

## **Brain pathology some times results in unexpected clinical disorders**

There are some unusual brain syndromes rarely reported in the neurological or neuropsychological literature. This paper presents a review of four of these unusual clinical syndromes.

### *Somatoparaphrenia*

Somatoparaphrenia is a delusional belief in which a patient states that the limb, contralateral to a brain pathology, usually the left upper one, does not belong to him/her. Somatoparaphrenia is typically associated with lack of awareness of the motor defects, somatosensory disturbances, and lack of attention contralateral to the side of the brain pathology. This syndrome is not a fully comprehended disorder, and could be categorized as somewhere between neurology and psychiatry.

The most typical lesion pattern in this unusual syndrome involves a fronto-temporo-parietal network typically associated with lack of attention contralateral to the side of the brain pathology –known as spatial neglect-, motor deficits, and lack of awareness of the abnormal condition, so-called anosognosia.

### *Akinetopsia*

Akinetopsia is an unusual cortical syndrome in which patients lose the ability to perceive visual motion following a lesion in secondary visual areas. This disorder was initially described by in a patient who presented an inability to discriminate objects in motion, but her ability to perceive static forms and colors was intact. Interestingly, perception of auditory motion was relatively normal.

In addition to focal lesions, akinetopsia has been observed in different conditions, such as posterior cortical atrophy, associated with the antidepressant nefazodone, and as a paroxysmal epileptic phenomenon. Akinetopsia, in patients after lesions such as strokes, usually do not persist, probably because diverse cortical areas participate in human perception.

### *Reduplicative Paramnesia*

Reduplicative paramnesia is characterized by the belief that a familiar place, person, object or body part has been duplicated. Most reported cases refer to duplication of places; that is, the hospital, the city, the patient's house, or other geographical points are duplicated. Reduplicative paramnesia is very specially associated with right hemisphere or bilateral lesions.

There is a whole group of disorders known as “delusional misidentification syndromes,” where patients think that a particular familiar person is someone else or a certain familiar place is a duplicate. Delusional misidentification syndromes are found in various psychotic and organic brain diseases.

### *Autotopagnosia*

Autotopagnosia, initially described during the early 20<sup>th</sup> century and is usually defined as the disturbance of body schema involving the loss of ability to localize, recognize, or identify the specific parts of one's body. Patients are able to point to parts of objects, plants and animals on command; however, they face difficulty when asked to locate their body parts in relation to the whole body. Patients' difficulties seem to be body specific; trouble at localizing single parts of objects, suggesting a disturbance in the conceptual representation of individual body parts. Patients can also have difficulty codifying/ identifying the position of body parts relative to each other and fail to update the position of body parts after passive movements. Interesting to note, autotopagnosia is ameliorated by looking at the image reflected in a mirror.

Autotopagnosia is usually associated with left posterior parietal lesions. Autotopagnosia has also been reported in Alzheimer's disease. Using functional magnetic resonance imaging to identify the neural mechanisms underlying the body structural description, it has been suggested that damage in the left posterior intraparietal sulcus may underlie autotopagnosia.

The analysis of unusual syndromes can significantly contribute not only to having more precise clinical diagnoses, but also to advancing our understanding of the brain organization of cognition in normal and abnormal conditions.

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## **Publication**

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