstructured. James's speech production is mainly intelligible at single word level; however, he continues to make occasional errors with the production of vowels, even though he is able to discriminate between all vowels with ease. He also finds producing multi-syllabic words difficult even after a direct model. James presents with speech and language difficulties over and above those caused by a sensorineural hearing impairment given his hearing loss and history. He is working through a specially devised intensive speech and language therapy programme with the focus on developing strategies for word finding, auditory memory skills and his understanding of grammar and the structure of English.

So, if you have a child you work with who is making very slow progress with any aspect of their SLC and is displaying some of the features above, then it's important to make sure that you are working alongside your local speech and language therapist. He or she will be able to contribute to making a differential diagnosis and ensure appropriate support is in place. This is a very complex area and it is important to consider all aspects of the child's development. For a deaf child, this diagnosis needs to involve a multidisciplinary team and will need to take place over a significant amount of time.

This article was peer reviewed by a specialist group of speech and language therapists from the south of England. The group meets three times a year at Mary Hare School for the deaf to focus on deafness and SLCN. If you would like more information or are interested in attending please contact Katherine Clements speechtherapy@maryhare.org.uk. If you would like to join the debate on SLI then visit the discussion forum <http://tinyurl.com/lee3za2>

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