

Medicine and art

The art of visual neglect

Peter W Halligan, John C Marshall

To draw, paint, and sculpt in a "realistic" style requires the integration of a wide range of complex visuospatial and visuomotor skills, to say nothing of whatever more purely aesthetic capacities the artist must possess. These technical skills reflect the cooperation of several highly specialised areas of the brain. The anterior left hemisphere cortex is implicated in the planning of limb and eye movements. The occipital and temporal cortex is concerned with the perception of form and depth. Parietal areas of the right hemisphere are particularly involved in the perception of space and the control of movement in space. Damage to any of these areas would compromise most kinds of graphic endeavour.

One of the most common and disruptive impairments of visuospatial processes is unilateral neglect. The condition, found in over 80% of patients with acute right hemisphere stroke, is characterised by failure to attend or respond to objects in left space and is associated with poor functional recovery. The impairment is found in free vision and can occur in patients without visual field deficits.¹

Although the number of relevant studies is small, it is known that a life-long devotion to the production of graphic art provides little or no protection against the abrupt curtailment of the ability to attend to objects in left space, or to the left side of objects throughout the visual field. For example, Schnider and colleagues² describe a Swiss artist who experienced visual illusions and hallucinations during the first few days after right hemisphere stroke. Subsequently, his drawings and

paintings showed fluctuating left visual neglect and loss of depth. A French painter, after his stroke, continued to produce elegant line drawings, but characterised by neglect of the left of the sheet and some neglect of the left

side of figures across the picture space.³ Otto Dix (1891–1969), Lovis Corinth (1858–1925), and Anton Räderscheidt (1892–1970) all had right hemisphere strokes. In a drawing that Dix made 4 days after his stroke, there was a clear neglect, but his later drawings and lithographs, though freer than before, showed no impairment. Räderscheidt and Corinth made slower recoveries, which can be traced through their work completed after stroke.⁴ There is also one report of right neglect after left hemisphere neoplasm in a right-handed painter.⁵

We here describe the case of a well-known English artist whose left neglect after stroke initially impaired both his drawing and his painting, as reported in previous studies. We also show how neglect can affect the ability to sculpt.

Clinical presentation

This 75-year-old painter and sculptor had a right hemisphere stroke in August, 1989. The symptoms included a mild sensory-motor weakness of the left leg and arm, left lower quadrantanopsia, and left visual neglect. 8 years before the stroke, he lost the use of his right (dominant) hand in a

farming accident. Despite the loss of his right hand, he transferred his artistic skills to his left hand and continued to exhibit and sell his paintings and sculptures in many galleries throughout the world.

In the 6 months after his stroke, the patient became increasingly frustrated with his sculptures and drawings, despite good physical recovery of the capacities of his left hand. His family noted that his drawings were poorly constructed and less elaborate than the work he did before his stroke. They also observed that he concentrated



Figure 1: Sculpture done before (top) and after (bottom) the artist's stroke

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Neuropsychology Unit, University Department of Clinical Neurology, Radcliffe Infirmary, Woodstock Road, Oxford OX2 6HE, UK

(P W Halligan PhD, J C Marshall PhD)

Correspondence to: Dr P W Halligan



Figure 2: Drawing made after the artist's stroke

on the right side of his drawings and sculptures. In addition to this neglect of the left, some of his sculptures and drawings showed distorted, exaggerated, or deformed figures. Neuropsychological examination, in May, 1990, showed no evidence of aphasia, apraxia, anosognosia, or significant memory loss. On the behavioural inattention test,⁶ he scored 125/146, indicative of visuospatial neglect. On the star cancellation test,⁶ he missed seven stars, all located on the left side of the page. On line bisection (279 mm lines × ten trials) his mean score of +10 mm (SD 12.5) was outside normal limits.⁷ Neglect was also obvious in everyday life, in which he would occasionally ignore people or objects on his left side and not eat food on the left side of the plate.

The art

The top part of figure 1 shows the high degree of artistic skill that the artist acquired with his left non-dominant hand before the stroke. By contrast, the clay sculpture (figure, bottom) done 3–4 months after his stroke is clumsily modelled and poorly proportioned. More

pertinently (and despite a full range of head and eye movements), he was unable to bring the left side of the face to even the minimum degree of completion that he had achieved on the right. In this model of a woman's head, one can make out the nose, mouth, and right side of the face, including hair and right eye. The left side, however, is distorted and incomplete, even though the sculpture was made on a turntable. The artist could (and did) turn both the sculpture and himself around it but could no longer integrate multiple views into the coherent three-dimensional wholes that he had so successfully created before his stroke.

In the drawing made after the stroke (figure 2), most of the face and upper torso on the left is missing, whereas the ear and part of the lower arm on that side of the picture are included. The chair's back (on the left) is omitted, as is the left side of the man's shoes and ankles. The drawing exhibits both space-based and object-based neglect⁸ and is remarkably vibrant in its mix of detail and suggestion. Although the obvious impairments cleared up within a year, residual traces of neglect were still discernible in much of the artist's subsequent drawing and painting until his death in August, 1994.

In most cases so far studied (including our own), the artists seem eventually to have integrated their neglect into the overall structure of their pictures. Their later works are thus sketchy, but not obviously the product of brain damage. By contrast, in sculpture our artist never regained his former fluency and he continued to feel thwarted by his incapacity to make the medium obey his will.

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