

Original paper

Can we lose our perspective? Thinking from the viewpoint of Merleau-Ponty

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Abstract

The purpose of this study was to clarify the relationship between movement and space perception. To achieve this, I will illustrate a case of unilateral spatial neglect, one of the sequelae of a cerebrovascular accident. I describe the characteristic features of left-sided neglect after such a cerebrovascular accident, based on my clinical experience. Neglect of the left side of the body is one after-effect of a cerebrovascular accident. Although the left field of view is not lost, the eyes or face cannot be directed toward the left side of the body. The cause is thought to be a change in the cognitive function due to the damage to the brain. However, I would like to demonstrate that a change in the motor function might affect the cognitive function by illustrating some examples. For instance, we can easily perceive that our field of view is not always the same size and form as those of a picture frame. The field of view of a person lying down might be changed if we bend his arm or leg. His field of view might show bilateral asymmetry.

In addition to exploring neurological views of unilateral spatial neglect, I would like to refer to how Merleau-Ponty described and carried out his inquiry into such phenomena, as he showed various functions of the body through describing various phenomena in our daily lives.

Key words: unilateral spatial neglect, perspective, visual field, existentially connecting, motor and cognitive function

Introduction

In this study, I elucidate the experience of illness from a phenomenological point of view and outline the phenomenology of physiotherapy for and about those who have been ill. I specifically aim to examine the relationship between movement and perception (or sense), and, to this end, I describe the characteristic features of left-sided neglect after a cerebrovascular accident, based on my clinical experience. Neglect of the left side of the body is one after-effect of a cerebrovascular accident. Although the left field of view is not lost, the eyes or face cannot be directed toward the left side of the body.

Patients with unilateral neglect have damage to one of the parietal lobes (the right one especially). The parietal lobes are involved in discerning the spatial layout of the external world, allowing us to

navigate through space, reach out to objects, dodge obstacles, and otherwise know where we are. The temporal lobes, on the other hand, are concerned with recognizing and naming individual objects, and responding to them with appropriate emotions.

Please note that, as I alluded to earlier, patients are not blind on the left side; they simply do not pay attention to what is on their left side. That is why we call it neglect. With this in mind, here we will examine the world these patients perceive. Also, I will refer to how Merleau-Ponty, who was a philosopher, described and carried out his inquiry into the phenomena of spatial neglect, as he revealed various functions of the body by describing various phenomena in our daily lives.

2. Neglect is not blindness

When patients first walk into the physiotherapy room, I conduct a series of simple clinical tests to confirm the diagnosis of unilateral spatial neglect. First, I show them a horizontal line drawn on a sheet of paper and ask them to bisect it with a vertical mark. Patients with one-sided neglect will take the pen, and confidently place a mark on the far right of the line because, for them, only the right half of the line exists, and they are presumably marking the center of the half that they see.

Next, I ask them to sit on a chair facing me and to look at my nose. I then take a pen, hold it up to their right ear, and begin to move it slowly, in a sweeping arc, all the way to their left ear. I ask them to follow the pen with their eyes, and they can do this without problem until I reach their nose. At this point, their eyes can't stop and will begin to wander off, and soon they are looking at me, having "lost sight of" the pen near their nose. Paradoxically, people with left visual field blindness will not display this behavior; if anything, they will try to move their eyes ahead of the pen in an effort to compensate for their blindness.

People with visual neglect would completely ignore their own child if the child were to stand on their left side and do nothing. However, if he or she were to jump up and down and wave their arms, they would sometimes turn around and look. So, neglect is not blindness, but rather a general indifference to objects and events on, mainly, the left side of the body.

3. Why does neglect occur primarily after injury to the right parietal lobe?

For patients with difficulty in directing their visions or faces to the left to confirm safety on this side even instructed by therapists to do so, Rossetti devised a new treatment method.

Rossetti et al. (1998) were the first to use prism glasses for the treatment of unilateral spatial neglect. Prism glasses make the visual scene shift 10 degrees to the right. Rossetti et al. (1998) described the effects of the prism glasses as follows. (Rossetti et al., 1998, p. 166-169)

While the patient is wearing prism glasses that make the visual scene shift 10 degrees to the right, he reach out to objects 50 times (Figs. 1, 2). In that state even if he stretches out a hand toward the object where the patient is not acclimated to be able to grasp an object, the patient does not grasp it well. This is because he

extends his hand 10 degrees to the right of the object. But although patients remove the prism glasses, patients will adapt to be able to grasp the object. they show improved unilateral spatial neglect for two hours.

People who cannot direct their attention and interest or their eyes and face to their left side exhibit indications characteristic of a perceptual disregard for the left side. In short, they disregard both movement and awareness on their left side. The foundation of space attention is sense input and perception or a plan of movement and motion.

When the patient cannot properly move the space of attention while performing an act or behavior, he is not able to handle things in space or direction on the left side as the attention of the target. As mentioned in the book *Spatial Neglect* (2009, p. 182) attention and consciousness are two sides of the same coin. In patients who are not able to pay appropriate attention to the left, there is no insight into disease in the true sense of the word. Even if they understand what "neglecting the left space" means verbally. Even if the patient



Fig. 1 Visual field with prism glasses (Maeda S., 2010)

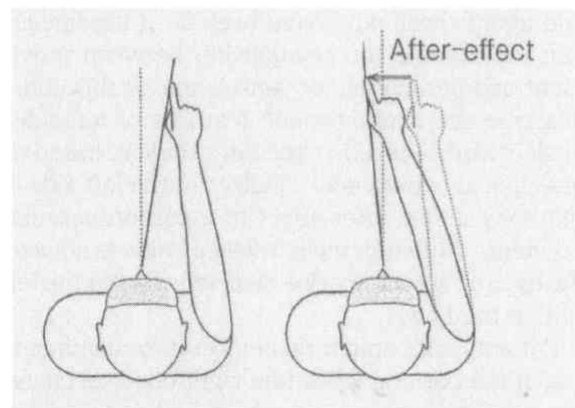


Fig. 2 Pointing straight ahead (Ishiai S., 2009)

is getting ready to move the space of attention to the left side of the space as well as the right-hand side of the space, he can't move space attention. The patient does not show improved the unilateral spatial neglect as a problem of space attention.

However, "attention" is a loaded word, and we know even less about it than we do about unilateral spatial neglect. Therefore, the statement that unilateral spatial neglect arises from a "failure to pay attention" tells us very little unless we have a clear notion of what the underlying neural mechanisms might be.

We still must explain why neglect occurs primarily after injury to the right parietal lobe and not to the left. Why does this asymmetry occur? Even though the answer continues to elude us, Marcel Mesulam of Harvard University has proposed an ingenious theory. We know that the left hemisphere is specialized for many aspects of language, and the right hemisphere is for emotion and "global" or holistic aspects of sensory processing. However Mesulam suggests another fundamental difference: Given its role in holistic aspects of vision, the right hemisphere has a broad "searchlight" of attention encompassing the entire left and right visual fields. The left hemisphere, on the other hand, has a much smaller searchlight that is confined entirely to the right side of the world (perhaps because it is so busy with other things, such as language). Due to this rather odd arrangement, with damage to the left hemisphere, its searchlight is lost, but the right hemisphere can compensate because it casts a searchlight on the entire world. However, with right hemisphere damage, the global searchlight has gone and the left hemisphere cannot fully compensate because its searchlight is confined to the right side only. This theory would explain why unilateral spatial neglect is seen mainly in patients with damage to the right hemisphere.

4. "Symbolic function", or "representative function", underlies our movements

Unilateral spatial neglect is a fairly common condition, and beyond its immediate relevance to patients' ability for self-care, it has marked implications for understanding how the brain creates its spatial representation of the world, how it deals with left and right, and how we are able to pay attention to different parts of the visual scene.

For example, when I ask patients to draw a clock, they will draw a full circle instead of a half

circle. As mentioned in the book *Phantoms in the Brain* (1998, p. 121), "this fairly common response occurs because circle drawing is a highly over-learned motor response and the cerebrovascular accident, or stroke, did not compromise it". However, when I later ask them to fill in the clock's numbers, they will stop, stare hard at the circle, and then proceed to write the numbers 1 to 12 confined entirely to the right side of the circle (Fig. 3).

Many neglect patients will also draw only half a flower when drawing from memory, even with their eyes closed. This suggests that they have also lost the ability to "scan" the left side of their internal mental picture of a flower (Fig. 4).

Patients with left-sided neglect cannot find entrances that are located on their left side. For example, they will not be able to find the entrance to the bathroom on their left side unless they continue to rotate their body until it becomes visible on their right side.

I do not deny that unilateral spatial neglect, which interferes with activities of daily living, could result from functional changes following cerebral injury. However, unilateral spatial neglect might also arise from changes in motor function, including postural and eyeball movements. Attention and image interpretation, which are thought to be cerebral functions, change with posture. For example, when our eyes look to the right while walking forward, we might start walking to the right before we know it.

Once patients turn their head and eyes to the right, they will have difficulty turning their eyes away from an object they are focusing on. They will also have trouble turning to face the front or to the left. Generally, this is a strong tendency seen in individuals with severe motor palsy.

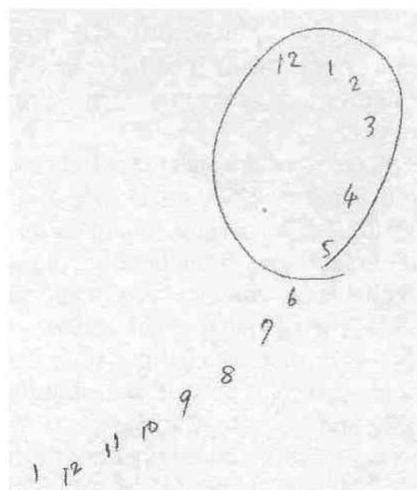


Fig. 3 Drawing by a neglect patient (Maeda S., 2010)



Fig.4 Drawing by a neglect patient. Notice that half of the flower is missing (V. S. Ramachandran and S. Blakeslee, 1998)

Although patients still have a left field of view, they cannot direct their eyes or face toward their left side. Those with severe motor palsy cannot autonomously change the direction of their face or look around. Although “symbolic function”, or “representative function”, underlies our movements, it is not the final term of analysis. This function also rests on certain groundwork.

To further examine these points, let us now move to considering how changes in motor function influence perceptual function.

5. Unilateral spatial neglect might also arise from changes in motor function

Our perspective on size and form varies as our posture changes. Moreover, eye movement changes according to our posture. Added to this, the direction of our gaze affects the direction in which we walk.

For instance, we can easily experience that our perspective is not as static as the size and form of a picture frame. The perspective of patients lying down might change with the bending of the elbow joint or knee joint. In fact, the scope and perspective of their visual field might become bilaterally asymmetrical (Figs.5, 6). Let us consider an example: if you are standing with your trunk and face to the front but you are looking to your right, you might find it difficult to walk straight ahead in that posture. This is an interesting phenomenon: You will be unaware

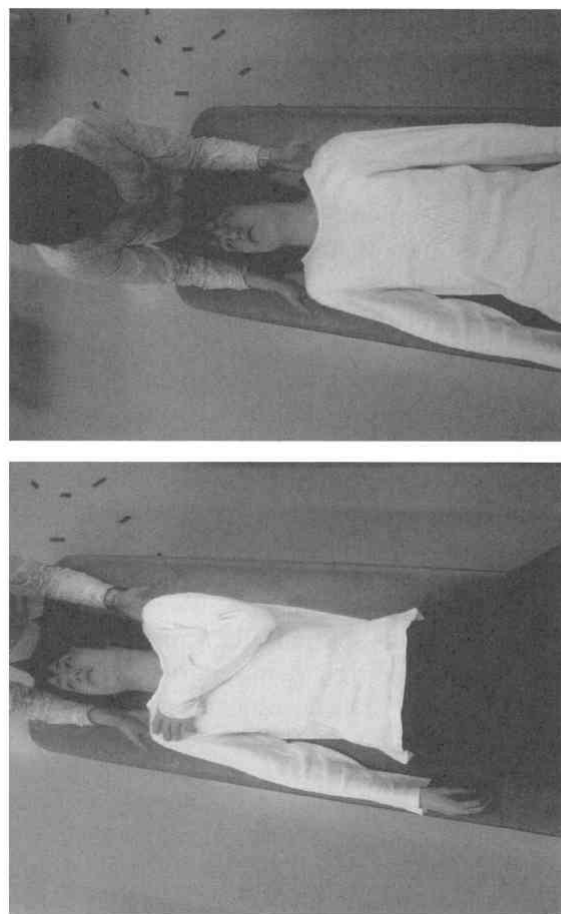


Fig.5, 6 Our perspective is not as static as the size and form of a picture frame

that you are walking in a clockwise direction. Basically, you walk in the same direction that you are looking.

This phenomenon is hard to notice while you are walking. However, when turning a corner to the right, not only do your trunk and legs turn to the right, but so do your face and eye gaze. Moreover, your face and eye gaze aim at the direction of movement a few moments earlier than your trunk and legs do. So, when turning slowly as if drawing a big arc, the face and eye gaze likewise turn slowly in the same arc; when you turn quickly, your face and eye gaze turn quickly. So, when you turn a corner slowly, you move your face and eye gaze slowly; when you turn quickly, your face and eye gaze move quickly. Conversely, where the face and eye gaze are turned determines where the body turns.

6. The gaze point of view itself brings about the perspective

As Merleau-Ponty writes in *Phenomenology of Perception* (1945/1999, p.304), “The system of

experience is not arrayed before me as if I were God, it is lived by me from a certain point of view; I am not the spectator, I am involved, and it is my involvement in a point of view which makes possible both the finiteness of my perception and its opening out upon the complete world as a horizon of every perception."

The gaze point of view itself brings about the perspective; the movement of the eyes allows us to grasp how high the wall is, where the objects in the corridor are located, and above all, what the curve and angle are of the corner we have to navigate.

In this sense, Merleau-Ponty states we are living with a certain point of view; we are not spectators, we are involved, and it is our involvement in a point of view which makes possible both the finiteness of our perception and its expansion upon the complete world as a horizon of every perception. He continues:

In principle all my changes of place figure in a corner of my landscape; they are recorded on the map of visible. Everything I see is in principle within my reach, at least within reach of my sight, and is marked upon the map of the "I can." Each of the two maps is complete. The visible world of my motor projects are each total parts of the same thing.

This extraordinary overlapping, which we never think about sufficiently, forbids us to conceive of vision as an operation of thought that would set up before the mind a picture or a representation of the world, a world of immanence of ideality.

Immersed in the visible by this body, itself visible, the see-er does not appropriate what he sees. (*The Primacy of Perception*, 1964/1992, p. 162)

Merleau-Ponty holds that our body is the fabric into which all objects are woven, and it is, at least in relation to the perceived world, the general instrument of our "comprehension".

7. Conclusion

We cannot be certain whether patients can discern the movement of their eyes in their visual field or not. However, patients who cannot move their face or eyes after existentially connecting with an object and events on their right side would likely have difficulty developing their visual field. We must explore this further.

In *Phenomenology of Perception* (1945/1999),

Merleau-Ponty describes the relationship between movement and consciousness as follows:

If I draw the object closer to me or turn it round in my fingers in order 'to see it better', this is because each attitude of my body is for me, immediately, the power of achieving a certain spectacle, and because each spectacle is what it is for me in a certain kinaesthetic situation. In other words, because my body is permanently stationed before things in order to perceive them and, conversely, appearances are always enveloped for me in a certain bodily attitude. (p. 303)

So, imagine you are standing up from a living room chair and walking to a kitchen cupboard to pick up a plate. The spatial relationships between the parts of your body might adjust before you know it, so that the plate that you want to pick up might become the center of your visual field. Supported by the adjustments of your body movements, your field of view might expand. Merleau-Ponty describes such a situation as follows:

And just as perceptual attitudes are not known to me singly, but implicitly given as stages in the act which leads to the optimum attitude, correspondingly, the correlative perspectives are not posited before me successively, but present themselves only as so many steps towards the thing itself with its size and shape. (*Phenomenology of Perception*, 1945/1999, p. 303)

Although the visual scene changes as I walk along a corridor, the emergency light at the end of the corridor is always in the middle of my view. We say that walking in such a state is walking straight. Moreover, when I move about my house, I know without thinking about it that walking towards the kitchen means passing near the bathroom, and that when looking out of the window, the bookshelf is on my left.

As for these points, Merleau-Ponty writes, "Bodily space can really become a fragment of objective space only if within its individuality as bodily space it contains the dialectical ferment to transform it into universal space" (*Phenomenology of Perception*, 1945/1999, p. 102) and "My mobile body makes a difference in the visible world, being a part of it; that is why I can steer it through the visible" (*The Primacy of Perception*, 1964/1992, p. 162).

However, because patients who cannot move their face or eyes after existentially connecting

with an object or events with their right hand will have difficulty expanding their visual field, it might also be difficult for patients who have left-side neglect to discern space on their right side. This is because impairment on the left side will adversely affect its counter direction to the right side. Ishiai S. describes such a situation as follows :

Right or left in any framework or so on the right compared to the left or to the left than to the right, the right or left is often relative.(Spatial Neglect, 2009, p. 183)

Even if patients who fail to notice the directivity of right and left move their head and gaze in all directions, they will not be able to find the pause in the right side of space, referred to as the "right end". It is possible that the right-side space spreads out and continues without end. Thus, searching for the edge of a space with no end might cause them to keep their face and eye gaze turned to their right side. We must deliberate on

the world they perceive by thinking about their life with all we have said above in mind.

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