

Obsessive, prolific artistic output following subarachnoid haemorrhage

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Lythgoe et al. Neurology. 2005, 64: 397-398

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The emergence of artistic skills in the context of brain damage has been documented in patients with frontotemporal dementia (FTD)¹. In this report, we describe an artist whose skills emerged following a sudden-onset brain injury without any associated dementia or impaired verbal abilities. This may represent a window into an alternative mechanism of artistic creativity to that illustrated by patients with FTD.

Case history: A 51-year-old right handed man was admitted to hospital (January 2001) with a sudden onset of severe headache. Brain CT on admission showed blood in the anterior parts of the basal cisterns. Angiography demonstrated bilateral middle cerebral artery aneurysms, their irregularity suggested that they were the cause of the haemorrhage. A CT taken sixteen days after admission demonstrated no evidence of focal injury.

Our patient worked as a builder and reports that he had a fiery temper and aggressive personality. At no point was he involved with or interested in the creative arts. Following the subarachnoid haemorrhage he presented with severe depression and complained of a ‘split-mind disorder’. He also claims to have had difficulty in shaving the left side of his face and his very early drawings show some signs of left hemispatial neglect (see fig. 1A). About two weeks after surgery, he began to fill several notebooks with poems and verse (Appendices (E)A-1), describing his ‘split brain’, altered perceptions and personality. In the following months, he drew hundreds of sketches, mainly of faces, all of them asymmetrical (Fig 1B). This was followed by large-scale drawings on the walls of his house sometimes covering whole rooms (Fig1C). He claims the brain injury has left him ‘obsessed’ with making art and he now spends most of his day painting and sculpting.

Our patient underwent neuropsychological evaluation in May 2004 (see Table (E) T-1). Verbal and Performance IQ were in the normal range. There were no signs of grossly inappropriate behaviour, although he showed a marked verbal disinhibition. Tests of executive function showed some impairments, though not to the extent reported in prior FTD cases. For example, he scored within or above the average range on tests of letter, category and design fluency; however his scores dropped dramatically on a more demanding version where he was required to alternate between categories. Generally he showed greatest difficulties in tasks requiring cognitive switching. He was unable to inhibit incorrect responses that either had been previously correct or were semantically associated to previous responses and had a tendency to perseverate. The overall profile is suggestive of mild frontal dysfunction.

Discussion: Some authors have argued that creativity involves a failure in cognitive and even behavioural inhibition^{2,3}. Our patient did show signs of verbal disinhibition, apparent both in his extreme chattiness and his manner of responding during neuropsychological testing. Things he sees and hears seem to trigger a stream of associations which he can find difficult to inhibit. In the context of his artwork, the stream of images and thoughts that are triggered in this way may well be a source of his creativity, at the same time that the process of expression through the artwork may help him to make sense of it.

The emergence or maintenance of visual artistic talent found in some FTD patients has been conceptualised as a 'paradoxical functional facilitation'⁴ of the posterior right parietal and temporal cortices (thought to be essential for accurate copying of images and drawing internally imagined images) in the context of an impairment in

‘language dominant patterns of thinking organized in the dominant frontal and anterior temporal regions’⁵. It is possible that whatever frontal damage our patient sustained led to a relative disinhibition or paradoxical functional facilitation of these areas.

However, our patient had normal Verbal I.Q., he remained very conversational and has written hundreds of poems, suggesting that left anterior-temporal function has been preserved. Whatever the damage sustained, this case would appear to demonstrate that paradoxical functional facilitation of artistic talent can occur in the context of relative dysfunction of areas other than dominant areas specialised for language. Further, our patient showed some left hemispatial neglect which is suggestive of dysfunctional right frontal/ parietal connection⁶.

It may be that perseverative tendencies are central to understanding⁷ the character of our patient’s creative drive and could be integral to his sustained and voluminous output of thematically similar work. The emergence of artistic skills following subarachnoid haemorrhage may represent another platform into the mechanisms of artistic creativity and an unrecognised attribute of this type of brain injury.

Acknowledgements:

The authors acknowledge the Calouste Gulbenkian Foundation and the Wellcome Trust for funding Marion Kalmus the Artist-in-Residence at the Institute of Child Health, UCL. A special thanks to Tommy McHugh for his time and commitment to this work, and Prof. David Gadian, Sian Ede and Ken Arnold for their support of the project.

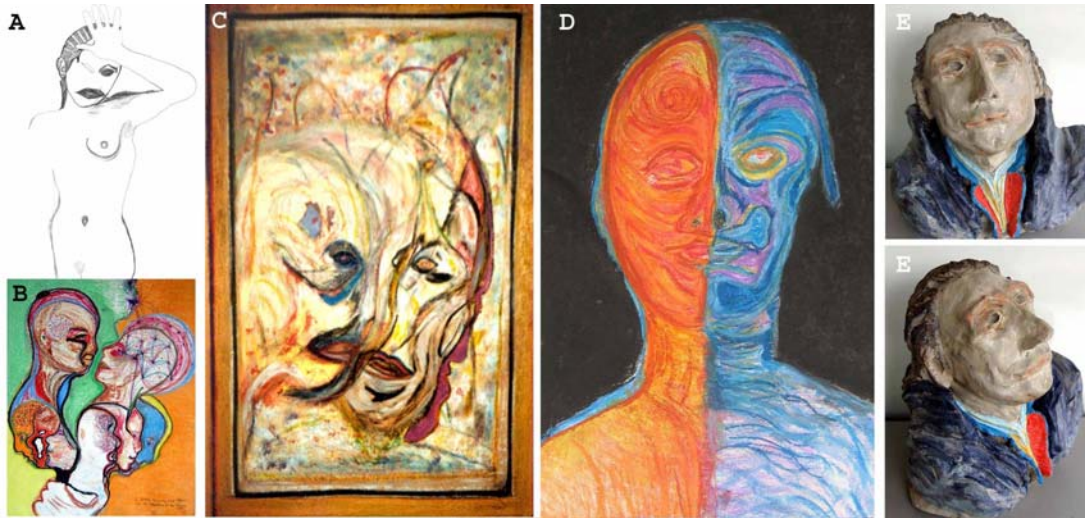


Figure Legend:

Fig 1 A) His first drawings are suggestive of a left hemispatial neglect and would often excluded one half of the subject. B) His early works are naïve, colourful and passionate; all of them are asymmetrical describing his ‘split brain’ in some way. C) The artist painted this representation of his ‘split brain’ (including the frame) on the inside wall of his house. Regularly spending 10 hours at a time completing a painting on the wall of his kitchen or living room. D) Many of his early paintings and poetry (see Appendices (E)A-1) comprise of self-investigation of the changes in behaviour he had experienced. E) A recent sculpture created 3 years after his injury demonstrates a striking interpretative skill alongside a growing technical aptitude. In comparison to the earliest drawings this clay head show a striking congruency, the features are more symmetrical the colours are more naturalistic.

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Table (E) T-1: Performance on Neuropsychological Testing

Wechsler Adult Intelligence Scale-3rd Edition UK¹

Full Scale IQ	93
Verbal IQ	92
Performance IQ	94

Delis-Kaplan Executive Function System²

Fluency	
Letter Fluency	11
Category Fluency	13
Category Switching	3
Design Fluency	14

Color-Word Interference	
Inhibition v. Color Naming	12
Inhibition v. Inhibition/Switching	7

Sorting Test	
Correct Sorts	3
Free Sort Description	4
Sort Recognition	5

Tower Test	
Total Achievement Score	13
Mean First-Move Time	12

Wisconsin Card Sorting Test

Number of Categories Completed	4
Percent Perseverative Errors	26

¹ Test scores have mean of 100 and standard deviation of 15; ² Test scores have mean of 10 and standard deviation of 3.

Appendices (E) A-1

Brain explorer its for you

Just thought I would explain to you
The changes in my mental view
Life that's changed inside my head
Fun and fear turn to dread
To feel and see two separate thought lines
Makes thinking really odd at times
Sleeping patterns now totally changed
Mental thinking increasing range
Feelings of hunger don't touch me no more
My brain is split in a neuron war
Wandering and arguing on what to do
Looking for a brain explorer is, is it you
Can you help me link up my brain
Will it always for me be a strain
Why do I visualise the twin of me
Will these feelings always be
Strange thinking and nightmare dreams
Silent calls for help silent lonely screams
Technically its so confusing
Can you say what side I am using
I will always be honest tell you straight
My survival has been by accepting my fate
Its so unreal at sudden odd times
As I watch my thoughts ride out on parallel lines
Flashing out straight from my head
Never stopping ongoing straight ahead
Were they go and what they see
Is blank and discomforting to me
I cannot understand the thoughts I am thinking
Somewhere inside my brains are blinking
Car headlights are what I see
When my other side thinks for me
Like railway lines thoughts fly out
But half of me only wants to shout
Whats going on inside my head
Should I say nothing just listen instead
Confusion, imagination, puzzlement and seeing
Human search for understanding there being

I meet me
He is okay
Yet I am wary of me
He is confused by me
I think of him

I feel more mental changes to myself
To long do I sit on isolation shelf
I receive memory of my former me
Strange feelings of who I used to be
I launch myself into the mystery of my unexplored healing
A scary expedition into unknown molecular bubble terrain
My dreams can be frightening at times so real
They slow down my reasoning no emotions I feel
I just want to say this to interest you
I want help to pull myself through
Communication, like this is helpful to me
Helps me cope not completely
My brain is split in invisible wedges
Leaving many Tommy's on weak crumbling edges
So working together with this view
You educate me I educate you
I am having mental multi personality fight
Can you research my unknown fight
Are you interested are you the one
Who can help me link together be again one Tom
I live with a clip and coils too
One either side of my head well its an even view
My mind is exploring the boundary of its form
I think therefore I am
The land I travel is covered in sand
Beautiful crystalline identities trickle gracefully from my open hand
Each step I tread no imprint do I see as my memory vanishes
And Tom disappears.