Neuropsychological Report

Name of Patient:	JT
Report prepared by:	Lena Kästner
Date of Report:	26th November 2009

Patient JT was assessed by Gail Robinson in the National Hospital for Neurology & Neurosurgery in London, UK on 19th November 2009.[1]

1 Background

JT was referred for a follow-up assessment. She had suffered from a stroke due to middle cerebral artery infarct on 9th February 2009. At the time she was found, JT was unable to move the right side of her body and was suffering from expressive aphasia as well as selective visual impairments. A medical exam revealed right limb weakness with severity increasing distally. JT spent three months in hospital, followed by one month in rehabilitation. Her first neuropsychological assessment was on 24th March 2009.

JT is a 44-year-old right handed female. Prior to the stroke, she was completely independent and mobile. JT worked as a personal assistant in a solicitor's firm carrying out administrative duties. Her medical history includes mild asthma in childhood, fibrosis, hypertension – for which she was taking medication at the time of the stroke –, and high blood pressure; JT's father died from cardiac arrest. JT quit smoking approximately two months before the stroke and did not use alcohol. To date, JT has not returned to work.

Initially, JT's speech and movement abilities were severely impaired. She had been mute for several weeks and did require assistance to walk. Although she physically recovered, problems with movement coordination and selective visual impairments persisted. To date, JT reports right limb weakness as well as major difficulties with simple arithmetic and inability to type. She does consider her own status significantly improved, however.

Magnetic resonance imaging revealed a focal left parietal lobe lesion extending into the temporal lobe. No damage to frontal regions was identified.

During her time in hospital, JT expressed concerns about not being able to go back to work. However, she scored normally on anxiety and depression scales.

2 Formal Assessment

2.1 Behaviour During Testing

JT was highly motivated and cooperative throughout the assessment procedure. She gave the impression of enjoying the interaction with the psychologist. JT was alert, able to follow the instructions, and gave the impression that she tried very hard to solve the tasks presented with. JT could generally concentrate well throughout the session although she was slightly distracted by the audience and a ringing mobile. She was relatively well aware of her level of performance and did not try to hide her difficulties.

2.2 General Intellectual Abilities

JT was tested on the Wechlser Adult Intelligence Scale (WAIS-III) in both assessments. She performed below average on both verbal and performance scales. Given her educational and occupational background, her pre-morbid functioning was estimated to be average. Since the stroke, JT's intellectual abilities are severely impaired globally. Comparison of her scores in both assessments reveals only a slight improvement after rehabilitation.

[1] This refers to case demonstration in the NHNN. Remarks about the patient's social presentation are based on the demonstration session while the data were actually obtained in a separate testing session (see appendix).

2.3 Memory Function

JT's performance on formal recognition tests indicates a weakness in topographical and pictorial processing while her word recognition abilities fall within the normal range. Her performance on delayed visual and verbal recall was normal during the first assessment. JT performed below average on the delayed verbal task during the second assessment, however. For the immediate verbal and visual recall, she obtained scores below average on the first assessment. On the second assessment, though, JT demonstrated immediate visual recall performance within the 50th%ile. Overall, comparison of first and second assessment data indicates a slight improvement in JT's general memory abilities. Her visual recall and word recognition abilities fell within the normal range on recent testing.

2.4 Language and Literacy Skills

JT passed the British Picture Vocabulary Scale indicating that she does not have difficulties accessing semantic knowledge. JT displayed reduced verbal fluency and naming problems on both assessments obtaining 22 and 23 out of thirty items in March and November, respectively, on the Oldfield Test and performing poorly on the Graded Naming Test. On a reading test, JT's performance was average whereas her spelling performance was impaired. Although her performance improved in the second assessment, her current spelling score remains below what would be expected in light of her occupational background.

2.5 Arithmetic Skills

JT demonstrated severe difficulties in calculation tasks on testing. Her speed and accuracy decreased for larger numbers and more complex operations (multiplication, division) that require keeping tract of intermediate results.

2.6 Visual Perceptual and Visuospatial Skills

Overall, JT demonstrated adequate skills in the visuo-perceptual domain. She passed both the VOSP Incomplete Letters and Position Discrimination Tasks on both testing occasions.

2.7 Object Function Knowledge

JT demonstrated general knowledge of object function on formal assessment. She was generally able to identify tools by function but displayed some difficulties in recognising how to manipulate them.

2.8 Executive Functions

On formal testing of executive functions, JT demonstrated severe impairments in almost all tasks. While she passed the Weigl Test, she obtained only 2 out of 6 solutions in the Modified Card Sorting Test (in March) and scored below the 2nd percentile on the Stroop Task (in November). JT performed below in the impaired range in Brixton and Trailmaking Tests with a slight improvement on Trails A on the second assessment.

2.9 Speed and Concentration

Speed of information processing was not formally tested. However, during the assessment JT gave the impression of reduced processing speed. This is consistent with her performance on timed tasks, such as Trailmaking, where JT performed clearly below average. Her performance score on the WAIS-III scale (75 in March, 77 in November) may also be seen to indicate slow processing.

2.10 Bodily / Movement Abilities

Although no residual motor impairments could be measured, JT demonstrated difficulties in mirroring handshapes. She suffers from finger agnosia in both hands. Out of five gestures, JT correctly imitated four with her left and three with her right hand, however. JT reached the same level of performance for meaningful and meaningless gestures. She was able to carry out movements involving face, lips, tongue, and cheeks on command.

Although demonstrating the right intention, JT encountered problems during tool use imitation tasks – e.g., she used parts of her body as the tool and preservatively made production (especially sequencing and spatial) errors. These difficulties were not resolved by picture presentation and JT was readily able to identify the required movement when performed by the examiner.

3 Conclusions

In summary, JT is currently functioning below the average range. In particular, she suffers from dyscalculia, reduced spelling abilities, and displays severe impairment in executive functioning. Rather unexpectedly given her neurological condition, JT performs generally satisfactorily on most tasks included in the assessment of visuo-spatial skills and visual memory.

The demonstrated impairments in executive functioning may partly be attributable to reduced information processing speed which is characteristic of focal left brain lesion.

While JT's cognitive improvement has proceeded rather flatly, she has physically recovered well – she is able to walk on her own and can fluently engage in everyday conversations. However, JT still suffers from finger agnosia in both hands. She displays difficulties in the motor-domain as is apparent from imitation testing.

The observed difficulties are unlikely to be due to conceptual or semantic impairments or aphasia as JT demonstrated understanding of the task as well as the right intention in her performance; she was able to recognise the objects which she was supposed to imitate using and to identify gestures performed by the examiner. Thus, her problems may be attributed to problems with movement coordination rather than understanding.

Her reported inability to type on a keyboard may be partly attributable to JT's finger agnosia rather than reduced spelling abilities. The observed difficulties in movement coordination, especially as regards the hands, and her report of having "forgotten how to type" suggest that problems with executing automatic movements may also be responsible for JT's inability to type. In this context, her explanation of having "forgotten where the keys are" may be seen as a denial of her movement coordination problems. Nevertheless, her reduced topographical memory function speaks to the conclusion that memory impairments also play a role. JT's report of residual right limb weakness may be an attempt to rationalise her coordination problems as no measurable motor impairments are preserved to date.

As JT was able to execute facial movements on command and did not demonstrate impaired object knowledge or content errors, both buccofacial and conceptual (ideational) apraxia can be ruled out; leaving a diagnosis of ideomotor apraxia as fitting with the observed pattern of symptoms. JT did not give the impression of an aphasic patient as she demonstrated understanding of the tasks, and fair verbal fluency. Although JT was generally aware of what tasks she could and could not perform, some of her reports indicate agnosia.

As both typing and arithmetic are crucial for her occupation, JT is currently not able to return to work eventhough she gives the impression of a normally functioning individual in simple everyday conversations.

Appendix: Test Results

	24.03.09	10.11.09	
(I) Estimated Pre-Morbid Functioning:			
NART FSIQ	97		
Schonnell	96		
(II) Current Intellectual Functioning:			
WAIS-III: Verbal IQ	75	80	
WAIS-III: Performance IQ	75	77	
(III) Memory Functions:			
a. Recognition			
Topographical	<5th%ile	<5th%ile	
Pictorial	>10th%ile	10th%ile	
Words	50th%ile	50-75th%ile	
b. Recall: Doors and People			
Immediate Verbal Recall	1-5th%ile	10th%ile	
Immediate Visual Recall	25th%ile	50th%ile	
Delayed Verbal Recall	75th%ile	25th%ile	
Delayed Visual Recall	75th%ile	50-75th%ile	
(IV) Language Functions:			
Graded Naming Test	1-5th%ile	1-5th%ile	
Oldfield Naming Test	23/30	22/30	
British Picture Vocabulary Scale	Pass	–	
(V) Literacy and Arithmetic Skills:			
Oral Graded Difficulty Calculation Test	25th%ile	5-10th%ile	
Oral Graded Difficulty Spelling Test	15th%ile	25th%ile	
(VI) Visual Perceptual Skills:			
VOSP Incomplete Letters	>5% cut-off	>5% cut-off	
VOSP Position Discrimination	>5% cut-off	>5% cut-off	
(VII) Executive Functions:			
Brixton Test	abnormal	impaired	
Stroop	–	<2nd%ile	
Modified Card Sorting Test	2/6 solutions (6+ errors)	–	
Weigl	pass	pass	
Trails A	<10th%ile	10-25th%ile	
Trails B	<10th%ile	<10th%ile	
(VIII) Praxis:			
Gestures		LH	RH
Meaningless	–	4/5	3/5
Meaningful	–	4/5	3/5
(IX) Mood:			
Hospital Anxiety and Depression Scale			
Anxiety	normal		
Depression	normal		