

Ganser Symptoms in a Chinese Speaking Corticobasal Syndrome (CBS) Patient

Dear Editor,

Ganser syndrome was first described by Sigbert Ganser in 1897, characterised by approximate answers to real questions, dulling of consciousness, hysterical neurological changes and hallucinations.¹⁻³ Ganser syndrome was mainly considered as a psychiatric illness, based on the theory that Ganser syndrome represents a means of coping with stress in those who are intellectually compromised through a dissociative or factitious reaction.³ However, Ganser syndrome also has been described in varieties of organic brain diseases, such as traumatic brain injury, alcoholism with Korsakoff's psychosis, neurosyphilis,³ and most recently, frontotemporal dementia.⁴ Neuropsychological characteristics of Ganser symptoms in organic brain syndromes have been described as inconsistent performance plus multiple verbal and visuospatial approximate answers, and suggested that the seemingly deliberate selection of incorrect responses may occur in the early stages of an organic dementia.⁴ It has been hypothesised that frontal-temporal lobe dysfunction may contribute to the picture of Ganser syndrome by leading to the malingering impulse.⁴ However, a precise or clear brain behaviour correlation of Ganser syndrome is still yet to be defined.

In this case, we describe a case of young onset parkinsonism that is suggestive of corticobasal syndrome (CBS), who developed gradual cognitive symptoms and neuropsychological assessment that are consistent with a Ganser episode. This case illustrates again the neuropsychological characteristic in Ganser symptoms in organic brain disease, which is still rare in literature, and reemphasises the potential association with a wide range of neurodegenerative diseases. It also poses a new question in the role of basal ganglia in producing Ganser episode due to its significant contribution to frontal-subcortical network connection.

Case Report

A Chinese Singaporean lady presented with gradual onset of gait instability and difficulty using her right hand since the age of 52. There were no visual hallucinations or fluctuation of consciousness. She was assessed by a neurologist at age of 53 and diagnosed as parkinsonism. She failed to respond to trial of levodopa. Other treatments such

as sulpiride were not given to the patient. A follow-up of 3 years showed gradual worsening of right hemiparkinsonism. She was referred to neurobehavioural clinic at the age of 56 due to developing neuropsychiatric symptoms over 1-year period. She became forgetful, easily distractible during conversation, was unable to handle finances, showed a change in personality, was easily agitated and irritable. She also reported depressive symptoms. She had no past psychiatric history or any significant family history suggestive of neurodegenerative conditions.

Physical examination showed significant right sided rigidity and bradykinesia. No gaze palsy was noted. Her gait was unsteady, shuffling with poor postural balance. There was also astereognosis of right upper extremity. Magnetic resonance imaging (MRI) of the brain at age of 54 showed no space occupying lesion, infarcts or focal brain atrophy. Fluorodeoxyglucose-positron emission tomography (FDG-PET) of the brain showed no metabolism abnormality.

Neuropsychological examination showed mini-mental state examination (MMSE) of 12/30, she reported date and year missed by 1, recalled 2 items of the same semantic category ('red' instead of 'blue', 'teacher' instead of 'cook'), took paper in her left hand instead of right, read '升起右手' (raise up right hand) instead of '举起双手' (raise up both hand); she wrote a sentence with reverse Chinese words sequence (Fig. 1). She also drew 2 non-intersecting triangles rather than pentagons and a square when asked to draw a circle. But when asked to recall the drawing at a later stage, she was able to redraw it as a circle rather than a square.

On mental calculation task, she answered '11' for $5+8$, '10' for $17-5$, '32' for 7×4 , and '5' for $18 \div 3$. She generated 7 animals for animal verbal fluency test. During 15-items modified Boston naming test, she only named correctly 8 items, by calling 'big flower' for the tree, 'horse' for camel, and 'single bed' for bench. She scored 11 out of 18 for frontal assessment battery (FAB) test. On clock drawing test, she filled in the numbers with repeatedly wrong sequence and drew the pointer at location suggestive of '55 after 10' (Fig. 2). She was also perseverative on both multiple loop and m's and n's alternating programmes drawing tests (Fig. 3).

She was diagnosed as Corticobasal Syndrome according to Mayo criteria (insidious onset and progressive course,

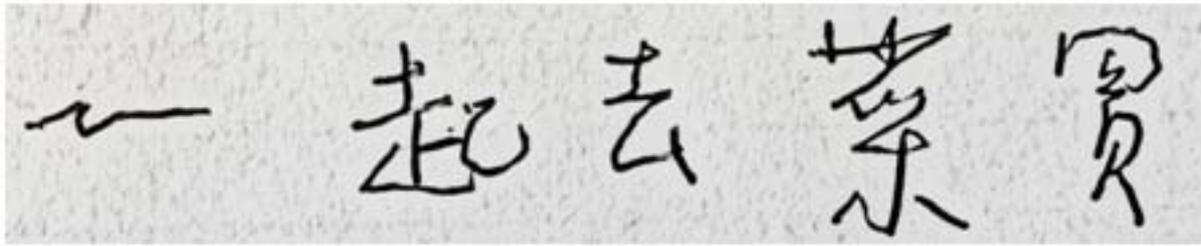


Fig. 1. Patient responded as “一起去菜買” instead of “一起去買菜” (translated as: let’s go to buy vegetables together) in sentence writing.

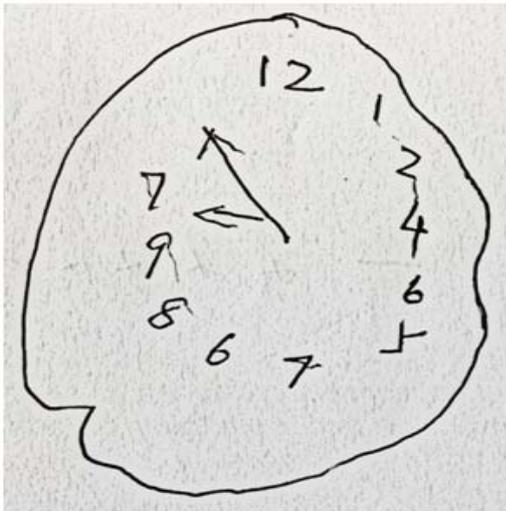


Fig. 2. Numbers were filled repeatedly in wrong sequence and needle pointer was drawn at location suggestive of “55 after 10”.

Discussion

This patient showed neuropsychological profile that is characteristic of Ganser symptoms. The “approximate” or “near miss” answers encompass verbal, arithmetic, as well as visuospatial domains.

Her pattern of language response was distinct to previous case report in alphabetic language.⁶ Her alexia was characterised by ‘lexical’ paraphasia in Chinese language. Chinese language is an ideographical language, with significant amount of words is formed by a monosyllabic morpheme, which carries its own semantic. Our patient has a tendency of using a different Chinese word with same semantic category during her reading task. For example, she used ‘升’ (read as ‘sheng’), rather than ‘舉’ (read as ‘ju’), 2 phonological and morphemically distinct words that share the same meaning, and ‘右’ (right), rather than ‘雙’ (both), which both signify quantity. As for agraphia, distinct from previous case report in alphabetic language in which the patient responded by using grapheme-phoneme conversion (GPC) route as the patient never learned the irregular words before,⁶ our patient responded by reversing the sequence of the words. This further supports the notion that Chinese language is a language that doesn’t support GPC route.

Despite significant responses during her neuropsychological test that were “approximate” thus making it difficult to interpret its significance, some evidence does suggest the element of dysexecutive syndrome in her response,

no identifiable cause, cortical dysfunction, extrapyramidal dysfunction and variable degrees of cognitive dysfunction).⁵ Other differential diagnosis such as parkinsonian dementia, reactional psychiatric disease due to parkinson’s disease, dementia of Lewy body and progressive supranuclear palsy were considered but excluded in view of intact gaze, failure to respond to levodopa, no visual hallucination and no consciousness fluctuation.

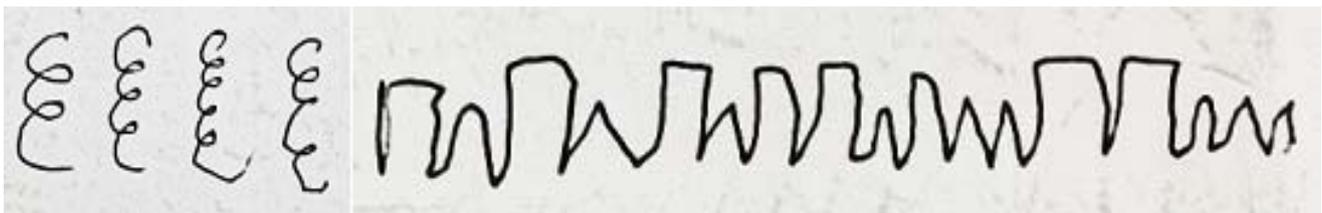


Fig. 3. Patient was perseverative on both multiple loop and m’s and n’s alternating programme drawing tests.

which is consistent with neuropsychological profile seen in parkinsonism diseases.⁷ The above findings suggest a potential link between frontal executive function and Ganser episode in an organic brain condition. Basal ganglia, an important neuroanatomical structure that participates in the frontal-subcortical network pathway, was shown to produce wide range of neuropsychiatric presentations when lesioned.⁸ From our knowledge, this is the first case to describe Ganser symptoms in parkinsonian disorder. This case raises an important question with regards to the role of basal ganglia in producing Ganser episode and provides an important insight of frontal-subcortical executive dysfunction in terms of brain behaviour correlation in Ganser, echoing previous reports of functional abnormality seen in FDG-PET scan in Ganser symptoms involving frontal, temporal lobe and caudate nucleus.^{4,6} Apart from frontal and temporal lobe, previous lesioned brain case reports also suggested involvement of parietal lobe and bipallidal structures in producing Ganser syndrome.⁹⁻¹² The exact mechanisms of cortical involvement in Ganser syndrome are still unknown, cerebral repression in a large cerebral network inducing functional hypoactivation was postulated in the previous study.⁶

Conclusion

In summary, this case illustrates neuropsychological characteristic seen in a corticobasal syndrome and highlights the pattern of Chinese verbal response encountered. Future study should look further into the role of basal ganglia and frontal executive function to better define brain behaviour correlation of Ganser symptoms.

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