

### Language and Hearing Centre

Broca's Area Major region for expressive language - i.e. formulation & production

Heschl's Gyrus primary auditory cortex - i.e. hearing

Wernicke's Area Major region for receptive language - i.e. comprehension

### Neurogenic communication disorders

different types of communication disorders, depending on which areas of the nervous system are damaged.

- > Acquired Language Disorders
- Aphasia
- Cognitive-Communication Disorders
- difficult to understand language
- > Motor Speech Disorders
- Dysarthria
- Apraxia
- Know what they want to say but difficult to physically produce speech

### Neurogenic communication disorders in Adults

Stroke Foremost cause of neurological damage

Injury to blood vessels in the brain Thrombosis

### Neurogenic communication disorders in Adults (cont)

- embolism
- haemorrhage

stroke occurs when a part of your blood flow is blocked

- > The blood provides glucose and oxygen to the brain and nutrients which are vital for their functions
- > No blood to the brain tissue
- > Block could be from the narrowing of the artery (thrombosis)
- > Blood clot (embolism)
- > Bleeding, artery ruptures (hemorrhage)
- > Brain tissue dies

### Aphasia

Aphasia > Language impairment caused by a brain damage

- > Usually acquired in adulthood

> Site and size of the brain damage strongly associated with aphasia severity

Language network in the brain has a complex organisation it is not restricted to one area, it is interconnected

### Posterior language areas

Posterior cortex Contains Wernicke's area

### Posterior language areas (cont)

Responsible for understanding

Damage effects on language comprehension Difficulty comprehending speech

Possible reading problems causes fluent aphasia

Wernicke's area is responsible for understanding language

Posterior language areas, temporal lobe

### Anterior language areas

Frontal lobe Contains Broca's area

Responsible for speaking

Damage effects on language production: Slow, laboured speech

Word retrieval difficulties

Lacks flow and intonation

causes non fluent aphasia

Broca's area is responsible for speaking

Putting sounds together to create speech

### Classification of Aphasia

> Type of aphasia depends primarily on location and extent of damage

- BUT not clear cut
- BUT need to consider entire range of language problems

### Classification of Aphasia

Fluent Aphasia Wernicke's Aphasia

Anomic Aphasia

Conduction Aphasia

Non-fluent Aphasia Broca's Aphasia

Global Aphasia

### Wernicke's Aphasia

Salient features: > Impaired spoken and written comprehension

> Fluent speech:

> Speech lacks content

> Paraphasias

Speech is fluent and well-articulated but it doesn't make sense, making up words

Lack of content and meaning

### Anomic Aphasia

Acomic Aphasia damage to a variety of brain regions in the language network

### Anomic Aphasia (cont)

includes regions in the frontal, temporal and parietal cortex

Speech is typically fluent and produced with seeming ease

- will typically speak in complete, grammatically correct sentences

However, the individual might have trouble retrieving specific words

- especially nouns and verbs, often able to successfully communicate using strategies to work around their word-finding difficulties

usually have good comprehension; can understand spoken messages, They usually are able to read

There is content an meaning but just cannot find the right words sometimes

### Conduction Aphasia (cont)

> Relatively intact comprehension

> Significant impairment in repetition

> Conversational speech frequently marked by paraphasias

> Have good comprehension & awareness of mistakes

### Recovery

> Neurological dysfunction at its worst immediately post-stroke

> Recovery begins within a few days

- Some injured cells begin to function more normally again

“Penumbra” = Areas of the brain that were damaged but not yet dead

→ possible to rescue brain tissue with appropriate therapies (→ increasing oxygen transport & delivery to cells in the danger zone → limiting cell death)

> We cannot predict exact course or nature of recovery

### Broca's Aphasia

> Relatively intact auditory and reading comprehension

→ often able to understand most of what is said to them, but they have trouble responding

> person knows what they want to say but is unable to produce the words or sentence

> Non-fluent aphasia because speech is effortful

Salient features:

- Paucity of speech

- Agrammatism

= usually missing function words and word endings

- small words like prepositions, articles and conjunctions are especially difficult and often left out

= sentences produced often have incorrect syntax, or word order and grammar

- Word retrieval deficits

- Substitutions can occur

- Slow, laboured speech

- Writing abilities often mirror speech (see slide: Writing)

- Single words non-fluent sentences

### Broca's Aphasia (cont)

- Not full sentence

### Global Aphasia

Most severe form of aphasia

> All language modalities are affected

= speaking, comprehension, reading, and writing

> Results from lesions in both anterior and posterior language areas

> Mixed effects of Broca's and Wernicke's aphasia

- Severe comprehension and production deficits

- Impaired naming and repetition

> People with global aphasia usually have a limited number of utterances

- Very few or no spoken words

- If words are spoken, it is likely to be a single word and might contain errors, such as paraphasias (word & sound substitutions)

- Difficulty repeating words

- Understanding language is very difficult

### Conduction Aphasia

Conduction Aphasia lesion is assumed to be in the tracts connecting Wernicke's area to Broca's area

> Fluent conversational speech



### The person with aphasia: Other issues

- > Sensory and motor problems
  - Impaired hearing, balance
  - Impaired mobility, eating, dressing, writing
- > May be subtle personality changes

### Frequent Family Problems

- > Non-aphasic spouse has no time alone
- > Financial difficulties
- > New spousal roles as a result of aphasia
- > Dealing with issues of dependence/ independence for the aphasic spouse
- > Rehabilitation is important to the whole family, not just person who has aphasia



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